

## Federal Home Loan Bank of Des Moines Monthly Price Report

The Federal Home Loan Bank of Des Moines (Bank) is providing estimated valuations for specific Convertible, Amortizing and Non-Amortizing advances set forth below for members' information and convenience only. The estimated valuations are generated by models used for the Bank's own asset/liability management purposes. The models use specific assumptions, for example, market volatility and discount curve adjusted for the Bank's spread, to estimate the value of the advance. **The valuations represent theoretical market prices only and should not be construed as a liquidation price for the specific advance.**

It is expressly understood that in providing these valuations to members, the Bank is not performing any advisory service. The valuations are provided without representation or warranty and the member is solely responsible for any decision it makes or actions it takes based on the valuations provided. It is recommended that members maintain independent capabilities to value their asset/liability positions, including Convertible, Amortizing and Non-Amortizing advances. You should consult with your own tax, legal, accounting, credit and financial advisors with respect to the transaction structure and information detailed herein.

The table depicts valuation estimates resulting from immediate parallel interest-rate movements of plus/minus 400 basis points in 100 basis point increments. To identify your advance, locate the appropriate maturity date and verify the advance rate. The advances in report are grouped by advance type and then within each type sorted in ascending order by maturity date. Once the appropriate structure is located, read across to view the sensitivity analysis for that advance.

If you have any questions, contact the Money Desk at 800.544.3452, ext. 2122.

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
050812A00050	8/12/2005	4.97	8/12/2025		102.23719	101.6731134	101.1196359	100.5764439	100.0432331	99.51971084	99.0055962	98.50061895	98.00451922
050823A00085	8/23/2005	4.78	8/25/2025		102.28584	101.7026452	101.1308135	100.5699976	100.0198603	99.48007817	98.95034069	98.43034986	97.9198194
050823A00088	8/23/2005	4.78	8/25/2025		102.28584	101.7026452	101.1308135	100.5699976	100.0198603	99.48007817	98.95034069	98.43034986	97.9198194
050902A00032	9/2/2005	4.69	8/22/2025		104.15222	103.0782027	102.0264282	100.9962128	99.98689719	98.99784898	98.02846097	97.07815004	96.14635596
050923A00096	9/23/2005	4.86	9/22/2025		104.74122	103.5787945	102.4423004	101.3308771	100.2437001	99.17998051	98.13896366	97.11992681	96.12217769
051003A00009	10/3/2005	5.15	10/15/2025		105.2387	104.0124964	102.8150542	101.6453702	100.5024849	99.38548264	98.29348909	97.22566897	96.18122387
051107A00075	11/7/2005	5.29	11/17/2025		106.05984	104.7393248	103.4457594	102.1783231	100.9362301	99.71872659	98.52508875	97.35462149	96.20665686
060308A00014	3/8/2006	5.44	3/16/2026		107.86906	106.2103328	104.5855129	102.9936233	101.4337262	99.90491921	98.40633384	96.93713384	95.49651366
060808A00022	8/8/2006	5.57	6/15/2026		109.51689	107.5913624	105.7097604	103.8708201	102.0733229	100.3160928	98.59799486	96.91793323	95.27484966
070518A00023	5/18/2007	5.46	5/18/2027		109.09339	107.2105991	105.3769771	103.5908751	101.8507135	100.1549762	98.50220855	96.89101339	95.32004901
091112A00011	11/12/2009	4.77	11/15/2024		101.05656	100.7597646	100.4647319	100.1714426	99.87988126	99.5900324	99.30188085	99.0154116	98.73060983
091210A00005	12/10/2009	5.08	12/16/2024		101.4525	101.0702741	100.6909404	100.3144695	99.94082898	99.56998675	99.20191133	98.83657171	98.4739373
100809A00029	8/9/2010	4.23	8/15/2025		103.44614	102.3972097	101.3696193	100.3627198	99.37588977	98.40853254	97.46007487	96.52996588	95.6176759
100824A00009	8/24/2010	3.91	9/2/2025		103.29005	102.1930748	101.1194395	100.0684053	99.03926359	98.03133482	97.04396743	96.07653631	95.12844146
100930A00008	9/30/2010	3.82	9/30/2025		103.47093	102.2967543	101.14927	100.0275719	98.93079714	97.85812127	96.80875572	95.78194601	94.77696994
110414A00007	4/14/2011	3.95	1/21/2025		101.45782	100.9211976	100.3901516	99.86459838	99.34445246	98.82963018	98.32004961	97.81563048	97.3162942
110505A00022	5/5/2011	4.59	5/15/2026		107.26426	105.4454627	103.6666063	101.9265154	100.2240612	98.55815753	96.92775877	95.33185787	93.76948467
110701A00011	7/1/2011	3.87	7/1/2026		103.2726	102.2149164	101.1777793	100.1606116	99.16285443	98.18396978	97.22343937	96.28076377	95.35546157
110719A00017	7/19/2011	3.68	7/20/2026		103.07732	102.0196361	100.9825547	99.96549569	98.96789729	97.98921857	97.02893853	96.0865552	95.16158473
110805A00014	8/5/2011	4.06	8/17/2026		107.39592	105.3197164	103.2946016	101.3189835	99.3913321	97.51017565	95.67409836	93.88173771	92.13178201
110824A00006	8/24/2011	2.69	8/24/2026		102.39375	101.2992553	100.2300334	99.18528788	98.16425463	97.16619955	96.19041738	95.2362302	94.30298619
110909A00006	9/9/2011	2.26	9/9/2026		101.74436	100.6188114	99.51613872	98.43568112	97.37680035	96.33888226	95.32133561	94.32359098	93.3450998
111006A00023	10/6/2011	3.81	10/15/2026		107.53117	105.2910444	103.1090511	100.9832593	98.91181783	96.8929522	94.92496082	93.00621119	91.13513656
111007A00007	10/7/2011	3.92	10/7/2031		120.67242	114.4500107	108.639008	103.2089473	98.13181115	93.38182004	88.93524045	84.77021083	80.86658316
111216A00001	12/16/2011	3.95	12/30/2031		126.83349	118.8168159	111.3812854	104.4814101	98.07549425	92.12529829	86.5957356	81.45459757	76.67230385
120113A00012	1/13/2012	3.62	1/15/2027		108.05821	105.5614107	103.1357734	100.7788601	98.48833449	96.26195425	94.09756623	91.99310256	89.94657663
120113A00013	1/13/2012	3.87	1/15/2032		126.35909	118.3161751	110.8598154	103.943836	97.5259316	91.5673237	86.03244928	80.88867893	76.10606067
120127A00018	1/27/2012	3.64	2/1/2027		108.28216	105.736581	103.2648126	100.8642802	98.53251848	96.26716325	94.0659462	91.92669054	89.84730667
120127A00019	1/27/2012	3.87	1/30/2032		126.47259	118.3847591	110.8896667	103.9404136	97.49405393	91.51124006	85.9559039	80.79496746	75.99808052
120410A00005	4/10/2012	2.35	4/12/2027		103.43116	101.6740885	99.96164284	98.29230005	96.66460597	95.07716836	93.52865367	92.017784	90.54333427
120411A00013	4/11/2012	3.59	4/15/2027		108.93945	106.1779654	103.5012254	100.9060812	98.38952215	95.94867103	93.58077704	91.28320922	89.05345026
120621A00009	6/21/2012	3.18	6/21/2032		116.48016	110.4173467	104.7682713	99.5009052	94.58591509	89.99642421	85.70779211	81.69741546	77.94454755
120709A00016	7/9/2012	3.2	7/15/2027		108.71086	105.7034189	102.7958135	99.98418793	97.26485306	94.63428257	92.08910489	89.62609543	87.24216932

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
120806A00015	8/6/2012	2.38	8/6/2027		102.99551	101.3967143	99.83887549	98.3206156	96.84061074	95.39759156	93.99034058	92.61768964	91.27851753
120807A00026	8/7/2012	2.42	8/9/2027		103.06081	101.4609269	99.90203026	98.38274167	96.90173619	95.45774345	94.049545	92.67597173	91.33590155
120808A00006	8/8/2012	2.06	8/9/2027		102.68569	101.0885083	99.5323219	98.01574431	96.53744835	95.09616164	93.69066385	92.31978419	90.98239901
120827A00048	8/27/2012	2.01	8/27/2027		102.68555	101.103787	99.56734796	98.07457734	96.62389004	95.21377028	93.84276803	92.50949567	91.21262482
120827A00052	8/27/2012	2.01	8/27/2027		102.68555	101.103787	99.56734796	98.07457734	96.62389004	95.21377028	93.84276803	92.50949567	91.21262482
121116A00006	11/16/2012	2.64	11/13/2025		102.39252	101.1096429	99.85414631	98.62515366	97.42182707	96.24336414	95.08899609	93.95798593	92.84962685
121116A00021	11/16/2012	2.35	11/17/2025		102.21276	100.9187027	99.65113423	98.40925284	97.19228521	95.99948937	94.83015302	93.68359205	92.55914915
121116A00022	11/16/2012	2.78	11/16/2029		114.80492	109.2920476	104.0802358	99.15143783	94.48878736	90.07651097	85.89985148	81.9449972	78.19901636
121120A00010	11/20/2012	1.93	11/22/2027		103.02175	101.1771357	99.38572068	97.64554488	95.95473181	94.31148701	92.71409385	91.16090962	89.65036189
121120A00011	11/20/2012	2.22	11/22/2027		105.65675	102.9034534	100.2460665	97.68064871	95.20344026	92.8108565	90.49947902	88.26604693	86.10744869
121217A00009	12/17/2012	2.02	12/17/2027		103.34364	101.41114	99.53538138	97.71424904	95.94571846	94.227854	92.5588044	90.9367986	89.36014173
130107A00002	1/7/2013	3.22	1/18/2028		110.50775	106.9602827	103.5472524	100.2628443	97.10152516	94.05803006	91.12734789	88.30470775	85.58556597
130206A00004	2/6/2013	2.14	2/7/2028		103.41164	101.5718924	99.78680223	98.05429557	96.37239409	94.73920861	93.15293444	91.61184698	90.11429758
130206A00009	2/6/2013	2.83	2/7/2028		107.60025	104.6260662	101.7607286	98.99953409	96.33801246	93.77191387	91.29719652	88.91001511	86.60671002
130207A00012	2/7/2013	2.9	2/7/2033		111.89532	107.0995418	102.5959764	98.36348193	94.38262269	90.63552342	87.10573269	83.77809917	80.63865956
130211A00017	2/11/2013	3.27	2/15/2028		110.95725	107.3230768	103.829155	100.4692987	97.23763064	94.12856471	91.13678984	88.25725477	85.48515383
130405A00006	4/5/2013	2.41	4/7/2025		100.97181	100.2853412	99.60819839	98.94018973	98.28113118	97.63084362	96.98915267	96.35588856	95.73088597
130405A00007	4/5/2013	2.91	4/17/2028		110.72505	106.9088813	103.2460353	99.72946818	96.35250122	93.10880251	89.99236648	86.99749489	84.11877902
130424A00004	4/24/2013	2.46	4/24/2025		101.09071	100.3577782	99.63545734	98.92352027	98.22174414	97.52991247	96.84781487	96.17524687	95.51200969
130424A00005	4/24/2013	3.07	4/24/2030		117.48466	111.4521803	105.7720898	100.4218525	95.38049849	90.62850492	86.14768775	81.92110269	77.93295382
130531A00021	5/31/2013	3.22	5/30/2028		112.30622	108.3413429	104.5398367	100.8941283	97.3970316	94.04172896	90.82175021	87.73095317	84.76350536
130821A00019	8/21/2013	3.81	8/29/2025		103.28173	102.1935879	101.1284073	100.0854646	99.06406812	98.06355477	97.0832883	96.12265815	95.18107806
130904A00039	9/4/2013	4.19	9/15/2028		117.39602	113.0262861	108.8474519	104.8501038	101.025345	97.36476606	93.86041506	90.50477009	87.29071341
130913A00018	9/13/2013	3.72	9/13/2028		107.40304	105.146539	102.9684982	100.865518	98.8343732	96.87200166	94.97549441	93.14208714	91.36915191
130925A00035	9/25/2013	1.53	6/25/2025		100.62066	99.67534749	98.74764731	97.83707069	96.94314681	96.06542197	95.20345886	94.35683579	93.52514601
130926A00009	9/26/2013	4	10/2/2028		116.8092	112.4025766	108.1904294	104.1630696	100.3113501	96.62662994	93.10074347	89.72597113	86.49501241
131018A00006	10/18/2013	3.28	10/20/2025		103.2405	102.0054006	100.7945116	99.60712964	98.44257815	97.30020664	96.17938961	95.07952536	94.00003477
131217A00024	12/17/2013	4.34	1/2/2029		118.74383	114.0541865	109.5815578	105.3147307	101.2431341	97.35679462	93.64629962	90.10276299	86.71779284
140219A00005	2/19/2014	3.13	2/20/2029		107.07353	104.6282678	102.2684809	99.99046202	97.79068787	95.66581286	93.612659	91.62820629	89.7095838
140423A00036	4/23/2014	4.03	4/23/2029		118.5868	113.5814094	108.8215362	104.2937346	99.98537747	95.8845975	91.98023705	88.2618013	84.71941493
140521A00019	5/21/2014	3.43	5/22/2028		113.03594	109.079083	105.2843027	101.6440855	98.15131153	94.79922813	91.58142835	88.49183149	85.52466463
140626A00036	6/26/2014	3.55	6/26/2029		117.62493	112.4396109	107.518128	102.8456612	98.40829463	94.19296047	90.18738314	86.38002724	82.76004922
140717A00027	7/17/2014	3.14	7/17/2026		104.97679	103.0964034	101.2614253	99.47045037	97.72212734	96.01515644	94.34828717	92.72031598	91.13008413

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
140815A00032	8/15/2014	3.59	10/15/2029		118.0727	112.5895163	107.3993501	102.4849027	97.82999544	93.41948845	89.2392081	85.27587975	81.51706569
140821A00030	8/21/2014	2.27	8/21/2024		100.05423	99.99595967	99.93776819	99.87966028	99.82163575	99.76369442	99.70583609	99.64806057	99.59036768
140827A00038	8/27/2014	3.07	8/30/2024		100.13136	100.0482146	99.96521073	99.88234545	99.79961843	99.71702933	99.6345778	99.55226353	99.47008619
140911A00027	9/11/2014	3.18	9/16/2024		100.22559	100.0954926	99.96574808	99.83635458	99.70731063	99.57861477	99.45026556	99.32226155	99.19460132
140911A00033	9/11/2014	3.02	9/13/2027		105.89938	103.6592289	101.4912646	99.39262364	97.36057607	95.39251955	93.48597226	91.63856645	89.8480423
140917A00030	9/17/2014	3.23	9/17/2029		114.03763	109.4770507	105.1470261	101.0343289	97.12657574	93.41216435	89.88021996	86.52054513	83.32357352
140922A00026	9/22/2014	3.02	9/30/2024		100.29159	100.1225607	99.95409984	99.78620488	99.61887294	99.45210118	99.28588682	99.12022706	98.95511914
140924A00057	9/24/2014	3.25	9/25/2028		112.65538	108.6124545	104.7462714	101.0480093	97.50934643	94.12242487	90.8798218	87.77452257	84.79989559
141015A00029	10/15/2014	2.32	10/15/2024		100.32306	100.033334	99.74531668	99.4589883	99.17433386	98.89133852	98.60998764	98.33026674	98.05216149
141017A00022	10/17/2014	2.78	10/17/2024		100.43364	100.135742	99.83963072	99.54529013	99.25270424	98.96185728	98.67273365	98.38531795	98.09959497
141117A00011	11/17/2014	3.81	11/17/2034		133.57939	122.3557408	112.214417	103.043963	94.74498675	87.22879631	80.41619637	74.23642578	68.62621876
141208A00008	12/8/2014	3.02	12/16/2024		100.66521	100.2847974	99.90726756	99.53259059	99.16073412	98.79166626	98.42535558	98.06177115	97.70088248
141215A00062	12/15/2014	2.65	12/16/2024		100.57222	100.1914647	99.81360167	99.43860125	99.06643082	98.69705828	98.33045198	97.96658077	97.60541397
150203A00027	2/3/2015	2.26	2/4/2030		106.2085	103.2724241	100.4572816	97.75700756	95.1658872	92.67853288	90.28986296	87.99508232	85.78966433
150213A00014	2/13/2015	2.41	2/13/2025		100.41895	100.0889741	99.76166454	99.43698212	99.11489192	98.79535973	98.47835194	98.16383559	97.8517783
150219A00016	2/19/2015	2.68	2/19/2025		100.97129	100.3331004	99.70285982	99.08041833	98.46563163	97.85835898	97.25846308	96.66580998	96.08026895
150220A00022	2/20/2015	2.8	2/20/2025		100.91026	100.3496119	99.79519318	99.24689918	98.70462874	98.16828289	97.63776483	97.11297986	96.59383531
150224A00010	2/24/2015	2.34	2/24/2025		100.67204	100.0922721	99.51907862	98.95235101	98.39198043	97.83786047	97.28988708	96.74795851	96.21197523
150227A00011	2/27/2015	2.33	2/27/2025		100.82118	100.1963975	99.57957441	98.97056148	98.36920965	97.77537362	97.18891178	96.60968608	96.03756188
150311A00003	3/11/2015	2.72	3/31/2025		101.1842	100.455885	99.73820447	99.03092921	98.33383313	97.64669663	96.96930638	96.30145514	95.64294151
150317A00013	3/17/2015	2.58	3/17/2025		100.98216	100.3525477	99.7307864	99.11673112	98.51023903	97.91117079	97.31939046	96.73476543	96.15716627
150319A00012	3/19/2015	3.13	3/19/2029		114.01218	109.2116599	104.6438609	100.2962307	96.15696148	92.21494383	88.45972135	84.88144856	81.47085181
150319A00013	3/19/2015	3.25	3/19/2030		117.44687	111.5446387	105.9811437	100.735087	95.78662602	91.11726329	86.70974816	82.54798599	78.61695466
150320A00019	3/20/2015	2.25	3/20/2025		100.86409	100.1808957	99.50725224	98.84295672	98.18781342	97.54163211	96.90422779	96.27542058	95.6550355
150401A00008	4/1/2015	2.62	4/1/2025		100.99825	100.3290117	99.66862683	99.01691817	98.37371558	97.7388534	97.1121702	96.49350874	95.88271575
150410A00021	4/10/2015	2.27	4/10/2025		100.4364	100.0246031	99.61699585	99.21351231	98.81408349	98.41864196	98.02712189	97.63945898	97.25559037
150414A00037	4/14/2015	2.34	4/14/2025		100.4674	100.0542678	99.64536646	99.24062243	98.83996572	98.44332793	98.05064227	97.66184352	97.27686796
150422A00019	4/22/2015	2.62	4/22/2025		101.08968	100.3635823	99.6479004	98.94241474	98.24690837	97.56117054	96.88499636	96.21818668	95.56054783
150427A00014	4/27/2015	2.98	4/27/2035		114.87734	108.9365532	103.4277227	98.31418301	93.56270815	89.14316649	85.02820939	81.19299322	77.61493096
150512A00029	5/12/2015	3.03	5/12/2025		101.51587	100.7340099	99.96418949	99.20613491	98.45957767	97.72425735	96.99992138	96.28632472	95.58322954
150519A00013	5/19/2015	2.98	5/19/2025		101.53492	100.7338776	99.94547438	99.16941042	98.40539743	97.65315603	96.91241543	96.18291308	95.4643944
150601A00261	6/1/2015	3.19	2/11/2033		113.48084	108.7610355	104.3233834	100.1479706	96.21645801	92.51194159	89.01882966	85.72273184	82.61035792
150601A00270	6/1/2015	3.12	3/21/2031		110.30127	106.7127724	103.2964348	100.0423429	96.9412332	93.9844428	91.16386616	88.47191554	85.90148433

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00342	6/1/2015	3.97	8/26/2033		116.42581	111.5856676	107.0415678	102.7719866	98.75715493	94.97890051	91.420507	88.06658671	84.90296513
150601A00396	6/1/2015	3.61	1/3/2029		107.30161	104.9946529	102.7661739	100.6128351	98.5314655	96.51905156	94.57272805	92.68976977	90.86758372
150601A00404	6/1/2015	4.29	1/17/2029		118.40935	113.6858006	109.1828232	104.8889207	100.793257	96.88561468	93.15635594	89.59638705	86.19712466
150601A00405	6/1/2015	4.63	1/17/2034		138.50821	127.9002578	118.2356487	109.42425	101.385024	94.04506275	87.33873322	81.20691611	75.59632769
150601A00411	6/1/2015	3.38	1/24/2029		106.79138	104.4911508	102.2692837	100.1224392	98.04744688	96.04129393	94.1011161	92.22418928	90.40792171
150601A00426	6/1/2015	3.37	2/21/2029		106.91188	104.5679297	102.3050206	100.1196551	98.00851417	95.96844536	93.99645349	92.08969156	90.24545241
150601A00440	6/1/2015	3.27	3/16/2029		106.82194	104.4378647	102.1374276	99.91697251	97.77303282	95.70231802	93.70170341	91.76822062	89.89904869
150601A00450	6/1/2015	3.28	4/27/2029		106.98574	104.5565915	102.2139178	99.95388937	97.77287717	95.66743862	93.63430673	91.67037993	89.7727125
150601A00460	6/1/2015	3.05	5/16/2029		106.57072	104.1070553	101.7323622	99.44265848	97.2341664	95.10330422	93.04667486	91.06105499	89.14338498
150601A00475	6/1/2015	3.04	6/1/2029		106.5488	104.0847362	101.7097083	99.41972724	97.21101091	95.07997366	93.02321462	91.03750693	89.1197876
150601A00477	6/1/2015	3.21	6/1/2029		107.50153	104.9497716	102.4912891	100.1218737	97.83753523	95.63449226	93.50915907	91.4581344	89.47819071
150601A00506	6/1/2015	3.14	7/6/2029		107.04953	104.4947841	102.0348438	99.6653619	97.38222227	95.18152657	93.05958138	91.01288594	89.03812081
150601A00512	6/1/2015	3.79	7/16/2029		117.97876	112.7530217	107.7951609	103.0900028	98.62331041	94.38172208	90.35269319	86.52444193	82.88589914
150601A00522	6/1/2015	4.52	7/25/2030		125.57139	119.0766895	112.9716081	107.2305677	101.8298002	96.74721163	91.96225647	87.45582093	83.21011625
150601A00523	6/1/2015	4.55	7/25/2031		129.29217	121.6345299	114.5017265	107.854708	101.6575287	95.87708864	90.48289385	85.44683852	80.74300627
150601A00528	6/1/2015	3.08	7/27/2029		106.90316	104.3499321	101.8915368	99.52361683	97.2420512	95.0429374	92.92257823	90.87746955	88.90428891
150601A00558	6/1/2015	2.51	8/30/2024		100.04249	99.99954625	99.9566766	99.91387748	99.87114872	99.82849013	99.78590156	99.74338284	99.7009338
150601A00559	6/1/2015	3.06	8/31/2029		106.98193	104.385402	101.8866495	99.48112406	97.16452756	94.93279209	92.78206603	90.70870112	88.70924028
150601A00664	6/1/2015	3.78	1/16/2032		125.28912	117.2824367	109.8606564	102.9776838	96.59129155	90.66277523	85.1566425	80.0403311	75.28395292
150601A00665	6/1/2015	3.82	1/14/2033		128.29636	119.1651293	110.7771889	103.0675776	95.97734274	89.45295599	83.44578823	77.91163778	72.81030628
150601A00666	6/1/2015	3.88	1/16/2035		134.13119	122.7188253	112.421995	103.1242762	94.72201271	87.12285035	80.24445102	74.01335841	68.36399752
150601A00667	6/1/2015	3.88	1/16/2036		136.56577	124.032855	112.8247301	102.7921492	93.80347761	85.742532	78.50669285	72.0052557	66.15799033
150601A00668	6/1/2015	3.89	1/16/2037		139.02365	125.3681991	113.2626549	102.5197424	92.97584435	84.4878965	76.93070671	70.19463567	64.18358901
150601A00677	6/1/2015	2.39	1/30/2025		100.64082	100.1371738	99.63855675	99.14489684	98.65612036	98.17215513	97.69293037	97.21837668	96.74842603
150601A00678	6/1/2015	2.12	1/30/2025		100.20244	99.94766443	99.69473669	99.44363096	99.19432535	98.94679836	98.70102885	98.45699603	98.21467945
150601A00684	6/1/2015	2.25	2/7/2025		100.27352	99.98431693	99.69742617	99.4128154	99.13045475	98.85031491	98.57236711	98.29658308	98.02293508
150601A00688	6/1/2015	2.61	2/21/2025		100.85665	100.2925724	99.73480067	99.18323149	98.63776163	98.09829022	97.5647186	97.03695025	96.51489078
150601A00689	6/1/2015	2.81	2/28/2025		100.93071	100.3482847	99.77256859	99.20344467	98.64080032	98.0845254	97.53451227	96.99065571	96.45285283
150601A00690	6/1/2015	2.34	2/28/2025		100.30903	100.0126195	99.71867862	99.42716901	99.13805716	98.85131021	98.56689593	98.2847827	98.00493951
150601A00696	6/1/2015	2.83	3/13/2025		101.01048	100.3926146	99.78230672	99.17942072	98.58382155	97.99537747	97.41395991	96.83944338	96.27170533
150601A00733	6/1/2015	2.72	5/1/2025		101.29123	100.5385104	99.79695751	99.06632522	98.34637361	97.63686977	96.9375875	96.24830709	95.5688151
150601A00734	6/1/2015	2.92	5/1/2025		101.32822	100.576822	99.83654935	99.10715738	98.38840754	97.68006819	96.98191439	96.29372762	95.61529557
150601A00736	6/1/2015	2.87	5/1/2030		107.43834	104.4997994	101.6838684	98.98430639	96.39523497	93.91111736	91.52673628	89.23717324	87.03778943



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150601A00737	6/1/2015	2.68	12/31/2024		100.63771	100.2157893	99.7974022	99.38250244	98.97104658	98.56299188	98.15829633	97.75691858	97.35881796
150601A00739	6/1/2015	2.35	5/6/2025		100.46818	100.0540158	99.64451158	99.23958163	98.83914142	98.44310856	98.05140282	97.66394598	97.28066182
150601A00832	6/1/2015	7.17	8/28/2025		103.2718	102.7170617	102.1704682	101.6318184	101.1009194	100.5775851	100.0616354	99.5528965	99.05120027
150601A00851	6/1/2015	7.12	4/30/2027		109.43918	107.9455963	106.4874523	105.0636139	103.6729917	102.3145398	100.9872539	99.69016916	98.42235829
150601A00864	6/1/2015	7.37	3/31/2028		113.51812	111.4601405	109.4624441	107.5227758	105.6389778	103.8089889	102.0308392	100.3026457	98.62260758
150601A00868	6/1/2015	7.08	6/5/2028		113.92054	111.7184649	109.5842148	107.5151474	105.5087397	103.5625849	101.6743865	99.84195245	98.06318928
150601A00871	6/1/2015	6.74	7/31/2028		113.52136	111.279859	109.1086533	107.0049586	104.9661213	102.9896115	101.0730168	99.2140357	97.41047189
150601A00872	6/1/2015	7.42	7/31/2028		115.00762	112.7358233	110.5352681	108.4031367	106.3367392	104.3335118	102.3910093	100.5068993	98.67895567
150601A00875	6/1/2015	7.14	9/29/2028		115.06591	112.7001109	110.4109525	108.1953137	106.0502244	103.9728565	101.9605163	100.0106367	98.12077083
150601A00883	6/1/2015	6.21	11/30/2028		113.53475	111.1097788	108.7658811	106.4996644	104.307906	102.1875406	100.1356518	98.14946378	96.22633326
150601A00888	6/1/2015	5.92	3/1/2029		113.68625	111.120561	108.644665	106.254656	103.9468289	101.7176662	99.56382625	97.48213418	95.46957179
150601A00889	6/1/2015	6.55	3/2/2029		115.56591	112.9116757	110.3516181	107.8815971	105.4976834	103.1961484	100.9734521	98.82623232	96.75129497
150601A00893	6/1/2015	6.49	4/6/2029		115.72044	113.0157707	110.408483	107.89424	105.4689283	103.1286472	100.8696955	98.68856031	96.5819062
150601A00897	6/1/2015	6.15	5/28/2029		115.12967	112.391781	109.7539592	107.2116895	104.7606919	102.39691	100.1164974	97.91580561	95.79137251
150601A00899	6/1/2015	7.07	6/14/2029		116.50983	113.8393241	111.2654653	108.7839023	106.3905128	104.0813893	101.8528266	99.70131032	97.6235051
150601A00905	6/1/2015	6.14	10/29/2029		116.54946	113.5430216	110.6542964	107.8776434	105.2077299	102.6395164	100.1682393	97.78939289	95.49871443
150601A00906	6/1/2015	6.2	11/1/2029		116.72453	113.7133211	110.8200276	108.0389923	105.3648731	102.792622	100.3174667	97.93489398	95.64063353
150601A00912	6/1/2015	5.96	11/30/2029		116.30726	113.2605187	110.3346654	107.523833	104.8224846	102.2253913	99.72761269	97.32447909	95.01157469
150601A00916	6/1/2015	7.27	4/5/2030		139.9468	133.3664009	127.1561851	121.2930501	115.7554661	110.5233604	105.5780106	100.9019459	96.47885683
150601A00918	6/1/2015	5.62	4/28/2025		101.7107	101.3244692	100.9422856	100.5640777	100.1897766	99.81931513	99.45262771	99.0896503	98.73032042
150601A00927	6/1/2015	6.08	8/7/2030		118.01949	114.6879075	111.500531	108.4497475	105.5284016	102.729768	100.0475229	97.47571754	95.00875278
150601A00928	6/1/2015	5.94	8/21/2030		117.59832	114.2747416	111.0951364	108.0518952	105.1378699	102.3463424	99.67099618	97.10588909	94.64542875
150601A00929	6/1/2015	5.91	8/30/2030		118.62709	115.091834	111.7133877	108.483346	105.3938169	102.437388	99.60709391	96.8963865	94.29910684
150601A00935	6/1/2015	6.46	11/21/2030		121.40391	117.6396847	114.0482512	110.6200507	107.3461297	104.2180942	101.2280711	98.36867216	95.63296105
150601A00939	6/1/2015	5.79	1/17/2031		119.53693	115.736903	112.1152369	108.6618653	105.3673698	102.2229311	99.22028724	96.35169439	93.60989079
150601A00943	6/1/2015	6.44	5/9/2031		123.10666	118.9961912	115.0871251	111.3676415	107.8267056	104.4540113	101.2399271	98.17544808	95.25215036
150601A00948	6/1/2015	6.04	10/22/2031		120.76595	116.7635488	112.9613655	109.3473163	105.9101421	102.6393494	99.52515302	96.55842263	93.73063488
150601A01024	6/1/2015	5.33	2/27/2026		107.31314	105.7055269	104.1302013	102.5862571	101.072822	99.58905547	98.13414773	96.70731815	95.30781397
150601A01041	6/1/2015	5.99	10/2/2036		138.58288	130.4683518	123.0178604	116.1683397	109.8633174	104.0521711	98.689477	93.73443451	89.1503597
150603A00012	6/3/2015	2.77	6/3/2030		108.23066	105.0657075	102.0376826	99.13941337	96.36415437	93.70556162	91.157666	88.71484852	86.37181741
150603A00017	6/3/2015	2.84	6/3/2025		101.6222	100.7787528	99.9492921	99.13346928	98.33094992	97.5414105	96.76453791	96.00002902	95.24759033
150603A00032	6/3/2015	2.21	6/3/2025		100.58462	100.0895599	99.60059918	99.1176178	98.64049482	98.16911267	97.70335707	97.24311694	96.78828427
150604A00039	6/4/2015	2.82	6/4/2030		108.39052	105.2208488	102.1883131	99.28572924	96.50634127	93.84379549	91.29211361	88.84566801	86.49915881

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150610A00008	6/10/2015	3.58	6/10/2030		120.80986	114.5509046	108.6633663	103.1232056	97.90805888	92.99711318	88.3709913	84.01164579	79.90226133
150610A00009	6/10/2015	3.03	6/10/2025		101.83299	100.9696283	100.1209074	99.2864523	98.4659051	97.65891996	96.86516238	96.0843088	95.31604614
150615A00024	6/15/2015	2.26	6/16/2025		100.61503	100.116871	99.62491452	99.13903593	98.65911057	98.18501734	97.71663861	97.25386005	96.79657057
150617A00017	6/17/2015	2.27	6/17/2025		100.62097	100.1222861	99.62982617	99.14346084	98.66306476	98.18851622	97.719697	97.25649226	96.79879035
150617A00018	6/17/2015	2.45	6/17/2025		100.64751	100.1494181	99.6575279	99.17171477	98.69185392	98.21782421	97.74950794	97.28679077	96.82956156
150617A00030	6/17/2015	2.91	6/16/2025		101.78304	100.8568698	99.94790116	99.05565938	98.17968268	97.31952615	96.47476104	95.644974	94.82976642
150701A00056	7/1/2015	2.34	7/1/2025		100.71978	100.1826218	99.65266037	99.12974064	98.61370774	98.10441157	97.60170662	97.10545176	96.61551011
150714A00003	7/14/2015	3.76	7/12/2030		111.59182	108.2835773	105.1202203	102.0940745	99.1979273	96.42499971	93.76891741	91.22368369	88.78365462
150720A00012	7/20/2015	2.99	7/21/2025		102.09099	101.1153636	100.1583776	99.21949838	98.29821542	97.39403708	96.50648992	95.63511784	94.7794813
150721A00027	7/21/2015	3.74	7/22/2030		121.24222	114.8834904	108.9078189	103.2900199	98.00668975	93.03607469	88.35794587	83.95348502	79.80517917
150722A00033	7/22/2015	2.47	7/22/2025		100.73091	100.189752	99.65594968	99.12933713	98.60975319	98.0970418	97.59105176	97.09163655	96.59865413
150722A00035	7/22/2015	2.92	7/22/2025		102.03358	101.0134069	100.0141005	99.03502232	98.07555815	97.13511857	96.21313763	95.3090717	94.42239839
150727A00013	7/27/2015	3.04	7/28/2025		102.06335	101.0707611	100.0974586	99.14288779	98.20651173	97.28781368	96.38629632	95.50148086	94.63290615
150729A00028	7/29/2015	2.25	7/29/2025		100.68332	100.1400499	99.6042165	99.07564921	98.55418379	98.03966122	97.53192749	97.03083339	96.53623433
150729A00041	7/29/2015	2.44	7/29/2025		100.71768	100.1750227	99.63977933	99.11178211	98.5908675	98.07687718	97.56965777	97.0690607	96.57494197
150731A00016	7/31/2015	3.04	7/31/2025		102.08461	101.0838048	100.1025992	99.14042274	98.19672593	97.2709801	96.36267662	95.47132589	94.59645649
150803A00033	8/3/2015	3.41	8/2/2030		116.5893	111.1475978	106.0219848	101.1919391	96.63839305	92.34362002	88.29113257	84.46558911	80.85270802
150803A00036	8/3/2015	3.41	8/2/2030		116.5893	111.1475978	106.0219848	101.1919391	96.63839305	92.34362002	88.29113257	84.46558911	80.85270802
150803A00037	8/3/2015	3.41	8/2/2030		116.5893	111.1475978	106.0219848	101.1919391	96.63839305	92.34362002	88.29113257	84.46558911	80.85270802
150803A00038	8/3/2015	3.41	8/2/2030		116.5893	111.1475978	106.0219848	101.1919391	96.63839305	92.34362002	88.29113257	84.46558911	80.85270802
150803A00039	8/3/2015	3.01	8/2/2030		108.82729	105.5664786	102.4498598	99.46972994	96.61885197	93.89042724	91.27806601	88.77576001	86.37785715
150803A00041	8/3/2015	3.01	8/2/2030		108.82729	105.5664786	102.4498598	99.46972994	96.61885197	93.89042724	91.27806601	88.77576001	86.37785715
150803A00042	8/3/2015	3.01	8/2/2030		108.82729	105.5664786	102.4498598	99.46972994	96.61885197	93.89042724	91.27806601	88.77576001	86.37785715
150812A00052	8/14/2015	2.13	8/14/2025		100.67664	100.0950956	99.52205784	98.95731888	98.40067909	97.85194558	97.31093192	96.77745785	96.25134902
150814A00029	8/14/2015	2.39	8/14/2025		100.75458	100.1734465	99.60079764	99.03642877	98.48014099	97.93174212	97.39104643	96.85787429	96.33205196
150817A00099	8/17/2015	3.19	8/17/2027		108.97847	105.8778328	102.8826632	99.98877475	97.19217335	94.48904663	91.87575438	89.34881965	86.90492045
150819A00012	8/19/2015	3.04	8/19/2025		102.22811	101.1751903	100.1439484	99.13372304	98.14387621	97.17379537	96.22289238	95.29060221	94.37638189
150819A00013	8/19/2015	3.51	8/19/2030		120.05815	113.6571444	107.6465611	102.0004328	96.6946548	91.70684063	87.01619088	82.60337262	78.45040865
150821A00018	8/21/2015	2.6	8/21/2024		100.07361	100.015321	99.95711297	99.89898858	99.84094759	99.78298983	99.72511508	99.66732318	99.60961393
150824A00033	8/24/2015	2.22	8/25/2025		100.65878	100.0761248	99.5020358	98.93629991	98.3787148	97.82908503	97.28722172	96.75294231	96.22607026
150824A00050	8/24/2015	2.03	8/25/2025		100.62184	100.0385343	99.4638185	98.8974783	98.33931048	97.78911877	97.24671354	96.71191149	96.18453538
150826A00038	8/26/2015	2.94	8/26/2026		105.44195	103.3567516	101.3234272	99.34034066	97.4059208	95.51865724	93.67709778	91.87984561	90.12555672
150826A00039	8/26/2015	3.22	8/27/2029		116.50523	111.1754031	106.1253835	101.3389686	96.80097666	92.4971806	88.41424289	84.53965512	80.86168211

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
150827A00029	8/27/2015	2.74	8/27/2024		100.10412	100.0291886	99.95437635	99.87968394	99.80511109	99.73065751	99.6563229	99.58210698	99.50800947
150925A00034	9/25/2015	2.36	9/25/2025		100.81497	100.1896509	99.57420682	98.9683765	98.37190983	97.78456593	97.20611259	96.63632593	96.07498996
150929A00076	9/29/2015	2.28	9/29/2025		100.766	100.1402175	99.52433787	98.91809988	98.32125205	97.73355207	97.15476643	96.58467	96.02304566
150929A00083	9/29/2015	2.09	9/29/2025		100.72638	100.0998997	99.48335208	98.87647145	98.2790053	97.69071036	97.11135221	96.54070485	95.97855031
150929A00087	9/29/2015	2.09	9/29/2025		100.72638	100.0998997	99.48335208	98.87647145	98.2790053	97.69071036	97.11135221	96.54070485	95.97855031
151001A00023	10/1/2015	2.02	10/1/2025		100.73845	100.0755297	99.42367531	98.78258189	98.15195503	97.5315116	96.92097923	96.32009571	95.72860855
151013A00033	10/13/2015	2.23	10/14/2025		100.79831	100.1338364	99.48050847	98.83801122	98.20604648	97.58432755	96.97257868	96.37053453	95.77793963
151029A00008	10/29/2015	2.28	10/29/2025		100.8381	100.1704964	99.51417293	98.86881362	98.23411338	97.60977907	96.99552889	96.39109177	95.7962069
151030A00026	10/30/2015	3.29	10/30/2030		116.37383	110.76397	105.4906413	100.5313627	95.86528015	91.47304181	87.33668167	83.43951335	79.76603235
151106A00011	11/6/2015	3.1	1/15/2026		103.50426	102.0502993	100.6240634	99.22483136	97.85190407	96.50460592	95.182284	93.88430709	92.61006479
151116A00025	11/16/2015	3.04	11/14/2025		102.91985	101.6309349	100.3692172	99.13384159	97.92398522	96.73885988	95.57770997	94.43981081	93.32446707
151118A00037	11/18/2015	2.75	11/18/2025		102.49241	101.2476635	100.0253568	98.82492877	97.64583304	96.48754116	95.34954188	94.2313405	93.13245818
151120A00019	11/20/2015	2.72	11/20/2030		108.66007	105.2656144	102.0268855	98.93527184	95.98270803	93.16163273	90.46495351	87.88601458	85.41856697
151125A00037	11/25/2015	2.41	11/25/2025		101.00593	100.2967818	99.59977085	98.91455707	98.24081403	97.57822788	96.92649677	96.28533028	95.65444883
151204A00011	12/4/2015	2.28	12/4/2025		101.08007	100.3316308	99.59598654	98.87278686	98.16169529	97.46238801	96.77455323	96.09789066	95.43211092
151209A00024	12/9/2015	2.22	12/9/2025		101.03629	100.2873971	99.55132174	98.82771107	98.11622785	97.41654753	96.72835763	96.05135719	95.38525619
151211A00055	12/11/2015	2.62	12/11/2024		100.53732	100.1703035	99.80597832	99.44431458	99.08528304	98.72885489	98.37500171	98.02369553	97.67490878
151223A00036	12/23/2015	2.64	12/23/2025		102.30471	101.0842988	99.88602922	98.70933323	97.55366474	96.41849596	95.30331653	94.20763288	93.1309675
151223A00072	12/23/2015	2.81	12/23/2025		103.09573	101.7026391	100.3351077	98.99249213	97.67417108	96.37954359	95.1080281	93.85906164	92.63209912
151223A00074	12/23/2015	3.01	12/23/2027		110.01401	106.5334349	103.1825908	99.95595828	96.84828611	93.85457299	90.97005431	88.19018972	85.51065126
151223A00077	12/23/2015	3.57	12/24/2035		135.23036	122.7359998	111.5628849	101.5623773	92.60334566	84.57001768	77.3601085	70.88318551	65.05923875
151223A00078	12/23/2015	2.28	12/23/2025		101.08673	100.3352872	99.59674131	98.87073885	98.15693975	97.45501682	96.76465503	96.08555099	95.41741234
151228A00013	12/28/2015	2.27	12/29/2025		101.08086	100.3286828	99.58943004	98.86274617	98.14829022	97.44573411	96.75476195	96.07506954	95.40636374
151229A00026	12/29/2015	2.28	12/29/2025		101.08883	100.3364388	99.5969776	98.87009152	98.15543942	97.45269298	96.76153614	96.08166448	95.41278468
151229A00079	12/29/2015	3	12/30/2025		103.23358	101.8238847	100.4403084	99.08219153	97.74889328	96.43979388	95.15429372	93.89181255	92.65178871
151229A00080	12/29/2015	3.49	12/30/2030		120.86486	114.0699812	107.7110936	101.7578377	96.18212098	90.95793652	86.06119777	81.46958765	77.16242011
151229A00081	12/29/2015	3.76	12/31/2035		135.73722	123.2916373	112.1584324	102.1901793	93.25680047	85.2434397	78.04860891	71.58256825	65.76591008
160106A00042	1/6/2016	2.43	1/6/2026		101.18304	100.3935501	99.61774231	98.85524138	98.10568907	97.36874051	96.6440635	95.93133793	95.2302552
160113A00030	1/13/2016	2.52	1/13/2025		100.64825	100.1908911	99.73770092	99.28861949	98.84359092	98.40256034	97.96547386	97.53227856	97.10292246
160115A00011	1/15/2016	2.18	1/15/2026		100.98555	100.1962911	99.42073904	98.65851551	97.9092612	97.17263016	96.44828915	95.7359171	95.03520449
160119A00019	1/19/2016	2.95	1/19/2027		106.43398	103.9468793	101.5310912	99.18416563	96.90374994	94.68758621	92.53350697	90.43943094	88.40335905
160119A00025	1/19/2016	3.05	1/19/2028		109.92351	106.383529	102.9779064	99.70082019	96.54673455	93.51038248	90.58675116	87.77106823	85.05878891
160119A00026	1/19/2016	3.14	1/19/2029		113.53787	108.9171512	104.5138149	100.3164789	96.31441983	92.49752843	88.85627085	85.38165304	82.06518729



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160119A00027	1/19/2016	3.25	1/18/2030		116.9928	111.2754843	105.8779935	100.7807234	95.96537178	91.41484491	87.1131716	83.0454239	79.19764378
160119A00028	1/19/2016	3.34	1/21/2031		120.03246	113.2047153	106.8193608	100.8453016	95.25378829	90.01822538	85.11399954	80.51832211	76.210085
160119A00029	1/19/2016	3.39	1/20/2032		122.7954	114.869184	107.5246247	100.7157426	94.40042623	88.5400861	83.09934309	78.04574602	73.34951538
160119A00030	1/19/2016	3.44	1/18/2033		125.57004	116.5402842	108.2489725	100.6313668	93.62873629	87.18776638	81.260034	75.80153541	70.77226199
160119A00072	1/19/2016	2.77	1/21/2031		109.1331	105.3873307	101.8263028	98.43910167	95.21554422	92.14612145	89.22194942	86.43472398	83.77667915
160122A00029	1/22/2016	2.48	1/22/2025		100.6701	100.1881635	99.71084506	99.23807994	98.76980306	98.30595057	97.84645983	97.39126939	96.94031893
160126A00004	1/26/2016	2.52	1/26/2026		103.08047	101.545897	100.0421345	98.56831968	97.12362024	95.7072344	94.31838961	92.9563412	91.62037106
160129A00066	1/29/2016	3.04	1/29/2031		119.03765	112.1852299	105.7799605	99.79022571	94.1868075	88.942689	84.03287793	79.43424494	75.1253757
160129A00067	1/29/2016	2.53	1/29/2026		102.9521	101.4622484	100.001569	98.56928223	97.1646343	95.78689767	94.43536983	93.10937224	91.80824927
160201A00016	2/1/2016	2.1	2/2/2026		100.99009	100.1617666	99.34804826	98.54853747	97.76285077	96.9906189	96.23148612	95.48510961	94.7511588
160209A00006	2/9/2016	1.91	2/9/2026		100.83281	100.0045367	99.19088441	98.3914526	97.60585684	96.83372701	96.07470657	95.32845192	94.59463181
160209A00008	2/9/2016	2.45	2/10/2031		107.5761	104.0970695	100.7826903	97.62360553	94.61105776	91.73685082	88.99330984	86.37324461	83.86991564
160210A00042	2/10/2016	2.57	2/10/2026		102.9129	101.3917744	99.90077431	98.43907963	97.0058973	95.60046245	94.22203716	92.8699092	91.54339097
160210A00049	2/10/2016	1.78	2/10/2026		100.83116	100.001428	99.1863679	98.38557681	97.59866844	96.82527086	96.0650258	95.31758801	94.5826247
160210A00051	2/10/2016	2.28	2/10/2031		107.44065	103.9567368	100.6380406	97.47515363	94.45927363	91.58216332	88.83611031	86.21389008	83.70873177
160210A00054	2/10/2016	1.78	2/10/2026		100.83116	100.001428	99.1863679	98.38557681	97.59866844	96.82527086	96.0650258	95.31758801	94.5826247
160211A00035	2/11/2016	2.25	2/11/2025		100.56791	100.0327434	99.50326673	98.97939217	98.46103105	97.94809657	97.44050372	96.93816927	96.44101172
160211A00036	2/11/2016	2.41	2/11/2026		102.67415	101.1519826	99.65999359	98.1973614	96.76329027	95.35701276	93.97778849	92.62490296	91.29766638
160211A00038	2/11/2016	1.83	2/11/2026		100.76605	99.93801423	99.12460141	98.32540844	97.54005081	96.76815826	96.00937415	95.26335479	94.52976883
160212A00037	2/12/2016	3.03	2/12/2031		118.14634	111.316085	104.9332624	98.96612501	93.38533731	88.16378223	83.27638217	78.69993561	74.41296752
160212A00047	2/12/2016	1.94	2/12/2026		100.85914	100.0301805	99.2158632	98.41578339	97.62955598	96.8568102	96.09718892	95.35034793	94.61595545
160222A00005	2/22/2016	2.79	2/22/2028		109.30882	105.6836661	102.1993063	98.84950056	95.62831857	92.53012546	89.54956533	86.68154571	83.92122308
160222A00018	2/22/2016	2.59	2/23/2026		103.05174	101.4910515	99.96166339	98.46270583	96.99333766	95.55274842	94.1401569	92.75480988	91.3959808
160222A00019	2/22/2016	3.09	2/21/2031		118.60242	111.7304775	105.3099698	99.30877267	93.69720877	88.44785177	83.53534444	78.9362322	74.62881103
160303A00020	3/3/2016	2.97	3/3/2031		118.80143	111.8580417	105.3735943	99.31524273	93.65266392	88.35784726	83.4049066	78.76990845	74.43071499
160303A00035	3/3/2016	2.14	3/3/2026		101.16809	100.2596102	99.36753454	98.49141179	97.63080849	96.78530723	95.95450588	95.13801687	94.33546652
160307A00024	3/7/2016	2.17	3/6/2026		101.13112	100.2594959	99.40351297	98.56273605	97.73675099	96.92515907	96.1275763	95.34363265	94.57297147
160307A00027	3/7/2016	2.71	3/6/2026		103.33018	101.7364291	100.175004	98.6449886	97.14550024	95.67568901	94.23473636	92.82185365	91.43628073
160307A00028	3/7/2016	2.91	3/7/2028		109.86374	106.1893562	102.6587887	99.26560548	96.00370131	92.86727809	89.8508276	86.94911511	84.15716416
160307A00029	3/7/2016	3.21	3/7/2031		119.48696	112.5463905	106.0635807	100.0058089	94.34286399	89.04683719	84.09193459	79.45430648	75.11189098
160328A00038	3/28/2016	2.54	3/30/2026		103.21575	101.580264	99.97971584	98.41303915	96.87921234	95.37725542	93.90622781	92.4652263	91.0533832
160328A00045	3/28/2016	2.49	3/27/2026		103.34189	101.6883595	100.0691903	98.48337612	96.92995051	95.4079843	93.91658391	92.45488956	91.0220737
160329A00017	3/29/2016	2.48	3/30/2026		103.11598	101.4817365	99.88240645	98.31692337	96.78426646	95.2834564	93.81355328	92.37365453	90.96289307

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160330A00054	3/30/2016	2.9	3/31/2031		118.49246	111.4828432	104.9413121	98.83404433	93.12983557	87.79988452	82.81759567	78.15839908	73.79958575
160330A00056	3/30/2016	2.26	3/31/2025		100.8372	100.1701695	99.51193991	98.86233874	98.22119723	97.58835099	96.96363989	96.34690787	95.73800286
160401A00016	4/1/2016	2.42	4/1/2025		100.86332	100.1945924	99.53471038	98.8834999	98.24079088	97.60641771	96.98021907	96.36203775	95.75172056
160404A00019	4/4/2016	2.48	4/4/2031		107.87267	104.2990505	100.8982278	97.66018372	94.57555751	91.63559926	88.83212573	86.15747984	83.60449318
160412A00029	4/12/2016	2.48	4/14/2031		107.87308	104.2991811	100.8981118	97.65985346	94.57504206	91.63492447	88.83131467	86.15655303	83.60346887
160413A00014	4/13/2016	2.55	4/14/2031		108.12707	104.544715	101.135603	97.88968968	94.79758835	91.85052493	89.04029375	86.35921682	83.80010631
160413A00016	4/13/2016	2.55	4/14/2031		108.12707	104.544715	101.135603	97.88968968	94.79758835	91.85052493	89.04029375	86.35921682	83.80010631
160413A00021	4/13/2016	2.48	4/13/2026		103.28612	101.5816413	99.91432034	98.28306455	96.6868199	95.12457248	93.59534663	92.09820312	90.63223742
160413A00033	4/13/2016	2.32	4/13/2026		102.72489	101.1587427	99.62619495	98.12626076	96.65799132	95.22047394	93.81283034	92.434215	91.08381361
160414A00042	4/13/2016	2.48	4/13/2026		103.28612	101.5816413	99.91432034	98.28306455	96.6868199	95.12457248	93.59534663	92.09820312	90.63223742
160421A00016	4/21/2016	2.26	4/21/2026		103.09265	101.4067727	99.75791516	98.14500371	96.56700732	95.02293261	93.5118222	92.03275304	90.58483495
160422A00026	4/22/2016	2.62	4/22/2026		103.54363	101.8210552	100.1353394	98.48536228	96.87005145	95.28837776	93.73935313	92.22202844	90.73549155
160427A00004	4/27/2016	2.09	4/27/2026		101.14411	100.2285816	99.3298299	98.44738228	97.58078796	96.72961318	95.8934404	95.0718675	94.26450711
160428A00028	4/28/2016	2	4/28/2026		101.1798	100.2623271	99.36169267	98.47742485	97.60907044	96.75619337	95.91837389	95.09520782	94.28630582
160504A00004	5/4/2016	2.3	5/4/2026		103.30098	101.5439138	99.8250795	98.143315	96.49750659	94.88658527	93.30952441	91.76533761	90.25307673
160511A00015	5/11/2016	2.42	5/11/2026		103.37056	101.5942163	99.85803488	98.16086913	96.50161083	94.8791904	93.29257527	91.74076841	90.22280679
160511A00016	5/11/2016	2.48	5/12/2031		107.96747	104.3478985	100.9052266	97.62909924	94.50984448	91.53842712	88.70640261	86.00587424	83.42945394
160520A00017	9/20/2017	2.34	9/20/2024		100.12675	99.98573424	99.84512395	99.70492174	99.56512581	99.42573438	99.28674565	99.14815785	99.00996923
160520A00018	9/20/2017	2.34	9/20/2024		100.12675	99.98573424	99.84512395	99.70492174	99.56512581	99.42573438	99.28674565	99.14815785	99.00996923
160523A00086	5/23/2016	2.2	5/26/2026		103.20778	101.4358079	99.70453517	98.01277056	96.35936979	94.74322945	93.16328522	91.61851022	90.1079134
160524A00015	11/25/2016	2.71	11/25/2026		105.41442	103.0865233	100.8217367	98.61799338	96.47330342	94.38575397	92.35350591	90.37479051	88.44790625
160524A00027	5/24/2016	3.06	5/27/2031		118.95484	111.8108049	105.1522237	98.94348937	93.15177948	87.74682773	82.70071273	77.98766524	73.58389202
160603A00014	6/3/2016	1.74	6/3/2026		101.07284	100.0770542	99.10022523	98.14182354	97.20133706	96.27827275	95.37215576	94.48252855	93.6089501
160603A00029	6/3/2016	2.18	6/3/2031		107.43588	103.7821439	100.3092095	97.006368	93.86363082	90.87167383	88.02178845	85.30583681	82.7162104
160606A00004	6/6/2016	2.43	6/8/2026		103.54774	101.6990101	99.89228419	98.12636369	96.40009295	94.71235632	93.06207651	91.44821302	89.86976062
160606A00005	6/6/2016	2.92	6/6/2031		118.04837	110.9075662	104.2543696	98.05288014	92.27001157	86.87526202	81.84049985	77.13976837	72.74910758
160606A00018	6/6/2016	1.74	6/5/2026		101.0736	100.0774466	99.10026988	98.14153548	97.20073066	96.27736179	95.37095344	94.48104753	93.60720252
160608A00019	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00020	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00023	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00024	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00025	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00026	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160608A00027	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00028	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00029	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00030	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00031	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00032	6/8/2016	2.36	6/8/2026		103.43413	101.5907855	99.7905927	98.03227309	96.31459549	94.63637332	92.99646262	91.39376019	89.82720186
160608A00033	6/8/2016	2.44	6/9/2031		107.91245	104.2523055	100.7729263	97.4636249	94.31443061	91.31603481	88.45974242	85.73742726	83.14149096
160608A00034	6/8/2016	2.44	6/9/2031		107.91245	104.2523055	100.7729263	97.4636249	94.31443061	91.31603481	88.45974242	85.73742726	83.14149096
160609A00075	6/9/2016	1.94	6/9/2026		101.14734	100.1517559	99.17511664	98.2168885	97.27656015	96.35363925	95.44765161	94.55814029	93.68466485
160613A00047	6/15/2016	2.18	6/16/2025		101.01041	100.1363206	99.27732133	98.43302659	97.60306109	96.78706221	95.98467948	95.19557406	94.41941829
160615A00031	6/15/2016	2.51	6/17/2030		114.50908	108.4134188	102.6836111	97.29580514	92.22782165	87.45902776	82.97022198	78.74352799	74.76229688
160616A00027	6/16/2016	2.27	6/16/2026		103.30405	101.4358497	99.61056154	97.82694722	96.08381391	94.38001055	92.7144261	91.08598787	89.49365997
160616A00029	6/16/2016	1.58	6/16/2026		100.91379	99.91803339	98.94127342	97.98297637	97.04262821	96.11973409	95.21381742	94.32441903	93.45109632
160628A00038	6/28/2016	1.88	6/27/2025		100.90133	99.99656397	99.10796538	98.23510149	97.37755734	96.53493244	95.70684012	94.89290702	94.09277243
160628A00039	6/28/2016	2.01	6/29/2026		103.14373	101.2370249	99.37495336	97.55620577	95.77951907	94.04367528	92.34749962	90.68985867	89.06965863
160628A00049	6/28/2016	1.88	6/27/2025		100.90133	99.99656397	99.10796538	98.23510149	97.37755734	96.53493244	95.70684012	94.89290702	94.09277243
160629A00066	6/29/2016	2.61	6/30/2036		120.51571	110.6288971	101.757271	93.78653403	86.61604517	80.15711044	74.33149622	69.07013531	64.31199962
160630A00012	6/30/2016	2.11	6/30/2025		101.00705	100.0953273	99.20000213	98.32063783	97.45681074	96.60811205	95.77414717	94.95453513	94.14890799
160701A00020	7/1/2016	2.13	7/1/2026		103.13632	101.2289816	99.36632991	97.54705392	95.76988771	94.03361061	92.33704527	90.67905583	89.05854615
160701A00039	7/1/2016	1.92	7/1/2026		102.98248	101.0720022	99.20637058	97.38426766	95.60442088	93.86560333	92.16663172	90.50636455	88.88370031
160705A00104	7/5/2016	2.1	7/6/2026		103.10816	101.1879702	99.31307466	97.48213638	95.69386347	93.94701053	92.24037672	90.57280382	88.94317442
160706A00010	7/6/2016	1.99	7/7/2025		100.92577	99.99565873	99.08263563	98.18623255	97.30599879	96.44149983	95.59231659	94.75804477	93.93829416
160706A00026	7/6/2016	2.19	7/6/2027		105.65411	102.7160462	99.87511876	97.12759904	94.46991977	91.89866995	89.41058706	87.00254973	84.6715708
160706A00027	7/6/2016	2.29	7/6/2028		108.44717	104.469411	100.6600984	97.01122897	93.51522068	90.16488935	86.95342549	83.87437283	80.9216081
160706A00028	7/6/2016	2.39	7/6/2029		111.21443	106.1814677	101.4074776	96.87779947	92.57867808	88.49720139	84.62124479	80.93941913	77.4410224
160706A00029	7/6/2016	2.49	7/8/2030		113.66222	107.5639224	101.8344678	96.44962842	91.38688526	86.62530162	82.14540429	77.92907416	73.95944551
160706A00030	7/6/2016	2.59	7/7/2031		115.9157	108.7632574	102.1062824	95.9078219	90.13385689	84.75305841	79.73656205	75.05776238	70.69212554
160711A00004	7/11/2016	1.51	7/13/2026		100.90484	99.86863073	98.85261963	97.85623199	96.87891707	95.92014463	94.97940398	94.0562031	93.15006772
160712A00019	7/12/2017	2.32	7/12/2027		106.07593	103.1157632	100.2539293	97.48663517	94.81025157	92.221309	89.71648988	87.29262096	84.94666622
160713A00015	7/13/2016	1.57	7/13/2026		100.9686	99.93152105	98.91465763	97.91744006	96.93931679	95.97975684	95.03824878	94.11429989	93.20743523
160714A00018	9/6/2016	2.28	9/4/2026		103.85415	101.7667339	99.73164418	97.74721181	95.81183859	93.923989	92.08218724	90.28501439	88.53110574
160714A00020	9/6/2016	2.28	9/4/2026		103.85415	101.7667339	99.73164418	97.74721181	95.81183859	93.923989	92.08218724	90.28501439	88.53110574
160714A00023	8/10/2016	2.49	8/10/2028		109.48801	105.3960415	101.480866	97.73390287	94.1470344	90.71257866	87.4232636	84.27220283	81.25287308

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160714A00024	9/20/2016	2.5	9/20/2028		109.82584	105.6146287	101.5892989	97.74063383	94.05992232	90.53893243	87.16988208	83.94541173	80.85855902
160714A00029	8/10/2016	2.27	8/10/2026		103.6653	101.6469905	99.67825913	97.75756859	95.8834428	94.05446167	92.26925848	90.52651749	88.82497159
160719A00026	7/19/2016	1.87	7/20/2026		101.15163	100.1137517	99.0960929	98.09808156	97.11916636	96.1588165	95.21652075	94.29178654	93.38413907
160726A00005	7/26/2016	2.28	7/27/2026		103.59298	101.6126546	99.68034025	97.79457599	95.95395453	94.15712087	92.40276992	90.68964433	89.01653237
160729A00017	7/31/2017	2.47	7/31/2029		111.74965	106.6372491	101.7911339	97.19603802	92.83764841	88.70254121	84.77812208	81.05257069	77.51478918
160801A00001	8/1/2016	1.97	8/1/2024		100.00399	100.0012196	99.99844896	99.99568071	99.99291486	99.99015141	99.98739036	99.98463169	99.98187542
160801A00002	8/1/2016	1.58	8/3/2026		101.04344	99.96577936	98.90957806	97.874225	96.8591288	95.86372022	94.88745105	93.92979318	92.99023764
160802A00003	8/2/2016	2.53	8/1/2031		116.57429	109.2944261	102.5243955	96.22576018	90.36316906	84.90409691	79.81860488	75.07912231	70.66024815
160804A00014	8/4/2016	1.99	8/5/2024		100.00914	99.99527989	99.98143099	99.96759564	99.95377382	99.9399655	99.92617068	99.91238931	99.89862138
160810A00025	8/10/2016	2.17	8/10/2026		103.44602	101.4487699	99.50128617	97.60198068	95.74933022	93.94187173	92.17819943	90.45696201	88.77686013
160810A00027	8/10/2016	2.13	8/10/2026		103.25894	101.3149731	99.41914076	97.56990912	95.76580863	94.00542771	92.28740998	90.61045157	88.97329865
160810A00028	8/10/2016	2.19	8/10/2026		103.54586	101.51969	99.54416945	97.61768359	95.73868011	93.90566803	92.11721472	90.37194315	88.66852922
160810A00029	8/10/2016	2.17	8/10/2026		103.44602	101.4487699	99.50128617	97.60198068	95.74933022	93.94187173	92.17819943	90.45696201	88.77686013
160810A00030	8/10/2016	2.24	8/11/2031		107.33505	103.6099987	100.0727669	96.71203553	93.5172585	90.47860254	87.58689396	84.83356987	82.21063334
160811A00011	8/11/2016	2.25	8/11/2026		103.63113	101.6105133	99.63956553	97.71675181	95.84059165	94.00966074	92.22258836	90.47805499	88.77478995
160812A00006	8/12/2016	2.16	8/12/2026		103.58716	101.6298864	99.72123207	97.85964605	96.04363873	94.27177952	92.54269398	90.85506114	89.20761095
160815A00005	8/15/2016	2.23	8/17/2026		103.62966	101.5930262	99.6067029	97.66911678	95.77875913	93.93417899	92.13398047	90.37682022	88.66140504
160815A00006	8/15/2016	2.23	8/17/2026		103.62966	101.5930262	99.6067029	97.66911678	95.77875913	93.93417899	92.13398047	90.37682022	88.66140504
160815A00007	8/15/2016	2.23	8/17/2026		103.62966	101.5930262	99.6067029	97.66911678	95.77875913	93.93417899	92.13398047	90.37682022	88.66140504
160819A00015	10/12/2016	2.3	10/13/2026		104.16504	101.9682439	99.82854908	97.74406003	95.71295933	93.73350477	91.80402551	89.92291849	88.08864509
160824A00019	8/24/2016	1.98	8/25/2031		106.84851	103.1296882	99.59878828	96.24446563	93.05614788	90.02397859	87.13876384	84.39192311	81.77544413
160830A00035	8/30/2016	2.06	8/30/2024		100.04725	99.96418214	99.88125028	99.79845689	99.71580163	99.63328416	99.55090416	99.46866129	99.38655523
160830A00037	8/30/2016	2.16	8/29/2025		101.34669	100.2718286	99.21968865	98.18955187	97.18073372	96.19257783	95.22445448	94.27575935	93.34591217
160830A00038	8/30/2016	2.24	8/28/2026		103.72269	101.6556831	99.64017614	97.6745443	95.7572259	93.88671998	92.06158333	90.28042787	88.54191808
160906A00027	9/6/2016	2.03	9/8/2031		107.1148	103.3449707	99.76753922	96.37077964	93.14377682	90.07636092	87.15905133	84.38300517	81.73997005
160908A00022	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00023	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00024	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00025	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00026	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00027	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00028	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00030	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
160908A00031	9/8/2016	2.21	9/8/2026		103.69609	101.6268683	99.61053361	97.64534444	95.7296353	93.8618089	92.04033278	90.26373602	88.53060629
160908A00032	9/8/2016	2.17	9/8/2026		103.4959	101.4834733	99.52213143	97.61020585	95.74609225	93.92825193	92.15520851	90.42554482	88.7379
160908A00033	9/8/2016	2.17	9/8/2026		103.4959	101.4834733	99.52213143	97.61020585	95.74609225	93.92825193	92.15520851	90.42554482	88.7379
160908A00034	9/8/2016	2.17	9/8/2026		103.4959	101.4834733	99.52213143	97.61020585	95.74609225	93.92825193	92.15520851	90.42554482	88.7379
160908A00035	9/8/2016	2.3	9/8/2031		107.64637	103.8682508	100.28256	96.87759366	93.64245276	90.56698128	87.64171032	84.85780686	82.20702669
160908A00036	9/8/2016	2.3	9/8/2031		107.64637	103.8682508	100.28256	96.87759366	93.64245276	90.56698128	87.64171032	84.85780686	82.20702669
160922A00014	9/22/2016	2.06	9/22/2026		103.78687	101.6452308	99.55828347	97.52424853	95.54142024	93.60816167	91.72290124	89.88412951	88.09039623
160923A00009	9/23/2016	2.24	9/23/2031		107.41677	103.6462453	100.0678024	96.66975623	93.44122464	90.37206737	87.45283043	84.67469498	82.02943023
160928A00029	9/28/2016	2.52	9/29/2036		112.81968	106.4395105	100.5820004	95.19709359	90.24003117	85.67074545	81.45333003	77.55557355	73.94854896
160928A00030	9/28/2016	2.52	9/29/2036		112.81968	106.4395105	100.5820004	95.19709359	90.24003117	85.67074545	81.45333003	77.55557355	73.94854896
160928A00032	9/28/2016	2.52	9/29/2036		112.81968	106.4395105	100.5820004	95.19709359	90.24003117	85.67074545	81.45333003	77.55557355	73.94854896
160928A00033	9/28/2016	2.46	9/29/2036		112.45003	106.0865681	100.2446455	94.87430281	89.9308642	85.37433727	81.16888402	77.28235527	73.68588057
160928A00041	9/28/2016	3.26	9/29/2036	8/1/2024	117.37863	110.792467	104.7427111	99.17817984	94.05309045	89.32644632	84.96149746	80.92526559	77.18812571
160928A00042	9/28/2016	3.05	9/29/2036	8/1/2024	116.08487	109.5571685	103.5619689	98.04841212	92.97100606	88.28901769	83.96593643	79.96900163	76.26878636
160928A00044	9/28/2016	2.89	9/29/2036	8/1/2024	115.09915	108.6159888	102.6623558	97.18763671	92.14656081	87.49859588	83.20741374	79.24041957	75.56833734
160930A00005	9/30/2016	2.03	9/30/2024		100.10105	99.9325038	99.76452356	99.597105	99.43024535	99.26394184	99.09819171	98.93299223	98.7683407
160930A00032	9/30/2016	2.15	9/30/2031		106.88284	103.219471	99.74068988	96.43534094	93.29303043	90.30407031	87.45942537	84.75066471	82.16991711
160930A00033	9/30/2016	1.8	9/30/2026		101.21222	100.0973075	99.0050683	97.93484097	96.88599185	95.85791121	94.85001209	93.86172931	92.89251844
161005A00016	10/5/2016	2.32	10/6/2031		107.80745	103.9814022	100.352181	96.90770244	93.63672259	90.5287704	87.57408936	84.76358378	82.08876948
161014A00019	10/14/2016	2.39	10/15/2031		108.08018	104.2441817	100.6055414	97.15214545	93.87271752	90.75675655	87.79447822	84.97676102	82.29509682
161014A00026	10/14/2016	2.16	10/14/2031		107.69752	103.8644317	100.2289562	96.77894408	93.50308503	90.39084786	87.43242141	84.61866029	81.94103515
161014A00029	10/14/2016	2.51	10/15/2031		109.06524	105.1834405	101.5017661	98.00791182	94.69042376	91.53863685	88.54261525	85.69309738	82.98144547
161109A00018	11/9/2016	2.63	11/9/2026		105.10242	102.8222686	100.6029295	98.44236903	96.33863694	94.28986316	92.29425367	90.35008677	88.45570951
161116A00006	11/16/2016	2.39	11/16/2026		102.09317	100.8800408	99.69267599	98.53030232	97.39218092	96.27760133	95.18588015	94.11635976	93.06840707
161118A00026	12/20/2016	3.03	12/21/2026		106.38556	103.9762767	101.6340165	99.35654624	97.14171956	94.98747356	92.89182535	90.85286835	88.86876896
161207A00014	12/7/2016	2.75	12/8/2031		110.22879	106.2188854	102.4198185	98.81838849	95.40232394	92.16021278	89.08143605	86.15610738	83.37501731
161214A00023	12/14/2016	3.3	12/15/2031		122.95601	115.0766397	107.7700228	100.9913379	94.6994941	88.85680182	83.42867515	78.38336161	73.69169677
161214A00034	12/14/2016	2.65	12/14/2026		102.52531	101.2655965	100.0332176	98.82734907	97.64720039	96.49201129	95.36105036	94.25361372	93.16902367
161222A00013	12/22/2016	2.93	12/22/2026		106.125	103.8252951	101.5903509	99.41794707	97.30595634	95.25233741	93.25513088	91.31245537	89.42250392
161222A00030	12/22/2016	3.09	12/22/2026		106.85837	104.434054	102.0773377	99.78596306	97.55775982	95.39064255	93.2826069	91.2317259	89.23614651
161222A00036	12/22/2016	2.69	12/22/2026		102.54629	101.2984911	100.0776971	98.88309852	97.71391463	96.56939448	95.44881566	94.35148295	93.27672702
161222A00037	12/22/2016	3.08	12/22/2031		110.60717	106.7301487	103.0533454	99.56436302	96.25167157	93.10454185	90.1129844	87.2676933	84.55999459
161227A00073	12/27/2016	2.83	12/28/2026		105.44592	103.3052671	101.2239055	99.19981425	97.23105198	95.31575611	93.45213897	91.63848424	89.87314365



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
161229A00018	12/29/2016	2.46	12/29/2026		102.45089	101.1884839	99.95355936	98.74528666	97.56286845	96.40553803	95.2725579	94.1632184	93.07683636
161229A00019	12/29/2016	2.46	12/29/2026		102.45089	101.1884839	99.95355936	98.74528666	97.56286845	96.40553803	95.2725579	94.1632184	93.07683636
170105A00010	1/5/2017	2.61	1/5/2027		102.58188	101.2806928	100.0083379	98.76393681	97.54664585	96.35565363	95.19017974	94.04947328	92.93281148
170106A00030	1/6/2017	2.39	1/6/2027		102.46164	101.1595682	99.88639892	98.64125077	97.42327647	96.23166146	95.06562228	93.92440516	92.8072846
170111A00009	1/11/2017	3.16	1/11/2028		110.2356	106.7116781	103.3206563	100.0568101	96.9146967	93.88913578	90.9751954	88.16817871	85.46361139
170111A00011	1/11/2017	3.24	1/11/2029		113.92269	109.3149572	104.9228868	100.7352467	96.74144774	92.93150369	89.2959941	85.8260292	82.51321729
170111A00012	1/11/2017	3.31	1/11/2030		117.26923	111.5635495	106.1758764	101.0867871	96.27814277	91.73299814	87.43551679	83.37089317	79.52528034
170111A00013	1/11/2017	3.4	1/10/2031		120.35372	113.5453609	107.1760428	101.2150527	95.63397851	90.40652707	85.50835585	80.91691881	76.61132519
170111A00014	1/11/2017	3.47	1/12/2032		123.34375	115.4189022	108.0736331	101.2622671	94.94296153	89.07736287	83.63029879	78.56949921	73.86534298
170111A00016	1/11/2017	3.51	1/11/2033		126.11966	117.0858546	108.7887736	101.1639959	94.15305633	87.7028692	81.76520791	76.29623708	71.256092
170112A00015	1/12/2017	2.32	1/12/2027		102.37044	101.068995	99.7964602	98.55195026	97.33461721	96.1436458	94.97825195	93.83768129	92.72120779
170119A00006	1/19/2017	2.85	1/21/2025		100.78293	100.304129	99.82988499	99.3601305	98.89480189	98.4338367	97.97717364	97.52475255	97.07651442
170120A00008	1/20/2017	3.63	1/20/2034		129.7057	119.4932608	110.1993721	101.7357027	94.02286678	86.98947856	80.57130827	74.71053067	69.35505604
170120A00009	1/20/2017	3.67	1/22/2035		132.5606	121.2117403	110.9758906	101.7366093	93.39024663	85.84447803	79.01701284	72.83445599	67.23130394
170120A00010	1/20/2017	3.71	1/22/2036		135.29914	122.8204111	111.6644286	101.6818619	92.74103305	84.72574895	77.53340634	71.07333722	65.26536323
170120A00011	1/20/2017	3.75	1/20/2037		138.01593	124.4098823	112.3511823	101.6525943	92.15056376	83.70210636	76.18212193	69.48107102	63.50296378
170123A00039	1/23/2017	2.79	1/23/2026		103.29943	101.8227397	100.374661	98.95443563	97.56133143	96.19464146	94.85368286	93.53779581	92.24634261
170124A00017	1/24/2017	2.82	1/23/2032		110.62504	106.5566868	102.7043927	99.05449898	95.59432112	92.31207059	89.19678533	86.23826606	83.42701794
170130A00010	1/30/2017	2.92	1/30/2025		100.86466	100.361122	99.86260496	99.36903236	98.88033094	98.39642889	97.9172558	97.44274262	96.97282166
170130A00031	1/30/2017	2.96	7/30/2025		101.99713	100.9994897	100.0213416	99.0621179	98.12127318	97.19828296	96.29264249	95.40386591	94.53148534
170130A00036	1/30/2017	3.11	1/31/2033		112.68334	107.9771454	103.5501926	99.3828128	95.45689167	91.75573303	88.26393753	84.96729261	81.85267252
170130A00039	1/30/2017	2.74	1/31/2028		104.65102	102.6261821	100.6608305	98.75275203	96.89982843	95.10003496	93.3514356	91.65217856	90.00049202
170130A00043	1/30/2017	2.64	1/29/2027		103.0821	101.5735123	100.1001995	98.66106767	97.25506205	95.88116853	94.53841162	93.22585271	91.94258836
170130A00046	1/30/2017	2.52	1/30/2026		101.65412	100.6518147	99.66753675	98.70080712	97.75116454	96.81816398	95.901376	95.00038598	94.11479354
170203A00012	2/3/2017	3.63	2/2/2035		132.21234	120.8515608	110.6083376	101.3654237	93.01848695	85.47462648	78.6510653	72.47399879	66.87757936
170203A00013	2/3/2017	3.67	2/1/2036		134.90217	122.4191029	111.2626967	101.2828194	92.34712761	84.33887715	77.15500935	70.70448119	64.90680659
170207A00055	2/7/2017	2.36	2/8/2027		102.5278	101.1830823	99.86888728	98.58426686	97.32831321	96.10015386	94.89894999	93.72389485	92.57421228
170215A00043	2/15/2017	2.7	8/28/2024		100.09409	100.0165091	99.93905059	99.86171714	99.78450844	99.7074242	99.63046414	99.55362794	99.47691534
170216A00043	2/16/2017	3.17	2/16/2027		107.25134	104.6740314	102.1724209	99.74383532	97.38571132	95.09559219	92.87112278	90.7100446	88.61019115
170216A00044	2/16/2017	3.52	2/17/2032		123.97338	115.9248056	108.471433	101.5658279	95.16457967	89.22793892	83.71949098	78.60585978	73.85643958
170216A00045	2/16/2017	3.73	2/17/2037		137.95482	124.2745607	112.1589555	101.4176282	91.8844104	83.41414591	75.87993214	69.17073592	63.18933167
170224A00020	2/24/2017	3.08	2/24/2027		107.10086	104.5015539	101.9790897	99.5307284	97.15384967	94.84594341	92.60460419	90.42752616	88.31249823
170224A00021	2/24/2017	3.4	2/24/2032		123.11504	115.0777355	107.6368014	100.7445832	94.35747621	88.435563	82.94228296	77.84413387	73.11040112

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170224A00039	5/24/2017	3.17	5/24/2027		108.15143	105.2942853	102.5278359	99.84869754	97.25363606	94.73955629	92.30349504	89.94261467	87.65419697
170224A00044	5/24/2017	3.29	5/24/2029		115.3244	110.3103158	105.5471252	101.020947	96.7187413	92.62825231	88.73795747	85.03701968	81.51524301
170228A00014	2/28/2017	2.89	3/1/2027		107.0023	104.3821777	101.8399662	99.37287662	96.97823626	94.65348551	92.39617236	90.20394703	88.07455695
170228A00015	2/28/2017	2.87	5/28/2025		101.50036	100.6751569	99.86335958	99.06463867	98.27868008	97.50517967	96.74384289	95.99438443	95.25652783
170309A00014	3/9/2017	2.58	3/9/2027		102.94575	101.5534968	100.1935135	98.86478526	97.56633811	96.29723631	95.05658067	93.8435068	92.6571834
170313A00032	3/13/2017	3.69	6/14/2032		126.13399	117.6769016	109.8671958	102.6515668	95.98136824	89.8121805	84.10342383	78.81800817	73.92201669
170313A00033	3/13/2017	3.31	3/15/2027		107.87982	105.2178223	102.635609	100.1302947	97.69911622	95.33942898	93.04870085	90.82450663	88.66452267
170313A00034	3/13/2017	3.31	3/15/2027		107.87982	105.2178223	102.635609	100.1302947	97.69911622	95.33942898	93.04870085	90.82450663	88.66452267
170313A00035	3/13/2017	3.31	3/15/2027		107.87982	105.2178223	102.635609	100.1302947	97.69911622	95.33942898	93.04870085	90.82450663	88.66452267
170313A00041	3/13/2017	3.21	3/15/2032		111.55694	107.4894234	103.6398321	99.99419996	96.53956844	93.26390853	90.1560477	87.20560277	84.4029186
170313A00045	3/13/2017	3.22	3/15/2032		111.96794	107.7745349	103.8076342	100.0526904	96.49621015	93.12566692	89.92942536	86.89667154	84.01734931
170317A00044	3/17/2017	3.11	3/17/2027		106.91307	104.4049078	101.9720657	99.61176534	97.32135582	95.09830331	92.94018478	90.8446822	88.80957714
170322A00022	3/22/2017	3.89	9/23/2041		153.09305	133.9127847	117.5646095	103.603181	91.6560162	81.41119807	72.60721081	65.0245286	58.47864712
170322A00023	3/22/2017	3.82	9/22/2039		145.63637	128.9520201	114.4977647	101.9566128	91.0585082	81.573144	73.30391248	66.08280363	59.76609915
170322A00024	3/22/2017	3.72	9/22/2036		136.92561	123.6996365	111.944658	101.4865692	92.17281816	83.86963559	76.4596311	69.83970794	63.91925277
170322A00025	3/22/2017	3.58	3/22/2033		127.20964	117.9336902	109.4286331	101.6257679	94.46287377	87.88356517	81.83671586	76.27594258	71.15914198
170322A00026	3/22/2017	3.22	3/22/2028		111.12759	107.3895159	103.7988276	100.3488788	97.03336278	93.84629331	90.78198639	87.835043	85.00033305
170322A00033	3/22/2017	3.61	3/24/2042		130.11253	119.0268419	109.2309816	100.5530487	92.84603622	85.98400662	79.85888106	74.37774187	69.46056305
170327A00070	3/29/2017	3.05	3/29/2027		107.67448	104.9695941	102.3468387	99.80319517	97.33578197	94.94184327	92.61874238	90.36395566	88.17506679
170327A00072	3/29/2017	3.09	3/29/2027		107.78165	105.0753234	102.4511526	99.9061261	97.43736152	95.042102	92.7177099	90.46166068	88.27153716
170327A00078	3/27/2019	3.04	3/27/2026		104.04063	102.3848468	100.7633926	99.17526634	97.61950393	96.09517834	94.60139798	93.13730493	91.70207335
170327A00079	3/27/2019	3.19	3/29/2027		107.69151	104.994203	102.3786369	99.84181396	97.38087094	94.99306933	92.67578875	90.42652102	88.24286442
170327A00080	3/27/2019	3.43	3/27/2029		115.48452	110.6280249	106.0074334	101.6099776	97.42365678	93.43718261	89.63993253	86.02190677	82.57368824
170328A00015	3/28/2017	2.75	11/29/2024		100.48205	100.1484231	99.8170093	99.4877847	99.16072767	98.83581688	98.51303129	98.19235011	97.87375285
170406A00029	4/6/2017	3.01	4/6/2027		107.05384	104.4191647	101.8655792	99.39005534	96.98970248	94.66175802	92.40358081	90.21264481	88.08653312
170406A00031	4/6/2017	3.01	4/6/2027		107.05384	104.4191647	101.8655792	99.39005534	96.98970248	94.66175802	92.40358081	90.21264481	88.08653312
170406A00032	4/6/2017	3.01	4/6/2027		107.05384	104.4191647	101.8655792	99.39005534	96.98970248	94.66175802	92.40358081	90.21264481	88.08653312
170406A00033	4/6/2017	3.01	4/6/2027		107.05384	104.4191647	101.8655792	99.39005534	96.98970248	94.66175802	92.40358081	90.21264481	88.08653312
170406A00034	4/6/2017	3.01	4/6/2027		107.05384	104.4191647	101.8655792	99.39005534	96.98970248	94.66175802	92.40358081	90.21264481	88.08653312
170406A00036	4/6/2017	3.07	4/6/2032		111.45418	107.2366551	103.2490729	99.47653715	95.90523935	92.52236869	89.31603295	86.27518622	83.38956282
170407A00001	4/6/2017	2.97	4/6/2027		106.69922	104.1511592	101.6807962	99.28524682	96.96175299	94.70767869	92.5205034	90.39781617	88.33730995
170427A00044	4/27/2017	3.02	4/27/2027		107.4954	104.7203981	102.031556	99.42563561	96.89954179	94.45031852	92.0751414	89.77131068	87.53624468
170427A00046	4/27/2017	3.1	4/27/2028		111.02076	107.1844794	103.5029304	99.96896582	96.57581703	93.31706888	90.18663864	87.17875651	84.28794738

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170427A00047	4/27/2017	3.18	4/27/2029		114.57541	109.6530218	104.9738221	100.5244343	96.29229493	92.26559961	88.43325242	84.78481921	81.31048411
170502A00028	5/2/2017	2.84	5/3/2027		107.41906	104.6204761	101.9094076	99.28254934	96.73674856	94.2689941	91.87640877	89.55624225	87.30586445
170511A00011	5/11/2017	2.41	5/11/2027		102.92532	101.4494898	100.0093059	98.60361426	97.23130614	95.89131738	94.58262642	93.30425223	92.05525231
170524A00027	5/24/2017	2.32	5/24/2027		102.79312	101.3181617	99.87886732	98.47408137	97.10269458	95.76364242	94.45590285	93.17849428	91.93047361
170609A00043	6/9/2017	3.07	6/9/2032		122.32759	113.9816918	106.2786291	99.16530858	92.59328013	86.51831205	80.90000381	75.70143645	70.88885634
170609A00052	6/11/2018	2.9	6/9/2027		107.52109	104.6292993	101.8306485	99.12165255	96.4989711	93.95940651	91.49989685	89.11750936	86.80943434
170613A00032	6/13/2017	2.45	6/13/2025		101.34603	100.4768736	99.62259748	98.78282626	97.95719263	97.14534159	96.34692994	95.56162581	94.78910818
170614A00019	6/14/2017	2.48	6/13/2025		101.25999	100.3927758	99.54039682	98.70247035	97.87863094	97.06852535	96.27181208	95.48816086	94.71725223
170619A00089	6/16/2017	2.79	6/16/2027		106.96921	104.1685078	101.4592895	98.83804206	96.30140723	93.84617443	91.46927362	89.16776821	86.93884847
170619A00092	6/16/2017	2.79	6/16/2027		106.96921	104.1685078	101.4592895	98.83804206	96.30140723	93.84617443	91.46927362	89.16776821	86.93884847
170619A00095	6/16/2017	2.79	6/16/2027		106.96921	104.1685078	101.4592895	98.83804206	96.30140723	93.84617444	91.46927362	89.16776821	86.93884847
170619A00096	6/16/2017	2.79	6/16/2027		106.96921	104.1685078	101.4592895	98.83804206	96.30140723	93.84617443	91.46927362	89.16776821	86.93884847
170619A00101	6/16/2017	2.74	6/16/2027		106.56879	103.8658576	101.2503169	98.71882611	96.26819154	93.89535991	91.59741121	89.37155207	87.21510952
170622A00036	6/22/2017	3.23	6/22/2032		122.55002	114.2087304	106.5105576	99.40228262	92.83535764	86.7654704	81.15215479	75.95843896	71.15052726
170622A00037	6/22/2017	3.27	6/22/2033		125.07353	115.6383946	107.0100996	99.11490337	91.88617243	85.26366299	79.19287819	73.62449314	68.51383998
170622A00038	6/22/2017	3.32	6/22/2034		127.70008	117.1621825	107.612203	98.95144061	91.09155298	83.95342311	77.4661529	71.56617098	66.19644144
170622A00039	6/22/2017	3.36	6/22/2035		130.18904	118.5514546	108.0989777	98.7032547	90.25049328	82.63974366	75.78138923	69.59582113	64.0122738
170622A00040	6/22/2017	3.41	6/23/2036		132.72088	119.9765797	108.6312869	98.5218813	89.50512076	81.45512499	74.2611894	67.82588401	62.06339896
170623A00028	6/23/2017	2.79	6/23/2027		107.31914	104.3916623	101.5596777	98.81955897	96.16784108	93.60120885	91.1164896	88.71064621	86.38077058
170711A00010	7/11/2017	2.38	7/12/2027		103.0982	101.53616	100.0134175	98.52866783	97.08065683	95.66818169	94.29008825	92.94526872	91.6326594
170713A00021	7/13/2017	3.25	7/13/2037		128.49312	117.3181396	107.3668402	98.49216278	90.56579192	83.4756531	77.1237612	71.42436491	66.30234536
170728A00040	7/28/2017	2.44	1/27/2025		100.67252	100.1769446	99.68625088	99.20036229	98.71920838	98.24272014	97.77082987	97.30347119	96.84057898
170802A00013	8/2/2017	2.5	8/2/2024		100.09701	100.0058297	99.91481753	99.82397419	99.73329918	99.64279203	99.55245227	99.46227943	99.37227306
170803A00020	8/3/2017	2.84	8/3/2027		107.79146	104.7469549	101.8052523	98.96230438	96.21425108	93.55740591	90.988247	88.50340877	86.09967399
170803A00021	8/3/2017	2.5	8/5/2024		100.01682	100.0029518	99.98909685	99.97525544	99.96142756	99.94761319	99.93381232	99.92002491	99.90625095
170804A00005	8/4/2017	1.94	8/5/2024		100.00885	99.99774497	99.98664909	99.97556392	99.96448945	99.95342567	99.94237254	99.93133006	99.92029819
170809A00005	8/9/2017	2.61	8/11/2025		101.72139	100.6928951	99.68516849	98.69758159	97.72953488	96.78045242	95.84978072	94.93698766	94.04156148
170815A00006	8/15/2017	2.5	8/15/2024		100.04342	100.0018333	99.96030292	99.91882466	99.87739841	99.83602406	99.79470152	99.75343068	99.71221143
170818A00003	8/18/2017	2.23	8/20/2024		100.04956	99.99406262	99.93863968	99.8832948	99.82802781	99.77283853	99.71772678	99.66269241	99.60773522
170821A00038	8/23/2017	2.39	8/23/2024		100.0668	100.0029744	99.93924439	99.87560944	99.81206932	99.74862381	99.68527268	99.62201573	99.55885272
170822A00019	8/22/2017	2.44	8/22/2024		100.05876	99.99779517	99.93691821	99.87612945	99.8154287	99.75481575	99.69429042	99.63385253	99.57350187
170822A00020	8/22/2017	2.59	8/22/2025		101.77009	100.7116594	99.67520859	98.66005419	97.6655446	96.69105463	95.73598406	94.79975652	93.88181821
170822A00023	8/23/2017	3.95	8/23/2028		115.5502	111.3000162	107.2332423	103.340947	99.61468816	96.04647877	92.62876027	89.35437691	86.216552

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
170829A00066	8/29/2017	2.11	8/29/2024		100.13508	99.96924156	99.80395459	99.63921568	99.47502211	99.31137115	99.14826012	98.98568636	98.8236472
170908A00017	9/9/2019	2.32	9/9/2024		100.09615	99.98546298	99.87503262	99.76485863	99.6549401	99.54527609	99.43586569	99.32670798	99.21780206
170914A00039	9/14/2017	2.23	9/16/2024		100.11936	99.98918725	99.85936952	99.72990508	99.60079242	99.47203005	99.34361651	99.21555031	99.08783
170915A00001	9/15/2017	2.43	9/16/2024		100.12779	99.99778833	99.8681431	99.73884866	99.60990355	99.48130632	99.35305552	99.22514973	99.0975875
170918A00007	9/18/2017	2.8	9/20/2027		108.06491	104.8847484	101.8153809	98.8522958	95.99119727	93.22799054	90.55877122	87.9798151	85.48756856
170919A00073	9/19/2017	2.28	9/19/2024		100.13456	99.99609583	99.85802532	99.72035109	99.58307136	99.44618441	99.30968849	99.17358187	99.03786286
170921A00055	9/21/2017	2.82	9/21/2027		107.75109	104.7061112	101.7673153	98.93032968	96.19098785	93.54532258	90.9895548	88.52008327	86.13347488
170921A00056	9/21/2017	2.82	9/21/2027		107.75109	104.7061112	101.7673153	98.93032968	96.19098785	93.54532258	90.9895548	88.52008327	86.13347488
170921A00057	9/21/2017	2.79	9/21/2027		107.35247	104.4194587	101.5875947	98.85273121	96.21092128	93.6584061	91.19160448	88.80710311	86.50164748
170929A00046	9/29/2017	2.49	9/30/2027		103.23759	101.6120123	100.0287534	98.48636844	96.98347022	95.51872939	94.09087168	92.69867506	91.3409673
171005A00006	10/5/2017	2.32	10/7/2024		100.1963	100.0081539	99.82072518	99.63401017	99.44800469	99.26270464	99.07810592	98.8942045	98.71099636
171011A00013	10/11/2017	2.77	10/13/2026		105.20605	102.997526	100.8463421	98.75059827	96.70847017	94.71820906	92.77813783	90.88664738	89.04219325
171013A00024	10/13/2017	2.47	10/15/2024		100.33448	100.0414785	99.75020059	99.46063576	99.17276884	98.88658483	98.60206887	98.3192063	98.03798263
171018A00011	10/18/2017	2.68	10/18/2027		108.3395	105.0681901	101.9132938	98.86996459	95.93359196	93.09978695	90.36436993	87.72335907	85.17295951
171025A00026	10/25/2017	2.64	10/25/2024		100.29971	100.0622758	99.82596984	99.59078673	99.35671841	99.12375695	98.89189448	98.66112321	98.43143541
171026A00008	10/26/2017	2.6	10/25/2024		100.29018	100.0527554	99.81646462	99.58129661	99.34724334	99.11429687	98.88244934	98.65169295	98.42201999
171026A00009	10/26/2017	2.75	10/27/2025		102.40313	101.1627423	99.95234557	98.77086651	97.61727784	96.49060046	95.38990065	94.31428743	93.26291016
171026A00010	10/26/2017	2.84	10/26/2026		105.4668	103.2205884	101.0334061	98.90327072	96.82827924	94.80660887	92.8365127	90.91631582	89.04441169
171026A00011	10/26/2017	2.94	10/26/2027		108.81432	105.5242997	102.3517065	99.2916326	96.3394104	93.49059795	90.74096613	88.08648688	85.52332216
171030A00023	10/30/2017	2.9	11/1/2027		108.73442	105.4294523	102.2429538	99.16995841	96.20574097	93.34580546	90.58587194	87.92186454	85.34990024
171109A00016	11/9/2017	2.94	11/9/2032		119.4569	111.7317535	104.6064405	98.03007005	91.9563566	86.34317862	81.15218308	76.34842923	71.90006772
171129A00020	11/29/2017	2.89	11/30/2026		105.87717	103.5299583	101.2466852	99.02526128	96.86368078	94.76001425	92.71240535	90.7190676	88.77828137
171204A00009	12/4/2017	2.23	12/4/2024		100.24085	100.0030189	99.7665177	99.53133364	99.29745482	99.06486945	98.83356589	98.60353264	98.37475835
171204A00024	12/4/2017	2.71	12/4/2024		100.63097	100.201092	99.774892	99.35232746	98.93335188	98.51791957	98.10598566	97.69750598	97.29243715
171206A00020	12/6/2017	2.62	12/6/2027		103.78164	102.0276799	100.3219292	98.66267057	97.04826012	95.47712478	93.94775846	92.45871874	91.00862369
171206A00038	12/6/2017	2.69	12/6/2027		108.78045	105.3667632	102.0789349	98.91167552	95.8599463	92.91894544	90.08409562	87.3510323	84.71559273
171206A00041	12/6/2017	2.44	12/6/2024		100.45004	100.0968761	99.74620002	99.39798725	99.05221182	98.7088481	98.36787082	98.02925506	97.69297626
171206A00048	12/6/2017	3.04	12/6/2032		123.14607	114.2752312	106.1251196	98.63310173	91.74229744	85.40102241	79.56228932	74.18335928	69.22533804
171207A00024	12/7/2017	2.93	12/7/2027		108.87399	105.5566593	102.3622954	99.2856537	96.32174551	93.46582093	90.71335631	88.06004209	85.50177155
171207A00025	12/7/2017	2.91	12/7/2027		108.60685	105.3600243	102.2327986	99.22008572	96.31704754	93.51907734	90.82178745	88.2209975	85.71272355
171207A00026	12/7/2017	2.93	12/7/2027		108.87399	105.5566593	102.3622954	99.2856537	96.32174551	93.46582093	90.71335631	88.06004209	85.50177155
171219A00009	12/19/2017	2.3	12/19/2024		100.269	100.0228986	99.77824539	99.53502963	99.29323733	99.05285475	98.81386831	98.57626464	98.34003054
171219A00063	12/19/2017	2.8	12/20/2027		109.26975	105.8100107	102.4790639	99.27144252	96.18194157	93.20560345	90.33770473	87.57374378	84.90942922

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
171219A00067	12/19/2017	2.72	12/20/2027		108.15066	104.9940543	101.9535964	99.02431934	96.20150098	93.48064719	90.85747934	88.32792266	85.8880954
171227A00018	12/27/2017	2.83	12/27/2024		100.64669	100.2362898	99.82923659	99.42548904	99.02500699	98.62775091	98.23368191	97.84276173	97.4549527
180102A00021	1/2/2018	2.82	1/2/2026		102.99855	101.5826935	100.1932199	98.82945296	97.49074236	96.17645915	94.88599505	93.61876146	92.37418878
180104A00017	1/4/2018	2.77	1/3/2025		100.65573	100.2262351	99.80040469	99.37818989	98.9595447	98.54442399	98.13278335	97.72457914	97.31976843
180104A00018	1/4/2018	2.97	1/4/2027		106.3586	103.9123254	101.5350941	99.22457098	96.97851374	94.79476899	92.67126804	90.60602306	88.5971234
180104A00023	1/4/2018	2.91	1/4/2028		107.88548	104.8879571	101.9993083	99.21489277	96.53029342	93.94130705	91.44393265	89.03436039	86.70896137
180104A00024	1/4/2018	2.98	1/4/2028		109.04712	105.7250067	102.5276391	99.44960992	96.48577548	93.63124356	90.88135952	88.23169338	85.67802765
180104A00041	1/4/2018	3.08	1/4/2033		120.86879	112.9096183	105.5781134	98.8201603	92.58661997	86.83284771	81.51825862	76.6059374	72.06228755
180109A00028	1/9/2018	2.6	1/9/2025		100.6658	100.2192969	99.7767597	99.33813787	98.90337942	98.47243329	98.04524935	97.62177832	97.20197179
180110A00028	1/10/2018	2.85	1/10/2025		100.72632	100.2776096	99.83290004	99.39214077	98.95527914	98.52226349	98.09304304	97.66756793	97.24578917
180110A00029	1/10/2018	3.13	1/10/2028		110.12264	106.6033642	103.216729	99.95702903	96.81883551	93.79698137	90.88654704	88.08284725	85.38141858
180111A00007	1/11/2018	2.66	1/14/2025		100.71757	100.2573026	99.80125156	99.34935928	98.90156886	98.45782443	98.01807115	97.58225515	97.15032354
180116A00014	1/16/2018	3.01	1/19/2027		106.58306	104.0940858	101.6764645	99.32774598	97.04557614	94.82769598	92.67193689	90.57621653	88.53853478
180116A00015	1/16/2018	3.06	1/18/2028		109.9497	106.4119537	103.0083697	99.73314569	96.58075773	93.54594992	90.62371978	87.80930462	85.09816869
180118A00004	1/18/2018	2.88	1/17/2025		100.77647	100.3085714	99.84502945	99.38577922	98.93076112	98.47991667	98.0331885	97.59052025	97.15185663
180118A00037	1/18/2018	2.88	1/21/2025		100.79738	100.3185364	99.84425218	99.37445776	98.9090895	98.44808493	97.99138274	97.53892279	97.09064605
180118A00039	1/18/2018	3.09	1/19/2027		106.78184	104.290361	101.8702957	99.51918645	97.23467776	95.01450901	92.85651012	90.75859731	88.71876908
180125A00027	1/25/2018	2.69	1/24/2025		100.64116	100.2074635	99.77807851	99.35293505	98.93196679	98.51510888	98.10229783	97.69347149	97.28856901
180126A00011	1/26/2018	2.72	1/26/2028		104.39467	102.5581005	100.7733859	99.03863899	97.35205673	95.71191486	94.11656372	92.56442451	91.0539857
180126A00029	1/26/2018	2.88	1/27/2025		100.82873	100.3334669	99.84306742	99.35745925	98.8765724	98.40033824	97.92868943	97.46155995	96.99888505
180130A00070	1/30/2018	3.14	1/29/2027		106.99414	104.4733029	102.0254583	99.64806893	97.33870257	95.09502612	92.91480096	90.79587851	88.73619596
180130A00085	1/30/2018	2.79	1/30/2025		100.8629	100.3585976	99.85932788	99.36501994	98.87560012	98.39099615	97.91113722	97.43595386	96.96537798
180131A00022	1/31/2018	2.96	1/30/2025		100.88492	100.3813195	99.88274337	99.38911207	98.90035237	98.41639246	97.93716192	97.46259169	96.99261408
180201A00022	2/1/2018	2.99	2/3/2025		100.92243	100.4078677	99.89854914	99.39439292	98.89532078	98.40125609	97.91212374	97.42785013	96.94836308
180205A00019	2/5/2018	2.88	2/5/2025		100.94246	100.4216078	99.90612924	99.39594304	98.89096787	98.39112408	97.89633365	97.40652012	96.9216086
180207A00002	2/7/2018	3.13	2/6/2026		103.7367	102.220848	100.7348885	99.27801112	97.84943432	96.44840395	95.07419223	93.72609654	92.40343836
180207A00003	2/7/2018	3.28	2/7/2028		110.91034	107.3003669	103.8290401	100.4902793	97.27830173	94.18760925	91.21297293	88.34941818	85.59221096
180222A00025	2/22/2018	3.48	2/22/2033		127.39909	118.1357115	109.6383904	101.8392212	94.67666582	88.09492565	82.04337828	76.47607242	71.35127434
180222A00026	2/22/2018	2.98	2/21/2025		101.08997	100.5251409	99.96662156	99.41431067	98.86810495	98.32790345	97.79360743	97.2651203	96.74234758
180222A00027	2/22/2018	3.24	2/22/2028		111.40995	107.7346546	104.2020137	100.8056982	97.53969683	94.39829805	91.37607337	88.46786162	85.66875414
180305A00030	3/5/2018	3.12	3/5/2025		101.34894	100.6732993	100.00671	99.3489905	98.69996412	98.059459	97.42730774	96.80334732	96.18741893
180309A00011	3/9/2018	3.19	3/10/2025		101.42909	100.7398205	100.0599736	99.38935355	98.72777283	98.0750491	97.43100487	96.79546737	96.16826839
180313A00026	3/13/2018	3.34	3/13/2028		111.47989	107.7599458	104.1858192	100.7509738	97.44920349	94.27461577	91.22161368	88.28487914	85.45935736



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180321A00015	3/21/2018	3.02	3/21/2025		101.03698	100.4840511	99.93810966	99.39901201	98.86662285	98.34081054	97.82144694	97.30840731	96.80157019
180322A00030	3/22/2018	2.79	3/24/2025		100.71462	100.296882	99.88348576	99.47435296	99.06941046	98.66858687	98.27181247	97.87901925	97.49014076
180322A00040	3/22/2018	3.16	3/21/2031		113.18882	108.6591021	104.3816092	100.3399665	96.51898179	92.90455223	89.48357925	86.2438904	83.17416798
180322A00044	3/22/2018	3.18	3/22/2033		113.87742	109.0654745	104.543536	100.290986	96.28884092	92.5196136	88.96718426	85.61668409	82.45438919
180323A00013	3/23/2018	3.18	3/23/2028		111.48997	107.7294946	104.1176207	100.6476301	97.31315081	94.10813552	91.02684294	88.06382029	85.21388697
180328A00010	3/28/2018	3.1	3/28/2025		101.29742	100.6378911	99.98694146	99.34440692	98.71012497	98.08393733	97.46568972	96.85523178	96.25241693
180329A00003	3/29/2018	3.08	3/29/2028		111.17871	107.4074848	103.7858761	100.3070966	96.96470714	93.75259828	90.66497096	87.69631877	84.84141126
180402A00013	4/2/2018	2.99	4/3/2028		108.85301	105.732079	102.7292784	99.83932944	97.0572239	94.37820961	91.79777542	89.31163728	86.91572527
180403A00006	4/3/2018	3.07	4/3/2028		111.18941	107.404053	103.769341	100.2784159	96.92477493	93.70224926	90.60498462	87.62742323	84.76428685
180403A00014	4/3/2018	3.11	4/3/2025		101.51852	100.7679068	100.0284482	99.29989838	98.58201674	97.87456971	97.17733053	96.49007895	95.81260102
180403A00041	4/3/2018	2.91	4/3/2025		101.29275	100.61588	99.94805266	99.28908363	98.63879746	97.99702328	97.36359469	96.7383496	96.12113008
180410A00002	4/10/2018	3.14	4/11/2033		113.80652	108.9535772	104.395553	100.1113103	96.08140725	92.28794525	88.71443567	85.34567858	82.16765288
180412A00034	4/12/2018	3.23	4/15/2030		118.3454	112.3141036	106.6333768	101.2809001	96.23589716	91.47901837	86.99223568	82.75874479	78.76287549
180412A00036	4/12/2018	3.54	4/15/2038		140.11979	125.0563424	111.8577609	100.2790311	90.10869536	81.16409555	73.28730974	66.34168092	60.20884846
180503A00040	5/3/2018	3.3	5/5/2025		101.67838	100.9147234	100.1625382	99.42156582	98.6915567	97.97226866	97.26346664	96.56492238	95.87641421
180508A00038	5/8/2018	3.57	5/9/2033		115.38021	110.4307646	105.7839378	101.4179203	97.31265393	93.44968155	89.81200799	86.38397374	83.15114046
180517A00018	5/17/2018	3.46	5/17/2033		115.50309	110.5326591	105.8668298	101.4836026	97.36275098	93.48566586	89.83521499	86.39561507	83.15231583
180517A00024	5/17/2018	3.46	5/17/2033		115.50309	110.5326591	105.8668298	101.4836026	97.36275098	93.48566586	89.83521499	86.39561507	83.15231583
180521A00025	5/21/2018	3.24	5/21/2025		101.8647	101.0553749	100.258912	99.47500941	98.70337149	97.94371169	97.19575235	96.45922439	95.73386689
180529A00042	5/29/2018	3.42	5/30/2028		112.54984	108.5944707	104.8016878	101.1639652	97.6741651	94.32551496	91.11158672	88.02627759	85.0637919
180529A00057	5/29/2018	3.09	5/30/2028		107.7887	105.0927176	102.4944514	99.98963404	97.57420914	95.2443228	92.99631215	90.82669468	88.7321583
180530A00024	5/30/2018	3.44	5/30/2029		116.10409	111.0548674	106.2588038	101.7018843	97.37094006	93.25359309	89.33820473	85.61382795	82.07016283
180530A00025	5/30/2018	3.49	5/30/2030		119.3509	113.1948588	107.4021303	101.94933	96.81469675	91.97796959	87.42027755	83.12403746	79.07285996
180530A00026	5/30/2018	3.55	5/30/2031		122.33586	115.070414	108.2970322	101.9796796	96.08513474	90.58276045	85.44429037	80.64363448	76.15670115
180530A00027	5/30/2018	3.61	6/1/2032		125.40966	117.0165379	109.2637852	102.0988678	95.47382513	89.34484801	83.6719	78.41837474	73.55078609
180530A00028	5/30/2018	3.67	5/31/2033		128.47773	118.9563448	110.2405855	102.2574466	94.94090537	88.23122219	82.07431292	76.42118721	71.22744492
180530A00030	5/30/2018	3.68	5/30/2034		131.09347	120.4563126	110.8063495	102.04574	94.08684198	86.85110056	80.26806323	74.27450612	68.81365844
180605A00031	6/5/2018	3.37	6/5/2030		109.72991	106.5290547	103.4664178	100.5347719	97.72731912	95.03766519	92.45979312	89.98803826	87.61706533
180615A00039	6/15/2018	3.49	6/15/2028		112.98314	108.974603	105.132493	101.4490354	97.91685648	94.52896304	91.27872103	88.15983517	85.16632993
180618A00036	6/18/2018	3.89	6/18/2048		169.71468	142.5589004	120.6275576	102.8465625	88.37112853	76.53548665	66.81387116	58.79019968	52.13447292
180619A00020	6/19/2018	3.1	6/19/2025		101.95917	101.0708422	100.1979955	99.34022454	98.49714087	97.66836928	96.85354728	96.05232453	95.26436233
180619A00021	6/19/2018	3.24	6/19/2028		112.5823	108.5557764	104.6973154	100.9990268	97.4534312	94.05343705	90.79231862	87.66369524	84.66151175
180620A00014	6/20/2018	3.4	6/20/2028		112.68216	108.6654203	104.8160684	101.1262528	97.58853283	94.1958538	90.94152424	87.81919561	84.82284287

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180620A00038	6/20/2018	3.4	6/20/2028		112.68216	108.6654203	104.8160684	101.1262528	97.58853283	94.1958538	90.94152424	87.81919561	84.82284287
180621A00017	6/21/2018	3.42	6/21/2028		112.77045	108.7491892	104.895591	101.2017909	97.66033191	94.26414363	91.00652016	87.88109942	84.88184374
180621A00068	6/21/2018	3.32	6/23/2025		102.07062	101.1725266	100.2902398	99.42334518	98.57144212	97.73414393	96.9110771	96.10188075	95.30620613
180622A00004	6/22/2018	3.47	12/22/2028		114.76548	110.1935686	105.8329766	101.6728264	97.70285913	93.91339313	90.29528862	86.83991459	83.53911788
180622A00005	6/22/2018	3.5	7/2/2029		116.69013	111.5340355	106.6407762	101.9955605	97.58450391	93.39456962	89.41351226	85.629826	82.03269617
180622A00006	6/22/2018	3.53	12/21/2029		118.31422	112.6376619	107.2739824	102.2042702	97.41085234	92.87720659	88.58788081	84.52841851	80.68528981
180628A00068	6/28/2018	3.12	6/28/2028		109.80186	106.5019141	103.3331808	100.2895767	97.36533486	94.55498891	91.85335538	89.25551754	86.75681008
180713A00031	7/13/2018	3.06	7/14/2025		101.04853	100.5076869	99.97414459	99.44774155	98.92831921	98.41572392	97.90980676	97.41042339	96.91743382
180716A00054	7/16/2018	3.59	7/16/2040		146.93694	129.2065006	113.96468	100.8407075	89.52125419	79.74124748	71.27619861	63.93578433	57.55847263
180716A00062	7/16/2018	2.91	7/16/2025		101.03805	100.4957929	99.960886	99.43316414	98.912467	98.39863925	97.8915304	97.39099458	96.89689036
180717A00021	7/17/2018	3.34	7/17/2028		111.37671	107.6874142	104.1513238	100.7611328	97.50993011	94.39117259	91.39866281	88.52652896	85.76920584
180717A00026	7/17/2018	3.24	7/16/2025		102.34391	101.3266371	100.3299401	99.35319121	98.39579246	97.45716966	96.53677121	95.63406696	94.74854723
180717A00047	7/17/2018	3.3	9/17/2025		102.74843	101.6139956	100.5046191	99.41947854	98.35778522	97.3187846	96.30175415	95.30600179	94.33086421
180718A00008	7/18/2018	3.37	7/18/2028		112.50643	108.4458512	104.5582368	100.8352415	97.26896912	93.85194656	90.57709878	87.43772521	84.42747783
180719A00064	7/19/2018	3.3	7/21/2025		102.2686	101.2938377	100.3376623	99.39954647	98.47898158	97.57547802	96.68856427	95.81778604	94.9627055
180719A00065	7/19/2018	3.36	7/20/2026		105.68745	103.7043344	101.7687648	99.87930418	98.03457212	96.23323908	94.47402403	92.75569235	91.07705381
180727A00028	7/27/2018	3.25	7/27/2026		105.79743	103.7895871	101.8304049	99.91839762	98.05213766	96.23025057	94.45141266	92.71434875	91.01783002
180727A00038	7/27/2018	3.36	7/25/2025		102.35928	101.3732142	100.4061559	99.45755513	98.5268868	97.61364557	96.71734492	95.83751632	94.97370836
180727A00039	7/27/2018	3.48	7/27/2028		113.36136	109.2298872	105.2746418	101.4871537	97.85940989	94.38382328	91.05320747	87.86075353	84.80000812
180730A00081	7/30/2018	3.5	7/28/2028		113.45149	109.3155054	105.3560281	101.5645752	97.9331164	94.45404806	91.12016864	87.92465503	84.86104069
180813A00045	8/13/2018	2.89	8/13/2025		101.12329	100.5393623	99.96397083	99.39690705	98.83797076	98.28696859	97.7437136	97.20802503	96.67972805
180814A00010	8/14/2018	3.1	8/14/2025		102.38798	101.345719	100.324674	99.32420098	98.34368226	97.38252478	96.44015879	95.51603668	94.60963199
180814A00032	8/14/2018	3.1	8/14/2025		102.38798	101.345719	100.324674	99.32420099	98.34368226	97.38252479	96.44015879	95.51603668	94.60963199
180814A00033	8/14/2018	3.25	8/13/2027		109.53654	106.4285949	103.4262307	100.5252656	97.72170609	95.01173979	92.3917263	89.85818825	87.40780299
180816A00038	8/16/2018	3.38	8/16/2028		113.15079	108.9686389	104.9668632	101.1367015	97.46986651	93.95851692	90.5952305	87.37297945	84.28510723
180820A00055	8/20/2018	3.37	8/21/2028		113.15884	108.9627317	104.9480619	101.1059981	97.4281843	93.90671494	90.53410842	87.30328177	84.20752721
180823A00035	8/23/2018	3.05	8/22/2025		102.39912	101.3350952	100.2931734	99.27266924	98.2729271	97.29331771	96.33323704	95.39210501	94.46936434
180823A00053	8/23/2018	3.2	8/23/2028		113.04806	108.8329286	104.800676	100.9423685	97.24956012	93.71426199	90.32891469	87.08636284	83.97983115
180823A00055	8/23/2018	3.44	8/23/2033		128.28778	118.4831695	109.5304604	101.3504795	93.87182087	87.03004352	80.76695855	75.02999252	69.77161859
180827A00020	8/27/2018	3.21	8/27/2025		102.47245	101.3964861	100.343112	99.31162153	98.30133759	97.31161085	96.3418182	95.39136151	94.4596664
180828A00032	8/28/2018	3.49	8/29/2033		128.78554	118.9422842	109.9550682	101.7442499	94.23800509	87.37152376	81.08629126	75.32944645	70.05320827
180829A00008	8/29/2018	3.23	8/30/2027		109.63974	106.4835154	103.435658	100.4918226	97.64786548	94.89983371	92.24395506	89.67662847	87.19441525
180831A00019	8/31/2018	3.21	9/2/2025		102.52115	101.4286711	100.3594641	99.31279327	98.28795126	97.28426021	96.30107001	95.337757	94.39372258

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180904A00012	9/4/2018	3.35	9/4/2030		120.05878	113.5816717	107.5030255	101.7961378	96.43623015	91.40030382	86.66700317	82.2164897	78.03032654
180904A00014	9/4/2018	3.37	9/1/2028		113.26626	109.0375329	104.9926731	101.1226795	97.41903962	93.87370283	90.47905289	87.22788181	84.1133657
180905A00017	9/5/2018	3.43	9/6/2033		124.90635	116.3289622	108.4691699	101.2613647	94.6463281	88.5705776	82.98578031	77.84822949	73.11837684
180906A00032	9/6/2018	3.24	9/5/2025		102.78425	101.6183712	100.4791838	99.36577862	98.27728472	97.21287023	96.17173998	95.15313352	94.15632324
180907A00013	9/7/2018	3.27	9/8/2025		102.82573	101.6584673	100.5180578	99.40357515	98.3141388	97.24890759	96.20707779	95.18788095	94.19058203
180910A00028	9/10/2018	3.56	9/9/2033		129.50469	119.5986515	110.5558623	102.2958168	94.74593754	87.84075248	81.52116459	75.7338003	70.43042754
180910A00032	9/10/2018	3.22	9/10/2024		100.19977	100.0862422	99.97298739	99.86000202	99.74728508	99.63483557	99.5226525	99.41073488	99.29908175
180910A00033	9/10/2018	3.43	9/8/2028		113.58362	109.3286051	105.259247	101.3664223	97.64150548	94.07634116	90.66321573	87.39483082	84.26427851
180912A00011	9/12/2018	3.41	9/11/2026		106.3062	104.1729806	102.0934472	100.0658783	98.08862297	96.16009605	94.27877439	92.44319412	90.65194781
180913A00012	9/13/2018	3.31	9/13/2033		115.27932	110.1396573	105.3253973	100.8123098	96.57817344	92.60259539	88.86684796	85.35372053	82.04738578
180913A00030	9/13/2018	3.33	9/12/2025		102.7394	101.6185687	100.5221993	99.44950137	98.3997137	97.3721074	96.36598425	95.38067507	94.41553824
180913A00033	9/13/2018	3.31	9/13/2033		115.27932	110.1396573	105.3253973	100.8123098	96.57817344	92.60259539	88.86684796	85.35372053	82.04738578
180914A00013	9/14/2018	3.48	9/14/2028		113.8479	109.5705604	105.4804086	101.5682158	97.82525936	94.24329399	90.81452249	87.5315689	84.38745324
180914A00028	9/14/2018	3.37	9/12/2025		102.78444	101.6633365	100.566702	99.493743	98.44369813	97.41583842	96.40946555	95.42391026	94.45853084
180914A00029	9/14/2018	3.48	9/14/2028		113.8479	109.5705604	105.4804086	101.5682158	97.82525936	94.24329399	90.81452249	87.5315689	84.38745324
180914A00049	9/14/2018	3.37	9/14/2033		115.58676	110.4333611	105.6062349	101.0810887	96.83564127	92.84944484	89.10372138	85.581214	82.26605282
180918A00041	9/18/2018	3.18	9/18/2024		100.25404	100.118205	99.98275472	99.84768657	99.71299883	99.57868985	99.44475798	99.31120157	99.17801901
180920A00014	9/20/2018	3.59	9/20/2028		114.36749	110.0623929	105.9462041	102.0095767	98.24368339	94.64018148	91.19118336	87.88922894	84.72725994
180925A00013	9/25/2018	3.41	9/25/2028		106.66659	104.4500122	102.3050427	100.228771	98.21842886	96.27138023	94.38511371	92.55723594	90.78546515
180925A00116	9/25/2018	3.28	9/25/2028		106.66943	104.4480295	102.2985224	100.2179815	98.20362337	96.25279723	94.36297817	92.53176005	90.75684914
181003A00019	10/3/2018	3.44	10/3/2025		103.27369	102.0287574	100.8131017	99.62568685	98.46552931	97.33169107	96.22327692	95.13943198	94.07933949
181003A00032	10/3/2018	3.23	10/3/2025		101.46699	100.7999022	100.1439459	99.49881231	98.8642053	98.23984019	97.62544304	97.02075017	96.42550766
181004A00029	10/4/2018	3.7	10/4/2028		114.9755	110.6183076	106.453643	102.4719095	98.66404808	95.02150102	91.53618143	88.20044429	85.00705963
181005A00012	10/5/2018	3.33	10/4/2024		100.36847	100.1883449	100.0088717	99.83004839	99.65187148	99.47433739	99.29744261	99.12118363	98.94555698
181010A00025	10/10/2018	3.48	10/10/2030		111.13007	107.7029563	104.4312635	101.3064869	98.32065622	95.46629458	92.73638422	90.12433538	87.6239572
181029A00051	2/5/2019	3.69	2/5/2029		116.18753	111.4596437	106.9555211	102.6633607	98.57204338	94.6710922	90.95063213	87.40135207	84.0144697
181029A00097	10/29/2018	3.53	10/27/2028		112.45112	108.6298985	104.9741845	101.4757792	98.12693753	94.92033933	91.84906328	88.90656326	86.08664593
181031A00070	3/1/2019	3.77	3/1/2029		116.81882	112.0033757	107.4185033	103.0518931	98.8919616	94.92780354	91.14914784	87.54631739	84.11019145
181105A00015	11/5/2018	3.57	11/5/2025		103.74901	102.4233536	101.1212145	99.8420165	98.58520361	97.35023727	96.13659583	94.94377388	93.77128161
181109A00028	11/9/2018	3.72	11/9/2026		107.59768	105.2885151	103.0407696	100.8523928	98.72141717	96.64595597	94.62419913	92.65440953	90.73491937
181109A00029	11/9/2018	3.72	11/9/2026		107.59768	105.2885151	103.0407696	100.8523928	98.72141717	96.64595597	94.62419913	92.65440953	90.73491937
181116A00006	11/16/2018	3.18	11/17/2025		101.5549	100.8432597	100.143964	99.45665738	98.78100165	98.11667201	97.4633563	96.82075436	96.18857746
181211A00042	12/11/2018	3.7	12/11/2028	8/1/2024	113.4415	109.4423891	105.6206954	101.9674183	98.47406626	95.13262354	91.93552105	88.87560904	85.94613161

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
181214A00030	12/14/2018	3.47	12/14/2033		125.76544	116.7986836	108.6019777	101.1031343	94.23716159	87.94550828	82.17539141	76.87919817	72.01395237
181218A00040	12/18/2018	3.23	6/18/2030		109.28125	106.0929769	103.0424209	100.1223758	97.32606563	94.64711762	92.07953486	89.61767182	87.25621134
181220A00041	12/20/2018	3.36	12/18/2026		107.15075	104.7401745	102.3963995	100.1172031	97.90045286	95.74409918	93.6461717	91.60477565	89.61808852
181226A00030	12/26/2018	2.91	12/26/2028		106.25701	103.9156639	101.6537309	99.46785453	97.35484086	95.31165388	93.33540627	91.4233512	89.57287443
181227A00019	12/28/2020	3.1	12/29/2025		103.36831	101.9602531	100.5782475	99.22162902	97.88975972	96.58202242	95.29782005	94.03657479	92.7977273
181227A00027	12/27/2018	3.24	12/26/2025		103.54284	102.141444	100.7658397	99.41537776	98.08942929	96.78738578	95.50865845	94.25267739	93.01889085
181227A00028	12/27/2018	3.46	12/27/2028		114.7684	110.1827536	105.8096591	101.6381457	97.65786746	93.85906255	90.23251682	86.7695305	83.46188683
190102A00015	1/2/2019	2.97	1/3/2034		113.37205	108.3555708	103.6602936	99.26188672	95.13807343	91.26844593	87.63429465	84.21845432	81.00516503
190102A00020	1/2/2019	2.97	1/3/2034		113.37205	108.3555708	103.6602936	99.26188672	95.13807343	91.26844593	87.63429465	84.21845432	81.00516503
190102A00022	1/2/2019	2.97	1/3/2034		113.37205	108.3555708	103.6602936	99.26188672	95.13807343	91.26844593	87.63429465	84.21845432	81.00516503
190102A00024	1/2/2019	2.97	1/3/2034		113.37205	108.3555708	103.6602936	99.26188672	95.13807343	91.26844593	87.63429465	84.21845432	81.00516503
190102A00050	1/2/2019	3.38	1/3/2034		128.6107	118.4256568	109.1568693	100.7163432	93.02498306	86.01164829	79.61231559	73.76933353	68.43075847
190103A00020	1/3/2019	3.12	1/5/2026		103.63023	102.1471849	100.6932782	99.26772485	97.86976403	96.49866165	95.15370926	93.83422286	92.53954189
190104A00006	1/4/2019	2.83	1/5/2026		101.50312	100.7114185	99.93343076	99.16878147	98.41711172	97.6780759	96.95134115	96.23658668	95.53350327
190104A00033	1/4/2019	3.37	1/31/2029		114.68105	110.0022493	105.5447522	101.2968983	97.24770686	93.38683021	89.70451375	86.19155877	82.83928789
190104A00034	1/4/2019	3.18	1/4/2029		110.76657	107.0879458	103.5702739	100.2054092	96.98567051	93.9038094	90.95298269	88.12672766	85.41893872
190104A00035	1/4/2019	3.1	1/5/2026		103.56993	102.0982568	100.6554693	99.24079023	97.8534651	96.4927662	95.15799117	93.84846193	92.56352363
190104A00038	1/4/2019	3.25	1/4/2029		112.90601	108.6307682	104.5527622	100.6617278	96.94798806	93.40242066	90.01642281	86.78187892	83.69113034
190110A00004	1/10/2019	3.09	1/10/2025		100.83462	100.3856178	99.94062331	99.49958089	99.06243793	98.62914271	98.19964447	97.77389332	97.35184024
190110A00005	1/10/2019	3.2	1/9/2026		103.60146	102.1626049	100.7508974	99.36563387	98.00613666	96.67175085	95.36184324	94.07580144	92.81303305
190111A00026	1/11/2019	3.48	1/11/2034		129.6094	119.357193	110.0280753	101.5332706	93.79299286	86.73549394	80.29621584	74.41703619	69.0455963
190114A00040	1/14/2019	2.89	1/14/2025		100.82393	100.3633743	99.90703737	99.4548611	99.00678855	98.56276382	98.12273204	97.68663934	97.25443281
190118A00006	1/18/2019	3.14	1/18/2034		114.88936	109.5891391	104.6352372	100.0010861	95.66238676	91.59689633	87.78423924	84.20573688	80.84425387
190122A00043	1/22/2019	2.96	1/22/2025		100.90268	100.4200813	99.94211146	99.46869943	98.99978006	98.53528945	98.07516492	97.61934494	97.16776917
190122A00045	1/22/2019	3.17	1/22/2027		107.33906	104.8255949	102.3844906	100.0132436	97.70945652	95.47082893	93.2951531	91.18030953	89.12426286
190122A00046	1/22/2019	3.29	1/22/2029		114.88734	110.2092439	105.7517312	101.5032243	97.45281294	93.5902132	89.90572864	86.39021344	83.03503831
190129A00073	1/29/2019	3.11	1/29/2029		106.5612	104.1754045	101.8716445	99.64640365	97.49634647	95.41830384	93.4092634	91.46636068	89.58687086
190131A00013	1/31/2019	3.48	1/31/2034		124.92556	115.9363055	107.7261773	100.2214428	93.35578988	87.06954089	81.30895347	76.02559907	71.17580924
190131A00019	1/31/2019	3.44	1/30/2034		129.34966	119.0585586	109.6989879	101.18089	93.42337772	86.3537549	79.90664784	74.02323295	68.65054937
190131A00023	1/31/2019	3.02	1/30/2034		114.36744	109.0475856	104.077971	99.43153823	95.08355367	91.0113907	87.19433475	83.61340783	80.25121028
190205A00017	2/5/2019	3.36	2/5/2029		113.62493	109.2560779	105.0915956	101.1206887	97.33319919	93.71956037	90.27075855	86.97829811	83.83416872
190205A00020	2/5/2019	3.32	2/5/2029		113.45063	109.0870957	104.9277047	100.9616755	97.17886092	93.56970408	90.12520073	86.83686414	83.69669241
190205A00021	2/5/2019	3.32	2/5/2029		113.45063	109.0870957	104.9277047	100.9616755	97.17886092	93.56970408	90.12520073	86.83686414	83.69669241

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190205A00022	2/5/2019	3.32	2/5/2029		113.45063	109.0870957	104.9277047	100.9616755	97.17886092	93.56970408	90.12520073	86.83686414	83.69669241
190205A00023	2/5/2019	3.32	2/5/2029		113.45063	109.0870957	104.9277047	100.9616755	97.17886092	93.56970408	90.12520073	86.83686414	83.69669241
190211A00016	2/11/2019	3.01	2/11/2025		100.97797	100.4415315	99.91079831	99.38567672	98.86607794	98.35191504	97.8431029	97.33955819	96.84119927
190211A00017	2/11/2019	3.12	2/11/2026		103.77022	102.2392757	100.7386638	99.26755833	97.82515952	96.41069602	95.02342372	93.66262448	92.32760504
190222A00021	2/22/2019	2.95	8/21/2024		100.08619	100.0279655	99.96982534	99.91176785	99.85379281	99.79590004	99.73808937	99.68036061	99.62271359
190225A00026	2/25/2019	3.43	2/27/2034		129.46828	119.087399	109.6531244	101.0732982	93.26520663	86.15457036	79.67464343	73.76541324	68.37288903
190227A00033	2/27/2019	2.65	2/27/2026		101.57455	100.7360188	99.91234468	99.10312263	98.30796007	97.52647915	96.75831592	96.00311976	95.26055268
190301A00012	3/1/2019	3.41	3/1/2029		115.15791	110.3803503	105.8320341	101.5007148	97.37486374	93.44362706	89.69678289	86.12470081	82.71830443
190305A00015	3/5/2019	3.32	3/5/2029		113.68536	109.2438867	105.0132142	100.9820522	97.13977826	93.47639784	89.98250357	86.6492371	83.46825386
190305A00017	3/5/2019	3.12	3/5/2026		104.04706	102.4382773	100.8629531	99.32010245	97.80877685	96.32806486	94.87709031	93.45501057	92.0610149
190308A00016	3/8/2019	3.18	3/8/2034		122.58382	114.0415291	106.2310701	99.08334293	92.53622156	86.53380826	81.0257741	75.9667728	71.31591935
190308A00026	3/8/2019	3.18	3/8/2034		122.58382	114.0415291	106.2310701	99.08334293	92.53622156	86.53380826	81.0257741	75.9667728	71.31591935
190314A00027	3/22/2019	2.92	3/21/2025		101.13879	100.4988067	99.86692512	99.24299018	98.62685242	98.01836617	97.41738937	96.82378346	96.23741326
190315A00017	3/15/2019	2.88	3/15/2034		113.73071	108.3962209	103.415667	98.76150618	94.40857549	90.33387056	86.51634458	82.93672743	79.57736273
190315A00019	3/15/2019	2.88	3/15/2034		113.73071	108.3962209	103.415667	98.76150618	94.40857549	90.33387056	86.51634458	82.93672743	79.57736273
190315A00023	3/15/2019	2.88	3/15/2034		113.73071	108.3962209	103.415667	98.76150619	94.40857549	90.33387056	86.51634458	82.93672743	79.57736273
190315A00029	3/15/2019	2.88	3/15/2034		113.73071	108.3962209	103.415667	98.76150619	94.40857549	90.33387056	86.51634458	82.93672743	79.57736273
190322A00008	3/22/2019	2.64	3/20/2026		101.55384	100.6765659	99.81506266	98.96889418	98.13764171	97.32090221	96.51828752	95.72942369	94.95395027
190327A00027	3/27/2019	2.66	1/15/2025		100.6637	100.2015557	99.74366057	99.28995712	98.84038781	98.39489617	97.95342674	97.51592507	97.08233771
190327A00030	3/27/2019	2.9	3/27/2036		114.66563	108.5660608	102.9318329	97.72125544	92.89677451	88.42453115	84.27396873	80.41748463	76.83012099
190328A00003	3/28/2019	2.64	9/30/2024		100.20424	100.0355684	99.86745662	99.69990694	99.53291653	99.36648262	99.20060245	99.03527331	98.87049246
190328A00046	3/28/2019	2.7	3/4/2025		100.91212	100.3189362	99.73272136	99.15335032	98.58070366	98.01466476	97.45511967	96.90195706	96.35506813
190402A00004	4/2/2019	2.9	4/2/2029		113.72888	108.8756817	104.2600403	99.86902049	95.6904675	91.71295224	87.92572369	84.31866473	80.88225112
190402A00005	4/2/2019	2.77	4/2/2032		113.4117	107.9844019	102.9030726	98.14221957	93.67842193	89.49014794	85.55759005	81.86251551	78.38813088
190403A00010	4/3/2019	3.08	4/3/2029		113.18698	108.5862985	104.2090387	100.0430084	96.07675709	92.2995221	88.70118328	85.27222061	82.00367505
190403A00013	4/3/2019	3.05	4/3/2029		112.68607	108.210914	103.9512469	99.89536262	96.03226453	92.35161488	88.84369113	85.49934564	82.30996821
190403A00014	4/3/2019	3.05	4/3/2029		112.68607	108.210914	103.9512469	99.89536262	96.03226453	92.35161488	88.84369113	85.49934564	82.30996821
190404A00015	4/4/2019	2.88	4/3/2026		103.97924	102.2630213	100.5838537	98.94061332	97.33222154	95.75764324	94.21588437	92.70598993	91.22704201
190409A00019	4/9/2019	2.91	4/9/2029		113.83413	108.9586884	104.3227149	99.91313045	95.71764114	91.72468999	87.92340835	84.30357083	80.85555351
190422A00030	4/22/2019	2.93	12/22/2025		103.07485	101.6874806	100.3254826	98.98821661	97.67506798	96.38544187	95.11876259	93.8744728	92.65203278
190426A00023	4/26/2019	2.91	6/24/2026		104.58093	102.6784241	100.820026	99.00445249	97.23046535	95.49687012	93.80251436	92.14628588	90.52711102
190501A00015	5/1/2019	2.78	5/1/2029		106.2661	103.7177941	101.2623107	98.89547252	96.61332088	94.41210312	92.28826067	90.23841756	88.25936979
190502A00016	5/2/2019	2.87	5/1/2026		104.18906	102.3972435	100.6455388	98.9328115	97.25796854	95.61995428	94.01774912	92.450368	90.91685901



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190506A00026	5/6/2019	3.03	5/4/2029		113.17507	108.4995947	104.0547751	99.8279317	95.807149	91.98122432	88.33962173	84.872429	81.57031756
190510A00049	5/10/2019	2.58	5/8/2026		101.70222	100.7401208	99.79600529	98.86936706	97.95972171	97.06660299	96.18956195	95.32816612	94.48199874
190514A00020	5/14/2019	2.66	5/14/2025		101.23529	100.4492468	99.67539803	98.91346335	98.16316896	97.42424936	96.69644709	95.97951241	95.27320303
190514A00021	5/14/2019	2.72	11/14/2025		102.50414	101.2180539	99.95912491	98.72649054	97.51932944	96.33685465	95.17831178	94.04297734	92.93015714
190515A00035	5/15/2019	2.82	2/15/2029		111.67861	107.2382768	103.0087797	98.97887532	95.13798362	91.47614528	87.98398176	84.65265805	81.47384808
190520A00020	5/20/2019	2.39	5/20/2026		101.62495	100.669731	99.73233562	98.81225867	97.90901879	97.02215278	96.15121472	95.29577517	94.4554204
190529A00061	5/29/2019	2.46	5/29/2026		101.58498	100.6239918	99.68096756	98.75540046	97.8468066	96.95472026	96.07869302	95.2182929	94.37310364
190530A00008	5/30/2019	2.38	5/30/2025		101.21094	100.3801823	99.56303139	98.75915187	97.96822245	97.18993214	96.42397987	95.67007403	94.92793218
190531A00037	5/31/2019	2.61	5/31/2029		112.78511	107.7905775	103.0483066	98.54426982	94.26528945	90.1989814	86.33370364	82.65850809	79.16309587
190531A00038	5/31/2019	2.82	5/31/2034		124.06186	113.6842492	104.2818673	95.75734811	88.02352252	81.00230728	74.62371624	68.82498361	63.54978607
190605A00007	6/5/2019	2.47	6/5/2026		103.69925	101.8268573	99.99829104	98.21225744	96.46750996	94.76284694	93.09710967	91.4691805	89.87798119
190605A00023	6/5/2019	2.64	6/5/2029		111.5374	106.8415592	102.381323	98.14352885	94.11581748	90.28658134	86.64491503	83.18056922	79.8839078
190605A00024	6/5/2019	2.64	6/5/2029		111.5374	106.8415592	102.381323	98.14352885	94.11581748	90.28658134	86.64491503	83.18056922	79.8839078
190605A00025	6/5/2019	2.64	6/5/2029		111.5374	106.8415592	102.381323	98.14352885	94.11581748	90.28658134	86.64491503	83.18056922	79.8839078
190605A00027	6/5/2019	2.64	6/5/2029		111.5374	106.8415592	102.381323	98.14352885	94.11581748	90.28658134	86.64491503	83.18056922	79.8839078
190606A00027	6/6/2019	2.51	6/5/2026		103.67445	101.8327005	100.0326183	98.2730238	96.55277513	94.87076955	93.22594214	91.61726417	90.04374165
190606A00028	6/6/2019	2.74	6/6/2029		112.74964	107.7615662	103.0256149	98.52775567	94.25480407	90.19437075	86.33480962	82.66516963	79.17514991
190606A00029	6/6/2019	2.96	6/6/2034		124.06968	113.7477672	104.3940852	95.91204434	88.21517356	81.22600987	74.8751186	69.1002244	63.84544026
190618A00002	6/18/2019	2.11	6/18/2025		101.07085	100.1895116	99.3235099	98.47244316	97.63592738	96.81359162	96.00507751	95.21003862	94.42814005
190620A00033	6/20/2019	2.1	6/20/2029		104.95504	102.3893879	99.91875326	97.53880197	95.24542608	93.03473412	90.90303813	88.84684167	86.86282848
190625A00023	6/25/2019	2.47	6/25/2027		106.40194	103.4824038	100.6583726	97.92621558	95.28245963	92.72378224	90.24700396	87.8490815	85.52710109
190625A00024	6/25/2019	2.26	6/25/2025		101.12246	100.2236125	99.34070418	98.47331197	97.62102951	96.78346454	95.96023831	95.15098496	94.35535097
190628A00007	6/28/2019	2.28	6/28/2034		110.40074	105.2725645	100.4867513	96.01634926	91.83677069	87.92556553	84.26221929	80.82797177	77.60565384
190702A00068	7/2/2019	2.69	7/1/2039		124.77775	112.6475715	102.0079774	92.65805434	84.42553609	77.16254712	70.74199764	65.05453069	60.00593413
190702A00071	7/2/2019	2.69	7/1/2039		124.77775	112.6475715	102.0079774	92.65805434	84.42553609	77.16254712	70.74199764	65.05453069	60.00593413
190703A00017	7/3/2019	2.33	5/4/2026		103.12339	101.3720493	99.65875354	97.98234881	96.3417283	94.73582952	93.16363202	91.6241553	90.11645679
190708A00028	7/8/2019	2.57	7/2/2029		111.35439	106.6005775	102.0886251	97.80482902	93.73633248	89.87107218	86.19772532	82.70566013	79.38489011
190708A00029	7/8/2019	2.57	7/2/2029		111.35439	106.6005775	102.0886251	97.80482902	93.73633248	89.87107218	86.19772532	82.70566013	79.38489011
190708A00030	7/8/2019	2.57	7/2/2029		111.35439	106.6005775	102.0886251	97.80482902	93.73633248	89.87107218	86.19772532	82.70566013	79.38489011
190708A00032	7/8/2019	2.58	7/2/2029		111.4023	106.6468866	102.1334103	97.84815948	93.77827349	89.91168568	86.23706999	82.74379163	79.42186123
190712A00016	7/12/2019	2.39	7/12/2029		105.47699	102.8626618	100.3463138	97.92343082	95.58973559	93.34117795	91.17392142	89.08433038	87.06895827
190718A00012	7/18/2019	2.55	7/18/2029		110.44788	106.0139803	101.801248	97.79724504	93.99030189	90.36946784	86.92446297	83.64563325	80.52390902
190724A00021	7/24/2019	2.33	7/23/2027		106.57481	103.5687741	100.663695	97.85563335	95.14082209	92.51566232	89.9767146	87.52069094	85.14444722

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190724A00023	7/24/2019	2.13	7/24/2025		101.26227	100.2829191	99.32245836	98.38034099	97.45604526	96.54906906	95.65892901	94.78515958	93.92731224
190724A00024	7/24/2019	2.49	7/24/2029		112.54931	107.4121187	102.5419254	97.92345859	93.54239499	89.38529919	85.43956436	81.69335676	78.1355645
190726A00017	7/26/2019	2.44	7/24/2026		103.8924	101.9169249	99.98914463	98.10761106	96.27093167	94.47776546	92.72682067	91.01685258	89.34666147
190802A00003	8/2/2019	2.01	8/2/2024		100.00548	99.99993331	99.99439228	99.9888562	99.98332508	99.97779891	99.97227768	99.96676138	99.96125
190802A00011	8/2/2019	2.01	8/2/2029		104.90918	102.2612644	99.71413552	97.26308218	94.90364723	92.63161325	90.44298799	88.33399081	86.30104002
190802A00032	8/2/2019	2.01	8/2/2024		100.00548	99.99993331	99.99439228	99.9888562	99.98332508	99.97779891	99.97227768	99.96676138	99.96125
190805A00009	8/5/2019	1.91	8/5/2024		100.00794	99.99407644	99.9802285	99.9663941	99.95257323	99.93876587	99.92497199	99.91119157	99.89742459
190805A00011	8/5/2019	1.91	8/5/2024		100.00794	99.99407644	99.9802285	99.9663941	99.95257323	99.93876587	99.92497199	99.91119157	99.89742459
190805A00050	8/5/2019	1.91	8/5/2024		100.00794	99.99407644	99.9802285	99.9663941	99.95257323	99.93876587	99.92497199	99.91119157	99.89742459
190807A00005	8/7/2019	1.77	8/7/2024		100.00716	99.98776251	99.96838094	99.9490194	99.92967787	99.9103563	99.89105467	99.87177294	99.85251107
190807A00021	8/7/2019	2	8/7/2026		103.09704	101.0926422	99.13738805	97.22976281	95.36830757	93.55161848	91.77834425	90.04718378	88.35688387
190808A00009	8/8/2019	1.89	8/8/2024		100.01062	99.98844589	99.96629508	99.94416778	99.92206395	99.89998355	99.87792654	99.85589287	99.83388251
190808A00025	8/8/2019	1.7	8/8/2024		100.00939	99.98718429	99.96500413	99.94284785	99.9207154	99.89860675	99.87652183	99.85446062	99.83242305
190808A00050	8/8/2019	1.7	8/8/2024		100.00939	99.98718429	99.96500413	99.94284785	99.9207154	99.89860675	99.87652183	99.85446062	99.83242305
190808A00052	8/8/2019	1.7	8/8/2024		100.00939	99.98718429	99.96500413	99.94284785	99.9207154	99.89860675	99.87652183	99.85446062	99.83242305
190809A00010	8/9/2019	1.88	8/8/2024		100.01039	99.98821367	99.96606305	99.94393594	99.9218323	99.89975209	99.87769527	99.85566179	99.83365162
190809A00011	8/9/2019	1.69	8/9/2024		100.01	99.98502476	99.96007427	99.93515134	99.9102559	99.88538791	99.86054731	99.83573405	99.81094808
190809A00012	8/9/2019	1.69	8/9/2024		100.01	99.98502476	99.96007427	99.93515134	99.9102559	99.88538791	99.86054731	99.83573405	99.81094808
190809A00020	8/9/2019	2.44	8/9/2034		120.57854	110.1854304	100.7908401	92.2930831	84.60132751	77.63438855	71.31965949	65.59216562	60.39372679
190809A00021	8/9/2019	2.12	8/9/2029		110.77152	105.6352366	100.7685727	96.15596635	91.78283649	87.63551394	83.70117953	79.96780684	76.42410908
190809A00022	8/9/2019	1.88	8/9/2024		100.01136	99.98641081	99.96149343	99.93660319	99.91174004	99.88690393	99.86209481	99.83731263	99.81255734
190812A00003	8/12/2019	1.67	8/12/2024		100.01186	99.97856286	99.94530403	99.91208468	99.87890473	99.84576412	99.81266275	99.77960055	99.74657744
190812A00006	8/12/2019	1.86	8/12/2024		100.01358	99.98032256	99.94710825	99.91393286	99.88079633	99.84769857	99.81463952	99.7816191	99.74863724
190813A00008	8/13/2019	1.88	8/13/2024		100.01523	99.97920415	99.94322436	99.90728772	99.87139416	99.83554359	99.79973594	99.76397111	99.72824904
190813A00016	8/13/2019	1.88	8/13/2024		100.01523	99.97920415	99.94322436	99.90728772	99.87139416	99.83554359	99.79973594	99.76397111	99.72824904
190813A00051	8/13/2019	2.19	8/13/2029		109.72476	104.9295475	100.3829814	96.07071395	91.9793023	88.09614948	84.40944635	80.90811793	77.58177378
190813A00052	8/13/2019	2.24	8/13/2029		109.96796	105.164393	100.6098687	96.2900117	92.19135923	88.30129562	84.60799415	81.10036332	77.76799713
190813A00057	8/13/2019	1.9	8/13/2024		100.0568	99.93531365	99.81413914	99.69327349	99.57271547	99.45246387	99.33251748	99.2128751	99.09353552
190813A00064	8/13/2019	1.9	8/13/2024		100.0568	99.93531365	99.81413914	99.69327349	99.57271547	99.45246387	99.33251748	99.2128751	99.09353552
190813A00067	8/13/2019	1.9	8/13/2024		100.0568	99.93531365	99.81413914	99.69327349	99.57271547	99.45246387	99.33251748	99.2128751	99.09353552
190814A00003	8/14/2019	2.01	8/14/2029		110.2382	105.1016899	100.2355895	95.62425601	91.25303197	87.10817869	83.1768139	79.44685387	75.9069598
190814A00005	8/14/2019	1.65	8/14/2024		100.01265	99.9738114	99.93501624	99.89626929	99.85757044	99.81891959	99.78031665	99.74176152	99.7032541
190814A00008	8/14/2019	1.84	8/14/2024		100.01461	99.97582051	99.9370776	99.89838222	99.8597343	99.82113373	99.78258043	99.74407431	99.70561527

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190814A00009	8/14/2019	1.84	8/14/2024		100.01461	99.97582051	99.9370776	99.89838222	99.8597343	99.82113373	99.78258043	99.74407431	99.70561527
190814A00015	8/14/2019	1.84	8/14/2024		100.01461	99.97582051	99.9370776	99.89838222	99.8597343	99.82113373	99.78258043	99.74407431	99.70561527
190815A00041	8/15/2019	1.86	8/15/2024		100.01711	99.97554471	99.9340288	99.89256507	99.8511534	99.80979371	99.76848589	99.72722983	99.68602543
190816A00006	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190816A00011	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190816A00020	8/16/2019	1.79	8/16/2024		100.01437	99.97004191	99.92577046	99.88155581	99.83739784	99.79329646	99.74925153	99.70526296	99.66133062
190816A00022	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190816A00031	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190816A00033	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190816A00036	8/16/2019	1.77	8/16/2024		100.01347	99.96914127	99.92487058	99.88065668	99.83649948	99.79239885	99.74835468	99.70436687	99.66043529
190819A00026	8/19/2019	1.62	8/19/2024		100.01475	99.96205027	99.90942191	99.85686621	99.80438303	99.7519722	99.69963356	99.64736695	99.59517221
190819A00030	8/19/2019	2.01	8/20/2029		110.2682	105.1146717	100.2331387	95.60783062	91.22396979	87.06770737	83.12606003	79.38685133	75.83865732
190820A00008	8/20/2019	1.76	8/20/2024		100.01566	99.96026169	99.90494216	99.84969972	99.79453421	99.73944546	99.6844333	99.62949759	99.57463815
190820A00020	8/20/2019	1.76	8/20/2024		100.01566	99.96026169	99.90494216	99.84969972	99.79453421	99.73944546	99.6844333	99.62949759	99.57463815
190820A00021	8/20/2019	2.13	8/20/2029		110.14141	105.0150013	100.1585212	95.55634942	91.19384813	87.05729756	83.13383381	79.41139091	75.87864723
190820A00029	8/20/2019	1.76	8/20/2024		100.01566	99.96026169	99.90494216	99.84969972	99.79453421	99.73944546	99.6844333	99.62949759	99.57463815
190820A00038	8/20/2019	1.76	8/20/2024		100.01566	99.96026169	99.90494216	99.84969972	99.79453421	99.73944546	99.6844333	99.62949759	99.57463815
190821A00017	8/21/2019	1.8	8/21/2024		100.01867	99.96050212	99.90241944	99.8444193	99.78650152	99.72866594	99.67091237	99.61324063	99.55565055
190821A00030	8/21/2019	1.8	8/21/2024		100.01867	99.96050212	99.90241944	99.8444193	99.78650152	99.72866594	99.67091237	99.61324063	99.55565055
190823A00005	8/23/2019	1.62	8/23/2024		100.01738	99.95359908	99.88991125	99.82631841	99.76282033	99.6994168	99.6361076	99.5728925	99.50977128
190823A00009	8/23/2019	1.8	8/23/2029		104.26774	101.6730104	99.17647706	96.77356334	94.45993888	92.23150588	90.08438499	88.01490216	86.01957637
190826A00018	8/26/2019	1.9	8/27/2029		109.73938	104.5802062	99.69434705	95.06590406	90.67998248	86.5226268	82.58075657	78.84210686	75.29517311
190826A00029	8/26/2019	1.53	8/26/2024		100.01284	99.94075785	99.8687856	99.79692665	99.72518075	99.65354762	99.58202697	99.51061856	99.43932209
190826A00030	8/26/2019	1.72	8/26/2026		102.89736	100.8392596	98.83248935	96.87543278	94.96653347	93.10429544	91.28728031	89.51410455	87.78343701
190826A00032	8/26/2019	1.72	8/24/2029		104.13105	101.5017319	98.97255672	96.53883806	94.19614401	91.94028122	89.76728045	87.67338307	85.65502839
190826A00056	8/26/2019	1.72	8/26/2024		100.01673	99.94474033	99.87286321	99.80109816	99.72944492	99.65790324	99.58647286	99.51515352	99.44394497
190826A00057	8/26/2019	1.87	8/26/2025		101.01833	99.95343696	98.9108995	97.89002002	96.89012919	95.91058501	94.95077142	94.01009701	93.08799379
190826A00058	8/26/2019	1.91	8/26/2026		103.02218	100.9679676	98.96489011	97.01133921	95.10576691	93.2466852	91.43266326	89.66232475	87.93434531
190826A00060	8/26/2019	2.02	8/26/2027		105.44803	102.3775699	99.41261568	96.54894585	93.78253357	91.10953674	88.52628822	86.02928674	83.61518832
190826A00063	8/26/2019	2.05	8/28/2028		107.81087	103.7043667	99.77733271	96.02097031	92.42695833	88.98742712	85.69493145	82.54242521	79.52323773
190826A00065	8/26/2019	2.09	8/28/2029		109.97641	104.8326403	99.96071302	95.34483976	90.97023167	86.82303104	82.89024764	79.15969985	75.61996003
190827A00001	8/27/2019	1.74	8/27/2024		100.01878	99.94402846	99.86939175	99.79487346	99.72047334	99.64619109	99.57202646	99.49797916	99.42404893
190827A00002	8/27/2019	1.74	8/27/2024		100.01878	99.94402846	99.86939175	99.79487346	99.72047334	99.64619109	99.57202646	99.49797916	99.42404893

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190828A00009	8/28/2019	1.71	8/28/2024		100.01706	99.93953873	99.86214611	99.78487843	99.7077354	99.63071672	99.55382211	99.47705127	99.40040391
190828A00015	8/28/2019	2.04	8/28/2029		109.72091	104.5835691	99.7178293	95.10791056	90.73903489	86.59735477	82.66988964	78.94446702	75.40966797
190828A00019	8/28/2019	2	3/28/2028		106.69318	103.0200915	99.49319537	96.10585062	92.85176295	89.72495986	86.7197721	83.83081634	81.05297889
190828A00020	8/28/2019	1.95	5/28/2027		104.72241	101.9034985	99.17474632	96.53279121	93.9744171	91.496545	89.09622632	86.77063657	84.51706946
190828A00031	8/28/2019	1.71	8/28/2024		100.01706	99.93953873	99.86214611	99.78487843	99.7077354	99.63071672	99.55382211	99.47705127	99.40040391
190829A00031	8/29/2019	1.54	8/29/2024		100.01489	99.93449644	99.85423809	99.77411275	99.69412009	99.61425978	99.5345315	99.4549349	99.37546968
190829A00032	8/29/2019	1.69	8/28/2026		101.17039	100.0883795	99.02797481	97.98855813	96.96953203	95.97032149	94.99037285	94.02915282	93.08614755
190829A00039	8/29/2019	1.85	8/29/2034		108.5881	103.2856113	98.34832808	93.74681104	89.45424896	85.44620843	81.70040544	78.19650047	74.91591435
190829A00045	8/29/2019	1.9	8/28/2026		103.01266	100.9532166	98.94512578	96.98676371	95.07657286	93.21305623	91.39477449	89.62034328	87.88843064
190829A00050	8/29/2019	1.73	8/29/2024		100.01919	99.9389096	99.85875823	99.77873847	99.69885	99.61909252	99.5394657	99.45996925	99.38060285
190830A00002	8/30/2019	1.93	8/28/2026		103.07531	101.0151989	99.00645375	97.04745024	95.13663048	93.27249715	91.45361057	89.67858604	87.9460913
190830A00012	8/30/2019	1.76	8/30/2024		100.02227	99.93922201	99.85631154	99.7735395	99.69090555	99.60840936	99.5260506	99.44382894	99.36174405
190830A00021	8/30/2019	1.76	8/30/2024		100.02227	99.93922201	99.85631154	99.7735395	99.69090555	99.60840936	99.5260506	99.44382894	99.36174405
190904A00001	9/4/2019	1.5	9/4/2024		100.01534	99.91837688	99.82160949	99.72503693	99.62865861	99.53247389	99.43648218	99.34068286	99.24507532
190904A00019	9/4/2019	1.69	9/4/2024		100.02047	99.92364237	99.82700591	99.73056253	99.63431163	99.53825262	99.44238493	99.34670795	99.25122112
190905A00019	9/5/2019	2.08	9/5/2029		109.28077	104.4496626	99.87160219	95.53183383	91.41655108	87.51282532	83.80854492	80.29235889	76.95362489
190905A00021	9/5/2019	2.08	9/5/2029		109.28077	104.4496626	99.87160219	95.53183383	91.41655108	87.51282532	83.80854492	80.29235889	76.95362489
190905A00023	9/5/2019	2.08	9/5/2029		109.28077	104.4496626	99.87160219	95.53183383	91.41655108	87.51282532	83.80854492	80.29235889	76.95362489
190905A00024	9/5/2019	2.08	9/5/2029		109.28077	104.4496626	99.87160219	95.53183383	91.41655108	87.51282532	83.80854492	80.29235889	76.95362489
190905A00025	9/5/2019	2.08	9/5/2029		109.28077	104.4496626	99.87160219	95.53183383	91.41655108	87.51282532	83.80854492	80.29235889	76.95362489
190906A00012	9/6/2019	1.76	9/6/2024		100.0294	99.92705277	99.82492373	99.72301252	99.62131842	99.51984072	99.4185787	99.31753166	99.21669887
190909A00025	9/9/2019	1.88	9/9/2024		100.04731	99.9366654	99.82627987	99.71615065	99.60627678	99.49665737	99.38729147	99.27817819	99.1693166
190910A00004	9/11/2019	1.86	9/11/2024		100.04637	99.93023415	99.81438044	99.69880907	99.58351897	99.46850908	99.35377835	99.2393257	99.12515011
190910A00017	9/16/2019	1.86	9/16/2024		100.05345	99.9235331	99.79396331	99.66474415	99.53587416	99.4073519	99.2791759	99.15134474	99.02385699
190910A00030	9/10/2019	1.86	9/10/2024		100.04503	99.93165028	99.81853937	99.70569761	99.59312399	99.48081753	99.36877724	99.25700214	99.14549125
190910A00044	9/10/2019	2.02	9/10/2026		103.38916	101.2785764	99.22230907	97.2185685	95.2656365	93.36186563	91.50567553	89.6955496	87.93003185
190911A00016	9/11/2019	1.9	9/11/2029		104.70315	102.0180231	99.43652173	96.95373811	94.56503601	92.26603132	90.05257662	87.92074675	85.86682539
190913A00014	9/13/2019	2.08	9/13/2024		100.07591	99.95423519	99.83287028	99.71181462	99.59106697	99.47062613	99.35049089	99.23066004	99.11113239
190913A00018	9/13/2019	2.11	9/11/2026		101.57357	100.4494949	99.34827312	98.26924655	97.21177718	96.17525109	95.15907727	94.16268659	93.1855307
190919A00007	9/19/2019	2.04	9/19/2024		100.08246	99.94424681	99.80642495	99.66899651	99.53195979	99.39531308	99.25905469	99.12318292	98.98769611
190919A00025	9/19/2019	1.8	9/19/2024		100.06797	99.92957361	99.7915741	99.6539707	99.51676165	99.3799452	99.24351963	99.10748321	98.97183422
190923A00012	9/23/2019	2.43	9/25/2034		120.66742	110.1455168	100.6456937	92.06275931	84.30286709	77.28224226	70.92605343	65.167416	59.9465111
190923A00017	9/23/2019	1.74	9/23/2024		100.06524	99.91580626	99.76683394	99.61831705	99.47025348	99.32264112	99.17547787	99.02876165	98.88249038

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
190923A00020	9/23/2019	2.05	9/24/2029		110.65179	105.3920653	100.4142083	95.70162458	91.23878313	87.01114504	83.00509465	79.20787589	75.6075333
190923A00081	9/23/2019	1.96	9/20/2024		100.07299	99.9320278	99.79147568	99.65133152	99.5115935	99.37225984	99.23332875	99.09479846	98.95666721
190924A00035	9/24/2019	1.88	9/13/2024		100.05149	99.92984061	99.80849939	99.68746735	99.56674329	99.44632598	99.32621423	99.20640682	99.08690256
190925A00004	9/25/2019	1.7	9/24/2024		100.06053	99.90834627	99.75663596	99.60539629	99.45462503	99.30431998	99.15447895	99.00509977	98.85618026
190925A00009	9/25/2019	2	9/25/2026		103.30616	101.2211399	99.19014499	97.21136925	95.28308355	93.40363115	91.57142395	89.78493897	88.04271505
190925A00011	9/25/2019	1.89	9/25/2024		100.07023	99.91549528	99.76124769	99.60748299	99.45419892	99.30139322	99.14906364	98.99720796	98.84582396
190926A00002	9/30/2019	2.01	9/29/2034		109.51974	104.1296268	99.11347496	94.44092278	90.08434482	86.01858174	82.22070187	78.66978753	75.34674316
190926A00015	9/26/2019	2.32	11/26/2030		113.19327	106.7300126	100.6801925	95.01523118	89.70866521	84.735979	80.07445224	75.70301986	71.60214362
190926A00016	9/26/2019	2.28	5/24/2030		112.22752	106.2923826	100.709966	95.45749574	90.51377815	85.85908523	81.47504622	77.34454764	73.45164103
190926A00017	9/26/2019	2.23	9/26/2029		110.8473	105.601666	100.6366142	95.93564813	91.48332679	87.2651943	83.26771188	79.47819449	75.88475242
190927A00012	10/1/2019	1.96	10/1/2024		100.09115	99.91987028	99.74918037	99.57907274	99.40954445	99.24059254	99.07221409	98.9044062	98.73716598
190927A00036	9/27/2019	1.94	9/6/2024		100.04788	99.94551998	99.84337453	99.74144695	99.63973651	99.5382425	99.4369642	99.33590089	99.23505188
190930A00012	9/30/2019	1.93	9/30/2024		100.08413	99.91560797	99.74764928	99.58025222	99.41341401	99.24713187	99.08140306	98.91622485	98.75159451
190930A00026	9/30/2019	1.95	9/30/2024		100.14641	99.89664434	99.64812716	99.40084698	99.1547946	98.9099609	98.66633686	98.42391355	98.18268212
190930A00028	9/30/2019	1.95	9/30/2024		100.14641	99.89664434	99.64812716	99.40084698	99.1547946	98.9099609	98.66633686	98.42391355	98.18268212
190930A00035	9/30/2019	1.93	9/30/2024		100.08413	99.91560797	99.74764928	99.58025222	99.41341401	99.24713187	99.08140306	98.91622485	98.75159451
190930A00070	9/30/2019	1.93	9/27/2024		100.07952	99.91926477	99.75952793	99.60030505	99.44159364	99.28339126	99.12569547	98.96850384	98.81181395
190930A00071	9/30/2019	2.05	9/29/2025		101.38533	100.2268326	99.09470126	97.98804142	96.90600119	95.84776635	94.81255822	93.79963172	92.80827363
190930A00075	9/30/2019	2.19	9/29/2027		106.19954	103.0240858	99.96021333	97.00334879	94.14913361	91.39341512	88.73223528	86.16182017	83.67857017
190930A00077	9/30/2019	2.23	9/28/2029		110.85772	105.6062967	100.6360226	95.93034866	91.47378998	87.25185077	83.25095561	79.45838598	75.86222147
191001A00023	10/1/2019	1.85	9/27/2024		100.06665	99.90641082	99.7466896	99.58748229	99.42878642	99.27059954	99.1129192	98.95574298	98.79906847
191002A00006	10/2/2019	1.84	10/2/2024		100.07212	99.89812471	99.72473718	99.55195265	99.37976799	99.20818006	99.03718578	98.86678207	98.69696586
191002A00017	10/2/2019	1.84	10/2/2024		100.07212	99.89812471	99.72473718	99.55195265	99.37976799	99.20818006	99.03718578	98.86678207	98.69696586
191003A00014	10/3/2019	1.71	9/20/2024		100.03762	99.89669461	99.75618078	99.6160748	99.47637488	99.33707923	99.19818606	99.0596936	98.9216001
191003A00019	10/3/2019	1.71	9/27/2024		100.04413	99.8839164	99.72422251	99.56504246	99.40637378	99.24821401	99.09056072	98.93341147	98.77676386
191004A00001	10/4/2019	2.47	10/4/2034		119.6891	109.2674449	99.85816828	91.35703764	83.67107122	76.7172706	70.42150173	64.71750661	59.54602967
191004A00002	10/4/2019	2.08	10/4/2029		110.10498	104.8567084	99.89047558	95.18962766	90.73858353	86.5227606	82.52850512	78.7430279	75.15434483
191004A00003	10/4/2019	1.89	10/5/2026		103.21279	101.0478624	98.93883006	96.88385512	94.88117265	92.92908995	91.02598297	89.17029287	87.36052284
191004A00004	10/4/2019	1.54	10/4/2024		100.04575	99.8660505	99.68699928	99.50859679	99.33083945	99.15372374	98.97724612	98.80140312	98.62619128
191004A00005	10/4/2019	1.54	10/4/2024		100.04575	99.8660505	99.68699928	99.50859679	99.33083945	99.15372374	98.97724612	98.80140312	98.62619128
191004A00012	10/4/2019	1.78	10/4/2024		100.06626	99.88677455	99.70793299	99.52973669	99.35218214	99.17526584	98.99898435	98.82333421	98.64831202
191004A00017	10/4/2019	2.02	10/4/2029		109.09343	104.2014659	99.56916653	95.18120463	91.02324642	87.08188042	83.34455273	79.79950726	76.43573048
191004A00019	10/4/2019	2.02	10/4/2029		109.09343	104.2014659	99.56916653	95.18120463	91.02324642	87.08188042	83.34455273	79.79950726	76.43573048



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191004A00022	10/4/2019	2.02	10/4/2029		109.09343	104.2014659	99.56916653	95.18120463	91.02324642	87.08188042	83.34455273	79.79950726	76.43573048
191004A00023	10/4/2019	2.02	10/4/2029		109.09343	104.2014659	99.56916653	95.18120463	91.02324642	87.08188042	83.34455273	79.79950726	76.43573048
191004A00025	10/4/2019	1.74	10/4/2024		100.10188	99.83810805	99.57572906	99.31473343	99.0551102	98.79684854	98.53993772	98.28436714	98.0301263
191004A00026	10/4/2019	1.74	10/4/2024		100.10188	99.83810805	99.57572906	99.31473343	99.0551102	98.79684854	98.53993772	98.28436714	98.0301263
191004A00032	10/4/2019	2.01	1/3/2028		106.20033	102.7673815	99.46379611	96.28402831	93.22279858	90.2750807	87.4360882	84.70126154	82.06625618
191007A00029	10/7/2019	1.88	10/9/2029		109.83206	104.552673	99.55847361	94.83254384	90.35906185	86.12322428	82.1111749	78.30993872	74.7073611
191008A00007	10/8/2019	1.67	10/9/2029		104.15351	101.4408437	98.83426588	96.32869297	93.91932496	91.60162571	89.37130661	87.22431137	85.15680179
191008A00014	10/8/2019	1.85	10/8/2026		103.17195	100.9930381	98.87180206	96.80631744	94.79473748	92.83529142	90.92628067	89.06607524	87.25311032
191008A00031	10/8/2019	1.52	10/8/2024		100.04651	99.85581679	99.66586341	99.47664487	99.28815682	99.10039497	98.91335503	98.72703278	98.54142402
191008A00033	10/8/2019	1.71	10/8/2024		100.05688	99.86644757	99.6767521	99.48778735	99.29954905	99.11203295	98.92523486	98.73915059	98.55377602
191009A00009	10/9/2019	1.8	10/9/2026		101.29126	100.1295231	98.9919073	97.87770591	96.78623613	95.71684122	94.66888926	93.64177194	92.63490346
191009A00017	10/9/2019	1.76	10/4/2024		100.06091	99.88144503	99.70262863	99.5244572	99.34692723	99.17003524	98.99377776	98.81815137	98.64315266
191009A00028	10/9/2019	1.76	10/9/2024		100.06783	99.87464004	99.68220908	99.49053069	99.2996004	99.10941378	98.91996642	98.73125397	98.5432721
191011A00027	10/11/2019	1.84	10/11/2029		104.62528	101.9001912	99.28168169	96.76464704	94.34426446	92.0159763	89.7754736	87.61868085	85.54174175
191015A00013	10/15/2019	1.72	10/15/2024		100.09629	99.88629503	99.67720046	99.46899731	99.26167977	99.05524211	98.84967864	98.6449837	98.44115171
191015A00025	10/15/2019	2.01	10/15/2029		104.7354	102.0137422	99.39833762	96.88410783	94.46625195	92.14023259	89.90175961	87.74677492	85.67143833
191015A00029	10/15/2019	1.91	10/15/2024		100.10773	99.89802908	99.68922023	99.48129807	99.27425689	99.06809102	98.86279486	98.65836283	98.45478941
191017A00022	10/17/2019	2.25	7/17/2028		108.35914	104.3539595	100.5196319	96.84797997	93.33125925	89.96213475	86.73365699	83.63923975	80.67263907
191017A00026	10/17/2019	2.3	7/17/2029		110.82089	105.7685856	100.9778738	96.43385743	92.12256299	88.03087883	84.14649786	80.45786399	76.9541226
191021A00021	10/21/2019	2.22	12/21/2027		106.84056	103.4310449	100.1486863	96.98808375	93.94409692	91.01182931	88.1866157	85.4640099	82.83977327
191023A00006	10/23/2019	1.95	10/23/2024		100.13141	99.89973071	99.66913	99.43960295	99.21114203	98.98373978	98.75738882	98.53208181	98.30781152
191025A00005	10/28/2019	1.98	10/28/2024		100.14834	99.90291305	99.65869179	99.41566583	99.17382644	98.93316493	98.69367272	98.4553413	98.21816225
191025A00009	10/25/2019	2.26	5/25/2029		110.33932	105.4417621	100.7910235	96.37340243	92.17602696	88.18680065	84.39435198	80.7879872	77.35764652
191025A00010	10/25/2019	2.24	7/25/2028		108.37014	104.3435285	100.4895794	96.79998277	93.26687289	89.88280232	86.6407172	83.53393437	80.55611988
191025A00013	10/25/2019	1.98	10/25/2024		100.14238	99.90518941	99.66913361	99.4341997	99.20037969	98.96766564	98.73604968	98.50552402	98.27608097
191031A00025	10/31/2019	1.91	10/31/2024		100.09865	99.90944816	99.7210616	99.53348012	99.3466982	99.16071043	98.9755114	98.79109577	98.60745826
191031A00033	10/31/2019	2.2	5/31/2028		107.85343	103.9854651	100.2775758	96.72232796	93.3126738	90.04192633	86.90373905	83.89208695	81.00124856
191101A00004	11/1/2019	1.91	11/1/2029		108.54448	103.9475409	99.59129843	95.46164222	91.54536315	87.83009399	84.30425141	80.95698225	77.77811381
191101A00005	11/1/2019	1.83	11/2/2026		103.54948	101.2992897	99.11024192	96.98033484	94.90764713	92.89033104	90.9266091	89.014771	87.15317068
191104A00018	11/5/2019	1.96	11/5/2024		100.16044	99.89310627	99.62720148	99.36271586	99.09963804	98.83795676	98.57766088	98.31873939	98.06118139
191104A00022	11/4/2019	2.17	8/4/2027		105.77131	102.7548078	99.84048588	97.02431733	94.3024585	91.67123874	89.12715157	86.66684634	84.28712031
191104A00023	11/4/2019	2.24	8/4/2028		108.43482	104.380229	100.5005194	96.78722622	93.23233747	89.82826996	86.56784382	83.44425887	80.45107249
191104A00024	11/4/2019	2.26	8/3/2029		110.70863	105.6139656	100.7853871	96.20760843	91.86630058	87.74802655	83.8401811	80.13093501	76.60918334

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191104A00025	11/4/2019	2.33	8/2/2030		112.80367	106.6646664	100.9013703	95.4888178	90.40383103	85.62487921	81.13195351	76.90645193	72.93107355
191105A00007	11/5/2019	1.98	11/5/2026		103.88825	101.6271639	99.42631503	97.28367609	95.1973024	93.16533045	91.18597372	89.25751876	87.37832154
191105A00008	11/5/2019	1.83	11/5/2024		100.16196	99.89422236	99.62792054	99.36304468	99.09958328	98.83752495	98.57685846	98.31757265	98.05965652
191105A00012	11/5/2019	2.07	11/3/2034		109.97944	104.4828228	99.37300205	94.61815425	90.18935779	86.06030557	82.20704925	78.60777021	75.24257423
191106A00012	11/6/2019	2.02	10/11/2024		100.1225	99.92375206	99.72580459	99.52865398	99.33229536	99.1367239	98.94193479	98.74792328	98.55468467
191106A00022	11/6/2019	2.34	1/2/2030		111.90963	106.3721452	101.1442008	96.20689982	91.54259578	87.1348008	82.96810363	79.02809411	75.3012933
191108A00011	11/8/2019	2.08	10/18/2024		100.15035	99.93236031	99.71532896	99.49925347	99.28412748	99.06994466	98.85669876	98.64438356	98.43299293
191108A00013	11/8/2019	2.25	11/8/2029		111.92732	106.5123245	101.3930531	96.55178052	91.97194004	87.6380407	83.5355915	79.65103131	75.97166416
191108A00014	11/8/2019	2.25	11/8/2029		111.92732	106.5123245	101.3930531	96.55178052	91.97194004	87.6380407	83.5355915	79.65103131	75.97166416
191112A00022	11/12/2019	2.36	11/13/2029		110.95657	105.9096782	101.1350971	96.61657542	92.33891529	88.28789938	84.4502229	80.81343038	77.36585728
191112A00023	11/12/2019	2.36	11/13/2029		110.95657	105.9096782	101.1350971	96.61657542	92.33891529	88.28789938	84.4502229	80.81343038	77.36585728
191112A00024	11/12/2019	2.09	11/12/2024		100.29684	99.92974233	99.56534261	99.20361468	98.84452907	98.48805678	98.1341692	97.78283815	97.43403587
191113A00013	11/13/2019	2.17	11/13/2026		104.0954	101.8142887	99.59572139	97.43763626	95.33804989	93.29505561	91.30681997	89.3715795	87.48763761
191113A00016	11/15/2019	2.02	8/15/2024		100.02309	99.98152652	99.94001328	99.89855213	99.85714296	99.81578568	99.77448018	99.73322636	99.69202412
191115A00014	11/18/2019	2.45	11/18/2024		100.34166	100.0384177	99.73702181	99.43745181	99.13969105	98.8437231	98.54953172	98.25710086	97.96641466
191115A00015	11/18/2019	2.61	11/18/2024		100.39042	100.0870901	99.78560119	99.48593859	99.18808566	98.89202595	98.5977432	98.30522138	98.01444463
191115A00016	11/18/2019	2.48	11/18/2024		100.3508	100.0475438	99.74613045	99.44654308	99.14876504	98.85277989	98.55857137	98.26612346	97.97542028
191115A00028	11/15/2019	2.34	9/28/2029		111.42924	106.1631987	101.1788679	96.45967379	91.99010621	87.75564559	83.74269402	79.93851167	76.33115798
191115A00029	11/15/2019	2.07	11/15/2029		104.88663	102.1668654	99.55387237	97.04251001	94.62792089	92.30551623	90.07095918	87.92014919	85.84920756
191115A00030	11/15/2019	2.35	11/9/2029		111.6976	106.3113686	101.2187779	96.40225431	91.84537342	87.5327753	83.45008962	79.58386646	75.92151244
191119A00027	11/19/2019	1.8	11/19/2024		100.18451	99.87840422	99.5741782	99.27181667	98.97130239	98.67261837	98.37574781	98.08067412	97.78738091
191120A00005	11/20/2019	2.63	11/20/2034		121.4924	110.8611954	101.2718206	92.61603232	84.79737192	77.72982523	71.33664335	65.54930188	60.30658169
191120A00006	11/20/2019	2.67	11/20/2035		123.26208	111.602326	101.1805901	91.85780308	83.51121386	76.03239968	69.32552736	63.30583352	57.89829492
191120A00024	11/20/2019	2.23	11/16/2029		111.09814	105.7082059	100.6133426	95.79585535	91.23920534	86.927925	82.847543	78.98451483	75.32615871
191121A00004	11/21/2019	1.77	11/21/2024		100.17949	99.86791463	99.55828891	99.25059257	98.9448075	98.64091585	98.33889996	98.0387424	97.74042598
191121A00009	11/21/2019	2.55	11/21/2036		124.79248	112.0143122	100.7019288	90.67795023	81.78735345	73.89455121	66.88086643	60.64234579	55.0878654
191121A00010	11/21/2019	2.59	11/20/2037		126.64143	112.8267932	100.7059349	90.05998946	80.69949164	72.46029146	65.20005557	58.79526715	53.13865151
191121A00034	11/21/2019	2.28	11/2/2029		111.29153	105.9351435	100.8699485	96.07854745	91.54467516	87.25312175	83.18965804	79.34096674	75.6945789
191122A00003	11/22/2019	2.32	11/22/2039		118.62643	107.9736401	98.57771416	90.27269487	82.91606159	76.38525804	70.57475283	65.39355019	60.76307982
191122A00018	11/26/2019	3.11	11/22/2039		135.53259	119.4160612	105.5002221	93.46727292	83.04708172	74.00980612	66.15969135	59.3298501	53.37786471
191122A00020	11/26/2019	3.2	11/23/2037		132.76907	118.68068	106.3002154	95.40841444	85.81533366	77.35629258	69.88839442	63.28754143	57.44587225
191122A00021	11/26/2019	3.4	11/22/2038		137.49286	122.1638417	108.8034401	97.14365688	86.95446864	78.03826391	70.2251201	63.36878969	57.34328608
191125A00036	11/25/2019	2.29	11/23/2029		111.45244	106.033974	100.9129788	96.07159778	91.49313288	87.16196657	83.06348652	79.18401588	75.51074871

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
191126A00023	11/26/2019	1.81	5/27/2025		100.72314	99.90270031	99.09558499	98.30146751	97.52003586	96.75098794	95.99403118	95.24888218	94.51526632
191126A00026	11/26/2019	1.91	11/25/2026		103.85313	101.5374882	99.28485805	97.09316362	94.96041381	92.88469498	90.86416735	88.89706169	86.98167615
191129A00012	11/29/2019	1.99	11/29/2024		100.2273	99.89421206	99.56332842	99.23463134	98.90809921	98.58371074	98.26144491	97.94128096	97.6231984
191202A00005	12/2/2019	2.03	12/2/2024		100.24859	99.90727283	99.56827512	99.2315743	98.8971471	98.56497056	98.23502201	97.90727909	97.58171976
191203A00004	12/4/2019	1.87	12/4/2024		100.19817	99.85151111	99.50725195	99.16536609	98.82582903	98.48861659	98.15370492	97.82107051	97.49069016
191203A00009	12/3/2019	2.21	12/3/2029		110.26967	105.2000024	100.4065937	95.8727989	91.58306036	87.52283395	83.67851803	80.03738755	76.5875332
191203A00010	12/3/2019	2.21	12/3/2029		110.26967	105.2000024	100.4065937	95.8727989	91.58306036	87.52283395	83.67851803	80.03738755	76.5875332
191203A00011	12/3/2019	2.21	12/3/2029		110.26967	105.2000024	100.4065937	95.8727989	91.58306036	87.52283395	83.67851803	80.03738755	76.5875332
191204A00013	12/4/2019	1.72	12/4/2024		100.1903	99.8431558	99.49841896	99.15606479	98.81606859	98.47840598	98.14305293	97.80998574	97.47918103
191206A00005	12/6/2019	2.18	12/7/2026		104.26352	101.9186212	99.63965745	97.42439766	95.27069919	93.17650445	91.13983706	89.15879807	87.23156248
191206A00008	12/6/2019	2.44	12/6/2030		113.99629	107.4813383	101.3843225	95.67627186	90.33036518	85.3217598	80.62743627	76.22605603	72.09783083
191206A00009	12/6/2019	2.87	12/4/2037		128.49529	114.6498001	102.4952306	91.81344972	82.41559947	74.13803224	66.83882919	60.39481451	54.69899283
191206A00013	12/6/2019	3.05	12/6/2044		146.48732	124.8805961	106.9955633	92.15314185	79.80257066	69.49650742	60.87107098	53.62982455	47.53090561
191206A00021	12/6/2019	2.02	12/6/2024		100.25588	99.90365417	99.55390245	99.20660221	98.86172766	98.5192534	98.17915435	97.84140582	97.50598343
191206A00044	12/10/2019	2.01	10/31/2024		100.16195	99.90828094	99.65588684	99.40476279	99.15489926	98.90628683	98.65891615	98.41277799	98.16786317
191209A00005	12/9/2019	2.22	12/10/2029		109.50466	104.8101095	100.3650108	96.15451315	92.16472885	88.3826697	84.7961838	81.39389736	78.16516074
191217A00012	12/20/2019	2.03	12/20/2024		100.29769	99.90722227	99.51980168	99.13539184	98.75395766	98.37546457	97.99987855	97.62716609	97.25729421
191218A00014	12/18/2019	2.04	12/18/2024		100.29615	99.91113532	99.52908438	99.14996265	98.77373642	98.40037249	98.02983816	97.66210124	97.29713003
191219A00036	12/20/2019	2.1	12/20/2024		100.32522	99.93468339	99.54719817	99.16272407	98.78122599	98.40266937	98.02702016	97.65424487	97.2843105
191220A00001	12/20/2019	2.62	12/19/2031		116.88233	109.2555611	102.1868037	95.63224631	89.55172941	83.90842413	78.66854067	73.80106334	69.27750997
191220A00002	12/20/2019	3.02	12/20/2038		132.31179	117.2643376	104.1707023	92.76275307	82.81060087	74.116967	66.51240414	59.85123831	54.00812017
191223A00055	12/23/2019	2.46	12/7/2029		112.43384	106.9515838	101.7718872	96.87650741	92.24839174	87.87159343	83.73119446	79.81323428	76.10464377
191223A00056	12/23/2019	2.46	12/14/2029		112.4727	106.9706339	101.7731946	96.86195949	92.21970809	87.83034037	83.67879821	79.75099306	76.03373878
191224A00002	12/24/2019	2.17	12/24/2029		105.36861	102.5459937	99.83652718	97.23467564	94.73521225	92.33320287	90.02398772	87.80316422	85.66657105
191226A00019	12/26/2019	2.4	12/22/2028		110.0326	105.5643279	101.3038745	97.24051428	93.36412813	89.66516752	86.13461924	82.76397268	79.54518937
191226A00020	12/26/2019	2.44	12/21/2029		112.39829	106.8795747	101.6674373	96.74327029	92.08969102	87.69045132	83.53035801	79.59519923	75.87167637
191230A00013	12/30/2019	1.84	12/2/2024		100.22713	99.88536088	99.54592311	99.20879122	98.87394173	98.5413515	98.21099769	97.88285776	97.55690949
191230A00031	12/30/2019	1.85	12/30/2024		100.30218	99.88383348	99.46897218	99.05755058	98.64952602	98.24485658	97.843501	97.4454187	97.05056976
200103A00002	1/3/2020	2.07	1/3/2030		109.4984	104.7415806	100.2406978	95.98032015	91.94603327	88.12436814	84.50273412	81.06935687	77.8132211
200108A00021	1/13/2020	1.97	1/13/2025		100.33739	99.88156466	99.42988087	98.98228567	98.5387236	98.09914017	97.66348188	97.23169622	96.80373156
200109A00006	1/9/2020	1.95	1/9/2030		105.19966	102.3333104	99.58353656	96.94456016	94.41093096	91.97750745	89.63943722	87.39213873	85.23128439
200109A00008	1/9/2020	1.95	1/9/2030		105.19966	102.3333104	99.58353656	96.94456016	94.41093096	91.97750745	89.63943722	87.39213873	85.23128439
200110A00022	1/13/2020	2	1/6/2025		100.33157	99.89476612	99.46176058	99.03250742	98.60695797	98.18506435	97.76677955	97.35205734	96.94085227

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200110A00037	1/10/2020	2.32	1/10/2030		110.9858	105.8034249	100.9081053	96.28225223	91.90944604	87.77435577	83.86266127	80.16098123	76.65680679
200110A00038	1/10/2020	2.32	1/10/2030		110.9858	105.8034249	100.9081053	96.28225223	91.90944604	87.77435577	83.86266127	80.16098123	76.65680679
200110A00039	1/10/2020	2.32	1/10/2030		110.9858	105.8034249	100.9081053	96.28225223	91.90944604	87.77435577	83.86266127	80.16098123	76.65680679
200110A00043	1/10/2020	2.32	1/10/2030		110.9858	105.8034249	100.9081053	96.28225223	91.90944604	87.77435577	83.86266127	80.16098123	76.65680679
200110A00053	1/10/2020	1.99	1/10/2025		100.4215	99.89305524	99.37018588	98.85280725	98.34083298	97.83417852	97.33276106	96.83649952	96.34531449
200114A00006	1/15/2020	1.99	1/15/2025		100.35213	99.89082877	99.43377417	98.98090573	98.53216596	98.08749845	97.64684782	97.21015966	96.77738058
200115A00013	1/15/2020	2.18	1/15/2030		108.40472	104.1354249	100.0865001	96.24495443	92.5986386	89.13618994	85.84697671	82.72104701	79.74908138
200116A00012	1/16/2020	2.16	1/19/2027		104.48375	102.0253132	99.63876035	97.3215535	95.07125898	92.88554467	90.76217504	88.69900646	86.69398277
200121A00009	1/24/2020	1.94	1/24/2025		100.35257	99.86683335	99.38579334	98.90938425	98.43753937	97.97019327	97.50728177	97.04874189	96.59451188
200122A00035	1/22/2020	1.94	1/22/2025		100.34731	99.86701466	99.39131813	98.92015261	98.45345347	97.99115734	97.53320202	97.07952649	96.63007087
200123A00013	1/27/2020	1.89	1/27/2025		100.33556	99.84172373	99.35274063	98.86853886	98.38904855	97.91420116	97.44392949	96.97816761	96.51685088
200123A00048	1/23/2020	1.7	1/23/2025		100.29449	99.81088721	99.33195242	98.85761371	98.38780504	97.92246161	97.46151987	97.00491746	96.55259321
200124A00008	1/24/2020	1.92	1/22/2027		104.21772	101.7437015	99.3411655	97.00764047	94.74075445	92.53823168	90.39788806	88.31762686	86.29543458
200127A00016	1/27/2020	1.81	1/27/2025		100.29571	99.8019869	99.31311826	98.82903014	98.34965268	97.87491736	97.40475696	96.9391056	96.47789862
200127A00023	1/27/2020	1.8	1/27/2025		100.29073	99.7970198	99.30816546	98.82409156	98.3447282	97.87000688	97.3998604	96.93422285	96.47302959
200127A00030	1/27/2020	1.8	1/27/2025		100.29073	99.7970198	99.30816546	98.82409156	98.3447282	97.87000688	97.3998604	96.93422285	96.47302959
200128A00028	1/28/2020	1.81	1/28/2025		100.29798	99.80153838	99.31000038	98.82329348	98.34134673	97.86409056	97.39145675	96.9233784	96.4597899
200130A00006	1/30/2020	1.77	1/30/2025		100.28227	99.78044305	99.28362576	98.79174071	98.30471477	97.82247628	97.34495497	96.87208193	96.4037896
200130A00016	1/30/2020	1.58	1/30/2025		100.2499	99.74739663	99.2499184	98.75738908	98.26973512	97.78688443	97.30876632	96.83531149	96.366452
200130A00027	1/31/2020	1.79	1/31/2025		100.16684	99.8436832	99.5230616	99.20494097	98.8892893	98.57607513	98.26526759	97.95683632	97.65075153
200130A00046	1/30/2020	1.81	1/29/2027		101.53106	100.2410395	98.9796836	97.74611382	96.53948875	95.35899953	94.20386821	93.07334636	91.96671367
200131A00015	2/5/2020	1.73	2/5/2025		100.27465	99.75661622	99.24392219	98.73648741	98.23423122	97.73707463	97.24494022	96.75775216	96.27543613
200131A00016	1/31/2020	1.73	1/31/2025		100.26407	99.75958495	99.26016295	98.76572365	98.27619285	97.79149784	97.31156731	96.83633135	96.36572141
200131A00029	1/31/2020	1.78	10/31/2024		100.10577	99.8521683	99.59984242	99.34878667	99.09899152	98.85044753	98.60314535	98.35707574	98.11222954
200131A00032	1/31/2020	2.1	1/31/2030		110.71	105.1285566	99.86390742	94.89643351	90.2078272	85.78100045	81.59999745	77.64991396	73.91682277
200131A00038	1/31/2020	1.73	1/30/2025		100.26201	99.76024552	99.26348736	98.771661	98.28469334	97.80251271	97.32504885	96.85223286	96.38399718
200203A00006	2/3/2020	1.76	2/3/2025		100.28594	99.77328208	99.26585053	98.76356752	98.26635501	97.77413651	97.28683709	96.80438328	96.3267031
200203A00046	2/3/2020	1.98	2/3/2040		112.31107	104.4200183	97.30963889	90.8902776	85.08356831	79.82091651	75.04219485	70.69462238	66.73180061
200204A00001	2/4/2020	1.79	2/4/2025		100.30375	99.78833054	99.2781978	98.7732694	98.27346598	97.7787098	97.28892469	96.80403599	96.32397055
200204A00012	2/4/2020	1.98	2/4/2027		104.1191	101.6177497	99.18945098	96.83164997	94.54189523	92.31783606	90.15721766	88.05787657	86.01773635
200204A00020	2/4/2020	1.6	2/4/2025		100.27064	99.75452059	99.24370556	98.73811233	98.2376611	97.74227368	97.25187344	96.76638531	96.28573572
200206A00008	2/6/2020	1.64	2/6/2025		100.35368	99.76464147	99.18257039	98.60733869	98.03882592	97.47691447	96.92148945	96.37243863	95.82965237
200206A00027	2/6/2020	2.15	2/6/2030		110.1946	104.9831186	100.0633816	95.41733133	91.02812345	86.88004235	82.95841921	79.24955668	75.74065936

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200206A00031	2/6/2020	2.15	2/6/2030		110.1946	104.9831186	100.0633816	95.41733133	91.02812345	86.88004235	82.95841921	79.24955668	75.74065936
200206A00032	2/6/2020	2.15	2/6/2030		110.1946	104.9831186	100.0633816	95.41733133	91.02812345	86.88004235	82.95841921	79.24955668	75.74065936
200206A00033	2/6/2020	2.15	2/6/2030		110.1946	104.9831186	100.0633816	95.41733133	91.02812345	86.88004235	82.95841921	79.24955668	75.74065936
200206A00034	2/6/2020	1.84	2/6/2025		100.39981	99.8076176	99.22243181	98.64412709	98.07258235	97.50767933	96.94930255	96.39733915	95.8516789
200207A00009	2/7/2020	1.58	2/7/2025		100.26649	99.7422519	99.22349107	98.71011949	98.2020534	97.69921078	97.20151128	96.7088762	96.22122845
200207A00017	2/7/2020	1.96	2/8/2027		104.09621	101.5833536	99.14411639	96.77591571	94.47627211	92.24280858	90.07324551	87.96539608	85.91716182
200207A00018	2/7/2020	2.14	2/7/2030		110.96669	105.3575784	100.0677108	95.07725494	90.36771434	85.92182847	81.72348383	77.75763193	74.0102136
200210A00005	2/10/2020	1.77	2/10/2027		103.95982	101.4356938	98.98578743	96.60748503	94.29827826	92.05576286	89.87763352	87.76167915	85.70577836
200210A00007	2/10/2020	1.78	2/10/2025	8/1/2024	100.43053	99.85036766	99.27709463	98.71058874	98.15072942	97.597399	97.05048256	96.50986788	95.97544539
200210A00009	2/10/2020	1.57	2/10/2025		100.26737	99.73500539	99.20828511	98.68712287	98.17143092	97.66112333	97.15611597	96.65632646	96.16167413
200210A00021	2/10/2020	1.76	2/10/2025		100.30134	99.76969593	99.24368338	98.72321043	98.20818981	97.6985361	97.19416562	96.69499647	96.2009484
200212A00003	2/12/2020	1.63	2/12/2025		100.30404	99.76613748	99.2340005	98.70753563	98.18665239	97.67126222	97.16127844	96.65661616	96.1571923
200212A00013	2/12/2020	1.98	2/12/2027		104.15674	101.650403	99.21855649	96.8585152	94.56771273	92.34369233	90.18410128	88.08668574	86.04928583
200214A00002	2/14/2020	1.58	11/15/2024		100.11052	99.81550663	99.52223979	99.23070868	98.9408978	98.65279182	98.36637563	98.08163424	97.7985529
200214A00005	2/14/2020	1.59	2/14/2025		100.28656	99.74329532	99.20590861	98.67430738	98.1483984	97.62809048	97.11329436	96.60392265	96.09988983
200214A00007	2/14/2020	1.59	2/14/2025		100.28656	99.74329532	99.20590861	98.67430738	98.1483984	97.62809048	97.11329436	96.60392265	96.09988983
200214A00014	2/18/2020	1.8	2/18/2025		100.34127	99.78786646	99.2405539	98.69923672	98.16381672	97.63419782	97.11028605	96.59198944	96.079218
200214A00015	2/18/2020	1.76	8/6/2024		100.00632	99.98968853	99.97307452	99.95647722	99.93989661	99.92333266	99.90678534	99.89025463	99.8737405
200214A00020	2/18/2020	1.78	1/15/2025		100.25447	99.79343675	99.3366456	98.88403887	98.43555911	97.99114992	97.55075592	97.11432275	96.681797
200220A00013	2/20/2020	2.09	12/14/2029		110.47167	105.0228116	99.87646042	95.01429776	90.41920052	86.07516053	81.96720649	78.08133187	74.40442814
200220A00014	2/20/2020	2.09	12/21/2029		110.49867	105.0306476	99.86717052	94.98973821	90.38106124	86.02497945	81.9063828	78.01113799	74.32602068
200220A00015	2/20/2020	1.57	2/20/2025		100.28794	99.72840858	99.17511066	98.62794285	98.08680358	97.55159353	97.02221557	96.49857466	95.98057782
200220A00026	2/20/2020	2.22	2/21/2040		114.05902	105.3918654	97.62100154	90.63975663	84.35530949	78.6867721	73.56355286	68.92395626	64.71398308
200221A00003	2/25/2020	1.69	2/25/2025		100.29383	99.72163489	99.15595442	98.59667328	98.04368338	97.49687904	96.95615696	96.42141611	95.89255768
200221A00004	2/21/2020	1.69	2/21/2025		100.28581	99.72446664	99.16939242	98.62048499	98.07764199	97.54076327	97.0097509	96.48450908	95.96494409
200221A00011	2/21/2020	1.69	8/21/2024		100.01221	99.95404911	99.89597192	99.83797726	99.78006497	99.72223485	99.66448674	99.60682046	99.54923583
200221A00012	2/21/2020	2.14	2/21/2040		113.36151	104.7492958	97.02771735	90.09077451	83.84622781	78.21369684	73.12303356	68.51293052	64.32972857
200221A00013	2/21/2020	1.69	2/21/2025		100.28581	99.72446664	99.16939242	98.62048499	98.07764199	97.54076327	97.0097509	96.48450908	95.96494409
200221A00016	2/21/2020	1.69	2/21/2025		100.28581	99.72446664	99.16939242	98.62048499	98.07764199	97.54076327	97.0097509	96.48450908	95.96494409
200221A00023	2/21/2020	2.05	12/7/2029		110.22444	104.8007269	99.6772509	94.83588011	90.25966841	85.9327696	81.84036067	77.96857091	74.30441613
200221A00024	2/21/2020	2.05	12/28/2029		110.3078	104.8264328	99.65143039	94.76411265	90.14703346	85.78389002	81.65944234	77.75943881	74.0705473
200221A00031	2/21/2020	1.69	2/21/2025		100.28581	99.72446664	99.16939242	98.62048499	98.07764199	97.54076327	97.0097509	96.48450908	95.96494409
200224A00001	2/24/2020	1.59	2/24/2025		100.23428	99.66499147	99.10214908	98.54564618	97.99537614	97.45123469	96.91311991	96.38093209	95.85457373



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200224A00006	2/24/2020	1.58	11/15/2024		100.07284	99.77830986	99.485525	99.19446822	98.90512415	98.61747762	98.33151362	98.04721734	97.76457412
200224A00007	2/24/2020	1.59	2/24/2025		100.23428	99.66499147	99.10214908	98.54564618	97.99537614	97.45123469	96.91311991	96.38093209	95.85457373
200224A00019	2/24/2020	1.59	2/18/2025		100.22392	99.67088075	99.12393889	98.58298952	98.04793446	97.5186777	96.99512528	96.47718528	95.96476774
200224A00020	2/24/2020	1.59	2/24/2025		100.23428	99.66499147	99.10214908	98.54564618	97.99537614	97.45123469	96.91311991	96.38093209	95.85457373
200224A00021	2/24/2020	1.58	9/24/2024		100.02151	99.86958357	99.71813156	99.56714702	99.41662777	99.26657166	99.11697653	98.96784025	98.8191607
200224A00024	2/24/2020	1.59	2/24/2025		100.23428	99.66499147	99.10214908	98.54564618	97.99537614	97.45123469	96.91311991	96.38093209	95.85457373
200224A00025	2/24/2020	1.59	1/23/2025		100.17945	99.69691672	99.21902778	98.74571643	98.27691706	97.81256528	97.35259796	96.89695314	96.44557002
200224A00046	2/24/2020	1.59	2/24/2025		100.23428	99.66499147	99.10214908	98.54564618	97.99537614	97.45123469	96.91311991	96.38093209	95.85457373
200225A00012	2/25/2020	1.57	2/25/2025		100.22445	99.65248416	99.08702981	98.52797295	97.97520554	97.42862192	96.88811879	96.35359517	95.82495225
200225A00017	2/25/2020	1.94	2/25/2030		109.93984	104.3056749	98.99518931	93.98811511	89.265553	84.80987707	80.60464245	76.63450008	72.88511811
200225A00018	2/25/2020	1.94	2/25/2030		109.93984	104.3056749	98.99518931	93.98811511	89.265553	84.80987707	80.60464245	76.63450008	72.88511811
200225A00023	2/25/2020	1.62	2/25/2025		100.25335	99.68129697	99.11574839	98.55659809	98.00373797	97.45706239	96.91646803	96.38185389	95.85312118
200225A00028	2/25/2020	1.89	12/21/2029		109.41318	103.9741179	98.83844665	93.98771988	89.40470136	85.07328124	80.97839696	77.10596014	73.44278886
200225A00029	2/25/2020	1.89	12/28/2029		109.43632	103.9782886	98.82568443	93.95987584	89.36345991	85.02017459	80.91481837	77.03317598	73.36194964
200225A00049	2/25/2020	1.79	2/24/2040		110.78549	103.0083105	95.99858891	89.66845842	83.94108475	78.74918236	74.03374405	69.74294903	65.831223
200225A00050	2/25/2020	1.57	2/25/2025		100.22445	99.65248416	99.08702981	98.52797295	97.97520554	97.42862192	96.88811879	96.35359517	95.82495225
200226A00004	2/26/2020	1.58	2/26/2025		100.23193	99.65723697	99.08911442	98.52744798	97.97212814	97.42304784	96.88010244	96.34318961	95.81220929
200226A00006	2/26/2020	1.57	2/26/2025		100.22612	99.65144702	99.08334349	98.52169591	97.96639478	97.41733305	96.87440607	96.3375115	95.8065493
200226A00008	2/26/2020	1.38	2/26/2025		100.18985	99.61438683	99.04550955	98.4831093	97.92707597	97.37730194	96.83368198	96.29611324	95.76449513
200226A00009	2/26/2020	1.75	2/26/2030		109.65895	104.0023405	98.67180129	93.64685708	88.9084217	84.43869816	80.22108486	76.24008917	72.48124765
200226A00016	2/26/2020	1.57	2/26/2025		100.22612	99.65144702	99.08334349	98.52169591	97.96639478	97.41733305	96.87440607	96.3375115	95.8065493
200226A00025	2/26/2020	1.38	2/26/2025		100.18985	99.61438683	99.04550955	98.4831093	97.92707597	97.37730194	96.83368198	96.29611324	95.76449513
200227A00004	2/27/2020	1.65	2/27/2030		109.0997	103.4555815	98.13721574	93.12412604	88.39723053	83.9387371	79.73204951	75.76168083	72.01317368
200227A00006	2/27/2020	1.47	2/27/2025		100.16942	99.59223632	99.02167571	98.45762807	97.89998247	97.34863048	96.80346609	96.26438568	95.73128792
200227A00009	2/27/2020	1.47	2/27/2025		100.16942	99.59223632	99.02167571	98.45762807	97.89998247	97.34863048	96.80346609	96.26438568	95.73128792
200227A00016	2/27/2020	1.47	2/27/2025		100.16942	99.59223632	99.02167571	98.45762807	97.89998247	97.34863048	96.80346609	96.26438568	95.73128792
200227A00027	2/27/2020	1.47	2/27/2025		100.16942	99.59223632	99.02167571	98.45762807	97.89998247	97.34863048	96.80346609	96.26438568	95.73128792
200227A00030	2/27/2020	1.59	2/27/2026		101.49723	99.93749014	98.40918748	96.91144156	95.44340229	94.00425082	92.59319814	91.20948364	89.85237388
200227A00046	2/27/2020	1.52	3/1/2027		101.21331	99.88636396	98.58953552	97.32189112	96.08253439	94.8706039	93.68527145	92.52574055	91.39124492
200228A00012	3/3/2020	1.4	3/3/2025		100.13401	99.54615127	98.9651739	98.39095558	97.82337888	97.26232913	96.70769424	96.1593647	95.61723348
200228A00014	2/28/2020	1.4	2/28/2025		100.12977	99.55001193	98.97693981	98.41043826	97.8503949	97.2966999	96.74924589	96.20792794	95.67264343
200228A00019	2/28/2020	1.21	2/20/2025		100.08468	99.52580623	98.97315694	98.42663261	97.88613178	97.35155518	96.82280575	96.2997885	95.78241053
200228A00025	2/28/2020	1.57	3/2/2027		103.23206	100.6662232	98.17694209	95.76147432	93.41719067	91.14157324	88.93220998	86.7867894	84.70309572

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200228A00026	2/28/2020	2.14	2/28/2035		116.72361	106.0749473	96.50198103	87.8899387	80.13685444	73.15207818	66.85496795	61.17373927	56.04445184
200228A00059	2/28/2020	1.79	2/28/2030		109.11058	103.4904656	98.19402505	93.20095219	88.49231552	84.05046122	79.85892032	75.90232306	72.16631997
200228A00067	2/28/2020	1.4	2/28/2025		100.12977	99.55001193	98.97693981	98.41043826	97.8503949	97.2966999	96.74924589	96.20792794	95.67264343
200228A00071	2/28/2020	1.74	12/14/2029		108.57881	103.1802769	98.08225237	93.26650963	88.71601769	84.41485527	80.34813323	76.50192265	72.86318835
200228A00091	2/28/2020	1.72	12/7/2029		108.44614	103.0695494	97.9913241	93.19342399	88.65898866	84.37225286	80.31847007	76.48384185	72.85545241
200302A00002	3/2/2020	1.12	3/3/2025		100.04334	99.45484341	98.87325108	98.29843825	97.7302869	97.16868175	96.61351015	96.06466203	95.52202983
200302A00005	3/2/2020	1.31	3/3/2025		100.08048	99.4928084	98.91200975	98.33796866	97.77056773	97.20969231	96.65523033	96.1070723	95.5651112
200302A00011	3/2/2020	1.31	2/27/2025		100.07604	99.49915892	98.92890545	98.36516245	97.80781901	97.25676674	96.71189967	96.1731142	95.64030903
200302A00016	3/2/2020	1.36	3/3/2025		100.11022	99.52244333	98.94154539	98.36740583	97.79990726	97.23893499	96.68437695	96.13612364	95.59406803
200302A00033	3/2/2020	1.31	3/3/2025		100.08048	99.4928084	98.91200975	98.33796866	97.77056773	97.20969231	96.65523033	96.1070723	95.5651112
200302A00036	3/2/2020	1.45	3/2/2026		101.28854	99.72230473	98.18774856	96.68397315	95.21011825	93.76535541	92.34888653	90.95994241	89.59778147
200302A00045	3/4/2020	1.31	3/4/2025		100.08165	99.49127451	98.90784253	98.33123118	97.7613214	97.19799686	96.64114393	96.09065159	95.54641133
200302A00053	3/2/2020	1.31	3/3/2025		100.08048	99.4928084	98.91200975	98.33796866	97.77056773	97.20969231	96.65523033	96.1070723	95.5651112
200302A00054	3/2/2020	1.31	3/3/2025		100.08048	99.4928084	98.91200975	98.33796866	97.77056773	97.20969231	96.65523033	96.1070723	95.5651112
200302A00060	3/2/2021	1.44	3/3/2025		100.1578	99.56985921	98.98880242	98.41450532	97.84685051	97.28572327	96.73101153	96.18260577	95.64039894
200303A00001	3/3/2020	1.15	3/3/2025		100.06118	99.47263192	98.89097991	98.3161079	97.74789786	97.1862345	96.63100516	96.08209978	95.53941077
200303A00010	3/3/2020	1.34	3/3/2025		100.09833	99.51058936	98.92973114	98.35563096	97.78817145	97.22723792	96.6727183	96.1245031	95.5824853
200303A00012	3/3/2020	1.71	3/1/2030		108.66376	103.0533448	97.76638674	92.7825727	88.08297142	83.64993013	79.46698158	75.51875827	71.79091346
200303A00018	3/3/2020	1.27	3/3/2025		100.0567	99.46910046	98.88838124	98.31441891	97.74709611	97.18629817	96.63191304	96.08383123	95.54194575
200303A00028	3/3/2020	1.54	3/4/2030		106.45435	101.7033472	97.21409847	92.97045493	88.9573597	85.1607671	81.56756895	78.16552667	74.94320869
200303A00034	3/3/2020	1.21	3/3/2025		100.02101	99.43353855	98.85293847	98.2790943	97.71188868	97.15120695	96.59693709	96.04896963	95.50719756
200304A00002	3/4/2020	0.98	3/4/2025		99.960641	99.36972894	98.78577988	98.20867123	97.63828333	97.07449926	96.51720483	95.96628847	95.42164113
200304A00005	3/4/2020	0.98	3/4/2025		99.960641	99.36972894	98.78577988	98.20867123	97.63828333	97.07449926	96.51720483	95.96628847	95.42164112
200304A00010	3/4/2020	1.2	3/4/2027		102.61688	100.0464739	97.55308748	95.13394681	92.78639723	90.50789696	88.29601151	86.14840833	84.0628518
200304A00012	3/4/2020	0.98	3/4/2025		99.960641	99.36972894	98.78577988	98.20867123	97.63828333	97.07449926	96.51720483	95.96628847	95.42164112
200304A00018	3/4/2020	0.98	3/4/2025		99.960641	99.36972894	98.78577988	98.20867123	97.63828333	97.07449926	96.51720483	95.96628847	95.42164113
200304A00020	3/4/2020	0.98	3/4/2025		99.960641	99.36972894	98.78577988	98.20867123	97.63828333	97.07449926	96.51720483	95.96628847	95.42164112
200304A00030	3/4/2020	1.6	12/22/2028		106.494	102.1032133	97.91762999	93.92663604	90.1202171	86.48892408	83.02383839	79.71653948	76.55907459
200304A00032	3/4/2020	1.6	12/15/2028		106.46394	102.092176	97.92392392	93.94869829	90.15660373	86.5383012	83.08497392	79.78829554	76.64040046
200304A00033	3/4/2020	1.17	3/4/2025		99.998005	99.4079129	98.82476121	98.24842782	97.67879369	97.11574254	96.55916077	96.00893737	95.46496389
200304A00035	3/4/2020	1.17	3/4/2025		99.998005	99.4079129	98.82476121	98.24842782	97.67879369	97.11574254	96.55916077	96.00893737	95.46496389
200304A00052	3/6/2020	2.11	3/8/2027		104.67326	102.0725404	99.54964571	97.101773	94.72623798	92.42047085	90.18201043	88.00849882	85.89767626
200304A00053	3/6/2020	2.33	3/6/2025		100.69901	100.1011472	99.51037309	98.92656361	98.349596	97.77935041	97.21570979	96.65855979	96.10778869

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200304A00054	3/6/2020	2.35	3/8/2027		105.30131	102.69229	100.1612861	97.70548748	95.32220437	93.00886147	90.76299241	88.58223424	86.46432239
200305A00001	3/5/2020	1.14	3/5/2025		99.980776	99.38804969	98.80232768	98.22348666	97.65140589	97.08596745	96.52705617	95.9745595	95.42836748
200305A00002	3/5/2020	1.14	3/5/2025		99.980776	99.38804969	98.80232768	98.22348666	97.65140589	97.08596745	96.52705617	95.9745595	95.42836748
200305A00007	3/5/2020	1.14	3/5/2025		99.980776	99.38804969	98.80232768	98.22348666	97.65140589	97.08596745	96.52705617	95.9745595	95.42836748
200305A00012	3/5/2020	1.14	3/5/2025		99.980776	99.38804969	98.80232768	98.22348666	97.65140589	97.08596745	96.52705617	95.9745595	95.42836748
200305A00020	3/5/2020	0.95	3/5/2025		99.943225	99.34967438	98.76315093	98.18353076	97.6106925	97.0445176	96.48489027	95.93169739	95.38482844
200305A00029	3/5/2020	1.14	3/5/2025		99.980776	99.38804969	98.80232768	98.22348666	97.65140589	97.08596745	96.52705617	95.9745595	95.42836748
200305A00030	3/5/2020	1.58	3/5/2030		107.94201	102.3410677	97.06389814	92.09012381	87.40075758	82.97809714	78.80563138	74.86795407	71.15068428
200305A00032	3/5/2020	1.58	3/5/2030		107.94201	102.3410677	97.06389814	92.09012381	87.40075758	82.97809714	78.80563138	74.86795407	71.15068428
200305A00035	3/5/2020	1.25	3/5/2026		100.9803	99.40872744	97.86904336	96.36034763	94.8817703	93.43247376	92.01165124	90.61852538	89.25234683
200305A00036	3/5/2020	1.36	3/5/2027		102.6983	100.1315739	97.64166159	95.22580081	92.88134611	90.60576449	88.39662977	86.25161732	84.168499
200305A00037	3/5/2020	1.43	3/6/2028		104.4973	100.9225018	97.48853226	94.18907961	91.01814889	87.97004717	85.03936644	82.22096761	79.5099655
200305A00038	3/5/2020	1.51	3/5/2029		106.40752	101.8189774	97.4536664	93.29956041	89.34534895	85.58038759	81.9946551	78.57871346	75.32367075
200305A00039	3/5/2020	1.58	3/5/2030		107.94201	102.3410677	97.06389814	92.09012381	87.40075758	82.97809714	78.80563138	74.86795407	71.15068428
200306A00001	3/6/2020	1.11	3/6/2026		100.75898	99.18661333	97.64619409	96.13681552	94.65760488	93.20772196	91.78635751	90.39273184	89.02609343
200306A00013	3/6/2020	1.01	3/6/2025		99.903085	99.30792972	98.71984209	98.13869655	97.56437068	96.99674495	96.43570261	95.88112961	95.33291451
200306A00014	3/6/2020	1.38	3/6/2030		106.81741	101.244969	95.9953004	91.04806657	86.38431738	81.98638615	77.83779609	73.92317402	70.2281708
200306A00022	3/6/2020	1.2	3/8/2027		102.29191	99.72265629	97.23050937	94.8126889	92.46653209	90.18948972	87.97912043	85.83308534	83.74914302
200306A00028	3/6/2020	1.01	3/6/2025		99.903085	99.30792972	98.71984209	98.13869655	97.56437068	96.99674495	96.43570261	95.88112961	95.33291451
200306A00031	3/6/2020	1.01	3/6/2025		99.903085	99.30792972	98.71984209	98.13869655	97.56437068	96.99674495	96.43570261	95.88112961	95.33291451
200306A00040	3/6/2020	1.01	3/6/2025		99.903085	99.30792972	98.71984209	98.13869655	97.56437068	96.99674495	96.43570261	95.88112961	95.33291451
200306A00046	3/6/2020	1.01	3/3/2025		99.902075	99.31499885	98.73479591	98.16134558	97.59453056	97.03423624	96.48035062	95.93276429	95.39137028
200306A00048	3/6/2020	1.04	3/6/2035		104.38837	99.01148195	94.02374454	89.3922797	85.08728114	81.08170566	77.35099638	73.87283542	70.62692296
200306A00050	3/6/2020	0.87	3/6/2030		102.15669	99.29174054	96.54629253	93.91428226	91.39000212	88.96807448	86.64343029	84.41128927	82.26714153
200306A00055	3/6/2020	0.82	3/6/2025		99.865321	99.26933715	98.68044439	98.09851618	97.52342946	96.95506408	96.39330266	95.83803057	95.28913579
200306A00057	3/6/2020	0.92	3/8/2027		101.78049	99.33220668	96.95773166	94.65435452	92.41948135	90.25063211	88.14543468	86.10161928	84.11701322
200306A00058	3/6/2020	1.06	3/6/2030		102.33564	99.47272409	96.72899218	94.0984107	91.57529644	89.15429417	86.83035543	84.59871886	82.45489195
200306A00064	3/6/2020	1.2	3/8/2027		102.29191	99.72265629	97.23050937	94.8126889	92.46653209	90.18948972	87.97912043	85.83308534	83.74914302
200306A00065	3/6/2020	1.38	3/6/2030		106.81741	101.244969	95.9953004	91.04806657	86.38431738	81.98638615	77.83779609	73.92317402	70.2281708
200306A00066	3/6/2020	1.2	3/8/2027		102.29191	99.72265629	97.23050937	94.8126889	92.46653209	90.18948972	87.97912043	85.83308534	83.74914302
200306A00077	3/6/2020	1.06	3/6/2025		99.933234	99.33797583	98.74978645	98.16854	97.59411406	97.0263891	96.46524834	95.91057772	95.3622658
200306A00087	3/8/2021	1.26	3/7/2025		100.05485	99.45648904	98.8652606	98.28104196	97.70370897	97.13314036	96.56921774	96.01182542	95.46085043
200309A00005	3/9/2020	0.77	3/7/2025		99.835178	99.23660063	98.64517866	98.06078398	97.48329183	96.9125804	96.34853072	95.7910266	95.23995454

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200309A00007	3/9/2020	1.11	3/9/2027		102.05981	99.49099536	96.99935966	94.58211377	92.23658998	89.9602345	87.75060169	85.6053487	83.52223041
200309A00020	3/9/2020	0.96	3/10/2025		99.87373	99.26790973	98.66941713	98.07812019	97.49388965	96.91659932	96.34612602	95.78234943	95.2251521
200309A00021	3/9/2020	1.05	3/9/2026		100.67188	99.09235562	97.54503051	96.02898632	94.54333972	93.08724043	91.65986971	90.26043885	88.8881878
200309A00027	3/9/2020	0.97	3/10/2025		99.879871	99.27402857	98.67551493	98.08419714	97.49994592	96.92263509	96.35214145	95.78834471	95.23112738
200309A00030	3/9/2020	1.11	3/9/2027		102.05981	99.49099536	96.99935966	94.58211377	92.23658998	89.9602345	87.75060169	85.6053487	83.52223041
200309A00033	3/9/2020	1.06	3/9/2026		100.68803	99.10837313	97.56091544	96.04474101	94.55896643	93.10274138	91.67524704	90.27569466	88.90332413
200309A00034	3/9/2020	0.96	3/9/2035		103.94263	98.58865085	93.62217729	89.01046383	84.72382997	80.73534671	77.02056096	73.55724923	70.32519762
200309A00038	3/9/2020	1.26	3/11/2030		106.14803	100.5811673	95.33772501	90.39727417	85.7407826	81.35051025	77.20991471	73.30356418	69.61705723
200309A00046	3/9/2020	0.78	3/11/2025		99.841424	99.23203983	98.63007417	98.03539171	97.44786074	96.86735271	96.29374216	95.7269066	95.16672641
200309A00081	3/9/2020	1.18	3/8/2030		105.15536	100.0634686	95.26142572	90.73101461	86.45526733	82.41836989	78.60557736	75.00313564	71.59820946
200309A00082	3/9/2020	1.18	3/8/2030		105.15536	100.0634686	95.26142572	90.73101461	86.45526733	82.41836989	78.60557736	75.00313564	71.59820946
200309A00084	3/9/2020	1.06	3/9/2027		101.90483	99.37239818	96.91699622	94.53578122	92.22603569	89.9851617	87.81067461	85.70019721	83.65145424
200310A00003	3/10/2020	1.1	3/10/2025		99.959691	99.35357341	98.75478635	98.16319747	97.57867746	97.00110009	96.43034215	95.86628329	95.30880602
200310A00005	3/10/2020	1.41	3/8/2030		106.98994	101.4075322	96.14865536	91.19291416	86.52130179	82.11609979	77.96078395	74.03993768	70.33917206
200310A00015	3/10/2020	1.37	3/11/2030		106.76929	101.1852049	95.92524698	90.96895641	86.29726723	81.8924076	77.73780514	73.81799979	70.11856341
200310A00020	3/10/2020	1.1	3/10/2025		99.959691	99.35357341	98.75478635	98.16319747	97.57867746	97.00110009	96.43034215	95.86628329	95.30880602
200310A00021	3/10/2020	1.1	3/10/2025		99.959691	99.35357341	98.75478635	98.16319747	97.57867746	97.00110009	96.43034215	95.86628329	95.30880602
200310A00028	3/10/2020	1.1	3/10/2025		99.959691	99.35357341	98.75478635	98.16319747	97.57867746	97.00110009	96.43034215	95.86628329	95.30880602
200310A00033	3/10/2020	0.91	3/10/2025		99.921233	99.31426935	98.71466024	98.12227253	97.53697623	96.95864445	96.38715332	95.82238191	95.2642121
200310A00034	3/10/2020	1.41	3/11/2030		106.99521	101.4048549	96.13889133	91.17684087	86.49962528	82.08946118	77.9297653	74.00506728	70.3009293
200310A00038	3/10/2020	1.41	3/11/2030		106.99521	101.4048549	96.13889133	91.17684087	86.49962528	82.08946118	77.9297653	74.00506728	70.3009293
200310A00040	3/10/2020	1.36	3/10/2028		104.26089	100.6798223	97.24022039	93.93572162	90.76028906	87.70819084	84.77398283	81.95249236	79.23880305
200310A00041	3/10/2020	1.39	3/12/2029		105.87733	101.2825209	96.91217332	92.75415515	88.7970529	85.03012795	81.44327278	78.0269704	74.77225655
200310A00042	3/10/2020	1.41	3/11/2030		106.99521	101.4048549	96.13889133	91.17684087	86.49962528	82.08946118	77.9297653	74.00506728	70.3009293
200310A00051	3/10/2020	1.41	3/8/2030		106.98994	101.4075322	96.14865536	91.19291416	86.52130179	82.11609979	77.96078395	74.03993768	70.33917206
200310A00054	3/10/2020	1.1	3/10/2025		99.959691	99.35357341	98.75478635	98.16319747	97.57867746	97.00110009	96.43034215	95.86628329	95.30880602
200310A00065	3/13/2020	1.1	3/13/2025		99.961444	99.34724342	98.74057111	98.1412893	97.54926345	96.96436226	96.38645759	95.81542437	95.25114048
200310A00067	3/10/2020	0.94	3/10/2025		99.886288	99.51894098	99.15492673	98.79419528	98.43669775	98.08238624	97.73121385	97.38313467	97.03810369
200310A00073	3/12/2020	2.12	3/11/2027		104.71802	102.108729	99.57769864	97.12210098	94.73923017	92.42649607	90.18141839	88.00162122	85.88482784
200311A00006	3/13/2020	1.12	3/10/2025		99.971971	99.36581107	98.76698196	98.17535137	97.59079001	97.01317163	96.44237302	95.87827384	95.32075658
200311A00015	3/11/2020	1.26	3/11/2027		102.433	99.88559772	97.4157815	95.02068288	92.69756049	90.44379378	88.25687674	86.13441194	84.07410495
200311A00026	3/11/2020	1.34	3/11/2030		105.80773	100.8295878	96.13198979	91.69738578	87.5094278	83.55287689	79.8135216	76.27810288	72.934245
200311A00031	3/11/2020	1.41	12/24/2027		104.09059	100.7200997	97.4760421	94.35303077	91.34593546	88.44987036	85.66018104	82.97243227	80.38239653

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200311A00040	3/12/2020	1.3	3/11/2025		100.08363	99.47438805	98.87254828	98.27797428	97.69053495	97.11010235	96.53655155	95.96976061	95.40961045
200311A00050	3/2/2021	1.46	3/2/2026		101.3045	99.73813285	98.20344709	96.69954436	95.22556436	93.78067857	92.36408883	90.97502589	89.61274812
200311A00052	3/2/2021	1.43	2/28/2025		100.14736	99.56754609	98.99441585	98.42785665	97.86775612	97.3140044	96.76649414	96.22512038	95.68978051
200311A00055	3/11/2020	1.66	12/17/2027		104.91107	101.5449561	98.30432947	95.18387324	92.17852255	89.28345247	86.4940653	83.80597874	81.21501457
200312A00004	3/13/2020	1.23	1/24/2025		100.00476	99.52001279	99.03995591	98.56452313	98.09364783	97.62726465	97.1653095	96.70771947	96.25443287
200312A00006	3/12/2020	1.23	3/12/2025		100.0414	99.42961055	98.82528853	98.22829514	97.63849757	97.05576619	96.47997446	95.91099888	95.34871883
200312A00009	3/12/2020	1.46	3/12/2027		102.98981	100.4007885	97.88964116	95.45355123	93.0898215	90.79587022	88.56922533	86.40751895	84.30848222
200312A00014	3/12/2020	1.04	3/12/2025		100.00262	99.38997465	98.78482183	98.18702126	97.59643941	97.01294598	96.43641377	95.86671865	95.3037394
200312A00015	3/12/2020	1.23	3/10/2025		100.03951	99.43311825	98.83405778	98.24219781	97.657409	97.0795651	96.50854284	95.94422187	95.38648466
200312A00037	3/12/2020	1.3	3/12/2025		100.08476	99.47282591	98.86835422	98.27121245	97.68126776	97.09839051	96.52245414	95.95333513	95.39091285
200313A00032	3/18/2020	1.46	3/18/2025		100.19334	99.5648576	98.94423824	98.33133973	97.72601854	97.12813467	96.53755155	95.95413597	95.37775791
200316A00008	3/16/2020	1.31	3/15/2030		102.97574	100.1685388	97.47618621	94.89294451	92.41340924	90.03248413	87.74536143	85.54750365	83.43462645
200316A00009	3/16/2020	1.25	3/14/2025		100.05578	99.43855932	98.82893293	98.22676423	97.63191689	97.04425786	96.46365731	95.88998854	95.32312783
200316A00037	3/16/2020	1.06	3/14/2025		100.01665	99.39856254	98.78809707	98.18511328	97.58947412	97.00104583	96.41969793	95.84530306	95.27773691
200316A00043	3/16/2020	1.3	3/14/2025		100.08703	99.46970132	98.85996625	98.25768982	97.66273566	97.07497073	96.49426519	95.9204923	95.35352835
200316A00049	3/16/2020	1.25	3/14/2025		100.05578	99.43855932	98.82893293	98.22676423	97.63191689	97.04425786	96.46365731	95.88998854	95.32312783
200316A00050	3/16/2020	1.54	3/16/2027		103.21844	100.6158236	98.09171317	95.64325707	93.26772759	90.96251435	88.72511831	86.55314617	84.44430513
200316A00055	3/16/2020	1.06	3/14/2025		100.01665	99.39856254	98.78809707	98.18511328	97.58947412	97.00104583	96.41969793	95.84530306	95.27773691
200317A00009	3/17/2020	1.61	3/16/2035		106.85825	101.3731033	96.28402823	91.55762444	87.16360761	83.07449607	79.26533048	75.71342341	72.3981354
200317A00023	3/17/2020	1.1	3/17/2025		100.04445	99.41816848	98.79971032	98.18892923	97.58568279	96.98983206	96.40124152	95.81977895	95.24531532
200317A00024	3/17/2020	1.09	3/17/2025		99.942469	99.57261343	99.20614997	98.84302671	98.48319321	98.12660005	97.7731989	97.42294242	97.07578424
200317A00027	3/17/2020	1.29	3/17/2025		100.08411	99.45870311	98.84109641	98.23114225	97.62869892	97.03362821	96.4457953	95.86506861	95.29131978
200317A00043	3/17/2020	1.29	3/15/2030		103.4009	100.500603	97.72130939	95.05687892	92.50153045	90.04981716	87.69660497	85.43705235	83.26659174
200317A00045	3/19/2020	1.43	3/19/2025		100.17576	99.54463682	98.92145161	98.30605178	97.69829202	97.09803058	96.50512925	95.91945315	95.34087073
200317A00065	3/19/2020	2.05	3/19/2025		100.57182	99.93928491	99.31469558	98.69790403	98.08876476	97.48713584	96.89287888	96.30585885	95.72594401
200318A00012	3/18/2020	1.68	3/18/2033		108.1311	102.5007666	97.26394468	92.38896799	87.84696623	83.61159879	79.65881638	75.96664644	72.51500009
200318A00013	3/18/2020	1.5	3/18/2025		100.21879	99.59020927	98.96950007	98.35651251	97.75110303	97.15313164	96.56246177	95.97896018	95.40249684
200318A00038	3/18/2020	1.48	3/18/2025		100.20607	99.57753344	98.95686916	98.34392612	97.73856079	97.14063315	96.55000666	95.96654807	95.39012737
200318A00047	3/18/2020	1.29	3/18/2025		100.16628	99.53687014	98.91534956	98.30157497	97.69540208	97.09669017	96.50530198	95.92110359	95.34396436
200318A00054	3/18/2020	1.56	3/18/2025		100.25695	99.62823679	99.00739281	98.39427166	97.78872977	97.19062711	96.59982711	96.01619649	95.43960524
200319A00035	3/19/2020	1.72	3/18/2033		108.35976	102.7172506	97.46908825	92.58353896	88.03167209	83.78709192	79.82569872	76.12547386	72.66628625
200320A00049	3/25/2020	1.47	3/25/2025		100.21093	99.56350963	98.92443267	98.29353559	97.67066209	97.05565982	96.44838027	95.84867866	95.25641379
200320A00052	3/25/2020	1.47	3/25/2025		100.21093	99.56350963	98.92443267	98.29353559	97.67066209	97.05565982	96.44838027	95.84867866	95.25641379



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200323A00090	3/23/2020	1.55	3/23/2027		101.65943	100.0742217	98.52921084	97.02305255	95.55445563	94.12218238	92.72504593	91.36190774	90.03167514
200324A00012	3/25/2020	1.78	3/25/2025		100.41408	99.76592317	99.12610876	98.4944809	97.87088321	97.25516323	96.64717236	96.04676571	95.453802
200324A00013	3/25/2020	1.78	3/25/2025		100.41408	99.76592317	99.12610876	98.4944809	97.87088321	97.25516323	96.64717236	96.04676571	95.453802
200324A00029	3/24/2020	1.86	3/24/2025		100.46384	99.81819049	99.18082652	98.55158479	97.9303107	97.31685357	96.71106651	96.11280627	95.52193317
200324A00051	3/24/2020	1.73	11/1/2024		100.09217	99.83588178	99.58090305	99.32722345	99.07483309	98.82372218	98.57388104	98.32530007	98.07796978
200324A00066	3/26/2020	1.81	3/26/2025		100.43628	99.78534299	99.14281749	98.50854539	97.88236841	97.26413231	96.65368673	96.0508851	95.4555845
200325A00009	3/27/2020	1.67	3/27/2025		100.3463	99.69299574	99.04816915	98.41165918	97.78330574	97.16295282	96.55044839	95.94564421	95.3483958
200325A00016	3/30/2020	1.67	3/31/2025		100.35492	99.6907938	99.03542436	98.38863792	97.75026689	97.12014797	96.49812208	95.88403421	95.27773327
200325A00030	3/25/2020	1.5	3/25/2025		100.31414	99.66528238	99.02479665	98.39252163	97.76830014	97.15197899	96.54340884	95.94244413	95.34894289
200325A00044	3/25/2020	1.7	12/23/2024		100.17331	99.77497081	99.37979974	98.98776108	98.59881762	98.21293273	97.83007036	97.45019503	97.07327183
200325A00046	3/25/2020	1.76	3/25/2025		100.40098	99.75286423	99.11309739	98.48151669	97.85796572	97.24229204	96.63434706	96.0339859	95.44106728
200325A00047	3/25/2020	1.68	9/25/2024		100.03911	99.88440279	99.73017623	99.57643271	99.42316994	99.27038566	99.11807763	98.96624361	98.81488138
200326A00009	3/27/2020	1.54	3/27/2025		100.26039	99.6074015	98.96288926	98.32669077	97.69864598	97.07859893	96.46639761	95.86189385	95.26494319
200326A00011	3/30/2020	1.54	3/31/2025		100.26757	99.60377717	98.94873222	98.30226727	97.66421474	97.0344114	96.41269822	95.79892022	95.19292637
200326A00016	3/26/2020	1.54	3/25/2025		100.2568	99.60921591	98.96997243	98.33891034	97.71587331	97.10070897	96.49326881	95.89340799	95.30098532
200326A00028	3/26/2020	1.54	3/26/2025		100.2586	99.60830879	98.96643087	98.33280045	97.70725935	97.0896534	96.47983235	95.8776497	95.28296262
200326A00029	3/26/2020	1.82	3/26/2027		104.01104	101.3713573	98.8118372	96.32954303	93.92166804	91.58552741	89.31855201	87.11828246	84.98236365
200326A00032	3/26/2020	1.49	3/26/2030		103.60958	100.7102268	97.93162701	95.26766444	92.7125779	90.26093892	87.90763023	85.64782577	83.47697218
200326A00037	3/26/2020	1.78	3/26/2035		107.59868	102.2339711	97.25124137	92.61854629	88.30690901	84.29001883	80.54396567	77.04700269	73.77933406
200327A00031	3/27/2020	1.18	3/27/2025		100.02248	99.3703713	98.72672958	98.09139365	97.46420358	96.84500353	96.23364162	95.62996978	95.03384365
200327A00037	3/27/2020	1.18	3/27/2026		101.15864	99.52391453	97.92321162	96.35553491	94.81992687	93.31546702	91.84127012	90.39648442	88.9802901
200327A00043	3/27/2020	1.48	3/27/2028		105.26061	101.6035704	98.09258085	94.72099418	91.48250921	88.37114747	85.38123455	82.50738266	79.74447438
200327A00045	3/27/2020	2.24	3/27/2034		118.11626	108.1908969	99.19044945	91.02355045	83.608311	76.87128959	70.7465808	65.17500672	60.10339883
200327A00046	3/27/2020	1.23	3/27/2025		100.05553	99.40329216	98.75952954	98.1240738	97.49676502	96.87744734	96.26596884	95.66218145	95.06594081
200327A00047	3/27/2020	0.99	3/27/2025		99.981006	99.32797587	98.68344304	98.04724241	97.41921325	96.79919892	96.18704677	95.582608	94.98573756
200327A00048	3/27/2020	1.18	3/24/2025		100.02007	99.37604678	98.74028727	98.11263552	97.49293716	96.88104172	96.2768025	95.68007649	95.09072418
200327A00051	3/27/2020	0.99	3/27/2025		99.981006	99.32797587	98.68344304	98.04724241	97.41921325	96.79919892	96.18704677	95.582608	94.98573756
200327A00056	3/27/2020	1.18	3/27/2025		100.02248	99.3703713	98.72672958	98.09139365	97.46420358	96.84500353	96.23364162	95.62996978	95.03384365
200327A00060	3/27/2020	1.18	3/27/2025		100.02248	99.3703713	98.72672958	98.09139365	97.46420358	96.84500353	96.23364162	95.62996978	95.03384365
200327A00061	3/31/2020	1.18	3/31/2025		100.0257	99.36280805	98.70866169	98.06308698	97.42591647	96.79698707	96.17613984	95.56321995	94.95807647
200327A00073	3/27/2020	0.99	3/27/2025		99.981006	99.32797587	98.68344304	98.04724241	97.41921325	96.79919892	96.18704677	95.582608	94.98573756
200327A00084	3/27/2020	1.1	3/27/2025		99.993131	99.27192253	98.56119281	97.8607137	97.17026401	96.4896289	95.81859964	95.15697337	94.50455293
200327A00094	3/27/2020	1.6	3/27/2030		106.78421	101.9798576	97.44249956	93.1555181	89.10342588	85.27178589	81.64713404	78.21690787	74.96938098

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200330A00006	3/30/2020	0.9	3/28/2025		99.921877	99.26636958	98.61942555	97.98087818	97.35056487	96.72832721	96.11401082	95.50746525	94.90854381
200330A00008	3/30/2020	1.09	3/28/2025		99.963561	99.30897566	98.6629263	98.02524698	97.39577596	96.77435561	96.16083233	95.5550564	94.95688186
200330A00028	3/30/2020	1.09	3/28/2025		99.963561	99.30897566	98.6629263	98.02524698	97.39577596	96.77435561	96.16083233	95.5550564	94.95688186
200330A00037	3/30/2020	1.09	3/28/2025		99.963561	99.30897566	98.6629263	98.02524698	97.39577596	96.77435561	96.16083233	95.5550564	94.95688186
200330A00038	3/30/2020	1.79	3/29/2030		109.19668	103.4978111	98.13103476	93.07526885	88.31088163	83.81958245	79.58432302	75.58920634	71.81940301
200330A00041	4/1/2020	1.09	4/1/2025		99.966056	99.30070396	98.64416604	97.99626844	97.35684162	96.72572043	96.10274402	95.48775564	94.88060254
200330A00044	3/30/2020	1.09	3/28/2025		99.963561	99.30897566	98.6629263	98.02524698	97.39577596	96.77435561	96.16083233	95.5550564	94.95688186
200330A00045	3/30/2020	1.47	3/30/2027		103.09541	100.4574914	97.90001808	95.42003155	93.0147047	90.68133379	88.41733205	86.22022371	84.08763838
200330A00047	3/30/2020	1.5	3/30/2035		106.23798	100.7844471	95.72473372	91.02562728	86.65701253	82.59156158	78.80445513	75.27313332	71.97707301
200330A00054	3/30/2021	1.19	3/30/2026		100.97134	99.33405247	97.7308962	96.16086838	94.62300598	93.11638334	91.64011032	90.1933306	88.77522001
200330A00058	3/30/2020	1.49	3/29/2030		106.24622	101.4588557	96.93783393	92.66655827	88.62956557	84.81244229	81.20174714	77.78493977	74.55031522
200330A00066	3/30/2020	1.08	3/31/2025		99.95851	99.29587218	98.64197544	97.99664801	97.35972251	96.73103586	96.11042918	95.49774766	94.89284039
200330A00079	3/30/2020	1.51	3/30/2035		106.29428	100.8378562	95.7754602	91.07386237	86.70293146	82.63532508	78.84621077	75.31301671	72.01520888
200331A00011	3/31/2020	1.09	3/31/2025		99.965229	99.30256577	98.64864406	98.00329191	97.36634191	96.73763098	96.11700025	95.50429489	94.899364
200331A00016	3/31/2020	1.11	3/31/2026		101.05648	99.41207406	97.80203807	96.22536325	94.68107719	93.16824533	91.68596913	90.23338426	88.80965899
200331A00017	3/31/2020	0.9	3/31/2025		99.923008	99.2594099	98.60458133	97.95834949	97.32054614	96.69100736	96.06957349	95.45608895	94.85040209
200331A00022	4/1/2020	1.07	4/1/2025		99.952564	99.28726203	98.6307744	97.98292662	97.34354915	96.71247687	96.08954891	95.47460854	94.86750302
200331A00056	3/31/2020	0.96	3/29/2030		102.35117	99.54507731	96.85419375	94.27275168	91.79531435	89.41675593	87.13224159	84.937209	82.82735107
200331A00060	3/31/2020	1.09	3/31/2025		99.965229	99.30256577	98.64864406	98.00329191	97.36634191	96.73763098	96.11700025	95.50429489	94.899364
200401A00001	4/1/2020	1.01	4/1/2025		99.912086	99.24693623	98.59059946	97.94290114	97.30367174	96.67274616	96.04996357	95.43516724	94.82820447
200401A00012	4/2/2020	1	4/2/2025		99.905918	99.23810702	98.579181	97.92896407	97.28728457	96.65397532	96.0288735	95.41182046	94.80266165
200401A00013	4/1/2020	1.01	4/1/2025		99.912086	99.24693623	98.59059946	97.94290114	97.30367174	96.67274616	96.04996357	95.43516724	94.82820447
200401A00023	4/1/2020	0.82	4/1/2025		99.869671	99.20358295	98.54633531	97.89775348	97.25766711	96.62591025	96.00232126	95.38674265	94.77902098
200402A00009	4/2/2020	1.03	4/2/2025		99.92624	99.25835204	98.59935005	97.94905785	97.30730377	96.67392064	96.04874561	95.43162004	94.82238934
200402A00014	4/2/2020	0.84	4/2/2025		99.883665	99.21483323	98.55491589	97.90373593	97.26112082	96.62690254	96.00091743	95.38300607	94.77301314
200402A00021	4/2/2020	0.77	10/2/2024		99.908907	99.73487438	99.56145145	99.38863457	99.21642056	99.04480623	98.87378845	98.70336407	98.53353
200402A00038	4/2/2020	0.84	4/2/2025		99.883665	99.21483323	98.55491589	97.90373593	97.26112082	96.62690254	96.00091743	95.38300607	94.77301314
200402A00041	4/2/2020	1.03	4/2/2025		99.92624	99.25835204	98.59935005	97.94905785	97.30730377	96.67392064	96.04874561	95.43162004	94.82238934
200402A00044	4/2/2020	1.65	4/2/2030		108.40898	102.721531	97.36642905	92.32253273	87.57015451	83.09095456	78.86784128	74.88487969	71.12720712
200403A00006	4/3/2020	1.05	4/3/2025		99.940505	99.26987731	98.60820953	97.95532304	97.311044	96.67520316	96.04763566	95.42818091	94.81668248
200406A00006	4/6/2020	1.13	4/7/2025		99.998666	99.31707264	98.64473598	97.98146798	97.32708611	96.68141269	96.04427475	95.41550389	94.79493611
200406A00014	4/6/2020	1.33	4/6/2035		106.04456	100.5418159	95.44007913	90.70524939	86.30643087	82.21560961	78.40736315	74.85860128	71.54833444
200406A00027	4/6/2020	1.31	4/5/2030		106.01789	101.209247	96.66943541	92.38164151	88.33020381	84.50052638	80.87900017	77.4529306	74.21047093

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200406A00029	4/6/2020	1.61	4/5/2030		107.47921	102.2375013	97.29701657	92.63864282	88.24459053	84.09829096	80.18430553	76.48824247	72.99668009
200406A00030	4/6/2020	1.61	4/5/2030		107.47921	102.2375013	97.29701657	92.63864282	88.24459053	84.09829096	80.18430553	76.48824247	72.99668009
200406A00032	4/6/2020	1.09	4/4/2025		99.993366	99.24783848	98.51345376	97.78996276	97.07712408	96.37470341	95.68247328	95.00021279	94.32770741
200406A00033	4/6/2020	1.09	4/4/2025		99.993366	99.24783848	98.51345376	97.78996276	97.07712408	96.37470341	95.68247328	95.00021279	94.32770741
200406A00035	4/6/2020	1.05	4/4/2025		99.96178	99.23019231	98.50946097	97.79934445	97.09960839	96.41002529	95.73037429	95.0604409	94.40001679
200406A00036	4/6/2020	1.09	4/4/2025		99.993366	99.24783848	98.51345376	97.78996276	97.07712408	96.37470341	95.68247328	95.00021279	94.32770741
200406A00053	4/6/2020	1.13	4/7/2025		99.998666	99.31707264	98.64473598	97.98146798	97.32708611	96.68141269	96.04427475	95.41550389	94.79493611
200407A00001	4/8/2020	2.41	4/7/2025		100.88336	100.1983758	99.5226769	98.85607862	98.19839792	97.54945662	96.90908128	96.27710302	95.65335737
200407A00004	4/7/2020	0.99	4/7/2025		99.989864	99.30717079	98.63376495	97.96945768	97.31406549	96.66740982	96.02931683	95.39961726	94.77814633
200408A00021	4/8/2020	0.99	4/4/2025		99.987139	99.31253245	98.64699084	97.99033283	97.3423815	96.70296458	96.07191436	95.44906746	94.83426476
200413A00009	4/13/2020	0.77	4/13/2027		100.44628	99.0467343	97.68030993	96.3459527	95.04264702	93.76941781	92.52532858	91.30947955	90.1210059
200413A00013	4/13/2020	1.19	4/12/2030		102.7664	99.8502503	97.05703014	94.38044324	91.81456474	89.3538153	86.99293856	84.72698019	82.55126856
200414A00009	4/14/2020	0.82	4/14/2025		99.834916	99.42440294	99.0180925	98.61591307	98.21779505	97.82367049	97.43347302	97.04713783	96.6646016
200414A00024	4/14/2020	1.37	4/14/2027		102.84795	100.2123737	97.65925771	95.18552245	92.78822429	90.46454837	88.21180201	86.02740855	83.90890147
200415A00021	4/15/2020	1.37	4/15/2027		102.89763	100.2190312	97.62323978	95.1071651	92.66785551	90.30249047	88.00837364	85.78292642	83.62368181
200415A00023	4/15/2020	1.71	4/15/2030		108.79184	103.058439	97.66177475	92.58030877	87.79399593	83.2841712	79.03344711	75.02561941	71.2455802
200415A00024	4/15/2020	2.2	4/16/2035		117.47483	106.6702287	96.96749755	88.2479282	80.40618565	73.34873958	66.99248635	61.26353824	56.09615868
200415A00031	4/15/2020	0.97	4/15/2025		99.892045	99.18938497	98.49657217	97.813401	97.1396712	96.47518804	95.81976209	95.17320908	94.53534972
200415A00035	4/17/2020	2.16	4/16/2025		100.73046	100.0219809	99.32345157	98.63466387	97.95541489	97.28550734	96.62474935	95.97295428	95.32994054
200415A00036	4/15/2020	0.91	10/15/2024		99.897012	99.68761407	99.47910754	99.27148673	99.06474595	98.85887951	98.65388182	98.44974732	98.24647048
200415A00037	4/15/2020	0.97	4/15/2025		99.892045	99.18938497	98.49657217	97.813401	97.1396712	96.47518804	95.81976209	95.17320908	94.53534972
200415A00038	4/15/2020	1.37	4/15/2027		102.89763	100.2190312	97.62323978	95.1071651	92.66785551	90.30249047	88.00837364	85.78292642	83.62368181
200417A00002	4/17/2020	0.96	4/17/2025		99.871782	99.16401648	98.46624278	97.77825046	97.09983491	96.43079719	95.77094384	95.12008669	94.4780427
200417A00008	4/17/2020	0.96	4/17/2025		99.871782	99.16401648	98.46624278	97.77825046	97.09983491	96.43079719	95.77094384	95.12008669	94.4780427
200417A00009	4/17/2020	1.35	4/16/2027		102.84753	100.1669077	97.56922646	95.05139114	92.61044253	90.24355303	87.94801967	85.72125765	83.56079416
200417A00014	4/17/2020	0.96	4/17/2025		99.871782	99.16401648	98.46624278	97.77825046	97.09983491	96.43079719	95.77094384	95.12008669	94.4780427
200417A00016	4/21/2020	2.18	4/21/2025		100.76364	100.0415533	99.32979506	98.62814617	97.93639232	97.25432516	96.58174221	95.91844656	95.26424673
200417A00019	4/17/2020	0.77	4/17/2025		99.840742	99.13172614	98.43273984	97.74357119	97.0640144	96.39386939	95.73294162	95.08104186	94.43798607
200421A00026	4/21/2020	1.34	4/19/2030		105.53436	100.734972	96.20486804	91.9271817	87.88619729	84.06726653	80.45673025	77.04184625	73.81072287
200421A00032	4/21/2020	1.31	4/21/2027		102.75968	100.0666976	97.45739659	94.92863975	92.47742829	90.10089759	87.79630997	85.56104807	83.39260853
200423A00006	4/23/2020	0.82	4/23/2025		99.879327	99.15402038	98.43920006	97.73463998	97.04012048	96.35542814	95.68035554	95.01470108	94.35826876
200423A00017	4/23/2020	1.82	4/23/2035		114.89132	104.1203265	94.4574228	85.78251626	77.98911083	70.98270345	64.679378	59.00457052	53.89198415
200424A00014	4/28/2020	1.01	4/23/2025		99.911019	99.1869969	98.47342229	97.77007011	97.07672196	96.39316562	95.71919483	95.05460908	94.39921344

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200424A00022	4/24/2020	1.39	4/24/2030		105.78604	100.9684555	96.42164956	92.12864208	88.07361313	84.24181717	80.61950441	77.19384829	73.95287869
200427A00017	4/27/2020	1.02	4/25/2025		99.919526	99.19010328	98.47128031	97.76282769	97.06452234	96.37614757	95.69749278	95.02835331	94.36853021
200427A00018	4/27/2020	1.51	4/27/2028		105.03646	101.3123405	97.73961786	94.31127642	91.02066804	87.86149253	84.82777696	81.91385649	79.11435634
200428A00002	4/28/2020	1.47	4/26/2030		108.22342	102.4483308	97.01516807	91.90190529	87.08805353	82.55454459	78.28362459	74.25875615	70.46452847
200428A00003	4/29/2020	1.01	4/29/2025		99.91432	99.17418568	98.44495803	97.72639723	97.0182708	96.32035295	95.6324244	94.95427207	94.28568891
200428A00009	4/28/2020	1.08	4/29/2030		102.43686	99.52949855	96.74473281	94.07628555	91.51824524	89.0650453	86.71144155	84.45249133	82.28353416
200428A00011	4/30/2020	1.95	4/29/2025		100.62092	99.87785763	99.14573253	98.42430418	97.71333957	97.01261244	96.321903	95.64099768	94.96968898
200428A00018	4/28/2020	1.33	4/27/2035		105.19796	99.87823013	94.94116032	90.35447831	86.08892784	82.11796517	78.41748701	74.96558749	71.74234108
200429A00009	4/29/2020	0.78	4/29/2025		99.85187	99.11054171	98.38015936	97.66048192	96.95127561	96.25231341	95.56337483	94.88424564	94.2147177
200429A00010	4/29/2020	0.78	4/29/2025		99.85187	99.11054171	98.38015936	97.66048192	96.95127561	96.25231341	95.56337483	94.88424564	94.2147177
200429A00021	5/4/2020	0.97	4/29/2025		99.884252	99.1442422	98.41513784	97.69669906	96.9886934	96.2908951	95.60308488	94.9250497	94.25658252
200429A00030	4/29/2020	1.41	4/29/2030		106.2296	101.1380831	96.33898945	91.81376719	87.54513678	83.51700001	79.71435336	76.12320802	72.73051621
200429A00043	5/1/2020	1.56	4/30/2025		100.32982	99.58527461	98.85173113	98.12894672	97.41668622	96.71472127	96.02283006	95.34079714	94.66841313
200429A00044	5/1/2020	1.86	4/30/2025		100.55616	99.81066965	99.07619474	98.35248854	97.63931573	96.93644779	96.24366277	95.56074503	94.88748506
200429A00045	5/1/2020	1.54	4/30/2025		100.31473	99.57024827	98.83676689	98.11404394	97.40184425	96.6999395	96.00810788	95.32613395	94.65380834
200429A00046	5/1/2020	2.07	4/30/2025		100.71459	99.96844618	99.23331926	98.50896781	97.79515639	97.09165636	96.39824566	95.71470856	95.04083541
200429A00047	5/1/2020	2.7	4/30/2025		101.1899	100.4417758	99.70469282	98.97840562	98.26267837	97.55728207	96.86199435	96.17659912	95.50088646
200429A00049	4/29/2020	1.25	4/29/2026		101.1935	99.47294935	97.78958955	96.14228338	94.52993782	92.95150446	91.40597723	89.89239019	88.40981544
200429A00050	5/1/2020	2.61	4/30/2025		101.122	100.3741573	99.63735374	98.91134308	98.19588951	97.49076412	96.79574454	96.11061476	95.43516488
200429A00051	5/1/2020	2.54	4/30/2025		101.06918	100.3215651	99.5849789	98.85918332	98.14394263	97.43902793	96.7442169	96.05929358	95.3840481
200429A00053	5/1/2020	2.18	4/30/2025		100.79758	100.051091	99.31562258	98.59093314	97.87678721	97.17295609	96.47921766	95.79535612	95.12116179
200429A00054	4/29/2020	1.04	4/29/2025		99.9516	99.21111843	98.48154994	97.76265529	97.0542018	96.35596349	95.66772087	94.9892607	94.32037574
200429A00056	5/1/2020	1.54	4/30/2025		100.31473	99.57024827	98.83676689	98.11404394	97.40184425	96.6999395	96.00810788	95.32613395	94.65380834
200429A00057	4/29/2020	1.4	4/29/2027		103.04189	100.3232717	97.68966726	95.13786459	92.66479686	90.26753557	87.94328313	85.68936584	83.50322742
200429A00058	5/1/2020	1.83	4/30/2025		100.53352	99.78813015	99.05374838	98.33013436	97.61705278	96.91427514	96.2215795	95.53875024	94.86557787
200429A00061	4/29/2020	1.66	10/29/2029		107.99778	102.7378108	97.76456722	93.06089864	88.61077496	84.39920693	80.41217242	76.63654858	73.06004904
200430A00008	4/30/2020	0.94	4/30/2025		99.862058	99.11945819	98.38783969	97.6669603	96.95658523	96.25648644	95.56644247	94.88623817	94.21566448
200430A00009	4/30/2020	1.16	4/30/2026		101.03934	99.3174633	97.63286271	95.98438963	94.37094729	92.79148377	91.24498967	89.73049589	88.24707164
200430A00017	4/30/2020	0.94	4/30/2025		99.862058	99.11945819	98.38783969	97.6669603	96.95658523	96.25648644	95.56644247	94.88623817	94.21566448
200430A00027	4/30/2020	1.31	4/30/2035		105.19545	99.75549186	94.71108882	90.02865788	85.67777284	81.63084122	77.86281906	74.35095642	71.07456982
200430A00030	4/30/2020	0.96	4/30/2025		99.877147	99.13448453	98.40280393	97.68186309	96.9714272	96.27126821	95.58116465	94.90090136	94.23026928
200501A00002	5/1/2020	1.3	5/1/2035		105.16188	99.6842823	94.60762996	89.89766886	85.52338451	81.45666793	77.67202158	74.14629704	70.85846081
200501A00009	5/4/2020	0.67	5/1/2025		99.7621	99.31320863	98.86935107	98.43043394	97.99636632	97.56705967	97.14242766	96.72238619	96.30685326

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200504A00004	5/4/2020	0.75	5/5/2025		99.832236	99.07487776	98.32895131	97.59419909	96.87037157	96.1572266	95.45452912	94.76205096	94.07957051
200504A00006	5/4/2020	0.94	5/5/2025		99.865369	99.10936562	98.36475081	97.63126924	96.90867279	96.19672063	95.49517902	94.80382098	94.12242612
200504A00007	5/4/2020	1.47	5/4/2028		104.91804	101.1774514	97.58963632	94.14749801	90.84431337	87.67371084	84.62964967	81.70640052	78.89852737
200505A00004	5/5/2020	0.77	5/5/2025		99.84761	99.09018685	98.3441961	97.60938026	96.88548978	96.17228251	95.46952337	94.77698418	94.09444332
200505A00005	5/5/2020	0.77	5/5/2025		99.84761	99.09018685	98.3441961	97.60938026	96.88548978	96.17228251	95.46952337	94.77698418	94.09444332
200506A00002	5/8/2020	0.97	5/5/2025		99.888416	99.13231508	98.38760404	97.65402725	96.93133657	96.21929116	95.51765725	94.82620786	94.14472258
200506A00005	5/6/2020	0.97	5/6/2025		99.889161	99.13037846	98.38306805	97.64697113	96.92183685	96.20742179	95.5034897	94.80981121	94.12616362
200506A00010	5/6/2020	0.94	5/6/2026		100.89848	99.15807304	97.4557076	95.79023393	94.1605488	92.56559282	91.00434817	89.47583654	87.9791172
200511A00006	5/11/2020	1.65	5/13/2030		108.51288	102.7131417	97.25825634	92.12595645	87.29552453	82.74767864	78.46446548	74.429162	70.62618479
200511A00017	5/11/2020	0.83	2/3/2025		99.804696	99.29347346	98.78746865	98.28660198	97.79079552	97.29997293	96.81405938	96.33298153	95.8566675
200511A00018	5/11/2020	0.98	2/2/2026		100.43164	98.9537251	97.50490003	96.08438171	94.69141475	93.32527014	91.98524409	90.67065689	89.38085193
200511A00019	5/11/2020	1.18	2/1/2027		102.0818	99.61526723	97.22078169	94.89582616	92.63798721	90.44495024	88.3144948	86.2444901	84.2328908
200511A00020	5/11/2020	1.4	2/1/2028		104.21879	100.7441121	97.40357973	94.19130738	91.10169726	88.12942671	85.26943311	82.51689964	79.86724198
200511A00021	5/11/2020	1.53	2/1/2029		106.34438	101.8495866	97.56991513	93.49396138	89.61098881	85.9108821	82.38410797	79.0216786	75.8151176
200511A00022	5/11/2020	1.6	2/1/2030		107.94331	102.4342581	97.23924603	92.33877788	87.7146642	83.34992928	79.22872403	75.33624565	71.65866334
200511A00023	5/11/2020	1.7	2/3/2031		109.37482	102.8523972	96.76093969	91.06977749	85.75057352	80.77713459	76.12523887	71.77247795	67.69811248
200512A00001	5/12/2020	1.17	5/12/2027		102.40225	99.70584744	97.09592043	94.56923072	92.12267809	89.75329494	87.45823979	85.23479124	83.08034223
200512A00010	5/12/2020	1.48	5/10/2030		106.83466	101.5406531	96.5555286	91.85948563	87.43409243	83.26218713	79.32778403	75.61598721	72.11291089
200512A00011	5/12/2020	1.48	5/10/2030		106.83466	101.5406531	96.5555286	91.85948563	87.43409243	83.26218713	79.32778403	75.61598721	72.11291089
200512A00013	5/12/2020	1.17	5/12/2027		102.40225	99.70584744	97.09592043	94.56923072	92.12267809	89.75329494	87.45823979	85.23479124	83.08034223
200512A00014	5/12/2020	1.17	5/12/2027		102.40225	99.70584744	97.09592043	94.56923072	92.12267809	89.75329494	87.45823979	85.23479124	83.08034223
200512A00017	5/12/2020	0.85	5/12/2025		99.832622	98.99464567	98.17086439	97.36091826	96.56445962	95.78115242	95.01067172	94.2527032	93.50694279
200512A00018	5/12/2020	0.85	5/12/2025		99.832622	98.99464567	98.17086439	97.36091826	96.56445962	95.78115242	95.01067172	94.2527032	93.50694279
200512A00020	5/12/2020	0.86	5/12/2025		99.840962	98.99474051	98.16290641	97.34509448	96.54095173	95.75013692	94.9723201	94.20718216	93.45441436
200512A00021	5/12/2020	0.86	5/12/2025		99.840962	98.99474051	98.16290641	97.34509448	96.54095173	95.75013692	94.9723201	94.20718216	93.45441436
200513A00003	5/13/2020	0.68	5/13/2025		99.781178	99.00256705	98.23604772	97.4813397	96.7381716	96.00628029	95.28541061	94.57531503	93.87575338
200514A00008	5/14/2020	1.23	5/14/2030		105.01591	100.1868829	95.63174415	91.33318866	87.27509687	83.44245055	79.82125195	76.39844915	73.16186736
200518A00019	5/19/2020	0.9	5/19/2025		99.856712	99.0630679	98.28197836	97.51314774	96.75628919	96.01112478	95.2773851	94.55480899	93.84314318
200520A00009	5/20/2020	1.63	5/20/2038		111.82949	101.35841	92.11033453	83.92929697	76.68034275	70.24657669	64.52664112	59.4325591	54.88788797
200521A00005	5/21/2020	0.75	5/21/2030		101.8495	98.93200268	96.13886952	93.46366458	90.90033076	88.44316789	86.08680928	83.82619991	81.65657618
200521A00013	5/21/2020	2.09	5/21/2035		116.37911	105.5442166	95.82478112	87.09966086	79.26145396	72.2148769	65.87534237	60.16771032	55.02519037
200521A00015	5/21/2020	2.14	5/21/2036		117.70581	105.8967348	95.40060519	86.06374015	77.75119048	70.34437315	63.7390128	57.84335119	52.57658841
200521A00016	5/21/2020	2.18	5/21/2037		118.98202	106.2104361	94.96213096	85.04610013	76.29622758	68.56792954	61.73526677	55.68845656	50.33172734



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200521A00017	5/21/2020	2.22	5/21/2038		120.42725	106.6896057	94.6991961	84.22260248	75.05875069	67.03428562	59.99962532	53.82559368	48.40054435
200522A00009	5/22/2020	0.96	5/22/2030		102.21529	99.15016438	96.21911061	93.41505424	90.73134747	88.1617389	85.70034732	83.34163741	81.08039714
200527A00012	5/27/2020	1.2	5/27/2027		102.58888	99.8030858	97.106559	94.4959632	91.96810973	89.51994613	87.14854954	84.85112041	82.62497658
200527A00013	5/27/2020	1.13	11/25/2026		101.72785	99.44360987	97.22155627	95.05964792	92.9559213	90.90848906	88.91553661	86.97531882	85.08615688
200527A00014	5/27/2020	1.06	5/27/2026		100.9509	99.15906176	97.40738832	95.69473244	94.01999031	92.38209681	90.78002388	89.21277895	87.67940347
200527A00015	5/27/2020	0.99	11/26/2025		100.29447	98.99447575	97.71850203	96.46591448	95.23610476	94.02848555	92.84248969	91.67756925	90.53319473
200527A00016	5/27/2020	0.92	5/27/2025		99.879557	99.06436788	98.26241117	97.47336705	96.69692582	95.93278761	95.180662	94.44026765	93.71133192
200529A00022	6/1/2020	0.98	6/1/2026		100.81966	99.01589729	97.25282411	95.52929537	93.84420148	92.19647084	90.58506826	89.00899353	87.46727999
200601A00009	6/1/2020	0.84	6/2/2025		99.814876	98.98394716	98.16676803	97.36299961	96.57231421	95.79439474	95.02893426	94.27563561	93.53421101
200604A00005	6/4/2020	0.89	6/4/2025		99.858783	99.0223044	98.19975833	97.39079882	96.59509167	95.81231352	95.04215147	94.28430264	93.53847378
200604A00009	6/4/2020	0.7	6/4/2025		99.806801	98.96906728	98.1453095	97.33518089	96.53834564	95.75447891	94.98326633	94.22440366	93.47759631
200604A00010	6/4/2020	0.89	6/4/2025		99.858783	99.0223044	98.19975833	97.39079882	96.59509167	95.81231352	95.04215147	94.28430264	93.53847378
200604A00012	6/4/2020	1.59	6/4/2030		108.21184	102.3631065	96.8655672	91.69639841	86.83437155	82.25973115	77.95408569	73.90030703	70.08243776
200604A00013	6/4/2020	2.21	6/4/2035		117.70072	106.7624672	96.95181701	88.14607852	80.23649869	73.1266173	66.73082254	60.97308242	55.78583005
200604A00014	6/4/2020	2.42	6/4/2040		126.17964	110.2727067	96.63014044	84.91307735	74.83514873	66.15411319	58.66485471	52.19352135	46.59261421
200605A00005	6/5/2020	0.99	6/5/2025		99.944964	99.10541203	98.27988743	97.46804095	96.66953502	95.88404311	95.11124925	94.35084762	93.60254216
200605A00014	6/5/2020	1.02	6/5/2025		100.00685	99.09981581	98.20928133	97.33480175	96.47594511	95.63229483	94.80344905	93.98901998	93.18863326
200605A00016	6/5/2020	1.02	6/5/2025		100.00685	99.09981581	98.20928133	97.33480175	96.47594511	95.63229483	94.80344905	93.98901998	93.18863326
200605A00017	6/5/2020	1.02	6/5/2025		100.00685	99.09981581	98.20928133	97.33480175	96.47594511	95.63229483	94.80344905	93.98901998	93.18863326
200605A00018	6/5/2020	0.91	6/5/2025		99.905332	98.99899963	98.10915906	97.23536233	96.37717775	95.53418903	94.70599456	93.89220679	93.09245161
200608A00001	6/8/2020	1.34	6/7/2030		105.59052	100.6942856	96.07828601	91.72464688	87.61673259	83.73905503	80.0771884	76.61769083	73.34803217
200610A00006	6/10/2020	1.11	6/10/2027		102.32212	99.56013302	96.88889294	94.30491666	91.8048739	89.38558051	87.04399123	84.77719276	82.58239728
200611A00010	6/11/2020	1.08	6/11/2027		102.29897	99.47726676	96.7472147	94.10536177	91.54840713	89.07319125	86.67668912	84.35600371	82.10835988
200611A00011	6/11/2020	1.2	6/9/2028		104.03106	100.2122393	96.5532355	93.04656851	89.68514529	86.4622386	83.37146632	80.406772	77.56240656
200611A00019	6/11/2020	0.88	12/11/2025		100.17841	98.84092398	97.52745673	96.23741752	94.97023532	93.72535718	92.50224751	91.30038747	90.11927425
200611A00020	6/11/2020	0.81	6/11/2025		99.796454	98.94153326	98.10117785	97.27501775	96.46269575	95.66386656	94.87819628	94.10536195	93.34505111
200612A00004	6/12/2020	1.42	6/12/2040		107.41001	98.97784353	91.43420516	84.67157467	78.59661436	73.12817698	68.19560851	63.73729951	59.69944688
200615A00019	6/17/2020	1.34	6/16/2025		100.26794	99.39739911	98.54191012	97.70108368	96.87454531	96.06193321	95.26289768	94.47710067	93.70421527
200616A00005	6/16/2020	0.74	6/17/2030		101.86949	98.89022138	96.03988462	93.31172343	90.69938404	88.19689099	85.79862205	83.49928492	81.29389563
200623A00028	6/23/2020	1.23	6/23/2038		106.24748	99.21623658	92.82901872	87.01769157	81.72201413	76.88866402	72.47038632	68.42525324	64.71601916
200626A00014	6/26/2020	0.62	6/26/2025		99.748317	98.85193591	97.97155501	97.10674888	96.2571075	95.4222351	94.60174959	93.79528194	93.00247566
200629A00020	6/29/2020	1.4	6/28/2030		107.13711	101.2555895	95.73152031	90.54141029	85.66342828	81.07727456	76.7640662	72.70623138	68.88741222
200629A00021	6/29/2020	1.21	6/29/2028		104.14865	100.2736926	96.56303575	93.00888563	89.60386	86.34096255	83.21356068	80.21536472	77.34040838

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200629A00023	6/29/2020	0.95	6/29/2026		100.85438	98.97488175	97.13940268	95.34664897	93.5953765	91.88438547	90.21251853	88.57865895	86.98172898
200708A00011	7/10/2020	2.87	7/10/2031		117.88208	110.6548473	103.9274868	97.66272699	91.82625607	86.38647638	81.31427646	76.5828237	72.16737512
200709A00002	7/10/2020	1.66	7/10/2025		100.6249	99.68826871	98.76900902	97.86663648	96.98068904	96.11072135	95.25630404	94.41702302	93.59247877
200709A00003	7/10/2020	1.63	7/10/2026		102.21377	100.2920145	98.41587954	96.58400645	94.79508687	93.04785985	91.3411098	89.67366452	88.04439337
200709A00004	7/10/2020	1.4	7/10/2025		100.37791	99.44255091	98.52453753	97.62339532	96.73866258	95.86989429	95.01666141	94.17855016	93.35516131
200709A00005	7/10/2020	2.23	7/10/2030		112.11543	106.0572086	100.3664991	95.01911463	89.99257636	85.26598734	80.81991362	76.63627473	72.69824289
200709A00006	7/10/2020	2.58	7/10/2030		114.2087	108.0891159	102.339708	96.93614661	91.85582145	87.07771204	82.58226819	78.35130001	74.36787671
200709A00007	7/10/2020	1.67	7/9/2027		104.13538	101.2119551	98.38563538	95.65267256	93.00948854	90.45266247	87.97892288	85.58514033	83.26832036
200709A00008	7/10/2020	1.88	7/10/2026		102.70215	100.7755122	98.89458662	97.05801421	95.26448401	93.5127326	91.80154204	90.12973786	88.49618721
200709A00019	7/9/2020	0.77	7/9/2025		99.808795	98.81276645	97.83668278	96.87994812	95.94199033	95.02225966	94.12022767	93.23538618	92.36724632
200709A00021	7/9/2020	0.83	7/9/2025		99.869734	98.87323904	97.89669711	96.93951222	96.00111203	95.08094656	94.17848718	93.2932255	92.42467246
200709A00025	7/9/2020	1.37	7/9/2030		106.30267	100.9015232	95.82340635	91.04709191	86.55285744	82.32237413	78.33860105	74.58568813	71.0488868
200716A00004	7/16/2020	0.97	7/16/2027		102.02109	99.17867357	96.43230239	93.77817394	91.21266329	88.73231001	86.33380954	84.01400526	81.76988084
200720A00012	7/20/2020	0.77	7/15/2025		99.783681	98.83800737	97.91014391	96.99959153	96.10586952	95.22851485	94.36708132	93.52113881	92.69027259
200720A00034	7/20/2020	0.77	7/21/2025		99.788743	98.8270265	97.88372456	96.95831219	96.05028457	95.15915574	94.28445765	93.42573944	92.58256659
200720A00035	7/20/2020	1.81	7/20/2035		113.44922	102.6215498	92.92861547	84.24525534	76.46070555	69.47687913	63.20685863	57.57357444	52.50864537
200720A00037	7/22/2020	2.1	7/21/2025		101.09238	100.1238087	99.17373927	98.24164879	97.32703043	96.4293963	95.54827655	94.68321848	93.83378586
200720A00039	7/22/2020	2.48	7/21/2025		101.46485	100.4943178	99.5423149	98.60831639	97.69181496	96.79232218	95.90936766	95.04249821	94.19127708
200720A00042	7/22/2020	2.04	7/21/2026		103.07825	101.118957	99.20681668	97.34040719	95.51835677	93.73934413	92.00209629	90.30538643	88.6480319
200720A00044	7/22/2020	2.22	7/21/2026		103.43533	101.4724152	99.55672137	97.68682661	95.86135723	94.07899012	92.33845051	90.63850988	88.97798393
200724A00011	7/24/2020	1.41	7/26/2038		109.61019	99.06391471	89.77358025	81.57641642	74.33189519	67.9185683	62.23136681	57.17929653	52.68346942
200730A00002	7/30/2020	0.67	11/6/2024		99.812336	99.54287865	99.27488044	99.0083292	98.74321319	98.4795208	98.21724054	97.95636105	97.69687107
200730A00011	7/30/2020	1.15	7/28/2028		104.00995	100.062406	96.28548523	92.67093342	89.2109416	85.89811754	82.72546113	79.68634153	76.77447568
200730A00013	7/30/2020	0.74	1/30/2025		99.760647	99.26035668	98.76506179	98.27468819	97.7891629	97.30841438	96.83237248	96.36096844	95.89413479
200803A00011	8/3/2020	0.72	8/4/2025		99.751483	98.75260048	97.77357455	96.81381801	95.87276695	94.94987927	94.04463361	93.15652841	92.28508094
200806A00002	8/6/2020	0.43	8/6/2024		99.985053	99.96841602	99.95179643	99.93519382	99.91860815	99.90203939	99.88548751	99.86895247	99.85243426
200810A00004	8/10/2020	0.43	8/9/2024		99.977277	99.9523263	99.92740284	99.90250691	99.87763845	99.8527974	99.82798371	99.80319734	99.77843822
200811A00003	8/11/2020	0.57	8/11/2025		99.735908	98.7165073	97.71778483	96.7391172	95.77990563	94.83957494	93.91757246	93.01336686	92.12644719
200812A00004	8/12/2020	0.59	8/12/2025		99.757844	98.73564445	97.73423418	96.7529842	95.79129102	94.84857503	93.92427932	93.01786858	92.12882806
200813A00019	8/13/2020	1.44	8/13/2030		106.73912	101.2447886	96.08316143	91.23210462	86.67107573	82.38100229	78.34416886	74.54411328	70.96553143
200813A00020	8/13/2020	1.44	8/13/2030		106.73912	101.2447886	96.08316143	91.23210462	86.67107573	82.38100229	78.34416886	74.54411328	70.96553143
200813A00023	8/13/2020	0.86	10/14/2025		100.0789	98.83539251	97.61808517	96.42614729	95.25878717	94.11524624	92.99479732	91.89674301	90.82041413
200814A00003	8/14/2020	0.96	8/14/2035		104.00892	98.45312346	93.31332004	88.55320684	84.13998298	80.04398273	76.23835217	72.69876126	69.40314744

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200814A00009	8/18/2020	1.36	8/16/2028		104.92925	100.9132439	97.07236652	93.39806764	89.88225906	86.51728897	83.29591598	80.21128473	77.25690321
200814A00011	8/18/2020	1.58	8/16/2030		108.29759	102.2553231	96.5871177	91.26791804	86.27447154	81.58518973	77.18002087	73.04033297	69.14880632
200818A00004	8/18/2020	0.92	8/18/2026		100.93654	98.92557503	96.96446027	95.05163944	93.18561453	91.36494493	89.5882448	87.85418057	86.1614685
200818A00005	8/18/2020	1.05	8/18/2027		102.42646	99.42389693	96.52439336	93.72384109	91.0183201	88.40408911	85.87757631	83.43537058	81.07421323
200818A00006	8/18/2020	1.18	8/18/2028		104.20405	100.1974129	96.36585719	92.70081735	89.19419597	85.83833316	82.62598041	79.55027622	76.60472324
200818A00007	8/18/2020	1.31	8/20/2029		105.96926	100.9474269	96.19157114	91.68625006	87.41699986	83.37026569	79.53333976	75.894304	72.44197688
200818A00008	8/18/2020	1.5	8/18/2031		108.38046	101.3776397	94.872267	88.8264939	83.20553917	77.97742143	73.11272029	68.58435905	64.36740689
200818A00009	8/18/2020	1.7	8/18/2033		111.19567	102.2185382	94.03595086	86.57343707	79.7638596	73.54665919	67.86717982	62.67606629	57.92872594
200818A00010	8/18/2020	1.88	8/20/2035		114.25937	103.3135682	93.52125527	84.75444475	76.89996621	69.85767955	63.53891601	57.86511255	52.76661474
200818A00012	8/18/2020	0.97	8/18/2027		102.11658	99.19316377	96.37067027	93.64501177	91.0122945	88.46880635	86.01100708	83.63551919	81.33911933
200824A00020	8/26/2020	1.57	8/26/2025		100.69458	99.63154475	98.59084197	97.57177063	96.57366203	95.59587481	94.63779349	93.69882724	92.77840864
200825A00007	8/27/2020	4.79	8/27/2026		109.03434	106.91347	104.8451204	102.8276365	100.8594305	98.93897582	97.06480498	95.23550619	93.44972105
200826A00019	8/26/2020	0.98	8/26/2026		101.08515	99.05152502	97.06862789	95.13485953	93.24868326	91.40862198	89.6132553	87.86121698	86.15119238
200826A00021	8/26/2020	0.83	8/26/2025		99.895983	98.83754396	97.80136673	96.78675546	95.79304305	94.81958965	93.86578126	92.93102847	92.01476525
200826A00028	8/28/2020	1.08	8/28/2024		99.968033	99.89055759	99.81320689	99.73598107	99.65887983	99.58190287	99.50504992	99.42832066	99.35171482
200826A00029	8/28/2020	1.16	11/27/2024		99.948986	99.62193439	99.29702022	98.97422277	98.65352143	98.33489583	98.01832587	97.70379171	97.39127376
200826A00038	8/28/2020	1.11	8/28/2024		99.970368	99.89289002	99.81553733	99.73830951	99.66120628	99.58422734	99.5073724	99.43064117	99.35403335
200827A00007	8/27/2020	0.77	8/27/2025		99.832542	98.77179744	97.7334201	96.71670886	95.72099191	94.74562496	93.78998983	92.85349315	91.9355651
200828A00002	8/28/2020	0.73	8/28/2026		100.83807	98.79660393	96.80624999	94.86538881	92.97246647	91.12598956	89.32452232	87.56668391	85.85114592
200909A00001	9/9/2020	0.98	9/8/2028		104.00267	99.92855381	96.03489809	92.31276297	88.75369791	85.34971558	82.09326377	78.97719912	75.99476264
200910A00006	9/10/2020	0.96	9/10/2027		102.14938	99.17274554	96.30042546	93.52812484	90.85175745	88.26743135	85.77143817	83.36024318	81.03047584
200911A00011	9/11/2020	1.18	9/11/2030		105.29532	99.80085888	94.64294501	89.7989377	85.24784791	80.97020545	76.94794069	73.1642763	69.60362788
200911A00012	9/11/2020	1.18	9/11/2030		105.29532	99.80085888	94.64294501	89.7989377	85.24784791	80.97020545	76.94794069	73.1642763	69.60362788
200911A00013	9/11/2020	0.69	9/11/2025		99.805123	98.64733225	97.51650523	96.41170621	95.33204256	94.27666211	93.24475085	92.23553084	91.24825821
200916A00015	9/16/2020	0.72	9/16/2025		99.806613	98.69262636	97.60330924	96.53784984	95.49547185	94.47543227	93.47701972	92.49955272	91.54237813
200916A00016	9/16/2020	0.6	9/16/2024		99.889145	99.75938995	99.62998694	99.50093419	99.37223026	99.24387369	99.11586304	98.98819688	98.86087377
200916A00019	9/16/2020	0.42	9/16/2024		99.883294	99.7533623	99.6237845	99.49455946	99.3656857	99.23716171	99.10898603	98.98115718	98.85367371
200916A00023	9/16/2020	0.42	9/16/2024		99.883294	99.7533623	99.6237845	99.49455946	99.3656857	99.23716171	99.10898603	98.98115718	98.85367371
200922A00015	9/24/2020	1.09	9/24/2025		100.24715	99.10910343	97.99671269	96.90911844	95.84549951	94.80507063	93.78708044	92.79080977	91.81556983
200922A00027	9/24/2020	1.65	9/23/2025		100.89212	99.75279612	98.63907177	97.55009112	96.48503697	95.44312776	94.42361564	93.42578465	92.44894908
200922A00033	9/24/2020	2.37	9/23/2024		100.13927	99.98997137	99.84112408	99.69272946	99.54478543	99.3972899	99.25024084	99.1036362	98.95747394
200922A00034	9/24/2020	2.24	9/23/2026		103.89996	101.759858	99.67434717	97.64165827	95.66008955	93.72800776	91.84384481	90.00609464	88.21331016
200922A00035	9/24/2020	2.94	9/23/2024		100.22466	100.0752572	99.92631285	99.77782142	99.62978082	99.48218897	99.33504381	99.18834332	99.04208544

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200922A00036	9/24/2020	1.55	9/23/2025		100.7765	99.63788782	98.52486085	97.43656681	96.37218879	95.33094549	94.31208933	93.31490458	92.33870578
200922A00037	9/24/2020	2.76	9/23/2025		102.17546	101.0282782	99.90681303	98.81021096	97.73765177	96.68835091	95.6615577	94.65655342	93.67264969
200922A00039	9/24/2020	3	9/23/2025		102.45294	101.3040581	100.1809193	99.08266931	98.0084874	96.95758835	95.92922084	94.92266558	93.93723361
200922A00040	9/24/2020	2	9/23/2024		100.08385	99.93461041	99.78582612	99.63749433	99.48961298	99.34217998	99.1951933	99.04865088	98.90255069
200922A00041	9/24/2020	2.68	9/23/2024		100.18571	100.0363549	99.88745482	99.73900755	99.59101099	99.44346308	99.29636176	99.14970498	99.00349072
200925A00002	9/25/2020	0.74	9/25/2025		99.843051	98.70481691	97.59231808	96.50469074	95.44110915	94.40078375	93.38295921	92.38691255	91.41195148
200925A00003	9/25/2020	0.59	9/25/2024		99.868295	99.71380021	99.55978978	99.40626165	99.25321355	99.1006432	98.94854839	98.79692687	98.64577643
200925A00008	9/25/2020	0.74	9/25/2025		99.843051	98.70481691	97.59231808	96.50469074	95.44110915	94.40078375	93.38295921	92.38691255	91.41195148
200928A00003	9/28/2020	0.55	9/26/2025		99.771505	98.62880162	97.51203294	96.42032561	95.35284475	94.30879213	93.28740425	92.28795044	91.30973111
200928A00009	9/28/2020	1.51	9/28/2032		109.06448	100.9946881	93.5777579	86.75754303	80.48300114	74.70770123	69.38938507	64.48957239	59.97320532
201001A00011	10/1/2020	0.71	6/17/2025		99.711411	98.84086365	97.98542668	97.14470923	96.31833408	95.5059368	94.70716524	93.92167895	93.14914877
201001A00012	10/1/2020	0.74	9/16/2025		99.829351	98.71522768	97.62577554	96.56018317	95.51767419	94.49750559	93.49896592	92.52137364	91.56407558
201007A00008	10/7/2020	1.22	10/7/2030		105.36318	99.97618518	94.91858877	90.16817129	85.70433866	81.50799293	77.56141532	73.84815919	70.35295175
201007A00010	10/7/2020	1.22	10/7/2030		105.36318	99.97618518	94.91858877	90.16817129	85.70433866	81.50799293	77.56141532	73.84815919	70.35295175
201007A00014	10/7/2020	0.8	10/7/2025		99.983257	98.76320653	97.57076098	96.40498089	95.26496978	94.14987129	93.05886695	91.99117408	90.94604386
201014A00002	10/14/2020	0.61	10/15/2024		99.833797	99.62448957	99.41607373	99.20854334	99.00189266	98.79611606	98.59120791	98.38716266	98.1839748
201015A00002	10/15/2020	0.61	10/15/2024		99.833797	99.62448957	99.41607373	99.20854334	99.00189266	98.79611606	98.59120791	98.38716266	98.1839748
201015A00003	10/15/2020	0.75	10/15/2025		99.885444	98.69361718	97.52999242	96.39357871	95.2834313	94.19864869	93.13837021	92.10177372	91.08807349
201015A00020	10/15/2020	0.94	10/15/2027		102.187	99.12473906	96.17254066	93.3258166	90.5801985	87.9315255	85.375833	82.90934214	80.52844989
201015A00024	10/19/2020	1.53	10/18/2027		104.18661	100.9931129	97.91363588	94.9434331	92.07798481	89.31298847	86.64434671	84.06815606	81.5806963
201015A00025	10/19/2020	1.54	10/18/2027		104.21896	101.0249303	97.94494336	94.97424406	92.10831217	89.34284472	86.67374391	84.09710585	81.60920995
201015A00030	10/19/2020	2.39	10/18/2027		106.96795	103.7294078	100.6060795	97.59317606	94.68613833	91.88062589	89.17250512	86.55783776	84.03287028
201015A00032	10/19/2020	2.33	10/19/2026		104.27185	102.057913	99.90184528	97.80171614	95.7556722	93.76193744	91.81880917	89.92465431	88.0779059
201019A00005	10/19/2020	0.79	10/20/2025		99.942334	98.73681344	97.56012936	96.41125833	95.28922441	94.19309683	93.12198739	92.07504809	91.05146884
201019A00007	10/19/2020	0.64	10/21/2024		99.829807	99.6040727	99.37937013	99.15569203	98.93303136	98.71138114	98.49073443	98.27108438	98.0524242
201021A00011	10/21/2020	1.11	10/21/2027		102.8385	99.65898421	96.5934323	93.63708416	90.78540901	88.03409454	85.37903471	82.81631837	80.34221853
201021A00012	10/21/2020	1.85	10/19/2035		114.02236	102.9418608	93.04460243	84.19762633	76.28355375	69.19868996	62.85136629	57.16049056	52.05427871
201022A00012	10/26/2020	2.25	10/24/2030		112.6283	106.2716036	100.3165384	94.73558063	89.50324086	84.59589949	79.99165975	75.67021281	71.61271429
201028A00003	10/30/2020	1.42	2/27/2026		101.22731	99.66979225	98.14367073	96.64806775	95.18213427	93.74505245	92.3360342	90.95431988	89.59917692
201028A00005	10/30/2020	1.85	10/31/2025		101.2967	100.0528579	98.83940503	97.65523575	96.49930053	95.37059952	94.26817954	93.19113143	92.13858749
201028A00011	10/28/2020	0.91	4/28/2026		100.5935	98.88107646	97.205646	95.56607415	93.96127498	92.39020685	90.8518701	89.34530488	87.86958914
201028A00013	10/28/2020	0.68	10/28/2024		99.830027	99.58509972	99.3413754	99.09884484	98.85749929	98.61733008	98.37832864	98.14048647	97.90379514
201029A00002	10/29/2020	0.59	10/29/2025		99.865846	98.63435552	97.4329371	96.2605021	95.11601345	93.99848298	92.90696859	91.84057158	90.79843418

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201029A00004	10/29/2020	1.49	10/29/2038		110.59065	99.82326312	90.35584536	82.01754531	74.66118037	68.15982653	62.40391321	57.29874922	52.76241403
201030A00001	11/2/2020	2.54	10/29/2040		128.82863	112.3732332	98.30330478	86.2548217	75.92129404	67.04440545	59.40621364	52.8226477	47.13808118
201030A00002	11/2/2020	2.8	10/29/2040		132.92482	116.1578364	101.8089481	89.51020171	78.95169477	69.87214203	62.0510146	55.30198466	49.46745356
201030A00003	11/2/2020	2.58	10/29/2040		129.45882	112.9554798	98.84263452	86.75564939	76.38750954	67.47944185	59.8131061	53.20408415	47.49644616
201030A00004	11/2/2020	2.56	10/29/2040		129.14373	112.6643565	98.57296965	86.50523555	76.15440179	67.26192365	59.60965987	53.01336593	47.31726367
201030A00005	11/2/2020	2.49	10/29/2040		128.04091	111.6454249	97.62914261	85.62878708	75.33852467	66.50060996	58.89759807	52.34585213	46.69012495
201030A00012	10/30/2020	0.63	10/30/2025		99.917648	98.68314116	97.4788407	96.30365043	95.15652674	94.03647531	92.94254826	91.87384146	90.82949205
201030A00016	10/30/2020	1.14	10/8/2027		102.89043	99.74409069	96.7094956	93.78202194	90.957268	88.23104187	85.59934994	83.05838604	80.60452135
201030A00017	10/30/2020	1.14	10/15/2027		102.91485	99.74979265	96.69770016	93.75386949	90.91382896	88.17332137	85.52829209	82.97487797	80.5093969
201030A00018	10/30/2020	1.15	10/22/2027		102.97171	99.78741436	96.71731247	93.75663242	90.90083148	88.14558609	85.48677971	82.9204913	80.44298462
201030A00019	10/30/2020	1.15	10/29/2027		102.99632	99.79329432	96.70569164	93.72866366	90.85759639	88.08809984	85.41599538	82.83730404	80.3482354
201103A00005	11/3/2020	0.89	11/4/2030		102.07992	98.90004417	95.86571169	92.96889456	90.20206964	87.55818295	85.03061711	82.61316141	80.29998395
201105A00003	11/6/2020	2.24	11/4/2030		112.60421	106.2189638	100.2388923	94.63613376	89.38488503	84.46124138	79.84304676	75.50975668	71.44231263
201105A00016	11/9/2020	2.18	11/8/2027		106.42471	103.1383504	99.97076759	96.91698186	93.97225265	91.13206728	88.3921283	85.74834178	83.19680622
201109A00012	11/9/2020	1.39	11/8/2030		106.55073	100.8797745	95.56356988	90.57783623	85.90008125	81.50945929	77.3866428	73.51370437	69.87400847
201110A00003	11/10/2020	1.12	11/10/2027		102.83647	99.69972787	96.67773593	93.76568518	90.95899436	88.25329744	85.64443235	83.12843033	80.70150593
201116A00011	11/16/2020	0.71	11/15/2024		99.814891	99.52084573	99.22854172	98.9379637	98.64909631	98.3619244	98.07643297	97.79260724	97.51043255
201116A00021	11/16/2020	0.53	11/15/2024		99.799135	99.50470072	99.21201512	98.9210627	98.631828	98.34429571	98.05845071	97.77427806	97.491763
201116A00024	11/18/2020	2.36	11/15/2034		118.70577	108.2259527	98.7757365	90.24805012	82.5474822	75.58895756	69.29656967	63.60255024	58.4463593
201116A00025	11/18/2020	1.96	11/15/2032		112.86693	104.5226705	96.85942149	89.81802235	83.3447374	77.39073351	71.91160977	66.86697435	62.22006385
201117A00016	11/17/2020	0.52	11/18/2024		99.792105	99.48948738	99.18871576	98.88977299	98.59264233	98.29730723	98.00375132	97.71195846	97.42191269
201118A00009	11/18/2020	0.61	11/18/2025		99.938393	98.65755152	97.40269358	96.17303894	94.96783881	93.78637426	92.62795479	91.49191686	90.37762257
201119A00021	11/23/2020	2.22	11/21/2030		112.53919	106.1098499	100.0913229	94.45523554	89.17531367	84.22721733	79.58838887	75.23791382	71.15639322
201119A00023	11/23/2020	2.23	11/21/2030		112.60267	106.1713567	100.1509481	94.51306427	89.2314263	84.28168991	79.64129337	75.28931837	71.20636235
201123A00009	11/25/2020	1.02	11/25/2024		99.903496	99.58199462	99.26256327	98.94518183	98.62983061	98.31649014	98.00514122	97.69576488	97.38834239
201123A00010	11/25/2020	1.48	11/24/2025		100.93821	99.63856633	98.36349851	97.11233247	95.88442304	94.67914832	93.49590865	92.33412561	91.19324105
201123A00011	11/25/2020	1.41	11/24/2025		100.84534	99.54634969	98.27191718	97.02137571	95.79408039	94.58940961	93.40676399	92.24556538	91.10525589
201203A00005	12/3/2020	0.78	12/3/2026		101.23616	98.93016726	96.68763832	94.50648568	92.38470574	90.32037165	88.31162993	86.35669728	84.45385743
201204A00015	12/8/2020	1.07	12/8/2025		100.43258	99.10108721	97.7933816	96.50887747	95.24701207	94.00724042	92.78903456	91.59188291	90.41528968
201207A00009	12/7/2020	1.01	12/7/2027		102.55942	99.36459459	96.28904072	93.32765637	90.47558676	87.72821005	85.0811249	82.53013869	80.07125647
201207A00021	12/7/2020	1.85	12/7/2050		116.23683	102.3565046	90.70530522	80.87629195	72.54267601	65.44118209	59.35900303	54.12354809	49.59436629
201208A00029	12/10/2020	1.52	12/9/2025		101.05037	99.71184904	98.3972774	97.10606597	95.83764697	94.59147058	93.36700421	92.16373184	90.98115339
201208A00031	12/10/2020	1.43	12/9/2024		100.04985	99.68990834	99.33255733	98.97777279	98.62552702	98.27579277	97.92854314	97.58375164	97.24139213



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
201210A00021	12/10/2020	0.89	12/10/2027		102.71488	99.39312235	96.19518386	93.11582275	90.15005099	87.29311619	84.54048922	81.88785248	79.33108899
201211A00001	12/11/2020	0.95	12/11/2030		104.3587	99.15117781	94.26380011	89.67472394	85.36371584	81.31202895	77.50228595	73.91837188	70.54533585
201215A00001	12/15/2020	0.76	12/15/2025		100.01923	98.6724752	97.35008007	96.05143784	94.77596568	93.52309939	92.29229262	91.08301619	89.89475739
201216A00004	12/16/2020	0.74	9/8/2025		99.817172	98.72447981	97.65552242	96.60953403	95.58578128	94.58356176	93.60220232	92.64105764	91.69950872
201216A00013	12/16/2020	0.59	12/16/2025		99.961691	98.6099196	97.28267788	95.97935775	94.69937041	93.44214598	92.20713269	90.99379617	89.80161878
201218A00014	12/18/2020	0.57	12/18/2025		99.936383	98.57957785	97.2474795	95.93947328	94.65496425	93.39337662	92.15415299	90.93675359	89.74065556
201221A00014	12/21/2020	0.76	12/19/2025		100.02484	98.66764435	97.33515961	96.02677424	94.741893	93.47993979	92.24035688	91.02260416	89.82615849
201221A00015	12/21/2020	0.88	12/4/2026		101.17019	98.8686566	96.6304107	94.45337928	92.33556528	90.27504811	88.26998024	86.31858401	84.41914857
201221A00022	12/21/2020	0.51	12/19/2025		99.878245	98.49629995	97.14086346	95.81123674	94.50674526	93.22673759	91.97058441	90.73767758	89.52742921
201223A00012	12/23/2020	0.91	12/18/2026		101.27911	98.93986089	96.66587561	94.45497798	92.30507987	90.21417437	88.18033209	86.20169774	84.2764868
201223A00013	12/23/2020	0.9	12/11/2026		101.23625	98.91572125	96.65947046	94.4653705	92.33137898	90.25553232	88.23594222	86.27079235	84.35833516
201228A00013	12/28/2020	0.84	12/30/2030		101.94025	98.7235563	95.65582508	92.72875029	89.93455485	87.26595123	84.7161072	82.27861435	79.94745886
210104A00006	11/22/2021	0.88	11/20/2026		101.12945	98.86579452	96.66348828	94.52050277	92.43489054	90.40478113	88.42837743	86.50395227	84.62984519
210104A00007	11/23/2021	0.88	11/23/2026		101.1385	98.86663769	96.65653979	94.50617168	92.4135788	90.37688303	88.39427913	86.46403142	84.58447064
210104A00009	12/20/2021	0.89	12/18/2026		101.23118	98.89251139	96.61909583	94.40875573	92.25940336	90.16903213	88.135713	86.15759098	84.23288189
210104A00010	11/22/2021	0.88	11/20/2026		101.12945	98.86579452	96.66348828	94.52050277	92.43489054	90.40478113	88.42837743	86.50395227	84.62984519
210104A00011	11/23/2021	0.88	11/23/2026		101.1385	98.86663769	96.65653979	94.50617168	92.4135788	90.37688303	88.39427913	86.46403142	84.58447064
210104A00012	12/20/2021	0.89	12/18/2026		101.23118	98.89251139	96.61909583	94.40875573	92.25940336	90.16903213	88.135713	86.15759098	84.23288189
210107A00007	1/7/2021	0.84	1/7/2026		100.22019	98.7651482	97.3387963	95.94035337	94.56906797	93.22421523	91.90509564	90.61103395	89.3413781
210114A00009	1/19/2021	2.66	1/17/2030		113.73985	108.1131771	102.8024793	97.78835111	93.05268086	88.57855366	84.35016647	80.35274939	76.57249313
210121A00012	1/22/2021	0.64	10/15/2024		99.840118	99.63080202	99.42237711	99.21483768	99.00817799	98.8023924	98.5974753	98.39342113	98.19022436
210121A00014	1/22/2021	0.64	10/25/2024		99.822933	99.58625651	99.35070852	99.11628059	98.88296471	98.65075296	98.4196375	98.18961054	97.96066438
210122A00006	1/25/2021	0.61	8/15/2024		99.96339	99.92187539	99.88041247	99.83900157	99.79764259	99.75633544	99.71508	99.67387618	99.63272388
210125A00006	1/27/2021	2.16	1/26/2027		104.51385	102.0324378	99.62286707	97.28264242	95.00937462	92.80077161	90.65463383	88.56884993	86.54139265
210125A00007	1/27/2021	2.98	1/27/2031		117.71833	110.9483434	104.6193792	98.70031582	93.16238727	87.97899004	83.12551004	78.57916415	74.31885515
210127A00008	1/27/2021	0.93	1/27/2027		101.43671	98.99168613	96.61778756	94.31253918	92.07356969	89.89860433	87.78546036	85.7320427	83.73633983
210127A00009	1/27/2021	1.3	7/27/2029		105.85149	100.8957126	96.19965904	91.74840624	87.52796622	83.52522039	79.72786111	76.12433745	72.70380483
210127A00010	1/27/2021	1.41	7/26/2030		107.23459	101.2784662	95.68866761	90.44082849	85.51232387	80.88213578	76.5307313	72.43995046	68.59290308
210129A00008	1/29/2021	0.62	10/8/2024		99.848321	99.6581723	99.46875764	99.28007286	99.0921137	98.90487593	98.71835533	98.53254775	98.34744905
210129A00013	1/29/2021	0.65	1/9/2025		99.734546	99.29116635	98.85172501	98.41616933	97.98444784	97.55650999	97.13230612	96.71178741	96.29490593
210201A00001	2/1/2021	0.77	12/16/2025		100.0345	98.68503794	97.36002136	96.05884577	94.78092522	93.5256925	92.29259837	91.08111089	89.89071472
210201A00002	2/1/2021	1.19	2/1/2036		104.68548	98.87676662	93.51916338	88.57189879	83.99826846	79.76519518	75.8428427	72.20427324	68.82514349
210201A00003	2/2/2021	0.74	10/15/2025		99.873277	98.68152882	97.51798091	96.38164282	95.27156982	94.18686043	93.12665403	92.09012851	91.07649815

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210201A00004	2/3/2021	1.15	2/3/2025		99.970286	99.4585689	98.95207317	98.45071915	97.9544289	97.46312599	96.97673558	96.49518428	96.01840018
210201A00007	2/3/2021	0.57	8/15/2024		99.961697	99.92018316	99.87872166	99.83731219	99.79595464	99.75464891	99.71339489	99.67219249	99.6310416
210201A00012	2/3/2021	0.75	11/17/2025		99.952342	98.6764429	97.42667633	96.20224706	95.00239278	93.82638197	92.67351237	91.54310944	90.43452504
210208A00004	2/11/2021	0.76	10/15/2025		99.89761	98.70570554	97.54200392	96.4055146	95.29529279	94.21043695	93.15008639	92.11341894	91.09964884
210208A00008	2/11/2021	0.78	11/17/2025		99.991563	98.71539467	97.46536346	96.24067404	95.04056398	93.86430164	92.71118463	91.58053831	90.47171443
210209A00029	2/12/2021	0.8	12/15/2025		100.0746	98.72744841	97.40465937	96.10562988	94.82977693	93.57653615	92.34536101	91.13572217	89.94710678
210212A00004	2/12/2021	1.1	2/12/2036		104.92527	99.08152468	93.69275878	88.71776397	84.11945048	79.86440091	75.92247851	72.26647981	68.87182639
210212A00006	2/12/2021	0.77	2/12/2026		100.20782	98.665139	97.15389433	95.67318718	94.22215233	92.79995713	91.40579996	90.03890876	88.69853964
210212A00007	2/12/2021	0.76	2/12/2026		100.18727	98.655295	97.15451144	95.68402239	94.24296978	92.83052782	91.44590149	90.08832509	88.75706085
210212A00008	2/12/2021	0.95	10/13/2026		101.1749	99.01179548	96.90510094	94.85293954	92.85351333	90.90509884	89.0060433	87.15476103	85.34973015
210212A00014	2/17/2021	1.38	2/17/2026		101.11397	99.58670593	98.08992892	96.62280031	95.1845083	93.77427039	92.39133197	91.03496514	89.70446749
210212A00016	2/17/2021	1.32	2/18/2025		100.07302	99.52047054	98.9740053	98.43352883	97.898943	97.37015184	96.84706145	96.32957994	95.81761742
210216A00006	2/16/2021	1.44	2/15/2030		107.87402	102.2990659	97.04472343	92.09093085	87.418979	83.01141729	78.85196267	74.92541552	71.21758216
210216A00007	2/16/2021	1.3	2/16/2029		105.99999	101.4497315	97.11957785	92.99774481	89.07314505	85.3353395	81.77449593	78.38135041	75.1471714
210216A00008	2/16/2021	0.71	2/17/2026		100.26833	98.74453476	97.25122618	95.78756381	94.35273471	92.94595532	91.56647009	90.21355026	88.8864926
210216A00009	2/16/2021	0.92	2/16/2027		101.81946	99.30531199	96.86563745	94.49778972	92.19923604	89.96754945	87.80040364	85.69556806	83.65090332
210216A00011	2/17/2021	0.83	12/15/2025		100.11613	98.76867831	97.44559384	96.14627391	94.87013537	93.61661372	92.38516231	91.17525167	89.98636883
210217A00005	2/17/2021	0.83	2/14/2031		102.39496	99.0745264	95.91157676	92.89714237	90.02283162	87.2807917	84.66367028	82.16458019	79.77706687
210217A00008	2/18/2021	0.63	8/15/2024		99.964237	99.9227215	99.88125787	99.83984626	99.79848657	99.7571787	99.71592256	99.67471803	99.63356502
210217A00009	2/18/2021	0.68	11/15/2024		99.805997	99.51196766	99.21968023	98.92911871	98.64026776	98.35311222	98.06763709	97.78382758	97.50166904
210218A00010	2/18/2021	1.72	2/18/2031		109.55247	102.9810731	96.84625976	91.11679448	85.76383099	80.76071733	76.08281819	71.70735244	67.61324465
210218A00011	2/22/2021	0.85	10/24/2025		100.0234	98.80668287	97.61932006	96.46025806	95.32849563	94.22307827	93.14309547	92.08767824	91.05599676
210219A00004	2/19/2021	0.91	2/19/2026		100.38803	98.86079335	97.36411713	95.89715795	94.45909945	93.0491548	91.66656537	90.31059948	88.98055115
210219A00008	2/22/2021	0.86	12/1/2025		100.13414	98.82301606	97.53501744	96.26959065	95.02619491	93.80430632	92.60341709	91.42303501	90.26268283
210224A00002	2/25/2021	0.88	11/3/2025		100.08243	98.8394174	97.62592956	96.44091843	95.28338726	94.15238543	93.04700586	91.96638245	90.90968788
210224A00003	2/26/2021	0.9	12/3/2025		100.19156	98.8748157	97.58138495	96.31070192	95.06221972	93.83540851	92.62975489	91.44476122	90.27994505
210224A00004	2/26/2021	0.91	12/18/2025		100.23233	98.87622125	97.54476456	96.23734569	94.95337182	93.69226919	92.45348226	91.23647308	90.04072052
210224A00006	2/26/2021	0.88	10/21/2025		100.05496	98.84604295	97.66609898	96.51409947	95.38906191	94.29004937	93.21616785	92.16656386	91.14042218
210224A00007	2/26/2021	0.68	10/21/2024		99.8389	99.61315173	99.3884353	99.1647434	98.94206896	98.72040502	98.49974464	98.28008097	98.06140721
210225A00003	3/1/2021	0.93	9/24/2025		100.06172	98.92481559	97.81354582	96.72705522	95.66452304	94.62516444	93.6082285	92.61299643	91.63877984
210225A00006	2/25/2021	0.98	2/25/2026		100.52094	98.97507243	97.46032756	95.97582955	94.52073946	93.09424908	91.6955795	90.32397981	88.97872575
210225A00007	2/25/2021	1.79	8/23/2030		109.59235	103.4930351	97.77159637	92.40268431	87.36277668	82.63003797	78.18418994	74.00639283	70.07913616
210225A00012	3/1/2021	0.91	8/25/2025		99.980623	98.92436939	97.89027435	96.87764696	95.88582474	94.91417223	93.96207957	93.0289613	92.11425508

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210225A00013	3/1/2021	0.93	10/6/2025		100.08617	98.91706647	97.77506043	96.65922004	95.56865501	94.50251502	93.45998751	92.44029559	91.44269609
210225A00015	3/1/2021	0.7	8/26/2024		99.942925	99.87099918	99.7991851	99.72748299	99.65589259	99.58441365	99.51304592	99.44178913	99.37064303
210225A00016	3/1/2021	0.88	7/15/2025		99.889686	98.94346305	98.01505779	97.10397066	96.20972078	95.33184497	94.46989689	93.62344629	92.7920783
210226A00002	2/26/2021	0.86	2/26/2025		99.813671	99.24036054	98.67360735	98.11329915	97.55932658	97.01158274	96.46996312	95.93436553	95.40469005
210226A00004	3/1/2021	1.04	12/5/2025		100.3851	99.06177074	97.76195465	96.48507876	95.23058955	93.99795084	92.78664315	91.596163	90.42602235
210226A00012	2/26/2021	2.31	2/26/2036		119.47675	107.777918	97.3541234	88.05877367	79.76285502	72.35274228	65.72829299	59.80118594	54.49347175
210302A00005	3/5/2021	0.92	9/10/2025		100.02189	98.92264345	97.84737979	96.79532474	95.76573386	94.7578942	93.7711227	92.80476464	91.85819215
210303A00006	3/4/2021	0.97	10/10/2025		100.14241	98.96227354	97.80974243	96.68385511	95.58369682	94.50839423	93.45711313	92.42905627	91.42346132
210304A00002	3/5/2021	0.93	7/10/2025		99.93145	98.99836875	98.08260829	97.18369015	96.30115322	95.43455309	94.58346129	93.7474646	92.92616437
210304A00006	3/4/2021	1.02	3/4/2026		100.6083	99.04244122	97.50833029	96.00507058	94.53179721	93.08767741	91.67190901	90.28371902	88.92236226
210305A00006	3/8/2021	1.02	8/11/2025		100.07107	99.05172874	98.05302259	97.07433055	96.11505601	95.17462584	94.25248929	93.3481169	92.46099942
210305A00013	3/5/2021	2.41	3/5/2036		120.64759	108.8634492	98.36372975	89.00065029	80.6441681	73.17976763	66.50653505	60.53548022	55.18807298
210309A00004	3/11/2021	0.87	11/25/2024		99.854875	99.53347266	99.21413929	98.89685536	98.58160119	98.2683573	97.95710451	97.64782385	97.34049659
210310A00003	3/15/2021	0.79	8/26/2024		99.949438	99.87750576	99.80568611	99.73397845	99.6623825	99.59089803	99.51952476	99.44826246	99.37711085
210311A00007	3/11/2021	1.06	3/11/2026		100.6943	99.10933375	97.55674636	96.03561231	94.54504083	93.08417462	91.65218828	90.24828679	88.8717041
210312A00008	3/12/2021	1.13	3/12/2026		100.81108	99.22250458	97.66641524	96.141881	94.64800696	93.18393187	91.74882661	90.34189263	88.96236052
210315A00003	3/15/2021	1.13	3/13/2026		100.81441	99.22317402	97.66451688	96.13750028	94.6412256	93.17482812	91.73747537	90.32836568	88.94672665
210319A00003	3/19/2021	0.95	3/19/2025		99.869126	99.23910282	98.61700466	98.0026823	97.39599054	96.7967878	96.20493598	95.62030035	95.04274948
210319A00009	3/19/2021	1.1	3/19/2026		100.84523	99.21104738	97.61157444	96.04576473	94.51261394	93.01115806	91.54047131	90.09966419	88.68788168
210324A00002	3/24/2021	2.06	3/24/2031		111.90394	105.164902	98.87759809	93.00938105	87.53012822	82.41203367	77.62941817	73.15855593	68.97751619
210324A00003	3/24/2021	1.18	3/24/2026		100.93382	99.31264759	97.72505081	96.1700555	94.64672151	93.15414484	91.69145585	90.25781761	88.85242435
210330A00021	3/30/2021	2.16	3/28/2031		112.58507	105.8133026	99.49566564	93.59931313	88.09393885	82.95156984	78.14637498	73.65449008	69.45385832
210330A00022	3/30/2021	1.27	3/30/2026		101.10518	99.46673504	97.86244307	96.29129979	94.7523416	93.24464232	91.7673113	90.3194917	88.90035891
210331A00007	3/31/2021	1.25	3/31/2031		103.47265	100.0450207	96.78312379	93.67734598	90.71871029	87.89882541	85.20984348	82.64442114	80.19568365
210407A00012	4/7/2021	0.94	4/7/2025		99.867343	99.1862542	98.51441662	97.85164297	97.19775077	96.55256242	95.91590503	95.28761027	94.6675142
210407A00013	4/7/2021	1.23	4/7/2026		101.06999	99.41022998	97.78540922	96.1944851	94.63646078	93.11037866	91.61531841	90.15039514	88.71475765
210408A00007	4/8/2021	1.05	4/8/2031		103.22474	99.79587656	96.53315701	93.42692929	90.46817728	87.64847425	84.95994026	82.39520289	79.94736114
210409A00010	4/9/2021	1.05	4/9/2031		103.17999	99.79128574	96.56593784	93.49448373	90.5680842	87.7784767	85.11793371	82.57922441	80.15557932
210420A00009	4/20/2021	1.08	12/5/2025		100.43937	99.11565937	97.81546413	96.53821546	95.28335968	94.05036044	92.8386981	91.64786902	90.47738503
210420A00010	4/20/2021	1.08	12/12/2025		100.45536	99.11328132	97.79533937	96.50094432	95.22952116	93.98051314	92.75338105	91.54760255	90.36267148
210420A00035	4/20/2021	1.92	4/20/2034		109.45559	103.1724997	97.37090859	92.00845474	87.04684671	82.45144737	78.19090034	74.23679694	70.5633789
210423A00001	4/23/2021	1.72	4/23/2036		108.81937	102.6760984	97.0172366	91.79837992	86.97960878	82.52500218	78.40220639	74.58205303	71.03822065
210423A00003	4/23/2021	1.31	4/23/2031		104.14543	100.6854681	97.39319903	94.25887706	91.2733992	88.42825779	85.71549743	83.12767534	80.65782479

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210428A00006	4/28/2021	1.23	4/28/2026		101.15437	99.43688867	97.75648717	96.11203439	94.5024419	92.92666566	91.38370372	89.87259399	88.3924123
210428A00007	4/28/2021	1.74	10/27/2028		106.84361	102.5952429	98.5390378	94.66524054	90.96465125	87.42858857	84.04885707	80.81771697	77.72785592
210428A00008	4/28/2021	1.93	4/26/2030		110.09221	104.2923149	98.83404131	93.69546003	88.85616497	84.29716112	80.0007592	75.95047874	72.13095888
210428A00015	4/28/2021	2.02	4/28/2031		111.74238	104.9152381	98.5517016	92.61783948	87.08237849	81.91648198	77.09354738	72.58902143	68.3802319
210429A00005	4/29/2021	2.08	4/29/2031		112.15235	105.3089408	98.93015059	92.98196687	87.4330468	82.25449007	77.41963571	72.90387695	68.68449243
210507A00008	5/7/2021	1.94	5/7/2031		111.22352	104.3901035	98.02257451	92.08674196	86.55109457	81.38657983	76.56639955	72.06582357	67.86201982
210507A00009	5/7/2021	2.02	5/7/2032		112.84283	104.9946029	97.75052212	91.0608874	84.88033593	79.16744046	73.88434848	68.99645638	64.47211488
210512A00011	5/12/2021	1.16	5/12/2026		101.12872	99.35781624	97.62715584	95.93558381	94.28198793	92.66529477	91.08446809	89.53850727	88.02644588
210512A00012	5/12/2021	1.16	5/12/2026		101.12872	99.35781624	97.62715584	95.93558381	94.28198793	92.66529477	91.08446809	89.53850727	88.02644588
210514A00007	5/14/2021	0.95	5/15/2028		101.31772	99.3835661	97.50782421	95.6882475	93.92269318	92.20911644	90.54556519	88.93017517	87.36116534
210514A00010	5/14/2021	1.34	5/14/2031		104.22717	100.7741209	97.48906734	94.36219209	91.38432867	88.54691366	85.84194288	83.26193096	80.79987414
210514A00033	5/18/2021	2.8	5/18/2028		110.06275	106.1874898	102.4708256	98.90541533	95.4842941	92.20085681	89.0488373	86.022289	83.11556673
210518A00023	5/18/2021	1.17	5/18/2026		101.12062	99.35079536	97.62018394	95.92764015	94.27206268	92.65239103	91.0676036	89.5167159	87.99877892
210525A00004	5/25/2021	1.02	12/19/2025		100.38763	99.02778877	97.69270427	96.38176309	95.09436881	93.82994417	92.58793032	91.36778611	90.16898735
210526A00014	5/26/2021	1.01	12/19/2025		100.37368	99.01393706	97.67895255	96.36810967	95.08081205	93.81648246	92.57456211	91.35450988	90.15580163
210526A00017	5/26/2021	2.13	5/26/2033		114.85393	105.929849	97.77348546	90.31468172	83.49003007	77.24218875	71.51927391	66.27431528	61.46476855
210526A00018	5/26/2021	1.11	5/26/2026		101.03915	99.24910362	97.49912767	95.78807511	94.11484211	92.47836379	90.87761253	89.31159643	87.77935774
210527A00019	5/27/2021	1	5/27/2026		101.07705	99.2797368	97.522779	95.80502089	94.12535172	92.48269977	90.8760307	89.30434597	87.76668131
210527A00026	6/1/2021	2.78	6/1/2028		110.09908	106.1852487	102.433017	98.83488762	95.38375062	92.07286012	88.89581369	85.84653317	82.91924657
210601A00002	6/1/2021	0.9	6/2/2025		99.865597	99.03443538	98.21702554	97.41302905	96.62211819	95.84397581	95.07829493	94.32477833	93.5831382
210603A00008	6/3/2021	1.74	6/3/2036		108.7629	102.7343621	97.17973281	92.05547183	87.32245417	82.945492	78.89290735	75.13615424	71.649484
210603A00015	6/7/2021	2.71	6/7/2028		109.87732	105.9511493	102.1877784	98.57962901	95.11951022	91.8006009	88.61642864	85.56085018	82.62803297
210608A00017	6/10/2021	2.67	6/8/2029		112.42156	107.4358478	102.7025191	98.20750872	93.93760288	89.8803858	86.02418737	82.35803478	78.87160745
210609A00007	6/11/2021	2.6	6/11/2029		112.09931	107.1130736	102.3797577	97.88524165	93.6162616	89.56035588	85.70581256	82.04162071	78.55742496
210609A00013	6/11/2021	1.64	6/11/2025		100.51712	99.6588168	98.81512225	97.98566198	97.17007803	96.36802435	95.57916635	94.80318037	94.03975325
210610A00012	6/11/2021	1.9	6/10/2026		102.57069	100.7258795	98.92313716	97.16125574	95.43907485	93.75547434	92.10937267	90.49972532	88.92552328
210610A00014	6/11/2021	2.03	6/10/2026		102.81392	100.9667747	99.16174141	97.39761173	95.6732241	93.98745724	92.3392285	90.7274923	89.15123864
210611A00006	6/11/2021	1.85	6/11/2031		110.69427	103.787456	97.35794518	91.37034648	85.79205921	80.59304184	75.74559923	71.22418849	67.00524191
210611A00010	6/11/2021	1.02	6/11/2026		100.96175	99.12194009	97.3255536	95.57129349	93.85791496	92.18421846	90.54904766	88.95128759	87.38986289
210611A00011	6/11/2021	1.02	6/11/2026		100.96175	99.12194009	97.3255536	95.57129349	93.85791496	92.18421846	90.54904766	88.95128759	87.38986289
210611A00012	6/11/2021	1.02	6/11/2026		100.96175	99.12194009	97.3255536	95.57129349	93.85791496	92.18421846	90.54904766	88.95128759	87.38986289
210616A00006	2/11/2022	0.86	2/11/2025		99.817945	99.28509153	98.75791293	98.23631911	97.72022162	97.20953385	96.70417101	96.20405008	95.70908974
210616A00007	3/18/2022	0.9	3/18/2025		99.837152	99.20993414	98.59057264	97.97892094	97.37483566	96.77817696	96.18880844	95.60659703	95.03141287

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210616A00008	5/2/2022	0.95	5/2/2025		99.870982	99.12298908	98.38614006	97.66018775	96.94489204	96.24001978	95.54534464	94.86064674	94.1857125
210616A00009	2/11/2022	0.86	2/11/2025		99.817945	99.28509153	98.75791293	98.23631911	97.72022162	97.20953385	96.70417101	96.20405008	95.70908974
210616A00011	5/2/2022	0.95	5/2/2025		99.870982	99.12298908	98.38614006	97.66018775	96.94489204	96.24001978	95.54534464	94.86064674	94.1857125
210616A00012	3/18/2022	0.9	3/18/2025		99.837152	99.20993414	98.59057264	97.97892094	97.37483566	96.77817696	96.18880844	95.60659703	95.03141287
210621A00008	6/21/2021	1.04	6/23/2025		100.01142	99.12338446	98.2510297	97.39394562	96.55173419	95.72401107	94.91040508	94.11055764	93.32412218
210623A00028	6/23/2021	1.22	6/23/2026		101.34989	99.48171241	97.65691967	95.87425261	94.13249408	92.43046995	90.76704732	89.14113272	87.55167055
210624A00004	6/24/2021	1.01	6/24/2025		99.985481	99.09489521	98.22008401	97.36063141	96.51613596	95.68621007	94.87047944	94.06858251	93.28016987
210624A00005	6/24/2021	1.22	6/24/2026		101.35385	99.48293482	97.65552415	95.87035457	94.12620403	92.42189375	90.75628633	89.12828407	87.53682732
210624A00022	6/24/2021	0.87	6/24/2025		99.974062	99.08192871	98.20562219	97.34472416	96.49883128	95.66755416	94.85051677	94.04735589	93.25772056
210624A00025	6/24/2021	1.43	6/24/2027		103.36369	100.4914162	97.71338577	95.02600885	92.42585587	89.90964584	87.47423907	85.11663026	82.83394202
210624A00026	6/24/2021	1.6	6/23/2028		105.65423	101.7660789	98.04180051	94.47365719	91.05432006	87.77684163	84.63463399	81.62144828	78.73135555
210629A00005	6/29/2021	1.25	6/29/2026		101.43136	99.54617478	97.70511658	95.90688921	94.15024561	92.43398316	90.75694177	89.1180021	87.51608385
210629A00009	6/29/2021	1.14	12/31/2025		100.58446	99.19186882	97.82515283	96.48365529	95.16674108	93.87379596	92.60422563	91.35745502	90.13292743
210629A00012	6/29/2021	1.14	12/29/2025		100.57956	99.19222395	97.83057715	96.49397178	95.18177916	93.89339119	92.62821949	91.38569459	90.16526522
210629A00014	6/29/2021	1.78	12/28/2029		108.83718	103.3951895	98.25798408	93.40696303	88.8247531	84.49512024	80.40288939	76.53387028	72.87478875
210629A00015	6/29/2021	1.89	6/27/2031		111.01289	104.0529822	97.57670648	91.5479986	85.93365475	80.70309255	75.82813183	71.28279478	67.04312361
210701A00007	7/1/2021	1.22	7/1/2026		101.38114	99.49114889	97.64551457	95.8429338	94.08214962	92.36195002	90.68116597	89.03866963	87.43337259
210706A00006	7/6/2021	1.15	7/6/2026		101.26276	99.36093127	97.50404355	95.69077109	93.91983149	92.18998855	90.50005029	88.848867	87.2353295
210706A00014	7/6/2021	1.15	6/26/2026		101.22772	99.35264414	97.52128839	95.73238065	93.98468971	92.27702802	90.60824989	88.9772497	87.38296023
210706A00015	7/6/2021	1.06	12/31/2025		100.47019	99.07845457	97.71257573	96.37190111	95.05579598	93.76364646	92.49485862	91.24885773	90.02508742
210707A00002	7/7/2021	1.12	6/26/2026		101.17027	99.29575761	97.46495506	95.67659008	93.92943176	92.22229283	90.55402786	88.92353149	87.32973677
210707A00008	7/9/2021	2.44	7/7/2031		114.87032	107.7534331	101.1302579	94.96394077	89.22056	83.86887751	78.88011376	74.22774262	69.88730438
210709A00002	7/9/2021	1.36	7/9/2029		106.81861	101.8626151	97.16423171	92.7087817	88.48249501	84.47245043	80.66651896	77.05331134	73.6221292
210709A00005	7/9/2021	1.69	7/9/2031		109.64698	102.7027176	96.24407934	90.2346509	84.64092563	79.43205571	74.57962871	70.05746393	65.84142676
210709A00006	7/13/2021	2.4	7/11/2031		114.60643	107.4881584	100.8645916	94.69874403	88.95657376	83.60673631	78.62035804	73.97082974	69.63361836
210712A00008	6/27/2022	1.05	6/27/2025		100.02551	99.12670007	98.24394995	97.37682999	96.52492827	95.68784723	94.86520302	94.05662498	93.261755
210712A00010	6/27/2022	1.05	6/27/2025		100.02551	99.12670007	98.24394995	97.37682999	96.52492827	95.68784723	94.86520302	94.05662498	93.261755
210714A00012	7/14/2021	1.12	7/14/2026		101.25594	99.33013266	97.45146353	95.61846851	93.82974147	92.08392983	90.37973215	88.7158957	87.09121434
210714A00013	7/14/2021	1.12	7/14/2026		101.25594	99.33013266	97.45146353	95.61846851	93.82974147	92.08392983	90.37973215	88.7158957	87.09121434
210714A00014	7/14/2021	1.12	7/14/2026		101.25594	99.33013266	97.45146353	95.61846851	93.82974147	92.08392983	90.37973215	88.7158957	87.09121434
210714A00015	7/14/2021	1.11	7/14/2026		101.21022	99.31093135	97.45797594	95.64992265	93.88539065	92.16305171	90.48162773	88.8398885	87.23664951
210714A00020	7/14/2021	0.9	3/14/2025		99.837022	99.22056535	98.61169969	98.01028516	97.4161855	96.82926776	96.24940221	95.67646222	95.11032418
210719A00004	7/19/2021	1	4/20/2026		100.72415	99.03221893	97.37647602	95.75582994	94.16922931	92.61566509	91.09416841	89.60380848	88.14369074



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210719A00009	7/19/2021	1.04	7/17/2026		101.08236	99.1537232	97.27134912	95.43385048	93.63988762	91.88816994	90.17745376	88.50654022	86.8742734
210720A00035	7/22/2021	2.27	7/21/2031		113.73268	106.6183676	100.0008934	93.84294569	88.11020141	82.77106825	77.79645457	73.15955954	68.83568196
210721A00009	7/21/2021	1.7	7/21/2031		109.73853	102.7608147	96.27313511	90.23859085	84.62323596	79.39583022	74.52761071	69.99208367	65.76483486
210722A00001	7/22/2021	1.1	7/22/2026		101.21668	99.27367564	97.37758324	95.52698488	93.72051332	91.95685175	90.23473155	88.55293018	86.91026916
210722A00008	7/21/2023	1.84	7/22/2030		109.81596	103.7939631	98.14034903	92.83070781	87.84236337	83.15424567	78.74676907	74.60172055	70.70215691
210722A00009	7/21/2023	1.96	7/22/2032		112.5646	104.5319498	97.13306396	90.31462324	84.02805043	78.22906636	72.87728967	67.93587558	63.37118988
210729A00003	7/29/2021	1.11	7/29/2026		101.25907	99.29741646	97.38355872	95.51603883	93.69345122	91.91444272	90.17771012	88.48199805	86.82609678
210729A00004	7/29/2021	1.74	7/29/2031		110.03422	103.0261307	96.5114407	90.45288943	84.81621382	79.56988959	74.68489929	70.13452111	65.8941365
210729A00006	7/29/2021	1.87	11/30/2032		112.15475	103.8002361	96.13137653	89.08836643	82.61689589	76.66762181	71.19569124	66.16031268	61.52437008
210802A00002	8/2/2021	0.7	8/1/2025		99.856288	98.86299746	97.88931555	96.93466652	95.99849733	95.08027616	94.17949141	93.29565077	92.42828026
210803A00005	8/5/2021	2.06	8/4/2026		103.2006	101.2031217	99.2544943	97.35321846	95.49784863	93.68699355	91.9193138	90.1935195	88.50836809
210804A00008	8/6/2021	2.28	8/4/2028		108.5963	104.5384713	100.6556255	96.93929356	93.38145977	89.97453724	86.71134265	83.58507248	80.58928093
210809A00010	8/9/2021	1.06	8/7/2026		101.21287	99.2290722	97.29479748	95.40846812	93.56857048	91.77365047	90.0223107	88.31320782	86.64504994
210809A00012	8/9/2021	1.06	8/7/2026		101.21287	99.2290722	97.29479748	95.40846812	93.56857048	91.77365047	90.0223107	88.31320782	86.64504994
210809A00013	8/9/2021	1.05	8/7/2026		101.16617	99.21040829	97.30330398	95.44331174	93.62894621	91.85878044	90.13144308	88.44561579	86.80003069
210809A00014	8/9/2021	1.06	8/7/2026		101.21287	99.2290722	97.29479748	95.40846812	93.56857048	91.77365047	90.0223107	88.31320782	86.64504994
210809A00015	8/9/2021	1.06	8/7/2026		101.21287	99.2290722	97.29479748	95.40846812	93.56857048	91.77365047	90.0223107	88.31320782	86.64504994
210809A00016	8/9/2021	0.66	8/9/2024		99.913861	99.8050559	99.69650343	99.58820245	99.48015206	99.37235134	99.26479939	99.15749532	99.05043824
210816A00003	8/16/2021	0.71	8/16/2024		99.965694	99.92140704	99.87717669	99.83300309	99.78888614	99.7448257	99.70082167	99.65687395	99.61298241
210817A00013	8/19/2021	2	8/19/2026		103.16815	101.1310425	99.14435473	97.2065129	95.31600148	93.47136312	91.67119592	89.91415091	88.19892962
210818A00005	8/18/2021	0.6	8/19/2024		99.960424	99.90776861	99.85518641	99.80267682	99.75023967	99.69787481	99.64558207	99.59336131	99.54121235
210818A00007	8/18/2021	0.81	8/18/2025		99.997564	98.95795332	97.93980616	96.9424635	95.96529322	95.00768857	94.06906691	93.14886856	92.24655561
210826A00008	8/26/2021	0.89	2/26/2025		99.831098	99.25773039	98.69092014	98.13055535	97.57652665	97.02872712	96.48705226	95.95139987	95.42167002
210826A00009	8/26/2021	1.18	8/26/2026		101.50172	99.4636632	97.47642621	95.53840355	93.64805609	91.80390439	90.00452583	88.24855198	86.53466613
210826A00013	8/26/2021	1.97	2/28/2033		113.22801	104.5953307	96.68919708	89.44460512	82.80267983	76.71007012	71.11840459	65.98380351	61.26644084
210907A00004	9/7/2021	2.01	9/7/2033		114.05424	104.9001073	96.55710281	88.94898274	82.00704072	75.66932601	69.87994764	64.58845357	59.74927619
210907A00006	9/7/2021	2.1	9/7/2034		115.86464	105.6997266	96.52106574	88.22746542	80.72861045	73.94383996	67.80107083	62.23584608	57.19049307
210907A00007	9/7/2021	2.35	9/4/2037		121.41276	108.2369226	96.65854156	86.47377339	77.50580723	69.60115906	62.62648764	56.46585896	51.01839415
210907A00008	9/7/2021	2.42	9/7/2038		123.49856	109.2990249	96.93194523	86.14853545	76.73505906	68.50773361	61.30839537	55.00081026	49.46753194
210907A00009	9/7/2021	2.5	9/7/2039		126.08469	110.8307716	97.65979526	86.27246776	76.41407523	67.86763922	60.44815146	53.99771432	48.38144099
210907A00010	9/7/2021	2.58	9/7/2040		129.16343	112.8073994	98.80356423	86.79572281	76.4835509	67.6135772	59.97165357	53.37666805	47.67529032
210907A00011	9/7/2021	2.65	9/6/2041		132.4449	114.9568069	100.1070633	87.47614146	76.7135881	67.52632546	59.66898337	52.93590219	47.15451129
210907A00013	9/9/2021	2.14	9/9/2025		101.38344	100.2787792	99.19811021	98.14065777	97.1056798	96.09246557	95.10033402	94.12863226	93.17673411

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210907A00014	9/9/2021	2.45	9/9/2026		104.24956	102.144147	100.0917269	98.09060965	96.13916777	94.23583812	92.37911878	90.56756607	88.79979188
210907A00015	9/9/2021	2.21	9/9/2026		103.74044	101.6405286	99.59350389	97.5976746	95.65141638	93.75316903	91.90143345	90.09476871	88.33178934
210913A00014	9/13/2021	1.15	9/13/2028		101.73881	99.58449124	97.50084712	95.48496733	93.5340855	91.64556871	89.81691008	88.04572187	86.32972896
210913A00015	9/13/2021	1.08	9/14/2026		101.28665	99.2955573	97.3553534	95.46435553	93.62095541	91.82361105	90.07084343	88.36123329	86.69341819
210914A00012	9/14/2021	1.18	9/14/2027		103.33785	100.2388748	97.24828862	94.3616759	91.57483293	88.88375249	86.28461331	83.77377019	81.34774466
210914A00014	9/14/2021	0.97	9/14/2026		101.40243	99.30884237	97.26845498	95.27955349	93.34049094	91.44968603	89.60561997	87.80683343	86.05192374
210914A00015	9/14/2021	0.81	9/15/2025		100.05167	98.93671221	97.84641364	96.77996257	95.736584	94.71553618	93.71610884	92.73762157	91.77942219
210914A00017	9/14/2021	1.32	9/14/2028		105.43974	101.3196313	97.38226693	93.61856992	90.01996375	86.57834359	83.28604751	80.13582962	77.12083508
210914A00018	9/14/2021	1.43	9/14/2029		107.3916	102.2426593	97.36963155	92.75630939	88.38752039	84.24905807	80.32761514	76.61072173	73.08668819
210915A00018	9/15/2021	0.74	9/16/2024		99.862155	99.65064179	99.44003937	99.23034184	99.02154327	98.81363782	98.6066197	98.40048316	98.1952225
210915A00023	9/15/2021	0.74	9/16/2024		99.862155	99.65064179	99.44003937	99.23034183	99.02154327	98.81363782	98.6066197	98.40048316	98.1952225
210915A00024	9/15/2021	1.1	9/15/2026		101.41875	99.33892322	97.31286517	95.33878754	93.41498124	91.53980796	89.71169656	87.92913965	86.19069046
210915A00025	9/15/2021	1.09	9/15/2026		101.3664	99.3173111	97.320999	95.37571744	93.47979136	91.63161502	89.82964842	88.07241402	86.35849359
210915A00026	9/15/2021	1.1	9/15/2026		101.41875	99.33892322	97.31286517	95.33878754	93.41498124	91.53980796	89.71169656	87.92913965	86.19069046
210915A00027	9/15/2021	1.1	9/15/2026		101.41875	99.33892322	97.31286517	95.33878754	93.41498124	91.53980796	89.71169656	87.92913965	86.19069046
210916A00003	9/16/2021	0.75	9/16/2024		99.908705	99.7789308	99.64950793	99.52043538	99.39171168	99.26333538	99.13530505	99.00761924	98.88027654
210916A00007	9/16/2021	0.75	9/16/2024		99.908705	99.7789308	99.64950793	99.52043538	99.39171168	99.26333538	99.13530505	99.00761924	98.88027654
210916A00008	9/16/2021	1.48	9/15/2028		105.55244	101.443183	97.51586352	93.76145388	90.171427	86.73772409	83.45272619	80.30922756	77.30041084
210916A00009	9/16/2021	2.25	9/16/2036		119.26476	107.0788014	96.27744359	86.69498587	78.18637735	70.62454844	63.89809956	57.90929723	52.57233517
210917A00003	9/17/2021	0.8	9/17/2024		99.913636	99.78110356	99.64893734	99.51713554	99.3856966	99.25461899	99.12390118	98.99354167	98.86353894
210917A00004	9/17/2021	1.03	9/17/2025		100.16138	99.04257811	97.94859781	96.8786191	95.83185943	94.80756992	93.80503357	92.82356361	91.8625019
210917A00008	9/17/2021	1.55	9/15/2028		105.84314	101.727892	97.79477495	94.03475216	90.43928909	87.00031993	83.710219	80.56177419	77.54816206
210917A00012	9/17/2021	1.2	9/11/2026		101.60585	99.52358767	97.49398563	95.51535283	93.586067	91.70457018	89.8693656	88.07901477	86.33213471
210920A00014	9/9/2022	1.28	9/9/2026		101.76758	99.68900732	97.66288963	95.68755127	93.76137974	91.88282628	90.05040279	88.26267896	86.51827951
210920A00015	9/9/2022	1.28	9/9/2026		101.76758	99.68900732	97.66288963	95.68755127	93.76137974	91.88282628	90.05040279	88.26267896	86.51827951
210921A00006	9/21/2021	1.43	9/21/2028		105.09228	101.1557991	97.39359831	93.7969393	90.35757759	87.06772902	83.92004106	80.9075661	78.02373664
210921A00009	9/21/2021	1.28	9/21/2028		105.01301	101.0683111	97.29858847	93.69505354	90.24941552	86.95384729	83.80095648	80.78375852	77.8956516
210924A00003	9/24/2021	2.37	9/24/2036		120.72622	108.4354401	97.54062167	87.8746213	79.29114448	71.66204721	64.87500064	58.83146645	53.44494043
210924A00004	9/24/2021	2.37	9/24/2036		120.72622	108.4354401	97.54062167	87.8746213	79.29114448	71.66204721	64.87500064	58.83146645	53.44494043
210924A00005	9/24/2021	2.37	9/24/2036		120.72622	108.4354401	97.54062167	87.8746213	79.29114448	71.66204721	64.87500064	58.83146645	53.44494043
210924A00011	9/24/2021	2.19	9/25/2034		116.82491	106.5667633	97.30688773	88.94250476	81.38192091	74.54328041	68.35346396	62.74711571	57.66578315
210928A00007	9/28/2021	0.88	9/27/2024		99.910604	99.75055661	99.59102477	99.43200633	99.27349884	99.11549984	98.95800688	98.80101755	98.64452943
210928A00008	9/28/2021	1.35	9/28/2026		101.99967	99.86686077	97.78882009	95.76376114	93.78996634	91.86578778	89.9896438	88.16001565	86.37544453

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
210928A00009	9/28/2021	2.18	9/28/2033		115.66832	106.3879596	97.93265434	90.22452725	83.19343206	76.77615157	70.9156804	65.56058534	60.66443455
210928A00010	9/28/2021	1.12	9/26/2025		100.28705	99.14340764	98.02566163	96.9329419	95.86441609	94.81928838	93.7967975	92.79621485	91.81684281
210929A00011	3/16/2022	1.03	3/14/2025		99.918276	99.30153454	98.69238632	98.09069167	97.4963143	96.90912122	96.32898267	95.75577199	95.18936554
210929A00012	3/16/2022	1.03	3/14/2025		99.918276	99.30153454	98.69238632	98.09069167	97.4963143	96.90912122	96.32898267	95.75577199	95.18936554
211007A00005	10/7/2021	0.86	10/7/2024		99.866228	99.59498476	99.32522372	99.05693246	98.79009894	98.52471124	98.26075755	97.9982262	97.73710568
211007A00006	10/7/2021	1.28	10/7/2026		101.88649	99.74353503	97.65720447	95.62560564	93.64692412	91.71942036	89.84142595	88.01134002	86.22762593
211014A00012	10/14/2021	1.46	10/14/2031		104.99491	101.2580745	97.71388878	94.3505093	91.15690977	88.12282345	85.23868552	82.49558027	79.8851925
211014A00018	10/14/2021	0.8	10/11/2024		99.906008	99.70726936	99.50933652	99.31220403	99.11586697	98.92032041	98.72555952	98.53157946	98.33837545
211015A00029	10/15/2021	0.98	10/15/2024		99.911762	99.70234312	99.49381543	99.28617353	99.07941171	98.87352432	98.66850574	98.4643504	98.2610528
211015A00031	10/15/2021	1.22	10/15/2025		100.45727	99.26177019	98.09453311	96.95456553	95.84092112	94.75269686	93.68903064	92.6490989	91.63211456
211019A00009	10/19/2021	1.48	10/9/2026		102.33125	100.165643	98.05621752	96.00111867	93.99856413	92.04684495	90.14432192	88.28942198	86.48063504
211019A00011	10/19/2021	1.48	10/16/2026		102.36197	100.177598	98.05027905	95.97811162	93.95927257	91.99201455	90.07466213	88.20560816	86.38331032
211022A00008	10/22/2021	1.12	10/22/2024		99.938532	99.70989113	99.48230662	99.25577086	99.03027656	98.8058165	98.58238353	98.35997056	98.13857058
211026A00012	10/26/2021	1.52	10/26/2026		102.49588	100.2836631	98.1297715	96.03224183	93.98919116	91.99881589	90.0593876	88.1692492	86.32681128
211026A00013	10/26/2021	1.52	10/26/2026		102.49588	100.2836631	98.1297715	96.03224183	93.98919116	91.99881589	90.0593876	88.1692492	86.32681128
211028A00012	10/28/2021	1.64	10/15/2027		104.52777	101.336658	98.25919708	95.29066246	92.42655965	89.66260961	86.99473682	84.41905807	81.93187203
211028A00013	10/28/2021	1.65	10/22/2027		104.59428	101.383621	98.28785452	95.302185	92.42204651	89.64309327	86.96118739	84.37238741	81.8729375
211028A00019	10/28/2021	1.1	10/28/2024		99.931253	99.68618552	99.44232056	99.19964957	98.95816379	98.71785457	98.47871333	98.24073157	98.00390087
211028A00020	10/28/2021	2.05	1/28/2031		111.64732	105.0686049	98.92217481	93.17738912	87.805927	82.78160315	78.08019647	73.67929327	69.55814373
211028A00021	10/28/2021	2.28	10/28/2033		116.67799	107.276456	98.71612189	90.91703685	83.80724336	77.32194327	71.40275099	65.99702819	61.05729069
211110A00012	11/10/2021	1.44	11/10/2026		102.37299	100.1414524	97.97088312	95.85927672	93.8047059	91.80531756	89.85932958	87.96502761	86.12076213
211110A00013	11/10/2021	1.44	11/10/2026		102.37299	100.1414524	97.97088312	95.85927672	93.8047059	91.80531756	89.85932958	87.96502761	86.12076213
211110A00014	11/10/2021	1.44	11/10/2026		102.37299	100.1414524	97.97088312	95.85927672	93.8047059	91.80531756	89.85932958	87.96502761	86.12076213
211115A00032	11/15/2021	1.75	11/12/2027		105.03106	101.7567394	98.60133491	95.55985831	92.62756132	89.79992283	87.07263646	84.44159892	81.90289913
211117A00010	11/17/2021	1.18	11/18/2024		99.954578	99.65208069	99.35142301	99.05258793	98.75555883	98.46031929	98.16685308	97.87514419	97.58517679
211119A00009	11/19/2021	1.68	11/19/2027		104.83685	101.5466434	98.37659401	95.32166197	92.37705165	89.53819487	86.80073863	84.16053367	81.61362368
211123A00011	11/23/2021	1.69	11/23/2026		103.02399	100.7298518	98.49794779	96.32623119	94.21273392	92.15556489	90.15290637	88.20301066	86.30419693
211123A00012	11/23/2021	2.27	11/23/2033		116.67019	107.2014517	98.58590672	90.74198125	83.59629593	77.08280313	71.14202077	65.72034969	60.76946501
211129A00011	11/29/2021	1.53	11/20/2026		102.63713	100.3557231	98.13603943	95.97604037	93.87376772	91.82734071	89.8349523	87.89486578	86.00541149
211129A00012	11/29/2021	1.53	11/25/2026		102.66116	100.3658664	98.13299434	95.96049487	93.84639779	91.78880929	89.78590859	87.83594456	85.93723267
211206A00008	12/6/2021	1.24	12/6/2024		99.979341	99.62771281	99.27855939	98.93185435	98.58757196	98.24568681	97.90617389	97.5690085	97.2341663
211206A00009	12/6/2021	1.43	12/5/2025		100.91427	99.58718491	98.28367202	97.00316156	95.74509831	94.50894445	93.29417893	92.10029675	90.92680843
211206A00010	12/6/2021	1.54	12/4/2026		102.72651	100.4063509	98.14988399	95.95501704	93.81974156	91.742126	89.72031227	87.75251256	85.83700625

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
211206A00017	12/6/2021	1.56	12/4/2026		102.77367	100.4529477	98.19592864	96.00052121	93.8647166	91.7865829	89.76426173	87.79596494	85.87997164
211207A00011	12/7/2021	1.62	12/1/2026		102.90111	100.5867277	98.33566588	96.14585264	94.01529736	91.9420854	89.92437469	87.96039261	86.04843292
211207A00012	12/7/2021	1.62	12/4/2026		102.91515	100.5927381	98.33406257	96.13703374	93.99964172	91.91995362	89.89611009	87.92632209	86.00886779
211207A00017	12/7/2021	1.3	11/15/2024		99.989821	99.69544784	99.40281774	99.11191504	98.82272439	98.5352306	98.2494187	97.96527386	97.68278143
211208A00012	12/8/2021	1.62	12/8/2026		102.90895	100.5993096	98.35462854	96.17270396	94.05142345	91.9887586	89.98276113	88.03155916	86.13335379
211208A00013	12/8/2021	1.63	12/8/2026		102.96971	100.6364987	98.369077	96.1652165	94.02277551	91.93969758	89.9140075	87.94380757	86.02727408
211209A00006	12/9/2021	1.61	12/8/2026		102.91018	100.5773438	98.3087948	96.10241914	93.95618134	91.86812422	89.83636536	87.85909387	85.93456719
211209A00007	12/9/2021	1.61	12/8/2026		102.91018	100.5773438	98.3087948	96.10241914	93.95618134	91.86812422	89.83636536	87.85909387	85.93456719
211210A00014	12/10/2021	1.54	12/10/2025		101.08127	99.73991781	98.42260159	97.12873501	95.85774715	94.60908518	93.38221361	92.17661366	90.99178259
211210A00015	12/10/2021	1.63	12/10/2026		102.96698	100.6282144	98.35403079	96.14229945	93.99097158	91.89807733	89.86172232	87.88008427	85.95140984
211210A00016	12/10/2021	1.76	12/10/2027		105.21486	101.8620068	98.63345286	95.52396206	92.52854254	89.64243767	86.86111366	84.18024797	81.59571833
211213A00011	12/13/2021	1.32	12/13/2024		100.01292	99.64217715	99.27418521	98.90891765	98.54634417	98.18643492	97.82916051	97.47449195	97.12240071
211214A00014	12/14/2021	1.31	12/13/2024		100.00919	99.63844671	99.27046319	98.905204	98.54263884	98.18273788	97.8254717	97.47081133	97.11872824
211214A00015	12/14/2021	1.49	12/12/2025		101.01957	99.6734224	98.35148885	97.05316951	95.77788755	94.52508444	93.29421928	92.0847681	90.89622317
211217A00021	12/21/2021	2.44	12/18/2026		104.94589	102.5620975	100.2445293	97.9909798	95.79933321	93.66755599	91.59369315	89.57586476	87.61226257
211220A00006	12/20/2021	1.21	12/20/2024		99.975241	99.58553489	99.19887132	98.81521424	98.43452858	98.05677982	97.68193398	97.30995758	96.94081769
211221A00010	12/21/2021	1.31	12/20/2024		100.01456	99.62476506	99.23800917	98.85426029	98.47348334	98.09564382	97.72070771	97.34864155	96.97941239
211221A00023	12/21/2021	1.53	6/19/2026		101.92173	100.0587944	98.23886935	96.46071476	94.72313012	93.02495711	91.36507785	89.74241318	88.15592111
211221A00025	12/21/2021	1.59	12/21/2026		102.92258	100.5555045	98.25453936	96.01748017	93.84220668	91.72668136	89.66894566	87.66711644	85.71938264
211222A00003	12/22/2021	1.33	1/15/2025		100.04521	99.58473956	99.12851294	98.67646704	98.22854443	97.78468877	97.3448447	96.90895792	96.47697505
211222A00004	12/22/2021	1.26	10/15/2024		99.970763	99.76125932	99.55264698	99.3449207	99.13807478	98.93210354	98.72700139	98.52276275	98.3193821
211222A00027	12/22/2021	1.26	10/15/2024		99.970763	99.76125932	99.55264698	99.3449207	99.13807478	98.93210354	98.72700139	98.52276275	98.3193821
211222A00029	12/22/2021	1.26	10/15/2024		99.970763	99.76125932	99.55264698	99.3449207	99.13807478	98.93210354	98.72700139	98.52276275	98.3193821
211222A00030	12/22/2021	1.33	1/15/2025		100.04521	99.58473956	99.12851294	98.67646704	98.22854443	97.78468877	97.3448447	96.90895792	96.47697505
211222A00031	12/22/2021	1.33	1/15/2025		100.04521	99.58473956	99.12851294	98.67646704	98.22854443	97.78468877	97.3448447	96.90895792	96.47697505
211222A00035	12/22/2021	2.15	12/22/2033		115.63187	106.1369377	97.50537291	89.65397116	82.50794034	76.00001515	70.0696655	64.6623918	59.72909695
211227A00005	12/27/2021	1.61	12/18/2026		102.95672	100.5970933	98.30316816	96.07275659	93.90375787	91.79415289	89.74200055	87.74543429	85.80265872
211227A00009	12/27/2021	1.6	12/23/2026		102.95588	100.5831533	98.27682683	96.0346828	93.8545875	91.73449065	89.67242161	87.66648578	85.71486123
220104A00006	1/4/2022	1.76	1/4/2029		107.03516	102.9842607	99.12038531	95.43378213	91.9152664	88.55618033	85.34835997	82.28410427	79.35614635
220106A00007	1/6/2022	2.42	1/6/2034		118.21455	108.5643096	99.79189444	91.81253072	84.55004088	77.93593454	71.90859755	66.4125702	61.39790439
220106A00008	1/6/2022	2.5	1/5/2035		120.30991	109.6215958	99.99386766	91.31528335	83.48665522	76.41964829	70.03554325	64.26414587	59.042825
220106A00009	1/6/2022	2.57	1/4/2036		122.27905	110.5606866	100.100292	90.75513037	82.39936884	74.92200038	68.22502925	62.22188667	56.83604615
220106A00010	1/6/2022	2.64	1/6/2037		124.30911	111.5524389	100.2675481	90.27517658	81.41880206	73.56165422	66.58413159	60.38156769	54.86229748

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220106A00011	1/6/2022	2.7	1/6/2038		126.38241	112.5914867	100.4994071	89.88539618	80.55851036	72.35346873	65.1270861	58.75521702	53.13013574
220106A00013	1/6/2022	2.75	1/6/2039		128.5841	113.7496473	100.8558852	89.63504037	79.85770536	71.32716128	63.87456838	57.35488475	51.64340026
220106A00018	1/10/2022	3.11	1/8/2032		120.62831	112.813022	105.5705426	98.85570822	92.62714437	86.84692557	81.48027158	76.49527164	71.86263417
220106A00019	1/10/2022	3.17	1/7/2033		123.22039	114.3163152	106.140227	98.62842022	91.72307842	85.37170509	79.52660929	74.14444315	69.18578605
220111A00002	1/11/2022	1.75	1/16/2026		101.52467	100.0832352	98.66936201	97.28233358	95.92145387	94.58605044	93.27547338	91.98909443	90.72630604
220111A00005	1/11/2022	1.54	1/10/2025		100.18118	99.65431836	99.13301871	98.61719201	98.10675216	97.6016149	97.10169771	96.60691976	96.11720191
220112A00004	1/12/2022	1.55	1/12/2026		101.40283	99.96971045	98.5638507	97.18454017	95.83109433	94.5028517	93.19917288	91.91943966	90.66305413
220112A00005	1/12/2022	1.55	1/12/2026		101.40283	99.96971045	98.5638507	97.18454017	95.83109433	94.5028517	93.19917288	91.91943966	90.66305413
220112A00008	1/12/2022	1.47	11/20/2024		100.04479	99.73666036	99.43043352	99.12609444	98.82362564	98.52300984	98.22422998	97.9272692	97.63211087
220114A00007	1/14/2022	1.7	1/27/2026		101.49693	100.0269411	98.58560993	97.17217634	95.78590334	94.42607941	93.09201736	91.78305329	90.49854563
220114A00009	1/14/2022	1.74	4/21/2026		102.01032	100.3041884	98.63456137	97.00033199	95.40043894	93.83386365	92.29962818	90.79679306	89.32445542
220114A00010	1/14/2022	1.86	1/13/2027		103.69398	101.2570741	98.88982325	96.58984893	94.35486459	92.18267527	90.07117333	88.0183344	86.02221359
220118A00009	1/18/2022	1.65	1/17/2025		100.19768	99.73137625	99.2694117	98.81172835	98.35826677	97.90896859	97.46377655	97.0226344	96.58548695
220121A00013	1/21/2022	1.78	11/3/2025		101.22442	99.97377739	98.75278916	97.56040389	96.39562131	95.25748741	94.14509181	93.05756531	91.99407754
220121A00014	1/21/2022	1.78	11/3/2025		101.22442	99.97377739	98.75278916	97.56040389	96.39562131	95.25748741	94.14509181	93.05756531	91.99407754
220124A00007	1/24/2022	1.88	1/22/2027		103.79139	101.3296339	98.9389127	96.61677034	94.36085332	92.16890339	90.03875306	87.96832136	85.95560985
220124A00008	1/24/2022	1.88	1/22/2027		103.79139	101.3296339	98.9389127	96.61677034	94.36085332	92.16890339	90.03875306	87.96832136	85.95560985
220125A00010	1/25/2022	1.89	1/25/2027		103.83241	101.3622638	98.96360942	96.63397282	94.37097779	92.17234471	90.03588587	87.95950119	85.94117415
220126A00002	1/26/2022	1.9	12/18/2026		103.65173	101.2836611	98.98147507	96.74297916	94.56606733	92.44871542	90.38897748	88.38498228	86.43492995
220126A00003	1/26/2022	1.9	12/18/2026		103.65173	101.2836611	98.98147507	96.74297916	94.56606733	92.44871542	90.38897748	88.38498228	86.43492995
220131A00003	1/31/2022	1.98	2/1/2027		104.09818	101.6059384	99.18632021	96.83678681	94.55490795	92.33835284	90.1848855	88.09236016	86.0587171
220131A00006	1/31/2022	1.83	2/1/2027		104.05005	101.5514209	99.12574247	96.77046023	94.48312891	92.26140352	90.10303459	88.0058636	85.96781875
220201A00011	2/1/2022	1.86	4/20/2026		102.21259	100.5073773	98.83860258	97.20515967	95.6059907	94.04008042	92.50645393	91.0041747	89.53234258
220203A00009	2/3/2022	1.99	2/2/2027		104.13038	101.6347859	99.2119595	96.85936235	94.57455688	92.35520552	90.19906579	88.10398586	86.06790027
220204A00004	2/4/2022	2.08	1/8/2027		104.20754	101.7773637	99.41624468	97.12183292	94.89187423	92.7242041	90.6167436	88.56749549	86.57454043
220204A00005	2/4/2022	1.83	1/10/2025		100.26607	99.81857462	99.37507619	98.93552026	98.49985431	98.06802677	97.63998693	97.21568501	96.7950721
220209A00010	2/9/2022	2.14	1/11/2027		104.37296	101.9328353	99.56225486	97.25884871	95.02033945	92.84454068	90.72935281	88.67275898	86.6728213
220209A00011	2/9/2022	2.14	1/11/2027		104.37296	101.9328353	99.56225486	97.25884871	95.02033945	92.84454068	90.72935281	88.67275898	86.6728213
220209A00012	2/9/2022	1.98	7/29/2025		101.00813	100.018505	99.04819837	98.09664657	97.16331005	96.2476698	95.34922635	94.46749886	93.60202428
220209A00013	2/9/2022	1.98	7/29/2025		101.00813	100.018505	99.04819837	98.09664657	97.16331005	96.2476698	95.34922635	94.46749886	93.60202428
220211A00010	2/11/2022	1.99	2/11/2025		100.45049	99.90081287	99.35752452	98.82050995	98.2896586	97.76486253	97.24601632	96.73301701	96.22576404
220214A00010	2/14/2022	2.46	12/21/2029		112.50684	106.9852277	101.7703097	96.84347212	92.18732701	87.78562115	83.62315659	79.68571701	75.95999956
220214A00012	2/14/2022	2.47	12/28/2029		112.59542	107.0528112	101.8190136	96.87523428	92.20391401	87.788643	83.61408027	79.66587876	75.93061615



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220216A00002	2/16/2022	2.09	2/14/2025		100.49091	99.94785707	99.41066789	98.8792491	98.35350798	97.83335379	97.31869769	96.80945274	96.30553384
220216A00003	2/16/2022	2.49	12/14/2029		112.63495	107.1285655	101.9269839	97.0117699	92.36569519	87.97265225	83.81757592	79.88637099	76.16584505
220217A00011	2/17/2022	2.08	2/14/2025		100.48543	99.94239599	99.40522381	98.8738219	98.34809753	97.82795995	97.31332035	96.80409177	96.30018911
220217A00012	2/17/2022	2.28	2/16/2027		104.97136	102.4235667	99.95080779	97.55043039	95.21989069	92.95675086	90.75867392	88.62341884	86.54883592
220217A00013	2/17/2022	2.08	2/14/2025		100.48543	99.94239599	99.40522381	98.8738219	98.34809753	97.82795995	97.31332035	96.80409177	96.30018911
220217A00015	2/17/2022	2.28	2/16/2027		104.97136	102.4235667	99.95080779	97.55043039	95.21989069	92.95675086	90.75867392	88.62341884	86.54883592
220217A00016	2/17/2022	2.24	9/15/2026		103.84517	101.7276475	99.66374674	97.65174262	95.68997762	93.77686025	91.91086184	90.09051353	88.31440342
220217A00017	2/17/2022	2.27	1/29/2027		104.80852	102.3154556	99.89477018	97.5439418	95.26055628	93.04229797	90.88694499	88.79236487	86.75651031
220217A00018	2/17/2022	2.28	2/17/2027		104.97917	102.4283072	99.95263242	97.54947975	95.21629813	92.95064293	90.75017075	88.61263449	86.53587876
220217A00020	2/17/2022	2.08	2/13/2025		100.48235	99.94203232	99.40751893	98.87871893	98.35554093	97.83789552	97.32569518	96.8188542	96.31728868
220217A00027	2/16/2024	2.56	2/17/2032		116.69766	108.9176944	101.7186083	95.05387819	88.8809369	83.16081896	77.85783833	72.93929674	68.37521926
220218A00003	2/18/2022	2.16	9/4/2026		103.60123	101.5165412	99.48411571	97.50229467	95.56948144	93.68414195	91.8448018	90.0500434	88.29850335
220222A00018	2/22/2022	2.5	12/19/2031		115.99233	108.3977321	101.3594625	94.83381523	88.78072826	83.16346342	77.94831535	73.10434698	68.6031494
220224A00010	2/24/2022	2.04	3/10/2025		100.53686	99.92874379	99.32797973	98.73443066	98.14796704	97.56846241	96.9957933	96.42983918	95.87048233
220224A00018	2/24/2022	2.15	3/16/2026		102.49157	100.8782802	99.29808485	97.75003158	96.23320393	94.74672022	93.28973185	91.86142172	90.46100276
220224A00023	2/24/2022	2.15	3/16/2026		102.49157	100.8782802	99.29808485	97.75003158	96.23320393	94.74672022	93.28973185	91.86142172	90.46100276
220225A00014	2/25/2022	2.42	2/23/2029		110.54585	105.8911149	101.4604173	97.24178009	93.22393517	89.39627338	85.74880226	82.27210689	78.95731336
220225A00015	2/25/2022	2.26	2/25/2027		104.98988	102.4151706	99.91682253	97.49211288	95.1384326	92.8532825	90.63426784	88.47909316	86.38555747
220301A00013	3/1/2022	2.01	2/16/2027		104.27968	101.7408414	99.27683528	96.88501542	94.56284398	92.30788889	90.11781865	87.99039754	85.92348096
220301A00014	3/1/2022	1.85	1/10/2025		100.27509	99.82757531	99.38405312	98.9444736	98.50878421	98.07693337	97.64887038	97.22454546	96.80390969
220301A00015	3/1/2022	2	1/4/2027		103.98851	101.5715698	99.22302849	96.94057476	94.72198499	92.56512362	90.46793916	88.42846031	86.44479233
220302A00010	3/2/2022	2.14	1/13/2027		104.38507	101.9395259	99.56383082	97.25559604	95.01252951	92.83243095	90.71318762	88.65277025	86.64922919
220302A00011	3/2/2022	2.14	1/13/2027		104.38507	101.9395259	99.56383082	97.25559604	95.01252951	92.83243095	90.71318762	88.65277025	86.64922919
220304A00004	3/4/2022	2.12	12/29/2028		108.8342	104.3735832	100.1215879	96.06739807	92.20081043	88.51219944	84.99248158	81.63308209	78.42590394
220308A00011	3/8/2022	2.07	1/10/2025		100.37436	99.92658285	99.48279945	99.04296038	98.6070131	98.17490599	97.74658837	97.32201041	96.90112318
220308A00012	3/8/2022	2.51	3/8/2032		113.68073	107.2225343	101.2205312	95.63904102	90.44539456	85.60965882	81.1043928	76.90442627	72.98665935
220309A00010	3/9/2022	2.27	3/8/2027		105.09196	102.4857068	99.95740595	97.50424932	95.12354891	92.81273126	90.56933175	88.3909891	86.27544035
220310A00008	3/10/2022	2.22	3/10/2025		100.75498	100.0695254	99.3934381	98.72653065	98.06861657	97.41951436	96.77904741	96.14704377	95.52333607
220310A00009	3/10/2022	2.31	3/10/2027		105.1419	102.5634394	100.0631535	97.63815968	95.28570299	93.00314957	90.78798044	88.63778552	86.55025805
220310A00010	3/10/2022	2.31	3/10/2027		105.1419	102.5634394	100.0631535	97.63815968	95.28570299	93.00314957	90.78798044	88.63778552	86.55025805
220311A00013	3/15/2022	2.35	3/15/2027		105.34912	102.7207935	100.1714819	97.69832145	95.29857227	92.96961188	90.70892955	88.51412061	86.38288116
220314A00004	3/14/2022	2.44	3/12/2027		105.56514	102.9419512	100.3974208	97.92870492	95.53308299	93.20795081	90.95081471	88.75928605	86.63107601
220314A00005	3/14/2022	2.36	3/14/2025		100.74957	100.1299116	99.51787262	98.91331216	98.3160936	97.72608362	97.14315209	96.56717201	95.99801942

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220314A00006	3/14/2022	2.36	3/14/2025		100.74957	100.1299116	99.51787262	98.91331216	98.3160936	97.72608362	97.14315209	96.56717201	95.99801942
220314A00007	3/14/2022	2.44	3/12/2027		105.56514	102.9419512	100.3974208	97.92870492	95.53308299	93.20795081	90.95081471	88.75928605	86.63107601
220314A00008	3/14/2022	2.38	7/28/2025		101.40373	100.4146728	99.44485826	98.49372852	97.56074758	96.64539975	95.74718873	94.86563666	94.00028332
220314A00009	3/14/2022	2.38	7/28/2025		101.40373	100.4146728	99.44485826	98.49372852	97.56074758	96.64539975	95.74718873	94.86563666	94.00028332
220315A00014	3/15/2022	2.78	3/15/2032		118.50523	110.5844876	103.2587341	96.47998442	90.20436808	84.39175358	79.00541157	74.01170972	69.37983659
220315A00015	3/15/2022	3.18	3/13/2037		131.26963	117.925246	106.1267515	95.68436347	86.43260428	78.22707491	70.94166974	64.46617185	58.70417526
220315A00018	3/15/2022	2.43	3/15/2027		105.56001	102.9288793	100.3768258	97.90098589	95.4986176	93.16709664	90.90391049	88.70665278	86.57301796
220315A00036	3/17/2022	2.63	3/16/2027		106.09484	103.4539157	100.8923722	98.40733444	95.99604825	93.65587798	91.38430026	89.17889841	87.03735711
220315A00037	3/17/2022	2.63	3/16/2027		106.09484	103.4539157	100.8923722	98.40733444	95.99604825	93.65587798	91.38430026	89.17889841	87.03735711
220317A00011	3/17/2022	2.48	3/17/2025		100.83774	100.2096578	99.58939998	98.97681793	98.37176959	97.77411639	97.1837232	96.60045813	96.02419248
220317A00023	5/3/2022	2.52	5/2/2025		101.06412	100.3111395	99.56935193	98.83851254	98.1183803	97.4087212	96.70930805	96.01992013	95.34034308
220317A00026	5/3/2022	2.59	5/3/2027		106.35623	103.5807428	100.8919875	98.28669733	95.76175091	93.31416674	90.94109578	88.63981449	86.40771822
220317A00027	5/3/2022	2.59	5/3/2027		106.35623	103.5807428	100.8919875	98.28669733	95.76175091	93.31416674	90.94109578	88.63981449	86.40771822
220317A00028	5/3/2022	2.59	5/3/2027		106.35623	103.5807428	100.8919875	98.28669733	95.76175091	93.31416674	90.94109578	88.63981449	86.40771822
220323A00016	6/2/2022	2.78	6/2/2025		101.45488	100.6163998	99.79176077	98.98061823	98.18264287	97.397516	96.62492911	95.86458355	95.11619003
220323A00017	6/2/2022	2.78	6/2/2025		101.45488	100.6163998	99.79176077	98.98061823	98.18264287	97.397516	96.62492911	95.86458355	95.11619003
220324A00007	3/24/2022	2.72	3/24/2025		101.02506	100.3773722	99.73797911	99.10672651	98.48345959	97.86802739	97.26028275	96.66008217	96.0672857
220324A00015	3/24/2022	2.79	3/3/2026		103.43507	101.8484342	100.2938752	98.77048692	97.27739725	95.8137663	94.378785	92.97167364	91.59168057
220325A00010	3/28/2022	2.78	3/21/2025		101.04858	100.4089263	99.77736703	99.15375151	98.53793036	97.92975794	97.32909222	96.73579468	96.1497302
220325A00011	3/28/2022	2.79	4/25/2025		101.23055	100.495772	99.77164926	99.05795066	98.35445225	97.66093645	96.97719178	96.30301275	95.63819956
220325A00012	3/28/2022	2.85	3/23/2026		103.69211	102.0499955	100.4417946	98.86651922	97.32322184	95.81099123	94.32895073	92.87625661	91.45209649
220325A00015	3/28/2022	2.86	3/23/2027		106.75944	104.0908442	101.502836	98.99247425	96.55694846	94.19356958	91.89976398	89.67306756	87.51112031
220325A00017	3/28/2022	2.86	3/23/2027		106.75944	104.0908442	101.502836	98.99247425	96.55694846	94.19356958	91.89976398	89.67306756	87.51112031
220325A00018	3/28/2022	2.85	9/10/2026		105.10663	102.9891826	100.925036	98.9124863	96.94989554	95.03569048	93.16835956	91.34644997	89.56856484
220325A00019	3/28/2022	2.86	3/23/2027		106.75944	104.0908442	101.502836	98.99247425	96.55694846	94.19356958	91.89976398	89.67306756	87.51112031
220325A00020	3/28/2022	2.86	3/23/2027		106.75944	104.0908442	101.502836	98.99247425	96.55694846	94.19356958	91.89976398	89.67306756	87.51112031
220329A00007	3/29/2022	2.94	3/29/2029		113.20434	108.395176	103.820541	99.46771113	95.32472753	91.38034256	87.62397335	84.04565867	80.63601887
220329A00009	3/29/2022	2.94	3/29/2029		113.20434	108.395176	103.820541	99.46771113	95.32472753	91.38034256	87.62397335	84.04565867	80.63601887
220331A00010	3/31/2022	2.83	2/18/2026		103.38531	101.8367139	100.3190162	98.83136639	97.3729406	95.94294461	94.54061264	93.16520605	91.81601212
220331A00011	3/31/2022	2.73	10/15/2024		100.28052	100.0705694	99.86151263	99.65334336	99.44605586	99.23964447	99.03410355	98.82942755	98.62561094
220331A00012	3/31/2022	2.81	3/17/2025		101.04673	100.4179057	99.79691274	99.18360195	98.5778312	97.97946186	97.38835867	96.80438967	96.22742608
220401A00009	4/1/2022	2.98	4/1/2027		107.15577	104.4575466	101.8413323	99.3041166	96.84301866	94.45528359	92.13827572	89.8894726	87.70645918
220404A00010	4/4/2022	2.93	4/2/2027		107.03031	104.3310137	101.7138436	99.17577871	96.71393165	94.32554113	92.00796559	89.75867705	87.5752553

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220404A00014	4/4/2022	2.94	4/5/2027		107.08331	104.3749866	101.7492692	99.20310881	96.73359364	94.33793943	92.01348308	89.75767635	87.56808
220407A00014	4/7/2022	3.14	4/6/2029		111.82037	107.7449632	103.8594175	100.1536082	96.61801329	93.24367408	90.02215828	86.94552583	84.00629718
220407A00017	4/7/2022	3.16	4/6/2029		112.71874	108.3764445	104.2410162	100.3012903	96.5467689	92.96757973	89.5544354	86.2985951	83.19182919
220408A00012	4/8/2022	3.12	6/29/2026		105.02787	103.1072346	101.2313999	99.39905339	97.60892977	95.85980877	94.15051332	92.47990772	90.84689592
220408A00013	4/8/2022	3.15	1/14/2027		106.88675	104.4072848	101.9985067	99.65799702	97.38343633	95.17259819	93.02334478	90.93362281	88.90145965
220408A00014	4/8/2022	3.12	6/29/2026		105.02787	103.1072346	101.2313999	99.39905339	97.60892977	95.85980877	94.15051332	92.47990772	90.84689592
220411A00002	4/11/2022	3.18	4/9/2027		107.76737	105.0386367	102.3933451	99.8284042	97.34086333	94.92790185	92.5868223	90.31504405	88.1100973
220411A00008	4/11/2022	3.02	4/12/2027		107.62494	104.9146728	102.2887644	99.74406468	97.27756205	94.88637743	92.56775722	90.31906692	88.13778507
220412A00010	4/12/2022	3.09	3/15/2027		107.29987	104.6455865	102.0709132	99.57296748	97.14899156	94.79634589	92.51250326	90.29504316	88.14164649
220412A00016	4/12/2022	3.09	3/19/2027		107.33534	104.6698088	102.0844641	99.5763968	97.14282005	94.78106687	92.48858431	90.26292762	88.10175486
220412A00017	4/12/2022	3.09	3/19/2027		107.33534	104.6698088	102.0844641	99.5763968	97.14282005	94.78106687	92.48858431	90.26292762	88.10175486
220412A00018	4/12/2022	3.09	3/15/2027		107.29987	104.6455865	102.0709132	99.57296748	97.14899156	94.79634589	92.51250326	90.29504316	88.14164649
220418A00015	4/22/2022	3.03	7/28/2025		102.05336	101.0608204	100.0875707	99.13305205	98.19672743	97.27808013	96.37661287	95.49184686	94.62332096
220418A00016	4/22/2022	3.11	9/15/2026		105.70511	103.567325	101.4835704	99.45210934	97.47127282	95.53945844	93.65512702	91.81679957	90.02305442
220419A00014	4/19/2022	3.06	4/18/2025		101.38717	100.670686	99.96432738	99.26788214	98.58114243	97.90390617	97.23597686	96.57716339	95.92727987
220419A00015	4/19/2022	3.14	4/17/2026		104.40011	102.68367	101.0037078	99.35912765	97.74887545	96.17193918	94.62734688	93.11416462	91.63149457
220419A00016	4/19/2022	3.21	4/19/2027		107.9431	105.1841528	102.5102559	99.91823523	97.4050572	94.9678233	92.60376296	90.31022688	88.0846807
220420A00032	4/20/2022	3.26	10/16/2026		106.31923	104.0901028	101.9189574	99.80385874	97.7429577	95.73448193	93.77673191	91.86807734	90.0069536
220420A00033	4/20/2022	3.29	4/20/2027		108.17139	105.4065069	102.7269101	100.1294091	97.61095979	95.16865382	92.79971134	90.50147428	88.27139998
220420A00034	6/15/2022	3.3	6/15/2027		108.72765	105.8017631	102.9704839	100.2302477	97.5776468	95.00941963	92.5224439	90.11372972	87.78041325
220420A00037	6/15/2022	3.3	6/15/2027		108.72765	105.8017631	102.9704839	100.2302477	97.5776468	95.00941963	92.5224439	90.11372972	87.78041325
220420A00061	6/15/2022	3.3	6/15/2027		108.72765	105.8017631	102.9704839	100.2302477	97.5776468	95.00941963	92.5224439	90.11372972	87.78041325
220421A00012	4/21/2022	3.31	4/21/2026		104.73189	103.0014522	101.3079605	99.65029706	98.02738862	96.43820524	94.88175795	93.35709671	91.86330847
220421A00013	4/21/2022	3.33	9/15/2026		106.17544	104.0325308	101.9437557	99.90737449	97.92171528	95.98517292	94.09620557	92.25333167	90.45512708
220421A00014	4/21/2022	3.24	5/30/2025		101.82212	100.9900517	100.1715709	99.36634881	98.57406512	97.79440976	97.02708253	96.27179266	95.52825846
220421A00015	4/21/2022	3.12	9/16/2024		100.21777	100.0876762	99.95793968	99.82855411	99.69951807	99.5708301	99.44248875	99.3144926	99.18684021
220421A00016	4/21/2022	3.31	4/21/2026		104.73189	103.0014522	101.3079605	99.65029706	98.02738862	96.43820524	94.88175795	93.35709671	91.86330847
220422A00014	4/22/2022	3.36	9/29/2026		106.37862	104.1945464	102.0663529	99.99221596	97.97038482	95.99917971	94.07698839	92.20226281	90.37351598
220425A00026	4/25/2022	3.13	2/25/2026		103.92278	102.3490308	100.8068899	99.2954749	97.81393397	96.36144635	94.93722109	93.54049566	92.17053463
220425A00027	4/29/2022	3.15	8/20/2026		105.55035	103.4854468	101.4715709	99.50712533	97.59057624	95.7204486	93.89532361	92.11383608	90.37467194
220425A00028	4/29/2022	3.16	4/23/2027		107.84376	105.0750505	102.3919884	99.79136381	97.27011129	94.82530241	92.45413862	90.15394434	87.92216056
220426A00004	4/26/2022	3.41	4/26/2032		123.60593	115.3792837	107.7746585	100.7414184	94.23331343	88.20807896	82.62707144	77.45493995	72.65932903
220427A00011	4/29/2022	3.15	4/29/2027		107.87209	105.0862897	102.3870904	99.77123047	97.23559451	94.77720724	92.39322617	90.08093449	87.83773445

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220428A00016	5/2/2022	3.09	10/15/2024		100.35638	100.1463188	99.9371532	99.72887544	99.5214798	99.31496061	99.10931225	98.90452914	98.70060576
220428A00019	4/28/2022	3.27	4/28/2027		108.19368	105.4061933	102.7052568	100.0876128	97.55015079	95.08990028	92.70402308	90.38980638	88.14465611
220429A00002	4/29/2022	3.63	4/29/2032		125.33626	117.0357761	109.3621107	102.2642494	95.69559733	89.61357529	83.97925284	78.7570171	73.91427318
220429A00007	4/29/2022	3.14	10/29/2024		100.43969	100.1910375	99.94361464	99.69741366	99.45242557	99.20864144	98.96605242	98.72464974	98.48442474
220502A00025	5/2/2022	3.21	5/2/2025		101.5885	100.8333202	100.0893622	99.35637503	98.63411718	97.92235431	97.22085884	96.52940972	95.84779219
220502A00030	5/4/2022	3.24	6/20/2025		101.9765	101.0869771	100.2129724	99.35408454	98.50992354	97.68011265	96.86428789	96.06209752	95.27320152
220506A00016	5/6/2022	3.35	5/6/2027		108.49063	105.6772477	102.9517832	100.3109318	97.75153735	95.27058401	92.86518922	90.53259654	88.27016916
220509A00013	7/15/2022	3.37	7/15/2027		109.21615	106.2011613	103.2861986	100.4673975	97.74106262	95.10366213	92.55181891	90.08230312	87.69202486
220509A00014	7/15/2022	3.37	7/15/2027		109.21615	106.2011613	103.2861986	100.4673975	97.74106262	95.10366213	92.55181891	90.08230312	87.69202486
220509A00016	7/15/2022	3.37	7/15/2027		109.21615	106.2011613	103.2861986	100.4673975	97.74106262	95.10366213	92.55181891	90.08230312	87.69202486
220510A00015	5/13/2022	3.13	11/3/2025		102.9374	101.6753174	100.4430785	99.23963208	98.06397239	96.91514037	95.79222075	94.69433961	93.62066204
220510A00016	5/13/2022	3.23	5/5/2027		108.14799	105.3420959	102.6238491	99.98995043	97.43725155	94.96274458	92.56355468	90.23693306	87.98025049
220511A00002	5/11/2022	3.18	5/12/2025		101.634	100.8516253	100.0813012	99.32274835	98.57569812	97.83989004	97.11507143	96.40099716	95.69742933
220511A00015	5/11/2022	3.29	5/11/2027		108.37026	105.5450838	102.8085787	100.1574238	97.5884421	95.09859646	92.68498252	90.34482191	88.07545581
220512A00013	5/12/2022	3.18	5/12/2027		108.07199	105.2483137	102.5133708	99.8638368	97.29653331	94.80842156	92.39659543	90.05827465	87.79079837
220518A00009	5/18/2022	3.38	5/18/2028		112.27932	108.3619025	104.6043487	100.9992665	97.53964488	94.21883461	91.0305274	87.96873644	85.02777811
220519A00010	5/19/2022	3.15	11/19/2026		106.38547	104.062698	101.8024425	99.60263844	97.46130337	95.37653349	93.34649984	91.36944483	89.44367892
220520A00006	5/20/2022	3.02	5/20/2027		107.78996	105.0279867	102.3543762	99.76580091	97.25908193	94.83117724	92.47917506	90.20028749	87.99184451
220526A00010	5/26/2022	3	5/26/2026		104.49736	102.6748081	100.892926	99.15055609	97.44657835	95.77991213	94.1495147	92.55437955	90.99353491
220526A00011	5/26/2022	3.29	5/24/2029		115.3244	110.3103158	105.5471252	101.020947	96.7187413	92.62825231	88.73795748	85.03701968	81.51524301
220527A00014	5/27/2022	2.99	5/27/2026		104.48761	102.6624776	100.8781263	99.13339612	97.42716655	95.75835634	94.12592194	92.52885582	90.96618506
220527A00015	5/27/2022	3.03	5/27/2027		107.78106	104.9211181	102.1522268	99.47099508	96.874179	94.35867289	91.92150282	89.55982021	87.27089577
220601A00024	6/1/2022	3.09	6/2/2025		101.71694	100.8772557	100.0514246	99.23910368	98.43996343	97.65368486	96.87995922	96.1184876	95.36898049
220601A00038	6/3/2022	3.69	5/28/2032		126.0099	117.6047757	109.8396354	102.6620575	96.02417406	89.88225681	84.19633933	78.92987575	74.0494318
220602A00039	6/2/2022	3.11	6/2/2027		108.4441	105.5496973	102.7480163	100.0356036	97.40914967	94.86548546	92.40157582	90.01451305	87.70151085
220609A00034	10/3/2022	3.32	9/30/2024		100.31928	100.15046	99.98220167	99.81450582	99.64736964	99.48079037	99.31476525	99.14929155	98.98436654
220610A00068	6/10/2022	3.09	6/10/2025		101.02451	100.5277206	100.0370743	99.55244911	99.0737225	98.60077529	98.13349171	97.67175925	97.21546855
220615A00010	6/15/2022	3.86	6/15/2027		110.34583	107.3964285	104.5422069	101.7795834	99.10513217	96.51557459	94.0077718	91.57871805	89.22553426
220617A00030	6/17/2022	3.43	6/17/2025		101.14129	100.6407344	100.1464181	99.65820882	99.17598119	98.69961344	98.22898733	97.76398792	97.30450355
220622A00006	6/22/2022	3.58	6/22/2027		109.60902	106.6508087	103.7887366	101.0191609	98.33859989	95.74372234	93.23133998	90.79840062	88.44198149
220623A00005	6/23/2022	3.45	6/23/2027		109.24083	106.285221	103.425793	100.6588984	97.98105057	95.38891352	92.87929463	90.44913766	88.0955161
220624A00003	6/24/2022	3.5	6/24/2027		109.39652	106.435844	103.5715813	100.8000712	98.11781589	95.52146916	93.00782856	90.57382854	88.21653383
220624A00016	6/24/2022	3.34	6/24/2026		105.65408	103.7364329	101.8632818	100.0333281	98.24532098	96.49805388	94.79036285	93.12112466	91.4892551

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220624A00033	6/24/2022	3.5	6/24/2027		109.39652	106.435844	103.5715813	100.8000712	98.11781589	95.52146916	93.00782856	90.57382854	88.21653383
220624A00044	6/24/2022	3.43	6/24/2025		102.17778	101.2764552	100.3910394	99.52111238	98.66626988	97.82612175	97.00029121	96.18841422	95.39013904
220627A00055	6/27/2022	3.55	6/26/2026		105.82376	103.9035664	102.027955	100.1956262	98.4053257	96.65584348	94.94601234	93.2747059	91.64083694
220628A00034	6/28/2022	3.61	6/28/2027		109.75874	106.7815912	103.9016865	101.1153228	98.41896109	95.80921629	93.28284925	90.8367598	88.46797996
220628A00044	8/15/2022	3.6	8/13/2027		110.19318	107.0848327	104.0817852	101.1798761	98.37513051	95.66375381	93.04212196	90.50677297	88.05439857
220628A00052	8/15/2022	3.6	8/13/2027		110.19318	107.0848327	104.0817852	101.1798761	98.37513051	95.66375381	93.04212196	90.50677297	88.05439857
220628A00053	8/15/2022	3.6	8/13/2027		110.19318	107.0848327	104.0817852	101.1798761	98.37513051	95.66375381	93.04212196	90.50677297	88.05439857
220629A00003	6/29/2022	3.59	6/29/2027		109.71058	106.7313535	103.8495241	101.0613846	98.36338752	95.75213934	93.22439322	90.77704169	88.4071099
220629A00034	6/29/2022	3.51	6/29/2027		104.45914	102.9447764	101.4675275	100.0261752	98.61955505	97.24654926	95.906085	94.59713199	93.31870055
220630A00036	6/30/2022	3.42	6/30/2027		109.22268	106.2478449	103.3704121	100.5866639	97.893049	95.28617047	92.76277833	90.31976226	87.95414478
220630A00044	6/30/2022	3.34	6/30/2025		102.14162	101.2242373	100.3233275	99.43844846	98.56917494	97.71509676	96.87581797	96.05095626	95.24014238
220630A00045	6/30/2022	3.39	6/30/2026		105.55708	103.6284733	101.7448851	99.90499905	98.10754214	96.35128673	94.63504869	92.9576856	91.31809495
220630A00057	6/30/2022	3.34	6/30/2025		102.14162	101.2242373	100.3233275	99.43844846	98.56917494	97.71509676	96.87581797	96.05095626	95.24014238
220701A00024	7/1/2022	3.08	7/1/2025		101.90899	100.9900743	100.087712	99.20146085	98.3308922	97.47559242	96.63516235	95.80921662	94.99738308
220701A00049	7/1/2022	3.19	7/1/2025		102.01076	101.0913336	100.1884692	99.30172219	98.43066384	97.5748804	96.73397258	95.90755488	95.09525505
220701A00050	7/1/2022	3.26	7/1/2027		108.76276	105.7920257	102.9187005	100.1390625	97.44955602	94.84678039	92.32748207	89.88854749	87.52699622
220705A00011	7/5/2022	3.14	7/7/2025		102.00869	101.073087	100.1546404	99.25288285	98.36736212	97.49764227	96.64330284	95.8039382	94.97915685
220706A00032	7/6/2022	3.15	7/6/2027		108.88014	105.8851501	102.9889806	100.1878309	97.47807216	94.85623478	92.31900022	89.86319369	87.48577706
220707A00041	7/7/2022	3.41	7/7/2025		102.26294	101.3260484	100.4063285	99.50331379	98.61655177	97.74560614	96.89005613	96.04949578	95.22353331
220711A00021	7/11/2022	3.27	7/11/2025		102.28487	101.3353247	100.4034147	99.48865178	98.59056539	97.70870211	96.84262482	95.99191201	95.15615706
220712A00016	7/15/2022	3.35	1/15/2026		103.87165	102.4148779	100.9858806	99.58393443	98.20833896	96.85841736	95.53351553	94.23300111	92.9562626
220715A00001	7/15/2022	3.44	7/15/2027		109.42421	106.406114	103.4881219	100.6663661	97.93714891	95.29693606	92.74234821	90.27015335	87.87725949
220715A00027	7/15/2022	3.44	7/15/2027		109.42421	106.406114	103.4881219	100.6663661	97.93714891	95.29693606	92.74234821	90.27015335	87.87725949
220715A00047	7/15/2022	3.44	7/15/2027		109.42421	106.406114	103.4881219	100.6663661	97.93714891	95.29693606	92.74234821	90.27015335	87.87725949
220719A00004	7/19/2022	3.46	7/19/2027		109.52199	106.491674	103.5622088	100.7296818	97.99035532	95.34065725	92.77717285	90.29663676	87.89592561
220722A00036	7/22/2022	3.34	7/22/2025		101.20055	100.659649	100.1260818	99.59968065	99.08028519	98.56774014	98.06189504	97.56260409	97.06972595
220722A00044	9/1/2022	3.23	9/1/2027		109.24052	106.0948735	103.0572171	100.1232176	97.28874633	94.54986479	91.90281441	89.3440072	86.87001694
220722A00049	9/15/2022	3.25	9/15/2025		102.6746	101.5460285	100.4422711	99.36251706	98.30598899	97.27194276	96.25966576	95.26847523	94.29771671
220722A00050	9/15/2022	3.25	9/15/2025		102.6746	101.5460285	100.4422711	99.36251706	98.30598899	97.27194276	96.25966576	95.26847523	94.29771671
220722A00051	9/15/2022	3.23	9/15/2027		109.37452	106.187634	103.1112058	100.1407612	97.27203528	94.50096208	91.82366356	89.23643987	86.7357599
220727A00004	7/27/2022	3.23	7/27/2027		108.90742	105.8648614	102.9243396	100.0818707	97.33364577	94.67602619	92.10553463	89.61884708	87.21278517
220727A00009	7/27/2022	3.31	7/28/2025		102.3332	101.3391609	100.3644314	99.40845295	98.47068798	97.55061937	96.64774943	95.76159895	94.8917064
220727A00027	7/27/2022	3.23	7/27/2027		108.90742	105.8648614	102.9243396	100.0818707	97.33364577	94.67602619	92.10553463	89.61884708	87.21278517



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220727A00035	10/24/2022	3.33	10/24/2029		116.77891	111.3044538	106.1242256	101.2207764	96.57778542	92.17998519	88.01308713	84.06371334	80.31933334
220727A00049	7/27/2022	3.31	7/25/2025		102.30972	101.3239187	100.3571204	99.4087761	98.4783609	97.56536947	96.66931538	95.78973016	94.92616248
220729A00035	8/3/2022	3.14	8/3/2027		108.69885	105.6405657	102.6854309	99.82938662	97.06856169	94.39925896	91.81794637	89.3212485	86.90593873
220729A00043	7/29/2022	3.04	7/29/2027		108.35326	105.3137107	102.3763484	99.53717087	96.79235636	94.13825396	91.57137513	89.08838541	86.68609673
220729A00045	7/29/2022	3.03	7/29/2027		108.32315	105.2840574	102.3471389	99.50839413	96.76400168	94.11031099	91.54383386	89.06123615	86.65933011
220729A00047	7/29/2022	3.06	1/29/2027		106.79316	104.2748801	101.8295329	99.45458598	97.14760866	94.9062695	92.72833145	90.61164737	88.5541559
220801A00066	8/1/2022	2.93	7/30/2027		108.26058	105.2669115	102.3747788	99.5801328	96.87911269	94.26803488	91.74338357	89.30180202	86.94008431
220802A00009	8/2/2022	3	8/2/2027		108.26675	105.2177435	102.27156	99.42415941	96.6716843	94.0104505	91.43693821	88.94778364	86.53977117
220804A00023	8/4/2022	3.19	8/4/2027		108.85925	105.7958125	102.8357409	99.97496733	97.20961019	94.53596252	91.95048302	89.44978756	87.03064131
220804A00037	8/4/2022	3.35	8/4/2025		102.43062	101.4171275	100.4236952	99.44972957	98.49466226	97.55794677	96.63905752	95.73748886	94.85275409
220808A00025	8/8/2022	3.25	8/6/2027		109.05956	105.9876383	103.0194692	100.1509692	97.37823741	94.69754856	92.10534418	89.59822401	87.17293798
220811A00021	8/11/2022	3.47	8/11/2025		102.61401	101.58057	100.5679644	99.57556643	98.60277503	97.6490127	96.7137245	95.79637688	94.89645668
220812A00001	8/12/2022	3.17	8/12/2027		109.28237	106.1810661	103.1850839	100.2902544	97.49259598	94.78830734	92.17375863	89.64548241	87.20016542
220812A00002	8/12/2022	3.17	8/12/2027		109.28237	106.1810661	103.1850839	100.2902544	97.49259598	94.78830734	92.17375863	89.64548241	87.20016542
220812A00014	8/12/2022	3.54	8/12/2024		100.07096	100.0376558	100.0043935	99.97117023	99.93798583	99.90484027	99.87173347	99.83866536	99.80563586
220815A00006	8/15/2022	3.52	8/15/2024		100.0866	100.0449852	100.0034184	99.96190379	99.92044123	99.87903062	99.83767186	99.79636485	99.75510948
220816A00009	8/16/2022	3.33	8/16/2027		109.39776	106.29341	103.294529	100.3969373	97.59664439	94.88984075	92.27288891	89.74231438	87.29479737
220817A00036	10/14/2022	3.41	10/15/2027		110.23751	106.9541611	103.7868962	100.7309096	97.78162628	94.93468999	92.18595115	89.53145562	86.96743401
220817A00037	10/14/2022	3.41	10/15/2027		110.23751	106.9541611	103.7868962	100.7309096	97.78162628	94.93468999	92.18595115	89.53145562	86.96743401
220817A00038	10/14/2022	3.41	10/15/2027		110.23751	106.9541611	103.7868962	100.7309096	97.78162628	94.93468999	92.18595115	89.53145562	86.96743401
220817A00047	8/17/2022	3.29	8/17/2027		109.69821	106.5767975	103.5616719	100.648611	97.8335843	95.11274517	92.48242078	89.93910337	87.47944175
220819A00034	8/19/2022	3.73	8/19/2032		126.92846	118.25985	110.2678019	102.8955126	96.09123745	89.80781804	84.00225281	78.63531062	73.6711819
220819A00038	8/19/2022	3.59	8/19/2024		100.11246	100.0597447	100.0071041	99.95453542	99.90203847	99.84961311	99.79725921	99.74497661	99.69276517
220823A00002	8/23/2022	3.38	8/23/2027		110.03496	106.8918496	103.8561283	100.9235115	98.08991206	95.35143	92.70434256	90.14509501	87.67029198
220823A00009	8/23/2022	3.52	8/23/2027		110.04982	106.9162837	103.8895985	100.9655056	98.13994546	95.40904395	92.76910273	90.21659006	87.74813228
220823A00015	8/23/2022	3.78	8/30/2032		127.41555	118.6972409	110.6611013	103.2497043	96.4107527	90.09659669	84.26379808	78.87273749	73.88725999
220823A00034	8/23/2022	3.61	8/23/2024		100.13636	100.07256	100.0088572	99.94524849	99.88173359	99.81831232	99.75498447	99.69174985	99.62860824
220823A00056	8/23/2022	3.5	8/23/2024		100.13804	100.0741518	100.010361	99.94666535	99.88306462	99.81955859	99.75614703	99.69282974	99.62960648
220823A00060	8/23/2022	3.5	8/23/2024		100.13804	100.0741518	100.010361	99.94666535	99.88306462	99.81955859	99.75614703	99.69282974	99.62960648
220824A00011	8/24/2022	3.7	8/22/2025		102.95577	101.8905903	100.8474855	99.82577245	98.82479718	97.84393229	96.88257549	95.94014831	95.01609498
220825A00006	8/25/2022	3.56	8/25/2027		110.19339	107.0521568	104.0181501	101.0870939	98.25490925	95.51770398	92.87176271	90.31353774	87.83964035
220825A00022	8/25/2022	3.68	8/25/2025		102.96234	101.8889779	100.8380271	99.80878711	98.80058966	97.81279362	96.84478368	95.89596907	94.96578236
220826A00033	8/26/2022	3.73	8/26/2025		103.02561	101.9491687	100.8952562	99.86316624	98.85222554	97.86178825	96.89123459	95.93996958	95.00742176

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220829A00048	8/29/2022	3.75	2/25/2025		101.48483	100.9087224	100.3391602	99.77602879	99.21921953	98.66862636	98.12414555	97.58567569	97.05311758
220829A00057	8/29/2022	3.67	8/31/2026		106.74057	104.6332654	102.5784268	100.5743971	98.61958234	96.71245084	94.85152996	93.03540352	91.26270916
220830A00055	8/30/2022	3.7	8/30/2029		118.22211	112.8651787	107.7885083	102.9758975	98.41216897	94.08309832	89.97534939	86.07641393	82.3745558
220830A00093	11/16/2022	3.69	11/16/2029		118.8813	113.2872795	107.9963535	102.9904464	98.25265444	93.76716492	89.51918045	85.49484819	81.68119467
220831A00078	8/31/2022	3.81	8/30/2024		100.19298	100.1097829	100.0267263	99.94380836	99.86102876	99.77838717	99.69588325	99.61351666	99.53128709
220831A00079	8/31/2022	3.79	8/29/2025		103.11919	102.0340666	100.9718078	99.93169976	98.91305429	97.91521157	96.93753856	95.97942767	95.04029554
220901A00033	9/1/2022	3.72	9/1/2027		110.76175	107.5924177	104.5316812	101.5751897	98.7187947	95.95853886	93.29064544	90.71150905	88.21768678
220901A00035	9/1/2022	3.82	9/1/2028		115.11768	110.851137	106.7696732	102.8642311	99.12625206	95.54764188	92.12074246	88.83830599	85.6934706
220906A00046	9/6/2022	3.79	9/7/2027		111.04576	107.855094	104.7741793	101.7985964	98.92413571	96.14678239	93.4627059	90.86825034	88.35992538
220907A00010	9/7/2022	3.9	9/9/2032		129.65895	120.7714356	112.5815494	105.0303521	98.06418755	91.63418637	85.69581505	80.20846994	75.13511114
220907A00023	9/7/2022	3.76	9/8/2026		107.0175	104.8849407	102.805856	100.778544	98.80136595	96.87274789	94.99117723	93.15520003	91.36341814
220907A00027	8/14/2023	3.65	8/30/2024		100.17966	100.0964708	100.0134256	99.93051909	99.84775085	99.76512061	99.68262801	99.60027274	99.51805446
220908A00030	9/8/2022	3.85	9/9/2024		100.26459	100.1537618	100.0431911	99.93287683	99.82281813	99.71301407	99.60346371	99.49416615	99.38512048
220909A00017	9/9/2022	3.85	9/9/2024		100.26459	100.1537618	100.0431911	99.93287683	99.82281813	99.71301407	99.60346371	99.49416615	99.38512048
220912A00033	9/12/2022	3.9	10/7/2024		100.46859	100.2803556	100.0928311	99.90601725	99.71990999	99.53450527	99.34979906	99.16578737	98.98246624
220912A00044	11/15/2022	3.85	11/14/2025		103.97214	102.6760398	101.4072635	100.1649489	98.94827016	97.75643563	96.58868664	95.44429552	94.32256407
220912A00046	11/15/2022	3.85	11/14/2025		103.97214	102.6760398	101.4072635	100.1649489	98.94827016	97.75643563	96.58868664	95.44429552	94.32256407
220912A00050	11/15/2022	3.76	11/15/2027		111.70323	108.3101846	105.039601	101.8863619	98.84559758	95.91266999	93.08316004	90.35285593	87.71774202
220912A00051	11/15/2022	3.76	11/15/2027		111.70323	108.3101846	105.039601	101.8863619	98.84559758	95.91266999	93.08316004	90.35285593	87.71774202
220913A00005	9/13/2022	4.09	9/13/2024		100.32131	100.1994007	100.0777978	99.95650464	99.83551999	99.71484263	99.59447134	99.47440491	99.35464216
220913A00017	9/13/2022	3.98	9/14/2026		107.55341	105.3982888	103.2974802	101.2492444	99.25190659	97.30385876	95.40355613	93.54951428	91.74030622
220913A00018	9/13/2022	3.91	9/13/2027		111.48896	108.2744151	105.1708375	102.1737485	99.27887443	96.48214053	93.77965998	91.16772408	88.64279288
220915A00035	9/15/2022	4.2	3/17/2025		101.92702	101.2950712	100.6709816	100.0546013	99.4457877	98.84440184	98.25030807	97.66337406	97.08347066
220915A00036	9/15/2022	4.23	9/16/2024		100.36251	100.2322785	100.1023951	99.97286288	99.84368055	99.71484661	99.5863596	99.4582181	99.33042067
220915A00040	9/15/2022	4.16	9/15/2025		103.7067	102.5719154	101.462043	100.3762666	99.31380635	98.27391597	97.25588063	96.25901548	95.28266405
220916A00018	9/16/2022	4.07	9/16/2027		111.13586	108.1307131	105.2286232	102.4253863	99.71699891	97.09964737	94.56969734	92.12368407	89.75830326
220916A00021	9/16/2022	4.17	9/16/2027		105.97788	104.3232971	102.7116297	101.1414101	99.61123533	98.1197606	96.66569678	95.24780751	93.86490667
220916A00042	9/16/2022	4.07	9/16/2030		124.60468	117.9557015	111.7153177	105.8561014	100.35261	95.18123389	90.32005477	85.7487154	81.44830048
220916A00043	9/16/2022	4.07	9/16/2031		127.88203	120.0805463	112.825728	106.0760807	99.79347385	93.94285478	88.49198438	83.41119712	78.67318257
220916A00045	9/16/2022	4.1	9/16/2032		131.3567	122.3815344	114.1108979	106.485206	99.45023025	92.9565865	86.95927759	81.41728202	76.29318299
220919A00033	9/19/2022	4	9/17/2027		111.81813	108.5870815	105.4678385	102.4558731	99.54686837	96.73670873	94.02146916	91.39740506	88.86094276
220919A00036	9/19/2022	4.11	9/19/2029		119.76332	114.4898421	109.4932035	104.7572005	100.2666705	96.00742034	91.96615846	88.13043227	84.48857047
220920A00015	9/20/2022	4.33	10/21/2024		100.66863	100.4416139	100.2156327	99.99068039	99.76674992	99.54383427	99.32192648	99.10101969	98.88110706

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
220920A00024	9/20/2022	4.25	9/19/2025		103.85346	102.7068995	101.5857358	100.4891352	99.41629561	98.36644963	97.33886256	96.33283074	95.34767995
220920A00025	9/20/2022	4.23	9/18/2026		108.13649	105.963804	103.8460459	101.7814468	99.76830634	97.80499218	95.8899366	94.0216334	92.19863498
220920A00026	9/20/2022	4.1	9/20/2027		112.16891	108.9238157	105.7911995	102.7664966	99.84535577	97.02362948	94.29736257	91.66278217	89.11628798
220920A00050	9/20/2022	4.37	9/20/2024		100.41397	100.2726397	100.1317186	99.99120633	99.85110105	99.71140098	99.57210433	99.43320932	99.2947142
220921A00014	9/21/2022	4.08	9/21/2027		112.11769	108.870568	105.7360815	102.7096537	99.78692451	96.96373764	94.23612998	91.60032119	89.05270402
220921A00069	9/21/2022	3.98	9/21/2027		112.23354	108.9742928	105.8283138	102.7909909	99.85793241	97.0249523	94.2880595	91.6434473	89.08748356
220921A00074	9/21/2022	3.98	9/21/2027		112.23354	108.9742928	105.8283138	102.7909909	99.85793241	97.0249523	94.2880595	91.6434473	89.08748356
220927A00024	9/27/2022	4.7	9/27/2024		100.52513	100.364333	100.2040553	100.0442931	99.88504373	99.72630483	99.56807394	99.41034862	99.25312645
220927A00073	9/27/2022	4.72	9/26/2025		104.47894	103.3094378	102.1662351	101.0484543	99.95525289	98.88582506	97.83940005	96.8152401	95.81263872
220929A00041	9/29/2022	4.38	9/29/2027		113.16755	109.8809892	106.70892	103.6466649	100.6897699	97.83399089	95.0752821	92.40978555	89.83382099
220929A00043	9/29/2022	4.44	9/28/2029		122.34011	116.794963	111.5422786	106.5649718	101.8470524	97.37354667	93.13042724	89.10454764	85.28358232
220929A00063	9/29/2022	4.38	9/29/2027		113.16755	109.8809892	106.70892	103.6466649	100.6897699	97.83399089	95.0752821	92.40978555	89.83382099
220930A00046	9/30/2022	4.55	8/30/2024		100.25564	100.1723819	100.0892611	100.0062792	99.92343593	99.84073085	99.75816366	99.67573402	99.59344161
221003A00067	10/3/2022	4.48	11/13/2024		100.91161	100.6210304	100.3321329	100.0449065	99.75933683	99.47540933	99.19310982	98.91242422	98.63333864
221005A00041	10/5/2022	4.3	10/5/2027		112.98652	109.6862619	106.5014767	103.427431	100.4596127	97.59372362	94.82566753	92.15153923	89.56761436
221006A00012	10/6/2022	4.37	10/6/2027		113.2228	109.915995	106.7249492	103.6449054	100.6713382	97.79993686	95.02659322	92.34739096	89.7585952
221006A00033	10/6/2022	4.56	10/7/2024		100.59305	100.4046431	100.2169524	100.0299729	99.84370036	99.65813088	99.4732604	99.28908491	99.10560046
221007A00003	10/7/2022	4.67	10/7/2025		104.55622	103.3562097	102.1838796	101.0382752	99.91848835	98.8236518	97.75293675	96.70555079	95.68073592
221011A00036	10/11/2022	4.59	10/6/2026		109.14658	106.9126903	104.7361792	102.6151596	100.5478228	98.53243397	96.56732877	94.65090956	92.7816423
221011A00037	10/11/2022	4.68	10/7/2024		100.61568	100.4272409	100.2395199	100.0525102	99.86620769	99.68060826	99.49570791	99.31150265	99.12798851
221011A00114	10/11/2022	4.66	8/12/2024		100.10921	100.075878	100.0425837	100.0093285	99.97611217	99.94293474	99.9097961	99.8766962	99.84363494
221011A00122	10/11/2022	4.64	12/11/2024		101.2344	100.8663595	100.5010109	100.1383216	99.7782626	99.42080515	99.06592102	98.71358236	98.36376171
221012A00051	10/12/2022	4.7	10/11/2024		100.65755	100.4580569	100.2593701	100.0614824	99.86438898	99.66808492	99.47256546	99.27782581	99.08386126
221012A00053	10/12/2022	4.66	10/11/2024		100.49179	100.3400364	100.1887921	100.0380571	99.88782858	99.73810381	99.58888009	99.44015471	99.29192502
221014A00026	10/14/2022	4.63	10/14/2027		114.15993	110.8159818	107.589611	104.4759661	101.4704266	98.56859303	95.76627384	93.05947454	90.44438684
221014A00027	10/14/2022	4.63	10/14/2027		114.15993	110.8159818	107.589611	104.4759661	101.4704266	98.56859303	95.76627384	93.05947454	90.44438684
221014A00032	10/14/2022	4.67	10/14/2027		113.27018	110.1520145	107.1427946	104.2380347	101.4334661	98.72502205	96.1088261	93.58118228	91.13856539
221014A00043	10/14/2022	4.49	10/14/2027		114.15325	110.7987331	107.5624014	104.4393718	101.4249922	98.51483302	95.70467466	92.99049617	90.36846432
221014A00050	10/14/2022	4.49	10/14/2027		114.15325	110.7987331	107.5624014	104.4393718	101.4249922	98.51483302	95.70467466	92.99049617	90.36846432
221017A00050	9/18/2023	4.59	9/30/2024		100.53414	100.365037	100.1965049	100.0285361	99.86112766	99.69427691	99.52798106	99.36223738	99.19704315
221017A00055	10/17/2022	4.88	11/18/2024		100.70817	100.5060997	100.3049788	100.1047994	99.90555435	99.70723659	99.50983901	99.31335464	99.11777657
221018A00006	10/18/2022	4.55	10/18/2027		113.95364	110.6019624	107.3684959	104.2483444	101.2368495	98.32957571	95.52229833	92.81099181	90.19181888
221018A00007	10/18/2022	4.68	10/18/2027		107.20159	105.4497585	103.7445932	102.0844729	100.467843	98.89321445	97.35916092	95.86431525	94.40736672

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221018A00030	10/18/2022	4.71	10/17/2025		104.72822	103.4998298	102.3004067	101.1289319	99.98443471	98.86598908	97.77271091	96.70375574	95.65831659
221018A00031	10/18/2022	4.71	10/17/2025		104.72822	103.4998298	102.3004067	101.1289319	99.98443471	98.86598908	97.77271091	96.70375574	95.65831659
221018A00047	10/18/2022	4.78	10/20/2025		104.85161	103.6142249	102.4062049	101.2265105	100.0741518	98.9481845	97.84770758	96.77186059	95.71982145
221018A00048	10/18/2022	4.71	10/19/2026		109.58266	107.3084544	105.0933633	102.935419	100.8327329	98.78349536	96.78597103	94.83849558	92.93947188
221018A00049	10/18/2022	4.59	10/18/2027		114.083	110.729232	107.4937258	104.3715883	101.358159	98.44900071	95.63988709	92.92679096	90.30587349
221019A00008	10/19/2022	4.8	10/17/2025		104.83821	103.6091137	102.4089929	101.2368317	100.0916592	98.97254892	97.87861657	96.80901741	95.76294419
221019A00009	10/19/2022	4.8	10/17/2025		104.83821	103.6091137	102.4089929	101.2368317	100.0916592	98.97254892	97.87861657	96.80901741	95.76294419
221020A00046	10/20/2022	4.95	1/21/2025		101.79428	101.3126463	100.8355883	100.363039	99.89493457	99.43121222	98.97181051	98.51666907	98.06572867
221020A00052	10/20/2022	4.95	10/21/2024		100.80957	100.5823389	100.3561429	100.1309765	99.90683271	99.68370444	99.46158477	99.24046681	99.02034374
221021A00022	10/21/2022	4.84	10/21/2024		100.78457	100.5573716	100.3312137	100.1060853	99.88197931	99.65888876	99.43680669	99.21572619	98.99564046
221024A00018	10/24/2022	4.91	10/24/2024		100.83076	100.5952352	100.3608155	100.1274974	99.89527316	99.66413505	99.43407541	99.20508667	98.97716132
221025A00027	10/25/2022	4.57	10/25/2027		114.10893	110.7353658	107.4813421	104.3418835	101.3122566	98.38795606	95.56469168	92.83837674	90.20511673
221027A00004	10/27/2022	4.76	10/28/2024		100.83413	100.587575	100.3422282	100.0980809	99.85512435	99.61334993	99.37274897	99.13331295	98.89503343
221027A00009	10/27/2022	4.68	10/27/2025		104.81493	103.5586506	102.3326316	101.1357898	99.96709069	98.82554833	97.71022233	96.62021533	95.55467057
221027A00050	10/27/2022	4.52	10/27/2027		113.97187	110.5950073	107.3379854	104.1958113	101.1637326	98.23722632	95.41198591	92.68390935	90.0490879
221027A00056	4/25/2023	4.48	4/25/2030		124.80705	118.5931509	112.7381035	107.219109	102.0149437	97.10584167	92.47338653	88.10041161	83.97090828
221027A00060	12/1/2022	4.46	12/1/2027		114.22803	110.7476043	107.3938952	104.1616268	101.0457672	98.04151946	95.14430924	92.34977337	89.65374897
221027A00061	12/15/2022	4.45	12/15/2027		114.37065	110.8493085	107.4574807	104.1897124	101.0408113	98.00583011	95.08005349	92.25898609	89.53834099
221027A00062	12/15/2022	4.45	12/15/2027		114.37065	110.8493085	107.4574807	104.1897124	101.0408113	98.00583011	95.08005349	92.25898609	89.53834099
221027A00063	12/15/2022	4.45	12/15/2027		114.37065	110.8493085	107.4574807	104.1897124	101.0408113	98.00583011	95.08005349	92.25898609	89.53834099
221028A00027	10/28/2022	4.73	10/28/2024		100.82673	100.5801866	100.3348519	100.0907167	99.84777222	99.6060098	99.36542081	99.12599671	98.88772907
221028A00056	10/28/2022	4.77	10/28/2024		100.8366	100.5900378	100.3446869	100.1005356	99.85757507	99.61579664	99.37519169	99.1357517	98.89746822
221031A00003	10/31/2022	4.89	11/12/2024		101.02056	100.732517	100.4461319	100.1613876	99.87826973	99.59676437	99.31685766	99.03853591	98.76178561
221031A00004	10/31/2022	4.79	10/28/2025		104.96503	103.7050242	102.4754259	101.2751436	100.1031362	98.95841114	97.84002199	96.74706565	95.67867997
221031A00033	10/31/2022	4.74	10/31/2025		104.93992	103.6718776	102.4346313	101.2270672	100.0481247	98.89679328	97.77210949	96.67315425	95.5990504
221031A00035	10/31/2022	4.67	10/30/2026		109.63826	107.3333801	105.0890428	102.9032023	100.7739034	98.69927336	96.67751783	94.7069166	92.7858199
221031A00036	10/31/2022	4.59	10/29/2027		114.226	110.8394441	107.5732081	104.4222671	101.3818443	98.44739336	95.61458625	92.87930062	90.23760867
221031A00042	10/31/2022	4.73	10/30/2026		109.77396	107.4675223	105.2216571	103.0343204	100.9035558	98.82748979	96.80432717	94.83234688	92.90989839
221031A00044	10/31/2022	4.89	10/31/2024		100.89632	100.6413994	100.3877671	100.1354098	99.88431771	99.63448151	99.38589178	99.13853925	98.89241474
221031A00045	10/31/2022	4.79	10/31/2025		105.00295	103.7344904	102.4968324	101.2888636	100.109523	98.9578001	97.83273111	96.73339686	95.65892
221102A00012	11/2/2022	4.82	11/3/2025		105.08181	103.8053934	102.5590704	101.341777	100.1525008	98.9902763	97.85418216	96.74333853	95.65690485
221102A00026	11/2/2022	4.66	11/2/2027		114.50789	111.1054884	107.8242734	104.6591841	101.6054039	98.6583488	95.81365459	93.06716433	90.41491711
221103A00036	10/13/2023	4.87	10/31/2024		100.89122	100.6363083	100.3826846	100.1303358	99.87925231	99.6294246	99.38084334	99.13349925	98.88738314

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221103A00050	11/3/2022	5.14	11/4/2024		101.00426	100.7381909	100.4735316	100.2102672	99.94838656	99.68787885	99.42873324	99.17093903	98.91448563
221107A00010	11/7/2022	5.12	11/7/2024		101.03191	100.757564	100.4847208	100.2133636	99.94348033	99.67505891	99.40808741	99.14255405	98.87844715
221107A00029	11/7/2022	4.83	11/9/2026		110.13873	107.8000139	105.5233407	103.3066372	101.1479182	99.04527983	96.99689588	95.00101344	93.05594959
221107A00030	11/7/2022	4.7	11/5/2027		114.67974	111.2659567	107.9740149	104.7988292	101.7355589	98.77959613	95.92655287	93.17224906	90.51270109
221107A00048	11/7/2022	4.96	9/8/2025		104.52216	103.4015952	102.3051869	101.2321567	100.1817611	99.15328781	98.14605433	97.15940615	96.19271544
221107A00053	11/7/2022	4.95	10/7/2025		104.89072	103.6886007	102.5141917	101.3665415	100.2447411	99.1479223	98.07525556	97.02594768	95.9992399
221107A00056	11/7/2022	4.73	11/8/2027		114.81934	111.3946834	108.0925179	104.9077272	101.8354467	98.87104479	96.01011021	93.24843993	90.58202786
221108A00033	11/8/2022	4.7	11/8/2027		114.72057	111.2975501	107.9969679	104.8137184	101.7429385	98.779998	95.9204869	93.16020348	90.4951429
221108A00036	11/8/2022	4.95	11/7/2025		105.30291	104.015097	102.7564417	101.5259511	100.3226782	99.14571801	97.99420588	96.86731484	95.76425371
221110A00023	11/10/2022	4.71	11/8/2024		100.92927	100.6523708	100.3769972	100.1031395	99.83078526	99.55992197	99.29053736	99.02261928	98.7561557
221110A00024	11/10/2022	4.51	11/10/2025		104.77825	103.486545	102.2232196	100.9873343	99.77799322	98.59433971	97.435554	96.30085127	95.18947977
221110A00025	11/10/2022	4.39	11/10/2026		109.14414	106.8141893	104.5461726	102.3380279	100.1877744	98.09351272	96.05342012	94.06574716	92.12881394
221110A00026	11/10/2022	4.29	11/10/2027		113.39581	109.9889331	106.7042972	103.5368015	100.4815878	97.53403017	94.68972235	91.9444657	89.29425808
221110A00038	11/10/2022	4.34	11/10/2027		113.56069	110.1510888	106.8638055	103.6937328	100.6360102	97.68600926	94.8393216	92.09174639	89.43927942
221110A00039	11/10/2022	4.34	11/10/2027		113.56069	110.1510888	106.8638055	103.6937328	100.6360102	97.68600926	94.8393216	92.09174639	89.43927942
221110A00064	1/17/2023	4.25	1/14/2028		114.05222	110.4539782	106.9910855	103.6577167	100.4483286	97.35764547	94.38064501	91.51254444	88.74878789
221110A00065	1/17/2023	4.25	1/14/2028		114.05222	110.4539782	106.9910855	103.6577167	100.4483286	97.35764547	94.38064501	91.51254444	88.74878789
221110A00074	11/10/2022	4.75	11/12/2024		100.98021	100.6922443	100.4059329	100.1212618	99.83821684	99.5567841	99.27694972	98.99869999	98.72202141
221110A00075	11/10/2022	4.56	11/10/2025		104.84265	103.5505149	102.2867609	101.0504541	99.84069866	98.65663765	97.49745112	96.36235406	95.25059454
221110A00076	11/10/2022	4.45	11/10/2026		109.28166	106.9501074	104.6805234	102.470844	100.3190874	98.22335336	96.18181821	94.19273165	92.25441298
221110A00084	11/10/2022	4.56	11/6/2025		104.79079	103.5089031	102.2563508	101.0321282	99.83527335	98.66486745	97.52003286	96.39993061	95.30375834
221110A00086	11/10/2022	4.34	11/8/2027		113.53545	110.1319501	106.8503678	103.6856132	100.6328405	97.68743647	94.8450071	92.10136609	89.45252337
221110A00108	11/10/2022	4.48	12/10/2025		105.11085	103.7405971	102.3948758	101.0730828	99.77463432	98.49896484	97.24552683	96.01378987	94.80324003
221110A00110	11/10/2022	4.47	1/13/2026		105.49398	104.030138	102.5940824	101.185094	99.80247424	98.44554778	97.11366206	95.80618615	94.52250982
221114A00002	11/14/2022	4.37	11/15/2027		113.72313	110.2966213	106.9934767	103.8085458	100.7369288	97.77395868	94.91518855	92.15638001	89.49349198
221116A00026	11/16/2022	4.78	11/15/2024		101.02161	100.7253044	100.4307509	100.1379331	99.84683575	99.55744348	99.26974127	98.98371426	98.69934773
221116A00027	11/16/2022	4.46	11/14/2025		104.7646	103.4630941	102.189002	100.9414619	99.71964523	98.52275811	97.35003944	96.20075932	95.07421737
221116A00028	11/16/2022	4.21	11/16/2027		113.20558	109.7848084	106.4873623	103.3080942	100.2421044	97.28472603	94.43151208	91.67822383	89.02081972
221117A00008	11/17/2022	4.82	11/15/2024		101.03347	100.7371418	100.4425662	100.1497265	99.85860714	99.56919305	99.28146912	98.99542047	98.7110324
221117A00012	11/17/2022	4.54	11/14/2025		104.86853	103.5663143	102.2915251	101.0432996	99.82080918	98.62325942	97.44988899	96.29996768	95.17279485
221117A00013	11/17/2022	4.54	11/14/2025		104.86853	103.5663143	102.2915251	101.0432996	99.82080918	98.62325942	97.44988899	96.29996768	95.17279485
221117A00014	11/17/2022	4.54	11/14/2025		104.86853	103.5663143	102.2915251	101.0432996	99.82080918	98.62325942	97.44988899	96.29996768	95.17279485
221117A00025	11/17/2022	4.28	11/17/2027		113.45002	110.0223529	106.7183157	103.532749	100.4607422	97.49761723	94.63891665	91.88039131	89.21798956



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221118A00018	11/18/2022	4.55	11/18/2025		104.93328	103.6207055	102.3346131	101.0742077	99.83872806	98.62744315	97.43965087	96.27467647	95.13187123
221118A00019	11/18/2022	4.55	11/18/2025		104.93328	103.6207055	102.3346131	101.0742077	99.83872806	98.62744315	97.43965087	96.27467647	95.13187123
221118A00023	11/18/2022	4.12	11/18/2027		113.38757	109.946928	106.6307378	103.4337973	100.3511546	97.37809317	94.51011834	91.74294599	89.07249119
221118A00045	11/18/2022	4.57	11/18/2025		104.95948	103.6467276	102.3604581	101.0998786	99.86422767	98.65277438	97.46481649	96.29967917	95.15671363
221118A00046	11/18/2022	4.4	11/18/2026		109.26871	106.9148367	104.6240554	102.3942812	100.2235137	98.10983181	96.05139058	94.04641705	92.09320712
221118A00080	11/18/2022	4.61	11/18/2025		105.01189	103.6987718	102.412148	101.1512202	99.91522688	98.70343685	97.51514773	96.34968457	95.20639842
221121A00047	11/21/2022	4.89	11/21/2033		141.0313	130.4686134	120.8285946	112.0244923	103.9781803	96.61925466	89.88423301	83.71583969	78.06236872
221121A00052	11/21/2022	4.35	11/22/2027		113.74544	110.2986349	106.97657	103.774042	100.6860985	97.70802024	94.83530892	92.06367551	89.38902927
221121A00064	11/21/2022	4.34	11/22/2027		113.71213	110.2658836	106.9443586	103.742356	100.654924	97.67734361	94.80511719	92.03395611	89.35977005
221122A00015	11/22/2022	4.97	11/22/2024		101.15207	100.8362907	100.5224888	100.2106497	99.90075505	99.59278656	99.28672627	98.9825564	98.68025941
221122A00029	11/22/2022	4.31	11/22/2027		113.61221	110.1676299	106.8477245	103.6472981	100.5614003	97.58531372	94.71454202	91.94479792	89.27199237
221122A00040	11/22/2022	4.31	11/22/2027		113.61221	110.1676299	106.8477245	103.6472981	100.5614003	97.58531372	94.71454202	91.94479792	89.27199237
221122A00041	11/22/2022	4.97	11/22/2024		101.15207	100.8362907	100.5224888	100.2106497	99.90075505	99.59278656	99.28672627	98.9825564	98.68025941
221123A00016	11/23/2022	4.58	11/23/2029		122.84988	117.3092621	112.0674877	107.1066831	102.4101413	97.96223631	93.74834794	89.754792	85.96875558
221123A00034	11/23/2022	4.43	11/23/2026		109.40208	107.032576	104.7269082	102.4829757	100.2987648	98.17234057	96.10184295	94.08548364	92.12154265
221123A00039	11/23/2022	4.29	11/23/2027		113.55808	110.1115575	106.7898799	103.587846	100.5004986	97.52311359	94.65118809	91.88042827	89.20673867
221128A00034	11/28/2022	4.27	11/26/2027		113.5287	110.0741291	106.7449802	103.5360275	100.4422913	97.45902581	94.58170611	91.80601703	89.1278421
221129A00034	11/29/2022	4.38	12/1/2025		105.04789	103.6993135	102.3745447	101.0730066	99.7941399	98.5374029	97.30227069	96.08823463	94.89480164
221129A00035	11/29/2022	4.09	11/29/2027		113.42356	109.9508773	106.6048254	103.3801224	100.2717325	97.27485532	94.38491404	91.59754348	88.90857934
221129A00037	11/29/2022	4.56	11/26/2025		105.05011	103.7168887	102.4082497	101.1235486	99.86216196	98.6234877	97.40694456	96.21197105	95.0380246
221129A00038	11/29/2022	4.56	11/26/2025		105.05011	103.7168887	102.4082497	101.1235486	99.86216196	98.6234877	97.40694456	96.21197105	95.0380246
221129A00039	11/29/2022	4.56	11/26/2025		105.05011	103.7168887	102.4082497	101.1235486	99.86216196	98.6234877	97.40694456	96.21197105	95.0380246
221129A00040	11/29/2022	4.56	11/26/2025		105.05011	103.7168887	102.4082497	101.1235486	99.86216196	98.6234877	97.40694456	96.21197105	95.0380246
221129A00041	11/29/2022	4.56	11/28/2025		105.07605	103.7376771	102.4234187	101.132662	99.86481814	98.61931806	97.39561112	96.19316463	95.01146304
221129A00042	11/29/2022	4.56	11/28/2025		105.07605	103.7376771	102.4234187	101.132662	99.86481814	98.61931806	97.39561112	96.19316463	95.01146304
221129A00043	11/29/2022	4.59	12/1/2025		105.15421	103.8076575	102.484838	101.185176	99.90811464	98.6531147	97.41965354	96.20722466	95.01533707
221129A00044	11/29/2022	4.56	11/28/2025		105.07605	103.7376771	102.4234187	101.132662	99.86481814	98.61931806	97.39561112	96.19316463	95.01146304
221129A00045	11/29/2022	4.56	11/28/2025		105.07605	103.7376771	102.4234187	101.132662	99.86481814	98.61931806	97.39561112	96.19316463	95.01146304
221129A00046	11/29/2022	4.56	12/1/2025		105.11383	103.7675665	102.4450271	101.1456404	99.86884987	98.61411624	97.38091705	96.16874592	94.97711196
221129A00047	11/29/2022	4.56	12/1/2025		105.11383	103.7675665	102.4450271	101.1456404	99.86884987	98.61411624	97.38091705	96.16874592	94.97711196
221129A00048	11/29/2022	4.56	12/1/2025		105.11383	103.7675665	102.4450271	101.1456404	99.86884987	98.61411624	97.38091705	96.16874592	94.97711196
221129A00049	11/29/2022	4.56	12/1/2025		105.11383	103.7675665	102.4450271	101.1456404	99.86884987	98.61411624	97.38091705	96.16874592	94.97711196
221129A00050	11/29/2022	4.56	12/2/2025		105.12569	103.7766686	102.4514691	101.1495094	99.87022985	98.61308832	97.37755953	96.16313442	94.96931953

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221129A00051	11/29/2022	4.56	12/2/2025		105.12569	103.7766686	102.4514691	101.1495094	99.87022985	98.61308832	97.37755953	96.16313442	94.96931953
221129A00052	11/29/2022	4.56	12/2/2025		105.12569	103.7766686	102.4514691	101.1495094	99.87022985	98.61308832	97.37755953	96.16313442	94.96931953
221129A00053	11/29/2022	4.56	12/2/2025		105.12569	103.7766686	102.4514691	101.1495094	99.87022985	98.61308832	97.37755953	96.16313442	94.96931953
221129A00054	11/29/2022	4.56	12/3/2025		105.13754	103.7857699	102.45791	101.153377	99.87160835	98.61205893	97.37420066	96.15752181	94.96152635
221129A00055	11/29/2022	4.56	12/3/2025		105.13754	103.7857699	102.45791	101.153377	99.87160835	98.61205893	97.37420066	96.15752181	94.96152635
221129A00056	11/29/2022	4.31	11/29/2027		113.69998	110.2340042	106.8941148	103.6750632	100.5718445	97.57968761	94.69404291	91.91057095	89.22513155
221129A00059	11/29/2022	4.39	11/27/2026		109.35968	106.9794346	104.6635751	102.4100002	100.2166864	98.08168821	96.00313451	93.97922536	92.00822876
221129A00060	11/29/2022	4.39	11/27/2026		109.35968	106.9794346	104.6635751	102.4100002	100.2166864	98.08168821	96.00313451	93.97922536	92.00822876
221129A00061	11/29/2022	4.39	11/27/2026		109.35968	106.9794346	104.6635751	102.4100002	100.2166864	98.08168821	96.00313451	93.97922536	92.00822876
221129A00062	11/29/2022	4.39	11/27/2026		109.35968	106.9794346	104.6635751	102.4100002	100.2166864	98.08168821	96.00313451	93.97922536	92.00822876
221129A00064	11/29/2022	4.28	11/30/2027		113.61194	110.1445908	106.8034856	103.5833687	100.479229	97.48628901	94.59999298	91.81599526	89.13014962
221129A00065	11/29/2022	4.28	11/30/2027		113.61194	110.1445908	106.8034856	103.5833687	100.479229	97.48628901	94.59999298	91.81599526	89.13014962
221129A00066	11/29/2022	4.28	11/29/2027		113.59949	110.1351905	106.7969392	103.5794815	100.4778142	97.48716749	94.60299335	91.82095364	89.13690945
221129A00067	11/29/2022	4.28	11/29/2027		113.59949	110.1351905	106.7969392	103.5794815	100.4778142	97.48716749	94.60299335	91.82095364	89.13690945
221129A00068	11/29/2022	4.28	11/29/2027		113.59949	110.1351905	106.7969392	103.5794815	100.4778142	97.48716749	94.60299335	91.82095364	89.13690945
221129A00069	11/29/2022	4.28	11/26/2027		113.56212	110.106987	106.7772948	103.5678132	100.4735624	97.48979585	94.61198824	91.83582393	89.15718603
221129A00070	11/29/2022	4.28	11/26/2027		113.56212	110.106987	106.7772948	103.5678132	100.4735624	97.48979585	94.61198824	91.83582393	89.15718603
221129A00071	11/29/2022	4.28	11/26/2027		113.56212	110.106987	106.7772948	103.5678132	100.4735624	97.48979585	94.61198824	91.83582393	89.15718603
221129A00072	11/29/2022	4.39	12/2/2026		109.42234	107.027489	104.6977579	102.4310162	100.2252195	98.07840132	95.98866979	93.95420451	91.9732533
221129A00073	11/29/2022	4.39	12/2/2026		109.42234	107.027489	104.6977579	102.4310162	100.2252195	98.07840132	95.98866979	93.95420451	91.9732533
221129A00075	11/29/2022	4.38	12/1/2026		109.38653	106.9948179	104.668069	102.4041666	100.2010728	98.05682763	95.96954527	93.93741105	91.95867826
221129A00076	11/29/2022	4.38	12/1/2026		109.38653	106.9948179	104.668069	102.4041666	100.2010728	98.05682763	95.96954527	93.93741105	91.95867826
221129A00077	11/29/2022	4.38	12/1/2026		109.38653	106.9948179	104.668069	102.4041666	100.2010728	98.05682763	95.96954527	93.93741105	91.95867826
221129A00078	11/29/2022	4.38	12/1/2026		109.38653	106.9948179	104.668069	102.4041666	100.2010728	98.05682763	95.96954527	93.93741105	91.95867826
221129A00083	11/29/2022	4.38	11/30/2026		109.37425	106.9853908	104.6613489	102.4000165	100.1993621	98.05743203	95.97234634	93.94229594	91.96553943
221129A00084	11/29/2022	4.38	11/30/2026		109.37425	106.9853908	104.6613489	102.4000165	100.1993621	98.05743203	95.97234634	93.94229594	91.96553943
221129A00085	11/29/2022	4.38	11/30/2026		109.37425	106.9853908	104.6613489	102.4000165	100.1993621	98.05743203	95.97234634	93.94229594	91.96553943
221129A00086	11/29/2022	4.38	11/30/2026		109.37425	106.9853908	104.6613489	102.4000165	100.1993621	98.05743203	95.97234634	93.94229594	91.96553943
221130A00019	11/30/2022	4.63	11/26/2025		105.14336	103.809485	102.5002055	101.2148748	99.95286896	98.71358578	97.49644368	96.30088089	95.12635459
221130A00032	11/30/2022	4.37	11/30/2027		113.91368	110.4412718	107.0952445	103.8703382	100.761537	97.76405924	94.87334469	92.08504369	89.39500607
221130A00033	11/30/2022	4.37	11/30/2027		113.91368	110.4412718	107.0952445	103.8703382	100.761537	97.76405924	94.87334469	92.08504369	89.39500607
221130A00041	11/30/2022	4.95	12/2/2024		101.25188	100.9084177	100.5672907	100.2284715	99.89193657	99.5576629	99.22562775	98.89580867	98.56818351
221130A00069	11/30/2022	4.15	11/30/2027		113.63752	110.1583752	106.8061642	103.5755869	100.4615964	97.45938156	94.56435491	91.77214099	89.07856546

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221130A00075	11/30/2022	4.15	11/30/2027		113.63752	110.1583752	106.8061642	103.5755869	100.4615964	97.45938156	94.56435491	91.77214099	89.07856546
221130A00076	11/30/2022	4.15	11/30/2027		113.63752	110.1583752	106.8061642	103.5755869	100.4615964	97.45938156	94.56435491	91.77214099	89.07856546
221130A00078	11/30/2022	4.15	11/30/2027		113.63752	110.1583752	106.8061642	103.5755869	100.4615964	97.45938156	94.56435491	91.77214099	89.07856546
221130A00081	11/30/2022	4.15	11/30/2027		113.63752	110.1583752	106.8061642	103.5755869	100.4615964	97.45938156	94.56435491	91.77214099	89.07856546
221130A00085	11/30/2022	4.19	11/30/2027		113.3102	109.8479099	106.5117267	103.2963993	100.1969209	97.20851879	94.32664127	91.54694684	88.86529316
221130A00110	11/30/2022	4.15	11/30/2027		113.17609	109.7160517	106.3820561	103.1688573	100.0714507	97.08506536	94.20515162	91.42736977	88.74757918
221201A00009	12/1/2022	4.22	12/1/2025		104.83236	103.4853022	102.1620306	100.8619646	99.58454544	98.32923211	97.09550035	95.88284213	94.69076495
221201A00011	12/1/2022	3.95	12/1/2027		112.9771	109.5063074	106.1623382	102.9398932	99.83392442	96.83962004	93.9523921	91.16786486	88.48186389
221201A00037	12/1/2022	4.26	12/1/2026		109.10456	106.7162052	104.3927471	102.132066	99.93212606	97.79096927	95.70671177	93.67754069	91.70171107
221201A00043	12/1/2022	4.37	12/3/2029		112.19222	109.1008737	106.1364204	103.292525	100.5632118	97.94284543	95.42610948	93.00798604	90.68373709
221201A00068	12/1/2022	4.21	12/1/2027		112.3362	109.1291749	106.0380918	103.0580746	100.1844844	97.4129025	94.73911823	92.15911838	89.66907662
221202A00013	12/2/2022	4.78	12/3/2024		101.20348	100.8573963	100.5136803	100.17231	99.83326123	99.49651048	99.16203437	98.82980987	98.49981428
221202A00018	12/2/2022	4.16	12/2/2027		113.23319	109.7667183	106.4267079	103.2078813	100.1052106	97.11390317	94.22938895	91.44730903	88.76350482
221202A00025	12/2/2022	4.06	12/2/2026		108.96186	106.5660912	104.2356215	101.9683097	99.76210197	97.61502315	95.52517308	93.49072346	91.50991467
221205A00024	12/5/2022	4.13	12/3/2027		113.14414	109.6764349	106.3353385	103.1155676	100.0120848	97.02008804	94.1349988	91.35245016	88.66827605
221205A00048	12/5/2022	4.4	12/5/2025		104.94414	103.5884159	102.2567505	100.9485614	99.66328038	98.40035731	97.15925909	95.9394692	94.74048704
221205A00065	12/5/2022	4.13	12/6/2027		113.17925	109.7027431	106.3534487	103.1260395	100.0154438	97.01682759	94.12558223	91.33731265	88.64782631
221205A00088	12/5/2022	4.13	12/3/2027		113.14414	109.6764349	106.3353385	103.1155676	100.0120848	97.02008804	94.1349988	91.35245016	88.66827605
221206A00011	12/6/2022	4.29	12/7/2026		109.24723	106.8409578	104.5004597	102.2235806	100.0082447	97.85245597	95.75429455	93.71191345	91.72353525
221206A00025	12/6/2022	4.27	12/4/2026		109.16398	106.7668135	104.4349781	102.1663369	99.95883435	97.81049361	95.71941293	93.68376249	91.70178122
221206A00036	12/6/2022	4.13	12/6/2027		113.17925	109.7027431	106.3534487	103.1260395	100.0154438	97.01682759	94.12558223	91.33731265	88.64782631
221206A00039	12/6/2022	4.29	12/7/2026		109.24723	106.8409578	104.5004597	102.2235806	100.0082447	97.85245597	95.75429455	93.71191345	91.72353525
221206A00040	12/6/2022	5	11/29/2024		100.87493	100.6354859	100.3973794	100.1606024	99.92514275	99.6909886	99.4581281	99.22654963	98.99624167
221207A00009	12/7/2022	4.38	12/8/2025		104.95108	103.5873024	102.2478601	100.9321539	99.63960639	98.36965865	97.12176919	95.89541346	94.69008312
221207A00010	12/7/2022	4.08	12/7/2027		113.02235	109.5457553	106.1964924	102.9692267	99.85887765	96.86060317	93.96978693	91.18202673	88.49312343
221207A00012	12/7/2022	4.21	12/7/2026		109.05793	106.6539252	104.3156507	102.0409479	99.82774261	97.67404008	95.57792178	93.53754192	91.55112431
221207A00017	12/7/2022	3.86	12/7/2027		112.74256	109.259251	105.9038224	102.6709079	99.55539543	96.55241326	93.65731728	90.8656792	88.17327536
221207A00032	12/7/2022	4.52	12/7/2032		134.34955	125.074503	116.5405666	108.6839413	101.446647	94.7759656	88.62393935	82.94691762	77.70514985
221207A00035	12/7/2022	4.31	1/7/2026		105.19167	103.7461034	102.3276931	100.9357379	99.56956183	98.22851183	96.91195621	95.61928406	94.34990434
221207A00074	12/7/2022	4.66	12/6/2024		101.19187	100.8376095	100.4858328	100.136518	99.78963928	99.44517106	99.10308822	98.76336597	98.42597986
221208A00001	12/8/2022	4.6	12/8/2033		138.49217	127.9958213	118.4231944	109.6869443	101.7084489	94.41689242	87.74845279	81.64557752	76.05633773
221208A00005	12/8/2022	4.88	12/8/2037		154.89672	139.3666041	125.6773677	113.5953671	102.918	93.46942499	85.09689161	77.66759072	71.06594896
221208A00006	12/8/2022	4.88	12/8/2037		154.89672	139.3666041	125.6773677	113.5953671	102.918	93.46942499	85.09689161	77.66759072	71.06594896

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221208A00020	12/8/2022	4.11	12/8/2027		113.13515	109.6539237	106.3002699	103.0688451	99.95455578	96.95254759	94.05819272	91.26707815	88.57499457
221208A00050	12/8/2022	4.11	12/8/2027		113.13515	109.6539237	106.3002699	103.0688451	99.95455578	96.95254759	94.05819272	91.26707815	88.57499457
221208A00051	2/15/2023	4.27	2/13/2026		105.5714	104.0200501	102.4994647	101.0088017	99.54724759	98.11401756	96.70835477	95.32952894	93.97683516
221208A00052	2/15/2023	4.01	2/15/2028		113.59537	109.9142738	106.3747671	102.9706128	99.69588704	96.544959	93.51247484	90.59334241	87.78271689
221208A00054	2/1/2023	4.02	2/1/2028		113.45798	109.8206696	106.3221018	102.9562195	99.71726531	96.59976383	93.59850633	90.70853617	87.92513513
221208A00061	12/8/2022	4.11	12/8/2027		113.13515	109.6539237	106.3002699	103.0688451	99.95455578	96.95254759	94.05819272	91.26707815	88.57499457
221208A00062	12/8/2022	4.24	12/8/2028		118.01314	113.4088615	109.0148429	104.8203701	100.8153302	96.99017409	93.33588243	89.84393333	86.50627257
221208A00110	12/8/2022	4.07	12/8/2027		113.00016	109.521212	106.1697736	102.9405042	99.82831236	96.8283458	93.93597862	91.14679966	88.45660139
221209A00035	12/9/2022	3.91	12/9/2027		112.93452	109.4424733	106.0787868	102.8380657	99.71517237	96.70521078	93.80351417	91.00563293	88.30732334
221209A00037	12/9/2022	3.91	12/9/2027		112.93452	109.4424733	106.0787868	102.8380657	99.71517237	96.70521078	93.80351417	91.00563293	88.30732334
221209A00070	12/9/2022	4.42	12/9/2037		130.17542	121.8501863	114.2631628	107.3386424	101.0094355	95.21584177	89.90475571	85.02888415	80.54606264
221212A00011	12/12/2022	3.89	12/10/2027		112.87825	109.3844153	106.0191033	102.7769148	99.65270136	96.64155739	93.73880688	90.93999164	88.24085993
221212A00040	12/12/2022	4.45	12/12/2025		105.09283	103.7173678	102.3666168	101.039966	99.73682537	98.45662358	97.19880752	95.96284138	94.7482061
221212A00041	12/12/2022	4.15	12/10/2027		113.29365	109.8042767	106.4429354	103.2042577	100.0831249	97.07465934	94.17421096	91.37734603	88.67983574
221212A00063	12/12/2022	4.45	12/12/2025		105.09283	103.7173678	102.3666168	101.039966	99.73682537	98.45662358	97.19880752	95.96284138	94.7482061
221212A00071	12/12/2022	4.15	12/13/2027		113.32892	109.8307351	106.4611829	103.2148572	100.086605	97.07151599	94.16490995	91.36232467	88.65950463
221212A00117	6/12/2023	4.11	6/12/2026		106.72942	104.839148	102.9919337	101.1865405	99.4217781	97.69649769	96.00959017	94.35998457	92.74664648
221212A00131	12/12/2023	3.77	12/11/2026		108.05915	105.6563771	103.3196422	101.0467689	98.83566412	96.68431551	94.59078785	92.55321961	90.56981977
221213A00004	12/13/2022	3.99	12/13/2027		112.78676	109.2977553	105.9371347	102.6994981	99.57970089	96.572841	93.67424603	90.87946127	88.1842384
221213A00017	12/13/2022	4.1	12/14/2026		108.87819	106.4574397	104.1033677	101.8137691	99.58652495	97.41959829	95.31103051	93.25893783	91.261508
221213A00047	12/13/2022	3.8	12/13/2027		112.60692	109.1094425	105.7409548	102.4960188	99.36945621	96.35633344	93.45194841	90.65181854	87.95166933
221213A00049	12/13/2022	4.01	12/13/2027		112.85453	109.3643777	106.0026407	102.763918	99.64306391	96.63517538	93.73557902	90.9398192	88.24364668
221213A00051	12/13/2022	4.02	12/13/2027		112.88842	109.397689	106.0353938	102.7961279	99.67474541	96.66634256	93.76624552	90.96999816	88.27335082
221213A00056	12/13/2022	4.02	5/13/2026		106.45344	104.643295	102.8728953	101.1410632	99.44666835	97.7886232	96.16588148	94.57743604	93.02231703
221213A00061	12/13/2022	4.15	12/11/2026		108.96253	106.5488681	104.2014767	101.9181735	99.69685866	97.53551329	95.43219598	93.38503925	91.3922463
221214A00002	12/14/2022	4.62	12/13/2024		101.24676	100.8732208	100.502452	100.1344225	99.76910179	99.40646002	99.04646763	98.6890955	98.33431498
221214A00003	12/14/2022	4.26	12/12/2025		104.83137	103.4577902	102.108889	100.7840568	99.48270436	98.20426127	96.94817516	95.713911	94.50095044
221214A00020	12/14/2022	4.2	12/12/2025		104.7488	103.3758183	102.0275013	100.7032434	99.40245562	98.12456791	96.8690281	95.63530141	94.4228697
221214A00022	12/14/2022	4.17	2/13/2026		105.41648	103.8663689	102.3470063	100.857545	99.39717177	97.96510255	96.56058099	95.18287733	93.83128714
221214A00030	12/14/2022	4.02	12/14/2027		112.89981	109.4061609	106.0411395	102.7993349	99.67558966	96.66498929	93.7628498	90.9647056	88.2662981
221214A00031	12/14/2022	3.97	12/14/2027		112.73025	109.2394714	105.8772455	102.6381605	99.51706155	96.5090367	93.60940446	90.81370157	88.11767169
221214A00046	12/14/2022	4.02	12/14/2027		112.89981	109.4061609	106.0411395	102.7993349	99.67558966	96.66498929	93.7628498	90.9647056	88.2662981
221214A00077	12/14/2022	3.84	12/14/2027		112.75406	109.2513428	105.8778763	102.6282112	99.49715534	96.47976225	93.57131768	90.76732758	88.06350668

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221214A00079	12/14/2022	3.84	12/14/2027		112.75406	109.2513428	105.8778763	102.6282112	99.49715534	96.47976225	93.57131768	90.76732758	88.06350668
221214A00102	12/14/2022	4.33	12/15/2025		104.96135	103.5788339	102.2212825	100.8880775	99.5786199	98.29232995	97.02864637	95.78702556	94.56694096
221215A00082	12/15/2022	4.27	12/15/2025		104.87829	103.4963741	102.1394136	100.8067894	99.49790302	98.21217482	96.94904378	95.70796657	94.48841687
221215A00115	12/15/2022	4	12/15/2027		112.84333	109.3479033	105.9812752	102.7380213	99.61297336	96.6012073	93.69802995	90.89896712	88.19975225
221216A00007	12/16/2022	4.27	12/16/2025		104.88934	103.50468	102.1450648	100.8098749	99.49850835	98.21038273	96.94493407	95.70161626	94.47990032
221216A00008	12/16/2022	4.27	12/16/2025		104.88934	103.50468	102.1450648	100.8098749	99.49850835	98.21038273	96.94493407	95.70161626	94.47990032
221216A00009	12/16/2022	4.27	12/16/2025		104.88934	103.50468	102.1450648	100.8098749	99.49850835	98.21038273	96.94493407	95.70161626	94.47990032
221216A00010	12/16/2022	4.27	12/16/2025		104.88934	103.50468	102.1450648	100.8098749	99.49850835	98.21038273	96.94493407	95.70161626	94.47990032
221216A00013	12/16/2022	4.04	12/16/2027		112.99055	109.489886	106.1182891	102.8703153	99.7407826	96.72475397	93.81752414	91.01460754	88.31172685
221216A00023	12/16/2022	4.04	12/13/2027		112.95619	109.4643115	106.1008998	102.8605478	99.73810843	96.72867694	93.82757851	91.03035608	88.3327591
221216A00044	12/16/2022	4.43	4/16/2025		102.35558	101.6406664	100.9357714	100.2406804	99.55518956	98.87910061	98.21222068	97.55436219	96.90534261
221216A00045	12/16/2022	4.38	5/16/2025		102.63394	101.8362067	101.050909	100.2777583	99.51647391	98.76678353	98.02842329	97.30113725	96.58467713
221216A00047	12/16/2022	4.34	6/16/2025		102.91963	102.0364045	101.1683787	100.3151655	99.47638738	98.65167966	97.84068982	97.04307705	96.25851177
221216A00048	12/16/2022	4.32	7/16/2025		103.21535	102.249187	101.3011699	100.3707888	99.45755416	98.56099424	97.68065459	96.81609711	95.9668994
221216A00049	12/16/2022	4.29	8/15/2025		103.50907	102.4597935	101.4318558	100.4246139	99.43744621	98.469756	97.52096992	96.59053695	95.67792734
221219A00043	12/19/2022	4.07	12/17/2027		113.10399	109.5986635	106.2226523	102.970498	99.83700563	96.81722565	93.90644116	91.10015563	88.39408144
221220A00024	12/20/2022	4.7	12/20/2024		101.34761	100.9546678	100.5647822	100.1779214	99.7940499	99.4131332	99.03513709	98.66002794	98.28777265
221220A00025	12/20/2022	4.38	12/22/2025		105.11005	103.7077648	102.3311014	100.9794183	99.65209407	98.34852738	97.06813629	95.81035745	94.57464534
221220A00029	12/20/2022	4.7	12/20/2024		101.34761	100.9546678	100.5647822	100.1779214	99.7940499	99.4131332	99.03513709	98.66002794	98.28777265
221221A00038	12/21/2022	4.43	12/20/2024		101.29146	100.8980654	100.5077452	100.1204603	99.73617535	99.35485536	98.97646593	98.60097322	98.2283439
221221A00043	12/21/2022	4.26	12/19/2025		104.90855	103.5157422	102.1482608	100.8054704	99.48675971	98.19153716	96.91923014	95.66928419	94.44116236
221221A00046	12/21/2022	4.33	12/19/2025		105.00622	103.6127042	102.2445228	100.9010443	99.58165704	98.28576911	97.0128076	95.76221779	94.53346244
221221A00048	12/21/2022	4.22	12/21/2026		109.24733	106.8031649	104.4267788	102.1159133	99.86840034	97.682156	95.55517731	93.48553834	91.47138682
221221A00049	12/21/2022	4.15	12/21/2027		113.42298	109.9012705	106.5098062	103.2430763	100.0958351	97.06308519	94.14006493	91.32223567	88.60527024
221221A00053	12/21/2022	4.15	12/21/2027		113.42298	109.9012705	106.5098062	103.2430763	100.0958351	97.06308519	94.14006493	91.32223567	88.60527024
221222A00012	12/22/2022	4.35	12/16/2025		105.00031	103.6148433	102.2544372	100.9184698	99.60633882	98.31746136	97.05127317	95.80722781	94.58479599
221222A00013	12/22/2022	4.34	12/23/2025		105.06515	103.6605237	102.281605	100.9277497	99.59833326	98.2927515	97.01041971	95.75077187	94.51325993
221222A00014	12/22/2022	4.65	12/23/2024		101.35778	100.9565939	100.5585895	100.1637339	99.77198963	99.38331999	98.99768875	98.61506028	98.2353995
221222A00024	12/22/2022	4.35	12/15/2025		104.98904	103.6063205	102.2485722	100.9151735	99.60552552	98.31904833	97.05518056	95.81337855	94.59311566
221222A00026	12/22/2022	4.22	12/15/2026		109.1763	106.7492365	104.389074	102.093596	99.86067463	97.6882645	95.57439902	93.51718676	91.51480822
221222A00027	12/22/2022	4.16	12/15/2027		113.38638	109.8817363	106.5061483	103.2541781	100.1206491	97.10062874	94.1894161	91.38252942	88.67569491
221222A00035	12/30/2022	4.34	12/30/2025		105.14386	103.7199414	102.3223932	100.950542	99.60374029	98.28136223	96.98280222	95.70747426	94.45481118
221222A00053	12/22/2022	4.18	12/22/2027		112.95407	109.5719866	106.3154458	103.1790637	100.1577146	97.24652094	94.44083928	91.73624818	89.12853605



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
221223A00016	12/23/2022	4.73	12/23/2024		101.38991	100.9886379	100.5905567	100.1956247	99.80380447	99.41505931	99.02935298	98.64664984	98.26691482
221223A00025	12/23/2022	4.25	12/23/2027		113.7881	110.2546775	106.8520605	103.5747115	100.4173556	97.37496863	94.44276323	91.61617674	88.89085936
221223A00035	12/23/2022	4.44	12/23/2025		105.20579	103.8001246	102.4201906	101.0653372	99.73493944	98.42839261	97.1451116	95.88452997	94.64609926
221228A00044	12/28/2022	4.31	12/28/2027		114.05406	110.5023406	107.0825386	103.7890491	100.6165353	97.55991455	94.61434503	91.77521274	89.03811976
221228A00075	12/28/2022	4.09	12/28/2027		113.77168	110.2130221	106.7868579	103.4875457	100.3097152	97.24825257	94.29828652	91.4551756	88.71449605
221228A00129	12/28/2022	4.11	12/28/2027		113.52778	110.0441557	106.6914252	103.4639179	100.3562437	97.3632751	94.48013309	91.7021736	89.02497478
221229A00075	12/29/2022	5.2	12/29/2037		159.30458	143.4357876	129.4465063	117.097923	106.1830151	96.52215711	87.95935487	80.35901425	73.60316706
221230A00055	12/30/2022	4.59	12/30/2024		101.45566	101.03441	100.6166602	100.2023676	99.79148942	99.38398361	98.97980872	98.57892399	98.18128934
221230A00059	12/30/2022	4.47	6/30/2025		103.30363	102.378787	101.4705476	100.5784633	99.70210561	98.84106086	97.99492987	97.1633272	96.34588063
221230A00072	12/30/2022	4.8	12/31/2024		101.50086	101.0773895	100.6574489	100.240996	99.82798746	99.41838075	99.01213398	98.60920595	98.20955615
221230A00086	12/30/2022	4.8	1/2/2025		101.52194	101.0929561	100.6676014	100.2458286	99.82759271	99.41284925	99.00155459	98.59366582	98.18914074
221230A00087	12/30/2022	4.56	1/2/2026		105.4934	104.0588848	102.6510715	101.2692769	99.91284201	98.58112989	97.27352438	95.98942937	94.72826795
221230A00088	12/30/2022	4.42	12/30/2026		109.8398	107.3639668	104.9573673	102.6176791	100.3426684	98.13018967	95.97818096	93.88466055	91.84772319
221230A00108	12/30/2022	4.8	12/30/2024		101.4905	101.0697849	100.6525602	100.2387805	99.82840329	99.42138678	99.01768979	98.61727183	98.22009307
221230A00109	12/30/2022	4.56	12/30/2025		105.45748	104.0312342	102.6313923	101.2572861	99.90826742	98.58370927	97.2830051	96.00556798	94.75082979
221230A00111	12/30/2022	4.42	12/30/2026		109.8398	107.3639668	104.9573673	102.6176791	100.3426684	98.13018967	95.97818096	93.88466055	91.84772319
230103A00066	1/3/2023	4.19	7/15/2026		107.53539	105.5421088	103.5963017	101.6965437	99.84146376	98.02974122	96.26010323	94.53132284	92.84221704
230103A00068	1/3/2023	4.69	3/13/2025		102.19541	101.5734068	100.9589954	100.3520411	99.75240849	99.15996524	98.57458232	97.99613375	97.42449655
230103A00070	1/3/2023	4.53	10/15/2025		104.48438	103.263018	102.0703409	100.905345	99.7670728	98.65461058	97.56708598	96.50366554	95.46355268
230104A00004	1/4/2023	4.19	1/4/2028		113.72537	110.1601288	106.7280467	103.4234373	100.2408856	97.17523604	94.22157845	91.3752352	88.63174883
230104A00044	1/4/2023	4.2	1/4/2028		113.75986	110.1940264	106.7613665	103.4561952	100.2730969	97.20691555	94.25274048	91.40589354	88.66191677
230105A00020	1/5/2023	4.32	1/5/2028		114.18595	110.6100323	107.1676997	103.8532417	100.6612237	97.58647117	94.62405659	91.76928563	89.01768513
230105A00028	1/5/2023	4.93	10/18/2024		100.77457	100.5556468	100.3376928	100.1206977	99.90465521	99.68955891	99.47540253	99.26217988	99.04988477
230106A00017	1/6/2023	4.23	1/6/2028		113.88721	110.3137091	106.8738536	103.5619243	100.372479	97.3003367	94.34056362	91.48845976	88.73954671
230106A00019	1/6/2023	4.23	1/6/2028		113.88721	110.3137091	106.8738536	103.5619243	100.372479	97.3003367	94.34056362	91.48845976	88.73954671
230106A00032	1/6/2023	4.28	1/6/2026		105.32636	103.8793779	102.4595724	101.0662432	99.69871432	98.35633204	97.03846448	95.74450042	94.47384858
230109A00011	1/9/2023	4.61	1/6/2025		101.48045	101.040658	100.6046869	100.1724867	99.74400857	99.3192045	98.89802724	98.48043039	98.06636831
230109A00027	1/9/2023	4.64	12/17/2024		101.29426	100.9096609	100.5279925	100.1492255	99.77332677	99.40026359	99.03000386	98.66251591	98.29776856
230109A00042	1/9/2023	4.07	12/20/2027		113.13859	109.6244725	106.2402639	102.9804776	99.83988362	96.81349994	93.89657902	91.08459564	88.3732353
230109A00083	1/9/2023	4.79	1/11/2038		154.01438	138.4472616	124.7383568	112.6502661	101.9773299	92.54122641	84.18719967	76.78082451	70.20523123
230110A00006	1/10/2023	4.06	1/10/2028		113.34577	109.7707069	106.3298365	103.0173998	99.82791457	96.75616255	93.79717519	90.94622032	88.19878961
230110A00023	1/10/2023	4.3	1/12/2026		105.23378	103.7745788	102.3430364	100.9384321	99.5600716	98.20728416	96.87942136	95.57585627	94.29598251
230110A00035	1/10/2023	4.08	1/10/2028		113.11068	109.6113219	106.2443137	103.0038874	99.88455716	96.8811069	93.98857508	91.20224087	88.51761108

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230110A00037	1/11/2023	4.66	11/15/2024		100.98603	100.6897921	100.3953049	100.1025532	99.81152156	99.52219476	99.23455774	98.94859562	98.66429372
230110A00040	1/13/2023	4.07	12/13/2027		113.05784	109.5642452	106.1991588	102.9571777	99.83315295	96.8221785	93.91957799	91.12089297	88.42187152
230110A00043	1/10/2023	3.84	1/10/2028		113.05874	109.4766937	106.0294328	102.7111558	99.51634617	96.43975328	93.47637842	90.62146111	87.87046647
230110A00047	1/10/2023	3.84	1/10/2028		113.05874	109.4766937	106.0294328	102.7111558	99.51634617	96.43975328	93.47637842	90.62146111	87.87046647
230110A00055	1/10/2023	4.06	1/10/2028		113.34577	109.7707069	106.3298365	103.0173998	99.82791457	96.75616255	93.79717519	90.94622032	88.19878961
230110A00070	1/10/2023	4.27	1/9/2026		105.15624	103.7056137	102.2823403	100.8857081	99.5150342	98.16965844	96.84894271	95.55226987	94.27904292
230110A00074	1/12/2023	4.65	1/10/2025		101.53854	101.0876712	100.6408245	100.1979417	99.75897002	99.3238577	98.89255382	98.46500837	98.04117223
230111A00004	1/11/2023	3.83	1/11/2028		113.03523	109.450856	106.001457	102.6812218	99.48462187	96.40639545	93.44153334	90.58526529	87.83304729
230111A00013	1/11/2023	4.25	1/9/2026		105.12717	103.6767724	102.2537152	100.8572955	99.48683051	98.14166017	96.82114646	95.52467233	94.25164087
230111A00019	1/11/2023	3.83	1/11/2028		113.03523	109.450856	106.001457	102.6812218	99.48462187	96.40639545	93.44153334	90.58526529	87.83304729
230111A00039	1/11/2023	4.6	1/13/2025		101.54591	101.0868346	100.6319232	100.1811214	99.73437352	99.29162477	98.85282147	98.41791086	97.98684113
230111A00046	1/11/2023	4.28	1/13/2026		105.21581	103.7540873	102.3201153	100.9131749	99.53256844	98.17762159	96.84768267	95.5421216	94.26032898
230111A00069	1/11/2023	4.54	1/10/2025		101.4889	101.0381675	100.5914513	100.1486983	99.70985557	99.27487138	98.84369482	98.4162759	97.99256548
230111A00072	1/11/2023	4.21	1/12/2026		105.10226	103.6440617	102.2135027	100.809865	99.43245478	98.0806017	96.75365779	95.45099651	94.17201187
230112A00004	1/12/2023	4	1/12/2028		113.16043	109.583121	106.1403243	102.8262546	99.6354083	96.56254698	93.60268344	90.75106815	88.00317656
230112A00014	1/12/2023	4.09	1/12/2027		109.18657	106.6837328	104.2519137	101.8886882	99.59173317	97.35881844	95.18780237	93.07662781	91.02331815
230112A00041	1/12/2023	4.2	1/12/2026		105.08765	103.6295598	102.1991101	100.7955798	99.41827513	98.06652588	96.73968406	95.4371232	94.15823735
230112A00042	1/12/2023	4.09	1/12/2027		109.18657	106.6837328	104.2519137	101.8886882	99.59173317	97.35881844	95.18780237	93.07662781	91.02331815
230112A00044	1/12/2023	4	1/12/2028		113.16043	109.583121	106.1403243	102.8262546	99.6354083	96.56254698	93.60268344	90.75106815	88.00317656
230112A00059	3/1/2023	4.04	3/2/2026		105.42218	103.8217857	102.2536668	100.7169173	99.21066079	97.73405358	96.28628269	94.86656468	93.4741442
230112A00060	3/15/2023	4.01	3/13/2026		105.498	103.8673788	102.2700383	100.7050206	99.17140838	97.66831916	96.19490326	94.75034241	93.33384827
230112A00061	3/15/2023	4.01	3/13/2026		105.498	103.8673788	102.2700383	100.7050206	99.17140838	97.66831916	96.19490326	94.75034241	93.33384827
230112A00062	3/15/2023	3.83	3/15/2028		113.28539	109.5271783	105.9161266	102.4456341	99.10943715	95.90158902	92.81644132	89.84862736	86.99304626
230112A00063	3/15/2023	3.83	3/15/2028		113.28539	109.5271783	105.9161266	102.4456341	99.10943715	95.90158902	92.81644132	89.84862736	86.99304626
230112A00065	1/12/2023	4.09	1/12/2027		109.18657	106.6837328	104.2519137	101.8886882	99.59173317	97.35881844	95.18780237	93.07662781	91.02331815
230112A00066	1/12/2023	4	1/12/2028		113.16043	109.583121	106.1403243	102.8262546	99.6354083	96.56254698	93.60268344	90.75106815	88.00317656
230113A00037	1/26/2024	3.43	1/30/2026		104.12309	102.6246243	101.155486	99.7148856	98.30206542	96.91629391	95.55686478	94.22309577	92.91432772
230113A00055	1/13/2023	3.88	1/13/2028		112.75485	109.1818512	105.7433717	102.43362	99.24708669	96.17852842	93.22295341	90.375608	87.63196392
230113A00057	1/13/2023	3.99	1/13/2028		112.0401	108.744061	105.5706556	102.5145708	99.57075951	96.73442198	94.00099201	91.36612421	88.82568195
230113A00080	1/13/2023	4.18	1/13/2026		105.06941	103.6087975	102.1759221	100.7700596	99.39051275	98.03660781	96.70769352	95.40314025	94.12233906
230117A00015	1/17/2023	4.52	1/17/2025		101.54818	101.0781649	100.6125198	100.1511804	99.69408692	99.24118078	98.79240444	98.34770139	97.90701619
230117A00040	1/17/2023	4.07	1/19/2027		109.21682	106.6947328	104.2447272	101.8643322	99.55117248	97.30296859	95.11753217	92.99276187	90.92663933
230117A00048	1/17/2023	3.97	1/14/2028		113.07873	109.4973858	106.0509227	102.7335286	99.53967632	96.46410589	93.5018098	90.64801957	87.89819299

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230117A00087	1/17/2023	3.93	1/18/2028		112.98409	109.3934924	105.9385441	102.6133819	99.41243067	96.33038567	93.36219764	90.5030591	87.74839141
230118A00019	1/18/2023	3.59	1/18/2028		112.27484	108.6845628	105.2303176	101.9062176	98.70665993	95.62631369	92.66010539	89.80320495	87.05101269
230118A00020	1/18/2023	3.87	1/16/2026		104.83841	103.3684446	101.9265886	100.5121077	99.12429053	97.76245008	96.42592236	95.1140656	93.82625927
230118A00023	1/18/2023	3.8	1/18/2028		112.53067	108.9479751	105.500702	102.1830018	98.98930713	95.91432056	92.9529998	90.10054407	87.35238112
230118A00029	1/18/2023	3.81	1/18/2028		112.56555	108.9822457	105.5343822	102.2161079	99.02185509	95.94632557	92.98447656	90.13150676	87.38284345
230118A00033	1/18/2023	3.81	1/18/2028		112.56555	108.9822457	105.5343822	102.2161079	99.02185509	95.94632557	92.98447656	90.13150676	87.38284345
230118A00039	1/18/2023	3.81	1/18/2028		112.56555	108.9822457	105.5343822	102.2161079	99.02185509	95.94632557	92.98447656	90.13150676	87.38284345
230118A00053	1/18/2023	3.87	1/16/2026		104.83841	103.3684446	101.9265886	100.5121077	99.12429053	97.76245008	96.42592236	95.1140656	93.82625927
230118A00056	1/18/2023	3.87	1/16/2026		104.83841	103.3684446	101.9265886	100.5121077	99.12429053	97.76245008	96.42592236	95.1140656	93.82625927
230118A00058	1/23/2023	4	2/17/2026		105.20185	103.6415152	102.1122575	100.6132137	99.14355655	97.70248896	96.28924208	94.90307434	93.54327013
230118A00087	1/18/2023	4.02	1/16/2026		104.8668	103.3997547	101.9607181	100.5489568	99.16376314	97.80445354	96.47036726	95.16086566	93.87533116
230119A00034	1/19/2023	3.82	1/19/2028		112.61123	109.0244128	105.57326	102.2519084	99.05477681	95.97655497	93.0121885	90.15686531	87.40600257
230119A00067	1/19/2023	3.84	1/20/2026		104.83587	103.3552503	101.9031451	100.4788026	99.08149653	97.71052554	96.36521201	95.04490112	93.74895989
230119A00075	1/19/2023	4.44	1/21/2025		101.54866	101.0677207	100.5913461	100.1194755	99.6520452	99.18899245	98.73025584	98.27577506	97.82549092
230119A00105	1/19/2023	3.9	1/19/2027		108.79443	106.2776479	103.832836	101.4575212	99.14933156	96.90599091	94.72531406	92.60520272	90.54364143
230119A00108	1/19/2023	3.81	1/19/2028		112.57633	108.9901156	105.5395541	102.2187773	99.02220483	95.94452676	92.98068931	90.12588093	87.37551927
230119A00137	1/19/2023	3.9	1/19/2027		108.79443	106.2776479	103.832836	101.4575212	99.14933156	96.90599091	94.72531406	92.60520272	90.54364143
230120A00021	1/20/2023	4.13	1/20/2026		105.07215	103.5928779	102.1420452	100.7189009	99.3227217	97.95280898	96.60848785	95.289106	93.99403287
230120A00022	1/20/2023	3.9	1/20/2028		112.9015	109.3068996	105.8483098	102.5198486	99.31591747	96.23118977	93.26059582	90.3993091	87.6427332
230120A00027	1/20/2023	4.13	1/20/2026		105.07215	103.5928779	102.1420452	100.7189009	99.3227217	97.95280898	96.60848785	95.289106	93.99403287
230120A00029	1/20/2023	3.9	1/20/2028		112.9015	109.3068996	105.8483098	102.5198486	99.31591747	96.23118977	93.26059582	90.3993091	87.6427332
230120A00049	1/20/2023	4.53	1/16/2025		101.5431	101.0758335	100.6128842	100.1541912	99.69969584	99.2493405	98.80306859	98.36082457	97.9225539
230120A00065	1/20/2023	4.52	1/21/2025		101.58719	101.1061404	100.6296586	100.1576816	99.6901455	99.22698771	98.76814677	98.31356235	97.86317527
230120A00071	1/20/2023	4.31	1/21/2025		101.54726	101.065591	100.5885027	100.1159345	99.64782214	99.18410258	98.72471403	98.26959581	97.81868838
230120A00079	1/20/2023	3.68	1/20/2028		112.6111	109.0094808	105.5444735	102.2101535	99.0008873	95.91131509	92.93633638	90.07109569	87.31096948
230120A00082	1/20/2023	4.53	1/16/2025		101.5431	101.0758335	100.6128842	100.1541912	99.69969584	99.2493405	98.80306859	98.36082457	97.9225539
230120A00099	1/20/2023	3.92	1/20/2026		104.95465	103.4731148	102.0201076	100.5948787	99.1967012	97.82487348	96.4787175	95.15757806	93.86082182
230120A00103	1/20/2023	3.92	1/20/2026		104.95465	103.4731148	102.0201076	100.5948787	99.1967012	97.82487348	96.4787175	95.15757806	93.86082182
230120A00114	1/20/2023	4.13	1/20/2026		105.07215	103.5928779	102.1420452	100.7189009	99.3227217	97.95280898	96.60848785	95.289106	93.99403287
230120A00117	1/20/2023	3.9	1/20/2028		112.9015	109.3068996	105.8483098	102.5198486	99.31591747	96.23118977	93.26059582	90.3993091	87.6427332
230123A00016	1/23/2023	4.64	12/2/2024		101.14508	100.8018535	100.4609563	100.1223657	99.7860581	99.45201062	99.12020046	98.79060522	98.46320274
230123A00051	1/23/2023	3.75	1/21/2028		112.8672	109.2583717	105.7864814	102.4455916	99.23005198	96.13448686	93.15378078	90.28306425	87.5177005
230123A00078	1/23/2023	4.41	6/23/2025		103.05506	102.1521604	101.2651254	100.3935406	99.53700425	98.6951285	97.86753872	97.05387294	96.25378135

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230124A00004	1/24/2023	3.99	1/24/2028		113.261	109.6492051	106.1744232	102.8307045	99.61239444	96.51411398	93.5307443	90.65741284	87.88948004
230124A00014	1/24/2023	4.23	1/26/2026		105.28722	103.7902849	102.3224277	100.8828712	99.47086874	98.0856993	96.72666664	95.39309809	94.08434356
230124A00015	1/24/2023	4.09	1/25/2027		109.33505	106.7952702	104.3285272	101.9322971	99.60415858	97.34178858	95.14295762	93.00552544	90.92743681
230124A00022	1/24/2023	4.39	1/24/2025		101.61504	101.1249574	100.6396167	100.1589483	99.6828845	99.21135939	98.74430807	98.28166692	97.82337352
230124A00024	1/24/2023	4.23	1/23/2026		105.25385	103.7651768	102.3052711	100.8733691	99.4687353	98.09065989	96.73845703	95.41146404	94.10904039
230124A00025	1/24/2023	4.09	1/25/2027		109.33505	106.7952702	104.3285272	101.9322971	99.60415858	97.34178858	95.14295762	93.00552544	90.92743681
230124A00035	1/24/2023	4.23	1/26/2026		105.28722	103.7902849	102.3224277	100.8828712	99.47086874	98.0856993	96.72666664	95.39309809	94.08434356
230124A00041	1/24/2023	4.6	1/24/2025		101.65564	101.1661893	100.681466	100.2013992	99.72592177	99.25496809	98.78847364	98.32637519	97.86861068
230124A00045	1/24/2023	3.99	1/24/2028		113.261	109.6492051	106.1744232	102.8307045	99.61239444	96.51411398	93.5307443	90.65741284	87.88948004
230124A00046	1/24/2023	3.99	1/24/2028		113.261	109.6492051	106.1744232	102.8307045	99.61239444	96.51411398	93.5307443	90.65741284	87.88948004
230124A00055	6/15/2023	4.13	6/15/2032		129.61726	121.0234696	113.0848848	105.7476691	98.96267985	92.68503954	86.87374544	81.49131658	76.50347462
230124A00056	3/28/2023	4.19	3/28/2033		132.5369	123.0204047	114.290895	106.278372	98.91943554	92.15662722	85.93784378	80.21581143	74.94761437
230124A00058	6/15/2023	4.21	6/15/2034		136.42121	125.4860406	115.5633375	106.5527006	98.36421568	90.91730716	84.13972311	77.96663592	72.33984386
230125A00010	1/25/2023	4.01	1/25/2027		109.13495	106.5977063	104.1334393	101.7396308	99.41386109	97.1538088	94.95724592	92.82203364	90.74611817
230125A00021	1/25/2023	3.95	1/26/2026		105.06352	103.5651075	102.0958515	100.6549742	99.24172602	97.8553829	96.4952458	95.16063937	93.85091101
230125A00022	1/25/2023	3.8	1/25/2027		108.94523	106.4033518	103.9347421	101.536863	99.20728102	96.94366182	94.74376514	92.60544057	90.52662332
230125A00023	1/25/2023	3.69	1/25/2028		112.70033	109.0834697	105.6042925	102.2568064	99.0353132	95.93439315	92.94888945	90.07389408	87.30473433
230125A00030	1/25/2023	3.91	1/25/2028		112.9917	109.381896	105.9091719	102.5675749	99.35144248	96.25538827	93.27428673	90.40325914	87.63766025
230125A00031	1/25/2023	3.74	1/25/2028		111.76938	108.4444187	105.2442538	102.1634356	99.19678458	96.33937757	93.58653328	90.93379901	88.37693804
230126A00015	1/26/2023	4.08	1/26/2027		109.32143	106.7791243	104.3100024	101.9115353	99.58129426	97.31694906	95.11626362	92.97709139	90.89737122
230126A00034	1/26/2023	4.56	1/24/2025		101.63604	101.1466501	100.6619822	100.1819704	99.7065476	99.23564816	98.7692076	98.30716266	97.8494513
230126A00036	1/26/2023	4.19	1/26/2026		105.22722	103.7307613	102.2633638	100.824259	99.41270059	98.0279677	96.66936429	95.33621789	94.02787859
230127A00012	1/27/2023	4	1/27/2028		113.32994	109.7087539	106.2252231	102.8733636	99.6474821	96.54216322	93.55225426	90.67285096	87.89928412
230127A00044	1/27/2023	4.25	1/27/2026		105.32839	103.8284689	102.3577299	100.9153948	99.50071309	98.11296001	96.75143568	95.41546397	94.10439153
230127A00045	1/27/2023	4.12	1/27/2027		109.4331	106.88667	104.4136161	102.0113932	99.67756388	97.40979006	95.20582798	93.0635239	90.98080983
230127A00046	1/27/2023	4	1/27/2028		113.32994	109.7087539	106.2252231	102.8733636	99.6474821	96.54216322	93.55225426	90.67285096	87.89928412
230127A00048	1/27/2023	4	1/27/2028		113.32994	109.7087539	106.2252231	102.8733636	99.6474821	96.54216322	93.55225426	90.67285096	87.89928412
230127A00053	1/27/2023	4	1/27/2028		113.32994	109.7087539	106.2252231	102.8733636	99.6474821	96.54216322	93.55225426	90.67285096	87.89928412
230127A00056	1/27/2023	3.78	1/27/2028		113.03889	109.410603	105.9205828	102.5628009	99.3315281	96.22131534	93.22697849	90.34358384	87.56643457
230127A00059	1/27/2023	4.41	1/27/2025		101.65423	101.1558196	100.6623026	100.1736106	99.6896731	99.21042073	98.7357856	98.26570111	97.80010193
230127A00060	1/30/2023	4.25	2/3/2026		105.41171	103.891511	102.4011766	100.9398995	99.5069027	98.10143636	96.72277676	95.37022503	94.04310613
230127A00073	1/27/2023	4.24	2/17/2026		105.57631	104.0129481	102.4807151	100.9787477	99.50621746	98.06232577	96.64630255	95.25740495	93.89491617
230127A00075	1/27/2023	4.23	7/28/2025		103.38226	102.3807437	101.3986806	100.4355054	99.49067627	98.56367219	97.65399156	96.7611515	95.88468694

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230127A00079	1/27/2023	4.23	7/28/2025		103.38226	102.3807437	101.3986806	100.4355054	99.49067627	98.56367219	97.65399156	96.7611515	95.88468694
230127A00095	1/27/2023	4.59	1/27/2025		101.68057	101.1828415	100.6899955	100.2019581	99.71865905	99.24002955	98.76600206	98.29651037	97.83148953
230127A00096	1/27/2023	4.21	1/27/2026		105.26829	103.7688371	102.2985593	100.8566777	99.44244157	98.05512659	96.69403304	95.35848498	94.04782924
230130A00045	1/30/2023	4.02	1/28/2028		113.41155	109.7861994	106.2987512	102.9432053	99.7138543	96.60526983	93.61228694	90.72998989	87.95369874
230130A00084	1/30/2023	4.29	1/30/2026		105.42235	103.9136883	102.4345246	100.9840719	99.56156768	98.16627593	96.79748601	95.45451151	94.13668923
230130A00086	1/30/2023	4.16	2/1/2027		109.5928	107.0305173	104.5424127	102.1259046	99.77851696	97.49787494	95.28170016	93.12780609	91.03409377
230130A00087	1/30/2023	4.04	1/28/2028		113.48186	109.8552731	106.3666258	103.0099143	99.77943004	96.66974343	93.67568842	90.79234824	88.01504192
230130A00095	2/3/2023	4.25	5/26/2026		106.78454	104.9404857	103.1375015	101.3744192	99.6501076	97.96347585	96.31347116	94.69907739	93.11931347
230130A00096	1/30/2023	4.67	1/30/2025		101.75091	101.2447639	100.7436603	100.2475197	99.75626859	99.26983504	98.78814837	98.31113933	97.83874002
230130A00127	1/30/2023	4.02	2/1/2028		113.45798	109.8206696	106.3221018	102.9562195	99.71726531	96.59976383	93.59850633	90.70853617	87.92513513
230131A00004	1/31/2023	3.76	1/31/2028		113.01262	109.3738405	105.8741359	102.5074298	99.26794286	96.15017907	93.14891049	90.25916247	87.4762
230131A00006	1/31/2023	4.23	2/2/2026		105.36846	103.8515879	102.3644871	100.9063544	99.47641649	98.07392718	96.69816607	95.34843752	94.02406949
230131A00009	1/31/2023	3.98	1/31/2028		113.30468	109.6730132	106.1798196	102.8190536	99.58497219	96.47211321	93.4752805	90.58952916	87.81015203
230131A00032	2/3/2023	4.17	7/30/2026		107.40845	105.3810242	103.4027592	101.4721495	99.58775057	97.74817148	95.95207291	94.19816468	92.48520364
230131A00034	2/3/2023	3.99	12/23/2027		112.89992	109.3816551	105.9937827	102.7307752	99.58737223	96.55856303	93.63957341	90.82585323	88.11306466
230131A00057	1/31/2023	4.1	1/29/2027		109.40586	106.8543757	104.3765624	101.9698644	99.63182951	97.36010545	95.15243514	93.00665219	90.92067669
230131A00067	1/31/2023	4.02	2/2/2026		105.24847	103.7292577	102.2399146	100.7796343	99.34763968	97.94318117	96.56553507	95.21400259	93.88790877
230131A00071	1/31/2023	4.22	1/30/2026		105.3166	103.8087645	102.3304168	100.8807661	99.45905005	98.06453321	96.69650521	95.35428	94.03719469
230131A00087	2/3/2023	4.26	1/5/2026		105.09687	103.6573467	102.244763	100.8584324	99.4976866	98.16187957	96.85038657	95.5626033	94.29794502
230131A00095	1/31/2023	4.22	1/30/2026		105.3166	103.8087645	102.3304168	100.8807661	99.45905005	98.06453321	96.69650521	95.35428	94.03719469
230201A00003	2/1/2023	3.93	1/31/2028		113.12849	109.4999297	106.0097474	102.6519086	99.42067307	96.31058165	93.31644095	90.43330872	87.65648037
230201A00011	2/1/2023	3.93	2/1/2028		113.1406	109.5088795	106.0157403	102.6551347	99.42131068	96.30879805	93.31239313	90.42714407	87.64833727
230201A00012	2/1/2023	4.08	2/1/2027		109.39116	106.8314501	104.3458588	101.9318085	99.58682489	97.30853468	95.09466109	92.94301908	90.85151114
230201A00047	2/1/2023	4.42	2/3/2025		101.72831	101.2105455	100.6980562	100.1907647	99.68859229	99.1914615	98.69929663	98.21202344	97.72956916
230201A00048	2/1/2023	4.42	2/3/2025		101.72831	101.2105455	100.6980562	100.1907647	99.68859229	99.1914615	98.69929663	98.21202344	97.72956916
230202A00006	2/2/2023	3.92	2/2/2027		109.0002	106.4424628	103.9588772	101.5468628	99.20394152	96.92773656	94.71596785	92.56644735	90.47707474
230202A00008	2/2/2023	3.81	2/2/2028		112.72921	109.1017891	105.6129418	102.2566152	99.02705286	95.91878055	92.92659102	90.04552919	87.27087864
230202A00011	2/2/2023	3.92	2/2/2027		109.0002	106.4424628	103.9588772	101.5468628	99.20394152	96.92773656	94.71596785	92.56644735	90.47707474
230202A00033	2/2/2023	4.26	2/3/2025		101.64549	101.1279668	100.6157234	100.108676	99.60674586	99.10985563	98.61792959	98.13089351	97.64867465
230202A00034	2/2/2024	3.41	2/2/2026		104.12286	102.6158195	101.1383759	99.6897336	98.26912374	96.87580448	95.5090596	94.16819748	92.85254998
230202A00038	2/2/2023	3.84	2/2/2028		112.83509	109.2057991	105.7151395	102.3570514	99.12577646	96.01583879	93.0220294	90.13939164	87.36320752
230202A00041	2/2/2023	3.82	2/2/2028		112.7645	109.1364591	105.6470077	102.290094	99.05996072	95.9511333	92.95840381	90.07681668	87.30165493
230202A00042	2/2/2023	3.82	2/2/2028		112.7645	109.1364591	105.6470077	102.290094	99.05996072	95.9511333	92.95840381	90.07681668	87.30165493



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230202A00045	2/2/2023	3.62	2/2/2028		112.54153	108.9051347	105.4079821	102.0439724	98.80731119	95.6924884	92.69426323	89.80764921	87.02790041
230202A00050	2/2/2023	3.82	2/2/2028		112.7645	109.1364591	105.6470077	102.290094	99.05996072	95.9511333	92.95840381	90.07681668	87.30165493
230202A00061	2/2/2023	4.16	2/2/2026		105.26213	103.7460955	102.2598191	100.8024965	99.37335491	97.97164841	96.59665699	95.24768532	93.92406173
230202A00064	2/2/2023	4.11	5/15/2026		106.4005	104.5896989	102.8186863	101.0862955	99.39140174	97.73292267	96.10981634	94.52107928	92.96574473
230202A00065	2/2/2023	3.87	5/15/2028		114.1188	110.1746587	106.3907896	102.7597925	99.27464803	95.92869956	92.71563234	89.62945375	86.66447496
230202A00096	2/2/2023	3.81	2/2/2028		112.72921	109.1017891	105.6129418	102.2566152	99.02705286	95.91878055	92.92659102	90.04552919	87.27087864
230203A00021	2/8/2023	4.21	6/17/2026		106.97799	105.0714583	103.2086256	101.3882359	99.60907308	97.86996413	96.16977671	94.50741773	92.88183162
230203A00025	2/3/2023	4.63	2/3/2025		101.77108	101.2539818	100.7421473	100.2354934	99.73394181	99.23741553	98.74583928	98.25913925	97.77724306
230203A00026	2/3/2023	3.98	2/3/2028		113.34142	109.7002612	106.1981821	102.829102	99.58724224	96.46710774	93.46347135	90.57135926	87.78603731
230203A00038	2/3/2023	4.1	2/3/2027		109.4672	106.9004772	104.4081918	101.9877445	99.63664614	97.35250961	95.13304489	92.97605453	90.87942928
230203A00039	2/3/2023	3.98	2/3/2028		113.34142	109.7002612	106.1981821	102.829102	99.58724224	96.46710774	93.46347135	90.57135926	87.78603731
230203A00043	2/14/2023	4.31	2/13/2026		105.63337	104.0815226	102.560448	101.0693044	99.60727792	98.17358356	96.76746428	95.38818958	94.03505437
230203A00045	2/14/2023	4.31	2/13/2026		105.63337	104.0815226	102.560448	101.0693044	99.60727792	98.17358356	96.76746428	95.38818958	94.03505437
230203A00046	2/10/2023	4.65	2/10/2025		101.85265	101.3162379	100.7854918	100.2603209	99.74063744	99.22635557	98.71739119	98.21366196	97.71508722
230203A00048	2/10/2023	4.65	2/10/2025		101.85265	101.3162379	100.7854918	100.2603209	99.74063744	99.22635557	98.71739119	98.21366196	97.71508722
230203A00050	2/14/2023	4.64	2/14/2025		101.88786	101.3404314	100.7989062	100.2631846	99.73317341	99.20878148	98.68991959	98.17650038	97.66843835
230203A00051	2/14/2023	4.64	2/14/2025		101.88786	101.3404314	100.7989062	100.2631846	99.73317341	99.20878148	98.68991959	98.17650038	97.66843835
230203A00053	2/10/2023	4.32	2/10/2026		105.60967	104.0669854	102.5548043	101.072296	99.61865742	98.19311425	96.7949193	95.42335149	94.07771465
230203A00054	2/10/2023	4.32	2/10/2026		105.60967	104.0669854	102.5548043	101.072296	99.61865742	98.19311425	96.7949193	95.42335149	94.07771465
230203A00057	2/3/2023	4.34	2/3/2026		105.54867	104.0273878	102.5359899	101.0736676	99.63964346	98.23316724	96.8535147	95.49998654	94.17190729
230203A00058	2/3/2023	4.34	2/3/2026		105.54867	104.0273878	102.5359899	101.0736676	99.63964346	98.23316724	96.8535147	95.49998654	94.17190729
230203A00059	2/3/2023	4.67	2/3/2025		101.79178	101.2746187	100.7627229	100.2560081	99.75439598	99.25780966	98.76617381	98.27941459	97.79745964
230203A00065	2/3/2023	3.76	2/3/2028		113.04883	109.4005207	105.8919029	102.5168583	99.26957158	96.14451348	93.1364249	90.24030209	87.45138284
230206A00008	2/6/2023	4.58	2/6/2025		101.84225	101.315957	100.7951136	100.2796385	99.76944892	99.26446358	98.76460299	98.26978928	97.77994612
230206A00009	2/6/2023	4.58	2/6/2025		101.84225	101.315957	100.7951136	100.2796385	99.76944892	99.26446358	98.76460299	98.26978928	97.77994612
230207A00025	2/7/2023	4.62	2/7/2025		101.87377	101.3446501	100.8210395	100.3028542	99.79001001	99.28242444	98.78001672	98.28270772	97.79041994
230207A00045	2/7/2023	5.07	8/7/2024		100.07485	100.0553979	100.0359613	100.0165448	99.99714842	99.97777204	99.95841564	99.9390792	99.91976268
230207A00046	2/7/2023	4.83	2/7/2025		101.91726	101.3888281	100.8658891	100.3483575	99.83614965	99.32918348	98.8273787	98.33065662	97.83894015
230208A00024	2/8/2023	5.08	8/8/2024		100.08476	100.0625236	100.040312	100.018124	99.99595956	99.97381861	99.95170111	99.92960701	99.90753629
230208A00029	2/8/2023	4.27	2/8/2027		109.96302	107.3748359	104.8619582	102.4217503	100.0516832	97.74933193	95.51237114	93.3385698	91.22578692
230208A00036	2/8/2023	4.43	2/6/2026		105.72572	104.1940714	102.6925911	101.2204617	99.77689418	98.36112756	96.97242726	95.6100842	94.27341359
230208A00038	2/8/2023	4.27	2/8/2027		109.96302	107.3748359	104.8619582	102.4217503	100.0516832	97.74933193	95.51237114	93.3385698	91.22578692
230208A00039	2/8/2023	4.17	2/8/2028		114.07635	110.4074342	106.8789558	103.4847579	100.2189905	97.07609169	94.05077183	91.13799833	88.33298192

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230208A00040	2/8/2023	4.26	2/8/2029		118.81773	114.021394	109.4516606	105.0965745	100.9448779	96.98596384	93.20983496	89.60706519	86.16876401
230208A00041	2/8/2023	4.32	2/8/2030		123.09783	117.1543065	111.5438531	106.2459373	101.2414041	96.51237262	92.04214467	87.8151205	83.81672089
230208A00055	2/8/2023	4.22	2/6/2026		105.60538	104.0713522	102.5675968	101.0932885	99.64763465	98.22987059	96.83925844	95.47508593	94.13666523
230208A00060	2/8/2023	4.06	2/8/2027		109.77203	107.1790651	104.661709	102.2173055	99.84331102	97.53728715	95.29689554	93.11989301	91.0041271
230209A00015	2/9/2023	4.8	2/5/2025		101.88023	101.3573572	100.8398646	100.3276665	99.82068188	99.31883128	98.82203688	98.33022242	97.84331319
230209A00023	2/9/2023	4.79	2/10/2025		101.9278	101.3911569	100.8601815	100.334783	99.81487366	99.30036759	98.79118066	98.28723053	97.78843651
230209A00024	2/9/2023	4.4	2/5/2026		105.66654	104.1383481	102.6402316	101.1713739	99.73099003	98.31832248	96.93264018	95.57323729	94.23943214
230209A00025	2/9/2023	4.25	2/5/2027		109.87255	107.2945984	104.7914933	102.3606155	99.99945831	97.70561775	95.4767881	93.31075699	91.20540101
230209A00027	2/9/2023	4.12	2/7/2028		113.88643	110.2238317	106.7013782	103.3129276	100.0526448	96.91498211	93.89466304	90.9866675	88.18621789
230209A00028	2/9/2023	4.9	12/9/2024		101.30889	100.9461612	100.5860409	100.2285016	99.8735155	99.52105516	99.17109359	98.82360417	98.47856064
230209A00037	2/9/2023	4.12	2/9/2028		113.9117	110.2427386	106.7143304	103.3203092	100.0548162	96.91228119	93.88740693	90.97515387	88.1707262
230209A00049	2/9/2023	4.17	2/9/2028		114.08912	110.4170207	106.8855601	103.4885723	100.2201955	97.07485656	94.04725527	91.1323494	88.32534054
230210A00009	2/10/2023	4.93	12/11/2024		101.34122	100.9729457	100.6073594	100.2444338	99.88413963	99.52644829	99.17133149	98.81876138	98.46871048
230210A00035	2/10/2023	4.52	2/10/2026		105.91787	104.3727238	102.858122	101.373235	99.91725857	98.48941731	97.08896298	95.71517347	94.36735165
230210A00040	2/10/2023	4.29	8/10/2027		112.26259	109.1308379	106.1047133	103.1800511	100.3528766	97.61939444	94.97597978	92.41916912	89.94565235
230210A00043	2/10/2023	4.34	2/10/2027		110.16776	107.5708803	105.0496666	102.601459	100.2237123	97.9139866	95.66994193	93.48933379	91.3700084
230210A00045	2/10/2023	4.43	8/10/2026		108.06912	106.0049552	103.9912631	102.0264879	100.1091288	98.23774189	96.41093762	94.62737812	92.88577503
230210A00049	2/10/2023	5.07	8/12/2024		100.12322	100.08987	100.0565641	100.0232971	99.99006913	99.95688003	99.92372975	99.8906182	99.85754532
230210A00055	2/10/2023	4.02	2/10/2028		114.05881	110.371818	106.8264236	103.4163993	100.1358296	96.97909129	93.94083704	91.01598052	88.19968196
230210A00062	2/10/2023	4.13	2/10/2027		109.97676	107.3750853	104.8493678	102.3969408	100.0152446	97.70182546	95.45433064	93.27050332	91.14817811
230210A00065	2/10/2023	4.02	2/10/2028		114.05881	110.371818	106.8264236	103.4163993	100.1358296	96.97909129	93.94083704	91.01598052	88.19968196
230213A00020	2/15/2023	4.28	1/25/2028		114.28933	110.6568037	107.1619988	103.7989366	100.5619326	97.44557921	94.4447306	91.55448865	88.77018956
230214A00031	2/14/2023	4.31	2/14/2028		114.65171	110.9548018	107.3998125	103.9805034	100.6909439	97.52549614	94.47879965	91.54575549	88.72151217
230214A00042	2/14/2023	4.96	2/14/2025		102.06316	101.5151859	100.9731165	100.436855	99.9063079	99.38138418	98.86199449	98.34805146	97.83946951
230214A00049	2/14/2023	4.38	2/14/2029		119.43859	114.6097463	110.0095712	105.6259685	101.44755	97.4635877	93.66397193	90.03917253	86.58020236
230214A00050	2/14/2023	4.31	2/14/2028		114.65171	110.9548018	107.3998125	103.9805034	100.6909439	97.52549614	94.47879965	91.54575549	88.72151217
230215A00008	2/15/2023	4.49	2/16/2027		110.63289	108.0117994	105.4673976	102.9969752	100.5979397	98.26780628	96.00419298	93.80481538	91.66748205
230215A00019	2/15/2023	5.01	2/18/2025		102.1352	101.5760766	101.0230977	100.4761583	99.93515972	99.40000532	98.87060056	98.34685293	97.8286719
230215A00035	2/15/2023	4.47	2/17/2026		106.14106	104.5696903	103.0296464	101.5200635	100.0401067	98.58897113	97.16588078	95.77008715	94.400868
230215A00045	2/15/2023	4.37	2/15/2028		114.87878	111.1748561	107.6131729	104.1874683	100.8917956	97.72050216	94.66821348	91.72981748	88.90045027
230216A00045	2/16/2023	4.43	5/16/2028		116.26689	112.2791986	108.4532178	104.7814894	101.2569393	97.8728588	94.62288283	91.50097075	88.50138772
230216A00046	2/16/2023	4.42	4/17/2028		115.85929	111.9610042	108.2180078	104.6231952	101.1698351	97.85154444	94.66226792	91.59625893	88.64806172
230217A00036	2/17/2023	4.44	2/17/2028		115.15537	111.4405751	107.8685587	104.433032	101.1280196	97.94784204	94.88709954	91.9406564	89.10362659

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230217A00052	2/17/2023	4.55	2/17/2027		110.80065	108.1743499	105.6249328	103.1496837	100.7460013	98.41139264	96.14346793	93.93993536	91.79859654
230221A00004	2/21/2023	4.47	2/18/2028		115.27609	111.5561655	107.9792815	104.5391346	101.2297354	98.04539122	94.98068995	92.03048434	89.18987751
230221A00007	2/21/2023	4.5	10/18/2027		113.79193	110.4428755	107.2119585	104.0942896	101.0852127	98.18029447	95.37531238	92.66624287	90.04925063
230222A00024	2/22/2023	4.74	3/2/2026		106.53939	104.9297535	103.3525636	101.8069022	100.2918885	98.8066747	97.35044382	95.92240854	94.52180981
230223A00010	2/23/2023	4.68	10/3/2025		104.67341	103.4812302	102.3163291	101.1777751	100.0646802	98.97619594	97.91151133	96.8698506	95.85047142
230223A00012	2/23/2023	4.68	10/3/2025		104.67341	103.4812302	102.3163291	101.1777751	100.0646802	98.97619594	97.91151133	96.8698506	95.85047142
230223A00033	2/23/2023	4.5	2/23/2028		115.45173	111.7137586	108.1199266	104.6638629	101.3395148	98.14113097	95.0632442	92.10065586	89.24842105
230224A00014	2/24/2023	4.98	2/24/2025		102.25909	101.6822633	101.1119601	100.548071	99.99048822	99.4391061	98.89382147	98.35453343	97.82114329
230224A00015	2/24/2023	4.86	3/17/2026		106.93463	105.2810916	103.6614059	102.0746009	100.5197387	98.99591705	97.5022675	96.0379539	94.60217089
230224A00018	2/24/2023	5.19	2/24/2025		102.30572	101.7296518	101.1600888	100.5969192	100.0400358	99.48933359	98.94470993	98.40606443	97.87329892
230224A00020	2/24/2023	5.38	8/26/2024		100.28156	100.2093409	100.1372376	100.0652467	99.99336799	99.92160117	99.84994599	99.77840221	99.70696956
230224A00029	2/24/2023	4.87	2/24/2026		106.66132	105.0681317	103.5068548	101.9766019	100.4765144	99.00576514	97.56355675	96.14912058	94.76171525
230227A00060	2/27/2023	4.86	2/27/2026		106.68919	105.0867377	103.5164803	101.9775142	100.4689694	98.99000784	97.53982204	96.1176336	94.72269191
230228A00009	2/28/2023	4.69	2/27/2026		106.62968	105.0241695	103.4509696	101.9091743	100.3979093	98.91633229	97.46363194	96.03902604	94.64176043
230228A00010	2/28/2023	4.5	2/26/2027		111.14977	108.4840045	105.8969459	103.3857873	100.9478412	98.5805331	96.28139655	94.04806733	91.87827865
230301A00029	3/1/2023	4.59	3/1/2028		115.87136	112.1051531	108.4847154	105.0035765	101.655592	98.43492444	95.33602657	92.35362471	89.48270374
230301A00036	3/1/2023	4.91	3/2/2026		106.81071	105.1988314	103.6194386	102.0716128	100.5544724	99.06716841	97.60888295	96.17882776	94.77624288
230301A00047	3/1/2023	4.61	3/1/2028		115.59195	111.9038064	108.3591218	104.9514525	101.6746819	98.52300469	95.49090893	92.57315915	89.7647808
230302A00028	3/2/2023	5.02	3/2/2026		106.98627	105.3729406	103.7921224	102.2428961	100.7243796	99.23572315	97.77610827	96.34474608	94.94087605
230302A00047	3/2/2023	4.76	3/2/2028		115.15772	111.6733233	108.3220193	105.0978786	101.9952765	99.0088728	96.13359571	93.36462654	90.69738539
230303A00019	3/3/2023	5.26	3/3/2025		102.42955	101.8339675	101.2453253	100.6635058	100.0883905	99.51986389	98.95781311	98.4021278	97.8527001
230303A00020	3/3/2023	4.96	3/3/2026		106.90436	105.2890067	103.7062358	102.1551306	100.6348055	99.14440767	97.68311564	96.25013768	94.84471055
230303A00035	5/15/2023	4.65	5/15/2030		126.00283	119.6978336	113.7595102	108.1644498	102.8908604	97.91844878	93.22830974	88.80282387	84.62556336
230303A00036	5/15/2023	4.53	5/15/2028		116.63564	112.6437292	108.8135261	105.1375725	101.6087968	98.22049256	94.96629752	91.84017355	88.83638836
230303A00037	5/15/2023	4.81	5/15/2026		107.66015	105.8376877	104.0552363	102.3116161	100.6056968	98.93639017	97.30264905	95.70346473	94.13786547
230303A00038	4/14/2023	4.56	4/14/2028		116.34232	112.4436634	108.6999234	105.1040271	101.6492739	98.32930893	95.13810282	92.0699328	89.11936516
230303A00041	4/14/2023	4.56	4/14/2028		116.34232	112.4436634	108.6999234	105.1040271	101.6492739	98.32930893	95.13810282	92.0699328	89.11936516
230303A00057	3/3/2023	4.77	3/3/2027		111.56665	108.8885912	106.2897179	103.7672031	101.3183364	98.9405219	96.63127285	94.38820602	92.2090367
230303A00059	3/3/2023	4.56	3/3/2027		111.37437	108.6912571	106.0876503	103.5607031	101.1076894	98.7259988	96.41313055	94.16668832	91.984375
230306A00019	3/6/2023	5.26	3/6/2025		102.46573	101.8618495	101.2651124	100.6753898	100.0925583	99.51649738	98.94708936	98.38421921	97.82777456
230306A00029	3/6/2023	5.26	9/6/2024		100.40296	100.300134	100.1975293	100.095145	99.99298028	99.89103438	99.78930657	99.68779612	99.5865023
230306A00040	3/6/2023	5.05	3/6/2025		102.41701	101.8123308	101.2148137	100.6243336	100.0407664	99.46399087	98.89388876	98.33034444	97.77324497
230307A00004	3/7/2023	4.67	3/7/2028		115.88401	112.1736683	108.6081566	105.1809418	101.885827	98.71693196	95.66867482	92.73575506	89.91313732

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230307A00020	3/7/2023	4.98	3/9/2026		107.01981	105.3872377	103.7878098	102.2205798	100.6846392	99.17911399	97.70316221	96.25597292	94.83676462
230307A00021	3/7/2023	4.63	3/7/2028		116.09524	112.3082884	108.6683933	105.1690076	101.8039113	98.5671968	95.45325116	92.4567394	89.57258918
230307A00022	3/7/2023	4.77	3/8/2027		111.63413	108.9414322	106.3286596	103.7929419	101.3315321	98.94180028	96.62122736	94.36739977	92.17800421
230307A00026	3/7/2023	4.98	3/6/2026		106.97807	105.3539801	103.762753	102.2034592	100.6752018	99.17711726	97.70837385	96.26817022	94.85573397
230307A00034	3/7/2023	4.41	3/7/2028		115.80222	112.0075957	108.3606934	104.8549166	101.4840058	98.24201626	95.12330013	92.12249003	89.23448321
230307A00039	3/7/2023	5.29	3/7/2025		102.49596	101.8892509	101.2897531	100.6973345	100.1118702	99.53323786	98.96131816	98.39599453	97.83715306
230307A00056	3/7/2023	5.08	3/7/2025		102.44702	101.8395104	101.2392285	100.6460486	100.0598448	99.48049431	98.90787714	98.34187612	97.78237677
230307A00057	3/7/2023	5.08	3/7/2025		102.44702	101.8395104	101.2392285	100.6460486	100.0598448	99.48049431	98.90787714	98.34187612	97.78237677
230307A00058	3/7/2023	5.29	3/7/2025		102.49596	101.8892509	101.2897531	100.6973345	100.1118702	99.53323786	98.96131816	98.39599453	97.83715306
230307A00092	3/23/2023	5.6	9/6/2024		100.42372	100.3210198	100.2185409	100.1162804	100.0142377	99.91241198	99.81080255	99.7094087	99.60822973
230307A00114	3/7/2023	4.65	3/7/2028		116.1677	112.3794387	108.7382724	105.2376518	101.8713556	98.63347493	95.51839562	92.52078154	89.63555923
230308A00019	3/8/2023	5.05	3/9/2026		107.13287	105.4993603	103.8990044	102.3308626	100.7940262	99.28762065	97.81080355	96.36276361	94.94271891
230308A00029	3/8/2023	5.57	9/9/2024		100.45552	100.3445138	100.2337678	100.1232786	100.0130454	99.90306701	99.7933427	99.68387151	99.57465253
230308A00030	3/8/2023	5.22	9/8/2025		104.81204	103.6897587	102.5916591	101.5169628	100.4649257	99.43483491	98.4260073	97.43778781	96.46954808
230309A00002	3/9/2023	5.41	3/10/2025		102.60605	101.9907908	101.382939	100.7823624	100.1889307	99.60251665	99.02299586	98.45024702	97.88415163
230309A00003	3/9/2023	5.06	3/9/2026		107.14903	105.5153778	103.9148893	102.3466173	100.809653	99.3031216	97.82618089	96.37801942	94.95785524
230309A00004	3/9/2023	4.86	3/9/2027		111.88339	109.1846464	106.5660454	104.0247079	101.5578777	99.16291572	96.83729456	94.57859263	92.38448909
230309A00005	3/9/2023	5.06	3/9/2026		107.14903	105.5153778	103.9148893	102.3466173	100.809653	99.3031216	97.82618089	96.37801942	94.95785524
230309A00021	3/9/2023	5.41	3/10/2025		102.60605	101.9907908	101.382939	100.7823624	100.1889307	99.60251665	99.02299586	98.45024702	97.88415163
230309A00027	3/9/2023	4.68	3/9/2028		116.30321	112.5069177	108.8581858	105.3504354	101.9774187	98.73320231	95.61214886	92.60890077	89.71836447
230309A00030	3/9/2023	5.01	3/9/2026		107.06826	105.4352903	103.8354647	102.2678438	100.7315194	99.22561685	97.74929422	96.30174036	94.8821736
230309A00031	3/9/2023	5.01	3/9/2026		107.06826	105.4352903	103.8354647	102.2678438	100.7315194	99.22561685	97.74929422	96.30174036	94.8821736
230309A00032	3/9/2023	4.82	3/9/2027		111.77861	109.0812475	106.4640008	103.9239869	101.4584506	99.06475379	96.74036983	94.48287803	92.28995833
230309A00033	3/9/2023	4.82	3/9/2027		111.77861	109.0812475	106.4640008	103.9239869	101.4584506	99.06475379	96.74036983	94.48287803	92.28995833
230309A00034	3/9/2023	4.64	3/9/2028		116.15807	112.364404	108.7182221	105.2129487	101.8423388	98.60046133	95.48168158	92.48064425	89.59225801
230309A00035	3/9/2023	4.64	3/9/2028		116.15807	112.364404	108.7182221	105.2129487	101.8423388	98.60046133	95.48168158	92.48064425	89.59225801
230309A00036	3/9/2023	4.46	3/9/2028		116.01022	112.2062323	108.5504639	105.0362958	101.6574405	98.4079269	95.28208301	92.27451852	89.3801093
230309A00038	3/9/2023	4.85	3/9/2026		107.0243	105.3880516	103.7850733	102.2144196	100.6751773	99.16646758	97.68744424	96.23729215	94.81522583
230309A00041	3/9/2023	4.85	3/9/2026		107.0243	105.3880516	103.7850733	102.2144196	100.6751773	99.16646758	97.68744424	96.23729215	94.81522583
230309A00057	3/9/2023	4.86	3/9/2027		111.88339	109.1846464	106.5660454	104.0247079	101.5578777	99.16291572	96.83729456	94.57859263	92.38448909
230309A00068	4/10/2023	5.21	4/9/2025		102.843	102.1450455	101.4566026	100.7774761	100.1074772	99.44642247	98.79413326	98.15043566	97.51516036
230309A00080	3/9/2023	4.68	3/9/2028		116.30321	112.5069177	108.8581858	105.3504354	101.9774187	98.73320231	95.61214886	92.60890077	89.71836447
230309A00091	3/9/2023	4.68	3/9/2028		116.30321	112.5069177	108.8581858	105.3504354	101.9774187	98.73320231	95.61214886	92.60890077	89.71836447

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230309A00096	3/9/2023	4.68	3/9/2028		116.30321	112.5069177	108.8581858	105.3504354	101.9774187	98.73320231	95.61214886	92.60890077	89.71836447
230310A00017	3/10/2023	4.43	3/9/2029		119.95929	115.0497407	110.3752488	105.9232449	101.6819001	97.64008009	93.7873	90.113683	86.60992164
230310A00024	3/10/2023	4.38	3/10/2028		115.22725	111.4476426	107.8152338	104.3234488	100.9660479	97.7371055	94.63099207	91.64235771	88.76611646
230310A00030	3/10/2023	4.38	3/10/2028		115.22725	111.4476426	107.8152338	104.3234488	100.9660479	97.7371055	94.63099207	91.64235771	88.76611646
230310A00035	3/10/2023	5.21	9/10/2024		100.42618	100.3124465	100.1989812	100.0857857	99.97285903	99.8602002	99.7478082	99.63568206	99.52382079
230310A00037	3/10/2023	4.69	3/10/2026		106.5645	104.9330301	103.3347249	101.768638	100.2338593	98.72951273	97.2547547	95.80877271	94.39078381
230310A00039	3/10/2023	4.33	3/10/2028		115.04569	111.2693674	107.6401508	104.1514665	100.7970784	97.57106386	94.46779655	91.48192948	88.60837949
230310A00040	3/10/2023	4.38	3/10/2028		115.22725	111.4476426	107.8152338	104.3234488	100.9660479	97.7371055	94.63099207	91.64235771	88.76611646
230310A00047	6/9/2023	4.22	6/9/2028		115.7559	111.710677	107.8321549	104.112588	100.5446296	97.12131061	93.83601787	90.68247437	87.65472033
230310A00049	3/10/2023	4.7	3/10/2026		106.58068	104.9490746	103.3506364	101.7844189	100.2495118	98.74503905	97.270157	95.82405311	94.40594434
230310A00054	9/8/2023	4.09	9/11/2028		116.34747	112.0271591	107.8950064	103.9417636	100.15869	96.53752208	93.07044388	89.7500607	86.56937368
230310A00062	3/10/2023	4.38	4/10/2028		115.61993	111.7461389	108.0260177	104.4525703	101.0191635	97.71950537	94.54762532	91.49785572	88.56481442
230310A00065	3/10/2023	5	9/16/2024		100.48063	100.3500906	100.2199057	100.0900749	99.96059662	99.83146945	99.70269189	99.57426245	99.44617968
230310A00068	3/10/2023	5.03	3/10/2025		102.37273	101.7582751	101.1512225	100.5514384	99.9587924	99.37315741	98.79440922	98.22242655	97.65709099
230310A00069	3/10/2023	4.7	3/9/2026		106.56754	104.9387474	103.3430317	101.7794484	100.2470912	98.74508738	97.27259684	95.82881019	94.41294744
230310A00071	3/10/2023	4.38	3/10/2028		115.22725	111.4476426	107.8152338	104.3234488	100.9660479	97.7371055	94.63099207	91.64235771	88.76611646
230310A00073	3/10/2023	4.7	3/6/2026		106.52811	104.9077623	103.3202112	101.7645289	100.2398201	98.74522302	97.27990756	95.84307391	94.43395119
230310A00088	3/10/2023	5.03	3/10/2025		102.37273	101.7582751	101.1512225	100.5514384	99.9587924	99.37315741	98.79440922	98.22242655	97.65709099
230310A00089	3/10/2023	4.7	3/10/2026		106.58068	104.9490746	103.3506364	101.7844189	100.2495118	98.74503905	97.270157	95.82405311	94.40594434
230310A00091	3/10/2023	4.53	3/10/2027		111.03175	108.3415272	105.7313339	103.1982907	100.7396416	98.35274851	96.03508452	93.78422894	91.59786185
230310A00092	3/10/2023	4.38	3/10/2028		115.22725	111.4476426	107.8152338	104.3234488	100.9660479	97.7371055	94.63099207	91.64235771	88.76611646
230310A00114	3/10/2023	4.5	3/10/2027		110.95308	108.2638975	105.654722	103.1226735	100.6649969	98.27905446	95.9623202	93.71237399	91.52689651
230310A00120	3/10/2023	4.33	3/10/2028		115.04569	111.2693674	107.6401508	104.1514665	100.7970784	97.57106386	94.46779655	91.48192948	88.60837949
230313A00030	3/13/2023	4.57	9/13/2024		100.37992	100.2579476	100.1362879	100.0149381	99.89389683	99.77316299	99.65273532	99.53261264	99.41279375
230313A00032	3/13/2023	4.45	3/13/2025		102.04607	101.4245825	100.8106885	100.2042471	99.60512303	99.01318398	98.428301	97.85034817	97.27920255
230313A00036	3/13/2023	4.06	3/13/2028		114.10035	110.3328565	106.7125597	103.2328683	99.88752758	96.6705985	93.57643955	90.5996901	87.73525461
230313A00048	3/13/2023	4.25	3/13/2026		105.88829	104.2543959	102.6538318	101.0856473	99.54892361	98.04277675	96.56635558	95.11884047	93.69944174
230313A00052	3/13/2023	4.17	3/15/2027		110.14691	107.4547439	104.8430562	102.3089374	99.84960351	97.46239012	95.14474597	92.89422743	90.70849319
230313A00053	3/13/2023	4.57	9/13/2024		100.37992	100.2579476	100.1362879	100.0149381	99.89389683	99.77316299	99.65273532	99.53261264	99.41279375
230313A00057	3/13/2023	4.06	3/13/2028		114.10035	110.3328565	106.7125597	103.2328683	99.88752758	96.6705985	93.57643955	90.5996901	87.73525461
230313A00061	3/13/2023	4.06	3/13/2028		114.10035	110.3328565	106.7125597	103.2328683	99.88752758	96.6705985	93.57643955	90.5996901	87.73525461
230313A00069	3/13/2023	4.71	9/13/2024		100.39701	100.2750238	100.1533476	100.0319812	99.91092341	99.79017309	99.66972899	99.5495899	99.42975463
230313A00070	3/13/2023	4.71	9/13/2024		100.39701	100.2750238	100.1533476	100.0319812	99.91092341	99.79017309	99.66972899	99.5495899	99.42975463



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230313A00072	3/13/2023	4.06	3/13/2028		114.10035	110.3328565	106.7125597	103.2328683	99.88752758	96.6705985	93.57643955	90.5996901	87.73525461
230313A00075	3/13/2023	4.71	9/13/2024		100.39701	100.2750238	100.1533476	100.0319812	99.91092341	99.79017309	99.66972899	99.5495899	99.42975463
230313A00078	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00080	3/13/2023	4.59	3/14/2025		102.14339	101.5188446	100.9019587	100.2925931	99.69061078	99.09587771	98.5082632	97.92763971	97.35388269
230313A00090	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00091	3/13/2023	4.15	3/13/2028		114.42791	110.6544703	107.0284022	103.5431051	100.1923181	96.97009634	93.87079278	90.88904147	88.01974177
230313A00093	3/16/2023	4.65	3/17/2025		102.212	101.5790457	100.9539536	100.3365795	99.72678081	99.12441838	98.52935644	97.94146253	97.3606074
230313A00095	3/16/2023	4.65	3/17/2025		102.212	101.5790457	100.9539536	100.3365795	99.72678081	99.12441838	98.52935644	97.94146253	97.3606074
230313A00096	3/13/2023	4.36	3/14/2033		133.88683	124.3526546	115.6026471	107.5673799	100.183939	93.39528142	87.14965861	81.40009857	76.10394143
230313A00097	3/13/2023	4.78	9/13/2024		100.40556	100.2835619	100.1618774	100.0405027	99.9194367	99.79867814	99.67822582	99.55807853	99.43823507
230313A00098	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00099	3/13/2023	4.59	3/13/2025		102.13319	101.5113966	100.8972008	100.2904603	99.69103955	99.09880638	98.51363177	97.93538976	97.36395738
230313A00102	3/13/2023	4.15	3/13/2028		114.42791	110.6544703	107.0284022	103.5431051	100.1923181	96.97009634	93.87079278	90.88904147	88.01974177
230313A00104	3/13/2023	4.58	3/13/2025		102.12696	101.5051956	100.8910214	100.2843022	99.68490265	99.0926905	98.50753672	97.92931536	97.35790347
230313A00109	3/13/2023	4.58	3/13/2025		102.12696	101.5051956	100.8910214	100.2843022	99.68490265	99.0926905	98.50753672	97.92931536	97.35790347
230313A00112	3/13/2023	4.15	3/13/2028		114.42791	110.6544703	107.0284022	103.5431051	100.1923181	96.97009634	93.87079278	90.88904147	88.01974177
230313A00113	3/13/2023	4.58	3/13/2025		102.12696	101.5051956	100.8910214	100.2843022	99.68490265	99.0926905	98.50753672	97.92931536	97.35790347
230313A00117	3/13/2023	4.59	3/13/2025		102.13319	101.5113966	100.8972008	100.2904603	99.69103955	99.09880638	98.51363177	97.93538976	97.36395738
230313A00119	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00121	3/13/2023	4.29	3/15/2027		110.46325	107.7668725	105.1510721	102.612934	100.1496715	97.75861726	95.43721738	93.18302568	90.99369838
230313A00123	3/13/2023	4.22	9/15/2027		112.48623	109.250318	106.1261323	103.1091577	100.1950878	97.37981681	94.65942871	92.0301871	89.48852579
230313A00128	3/13/2023	4.18	12/15/2027		113.45426	109.9484654	106.5717574	103.3186977	100.1841085	97.16305642	94.25083937	91.44297471	88.73518775
230313A00134	3/13/2023	4.16	4/14/2028		114.85119	110.9802201	107.2633513	103.6935412	100.2641186	96.96875652	93.80145234	90.75650892	87.82851698
230313A00135	3/13/2023	4.17	6/15/2028		115.63444	111.574491	107.6825439	103.9507567	100.3716978	96.93831882	93.64393289	90.4821944	87.4470797
230313A00149	3/13/2023	4.15	3/13/2028		114.42791	110.6544703	107.0284022	103.5431051	100.1923181	96.97009634	93.87079278	90.88904147	88.01974177
230313A00152	3/13/2023	4.18	3/13/2028		114.53709	110.7616749	107.1336831	103.6465173	100.2939149	97.06992895	93.96891053	90.98549192	88.11457082
230313A00158	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00159	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00177	3/13/2023	4.41	3/13/2026		106.14849	104.5124073	102.9096941	101.3393984	99.80060044	98.29241514	96.81399047	95.36450585	93.94317072
230313A00179	3/13/2023	4.29	3/15/2027		110.46325	107.7668725	105.1510721	102.612934	100.1496715	97.75861726	95.43721738	93.18302568	90.99369838
230313A00180	3/13/2023	4.15	3/13/2028		114.42791	110.6544703	107.0284022	103.5431051	100.1923181	96.97009634	93.87079278	90.88904147	88.01974177
230313A00215	3/13/2023	4.13	3/13/2028		114.35511	110.5830006	106.958215	103.4741636	100.1245869	96.90354126	93.80538095	90.82474116	87.9565224
230314A00003	3/14/2023	4.64	3/16/2026		106.56146	104.913785	103.2998161	101.7185858	100.1691615	98.6506459	97.1621753	95.70291813	94.27207332

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230314A00006	3/14/2023	4.92	1/13/2025		101.69296	101.2334834	100.7781793	100.3269874	99.87985184	99.43671795	98.99753198	98.56224116	98.13079363
230314A00011	3/14/2023	4.38	3/14/2028		115.27758	111.485948	107.8423276	104.3400915	100.9729511	97.73493533	94.62037221	91.62387231	88.74031274
230314A00014	3/14/2023	4.18	3/14/2028		114.33899	110.7107285	107.2241716	103.8729067	100.6508519	97.55223759	94.57158842	91.7037063	88.9436544
230314A00015	3/14/2023	4.55	9/14/2026		108.77043	106.6020595	104.4882758	102.4273239	100.4175218	98.45725429	96.54496969	94.67917698	92.85844279
230314A00016	3/14/2023	4.38	3/14/2028		115.27758	111.485948	107.8423276	104.3400915	100.9729511	97.73493533	94.62037221	91.62387231	88.74031274
230314A00017	3/14/2023	4.39	1/18/2028		114.58847	110.9699381	107.4878318	104.1362654	100.9096371	97.80261607	94.81012847	91.92734308	89.1496586
230314A00019	3/14/2023	4.39	1/18/2028		114.58847	110.9699381	107.4878318	104.1362654	100.9096371	97.80261607	94.81012847	91.92734308	89.1496586
230314A00021	3/14/2023	4.41	10/13/2027		113.43835	110.1088044	106.8963514	103.7961595	100.8036288	97.91437897	95.12423686	92.42922527	89.82555231
230314A00024	3/14/2023	4.41	10/13/2027		113.43835	110.1088044	106.8963514	103.7961595	100.8036288	97.91437897	95.12423686	92.42922527	89.82555231
230314A00028	3/14/2023	4.43	7/14/2027		112.35451	109.2953851	106.3372747	103.4762858	100.7086961	98.03094733	95.43963704	92.93151082	90.50345503
230314A00030	3/14/2023	4.43	7/14/2027		112.35451	109.2953851	106.3372747	103.4762858	100.7086961	98.03094733	95.43963704	92.93151082	90.50345503
230314A00032	3/14/2023	4.45	4/14/2027		111.2671	108.47651	105.7712531	103.148167	100.6042265	98.13654036	95.74234389	93.41899279	91.16395674
230314A00034	3/14/2023	4.45	4/14/2027		111.2671	108.47651	105.7712531	103.148167	100.6042265	98.13654036	95.74234389	93.41899279	91.16395674
230314A00043	3/14/2023	4.84	3/14/2025		102.29965	101.6745546	101.0571253	100.447221	99.84470464	99.24944207	98.66130257	98.08015851	97.5058853
230314A00054	3/14/2023	4.46	3/15/2027		110.91139	108.2090547	105.5874279	103.0435959	100.5747678	98.17827237	95.85155188	93.59215654	91.39773906
230314A00067	3/14/2023	4.16	3/14/2028		114.98098	111.1816992	107.5310885	104.0224829	100.6495533	97.40629114	94.28698931	91.28622549	88.39884609
230314A00070	3/14/2023	4.25	3/12/2027		110.67809	107.9794011	105.3613024	102.8208846	100.3553632	97.96207242	95.63846001	93.38208107	91.19059293
230314A00073	3/14/2023	4.84	3/14/2025		102.29965	101.6745546	101.0571253	100.447221	99.84470464	99.24944207	98.66130257	98.08015851	97.5058853
230314A00081	3/14/2023	4.16	3/14/2028		114.98098	111.1816992	107.5310885	104.0224829	100.6495533	97.40629114	94.28698931	91.28622549	88.39884609
230315A00007	3/15/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113
230315A00010	3/15/2023	4.2	3/13/2026		105.80698	104.1737674	102.5738748	101.00635	99.47027461	97.96476475	96.48896968	95.04207005	93.62327643
230315A00012	3/15/2023	4.24	9/15/2025		103.79743	102.6621033	101.5516933	100.4653874	99.40240568	98.36200152	97.34345996	96.34609594	95.36925283
230315A00013	3/15/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113
230315A00016	3/15/2023	4.08	3/16/2027		109.92125	107.2293593	104.6180196	102.0843181	99.62546564	97.23879289	94.92174413	92.67187156	90.48682994
230315A00023	3/15/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113
230315A00024	3/15/2023	4.03	3/15/2028		114.0144	110.2429401	106.6190256	103.1360396	99.78770504	96.56806201	93.47144975	90.49248969	87.62606959
230315A00030	3/15/2023	4.03	3/15/2028		114.0144	110.2429401	106.6190256	103.1360396	99.78770504	96.56806201	93.47144975	90.49248969	87.62606959
230315A00043	3/15/2023	4.43	9/16/2024		100.3886	100.258333	100.1284231	99.99886447	99.86965577	99.74079553	99.61228228	99.48411459	99.35629102
230315A00045	3/15/2023	4.28	3/14/2025		101.94963	101.3257643	100.7095521	100.1008545	99.4995344	98.9054579	98.31849439	97.73851639	97.16539945
230315A00049	3/15/2023	4.28	3/14/2025		101.94963	101.3257643	100.7095521	100.1008545	99.4995344	98.9054579	98.31849439	97.73851639	97.16539945
230315A00052	3/15/2023	4.07	3/14/2025		101.89884	101.2741415	100.6571218	100.0476406	99.44555993	98.8507453	98.26306541	97.68239214	97.10860042
230315A00055	3/15/2023	4.2	3/11/2026		105.78345	104.1558206	102.5613317	100.9990343	99.46801748	97.96740475	96.49635204	95.05404642	93.63970457
230315A00068	3/15/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230315A00074	3/15/2023	4.43	9/16/2024		100.3886	100.258333	100.1284231	99.99886446	99.86965577	99.74079553	99.61228228	99.48411459	99.35629102
230315A00076	3/15/2023	4.28	3/14/2025		101.94963	101.3257643	100.7095521	100.1008545	99.4995344	98.9054579	98.31849439	97.73851639	97.16539945
230315A00079	3/15/2023	4.43	9/16/2024		100.3886	100.258333	100.1284231	99.99886446	99.86965577	99.74079553	99.61228228	99.48411459	99.35629102
230315A00084	3/15/2023	4.08	3/24/2027		110.01402	107.2990375	104.6657926	102.1113061	99.63272976	97.22733853	94.89252438	92.62579029	90.42474463
230315A00085	3/15/2023	4.43	9/16/2024		100.3886	100.258333	100.1284231	99.99886447	99.86965577	99.74079553	99.61228228	99.48411459	99.35629102
230315A00086	3/15/2023	4.28	3/11/2025		101.92158	101.3059644	100.6978054	100.0969661	99.50331462	98.91672234	98.33706356	97.76421563	97.19805874
230315A00097	3/15/2023	4.08	3/15/2027		109.90966	107.2206475	104.6120443	102.0809399	99.62455251	97.24021977	94.92539241	92.67762874	90.4945893
230315A00098	3/15/2023	4.08	3/15/2027		109.90966	107.2206475	104.6120443	102.0809399	99.62455251	97.24021977	94.92539241	92.67762874	90.4945893
230315A00112	3/15/2023	4.5	3/14/2025		102.08714	101.462789	100.8460987	100.2369271	99.63513699	99.04059454	98.45316903	97.87273294	97.29916175
230315A00116	3/15/2023	4.36	3/16/2026		106.1038	104.4599933	102.8498222	101.2723227	99.72656387	98.21165024	96.72671981	95.27094263	93.8435192
230315A00117	3/15/2023	4.17	3/15/2027		110.14691	107.4547439	104.8430562	102.3089374	99.84960351	97.46239012	95.14474597	92.89422743	90.70849319
230315A00125	3/15/2023	4.11	3/15/2027		109.98874	107.2986796	104.6890483	102.156939	99.69956951	97.31427655	94.99851026	92.74982831	90.56589059
230315A00128	3/15/2023	4.43	3/14/2025		102.04339	101.4191903	100.802652	100.1936313	99.59199071	98.99759652	98.41031801	97.83002767	97.25660102
230315A00130	3/15/2023	4.43	3/14/2025		102.04339	101.4191903	100.802652	100.1936313	99.59199071	98.99759652	98.41031801	97.83002767	97.25660102
230315A00131	3/15/2023	4.13	3/15/2027		110.04146	107.350701	104.7403842	102.2076051	99.74958084	97.36364774	95.0472555	92.79796135	90.61342479
230315A00133	3/15/2023	3.9	3/15/2028		114.04338	110.2583733	106.6217463	103.1268327	99.76730917	96.5371724	93.43072096	90.44253808	87.56747575
230316A00001	3/16/2023	3.81	3/16/2028		113.72595	109.9439486	106.3103568	102.8185015	99.46205327	96.23500323	93.13164489	90.14655697	87.27458731
230316A00017	3/16/2023	3.81	3/16/2028		113.72595	109.9439486	106.3103568	102.8185015	99.46205327	96.23500323	93.13164489	90.14655697	87.27458731
230316A00021	3/16/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113
230316A00026	3/16/2023	4.56	9/16/2024		100.40555	100.2752684	100.1453413	100.0157655	99.88653967	99.75766233	99.62913202	99.5009473	99.37310675
230316A00032	3/16/2023	4.39	3/16/2026		106.15284	104.5086139	102.8980359	101.3201366	99.77398505	98.25868549	96.77337576	95.31722572	93.88943571
230316A00038	3/16/2023	4.42	3/14/2025		102.03714	101.4129619	100.7964454	100.1874461	99.58582696	98.99145394	98.40419644	97.82392692	97.25052092
230316A00039	3/16/2023	4.63	3/17/2025		102.19934	101.5664246	100.941377	100.3240471	99.71429223	99.1119732	98.51695429	97.92910304	97.34829021
230316A00042	3/16/2023	4.42	3/14/2025		102.03714	101.4129619	100.7964454	100.1874461	99.58582696	98.99145394	98.40419644	97.82392692	97.25052092
230316A00046	3/16/2023	4.18	6/16/2026		106.90918	105.0060888	103.146564	101.3293539	99.55324789	97.81707784	96.11971618	94.46007432	92.83710105
230316A00047	3/16/2023	4.07	9/16/2027		112.02665	108.7951421	105.6753518	102.6627563	99.75304578	96.94211104	94.22603311	91.60107298	89.06366213
230316A00048	3/16/2023	4.05	6/16/2028		115.17834	111.124398	107.2384131	103.5125413	99.93934619	96.51177513	93.22313772	90.06708513	87.03759094
230316A00050	3/16/2023	4.2	3/16/2026		105.84228	104.2006838	102.5926829	101.0173152	99.47365094	97.96079558	96.4778881	95.02409948	93.59863113
230316A00052	3/16/2023	4.56	9/16/2024		100.40555	100.2752684	100.1453413	100.0157655	99.88653967	99.75766233	99.62913202	99.5009473	99.37310675
230316A00054	3/16/2023	4.62	3/17/2025		102.193	101.560114	100.9350888	100.3177809	99.70804794	99.10575061	98.51075321	97.9229233	97.34213161
230316A00055	3/16/2023	4.03	3/16/2028		114.02601	110.2515836	106.6248979	103.1393299	99.78859058	96.56670854	93.46801244	90.48711382	87.61889124
230316A00058	3/16/2023	4.1	3/16/2027		109.97403	107.2814344	104.6694079	102.1350351	99.67552657	97.28821241	94.97053646	92.7200505	90.53440887
230316A00060	3/16/2023	3.89	3/16/2027		109.77624	107.0785768	104.4618088	101.9230016	99.45934947	97.06816753	94.74688527	92.49304095	90.30427615

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230316A00061	3/16/2023	4.31	9/16/2025		103.88816	102.7495624	101.636009	100.5466813	99.48079336	98.43759345	97.41636144	96.41640751	95.43707047
230316A00067	3/16/2023	3.89	3/16/2027		109.77624	107.0785768	104.4618088	101.9230016	99.45934947	97.06816753	94.74688527	92.49304095	90.30427615
230316A00072	3/16/2023	4.1	3/16/2027		109.97403	107.2814344	104.6694079	102.1350351	99.67552657	97.28821241	94.97053646	92.7200505	90.53440887
230316A00076	3/16/2023	4.45	3/16/2026		106.25091	104.6058549	102.9944631	101.4157644	99.8688274	98.35275599	96.86668765	95.40979189	93.98126874
230316A00078	3/16/2023	4.34	3/16/2027		110.60737	107.9063354	105.2860667	102.7436393	100.2762577	97.8812466	95.55604441	93.29819778	91.1053561
230316A00082	3/16/2023	4.3	3/16/2028		115.01092	111.2185804	107.5745044	104.0720458	100.7048971	97.46706933	94.35287438	91.35690768	88.4740324
230316A00113	3/16/2023	4.28	3/16/2026		106.18913	104.5409057	102.9264651	101.3448371	99.79508575	98.27631034	96.78764413	95.32825258	93.89733189
230317A00010	3/17/2023	4.77	9/17/2024		100.44234	100.3092644	100.176553	100.0442072	99.91222552	99.78060633	99.64934814	99.51844941	99.38790864
230317A00015	3/17/2023	4.13	3/17/2028		114.40269	110.6186397	106.982732	103.4883171	100.1290866	96.89905142	93.79252327	90.80409785	87.92863878
230317A00016	3/17/2023	4.22	3/17/2027		110.30268	107.6029718	104.9840776	102.4430707	99.97715125	97.58363974	95.25997079	93.00368747	90.81243587
230317A00024	3/17/2023	4.54	3/17/2025		102.14234	101.5096297	100.8847826	100.2676515	99.6580936	99.05596989	98.46114461	97.87348535	97.29286286
230317A00025	3/17/2023	4.35	3/17/2026		106.09964	104.4531633	102.8404176	101.26043	99.71226589	98.1950262	96.7078456	95.24989093	93.82035968
230317A00026	3/17/2023	4.22	3/17/2027		110.30268	107.6029718	104.9840776	102.4430707	99.97715125	97.58363974	95.25997079	93.00368747	90.81243587
230317A00027	3/17/2023	4.77	9/17/2024		100.44234	100.3092644	100.176553	100.0442072	99.91222552	99.78060633	99.64934814	99.51844941	99.38790864
230317A00031	5/18/2023	4.3	5/19/2025		102.59993	101.7941992	101.0011546	100.2205002	99.4519469	98.69521433	97.95003083	97.21613299	96.49326537
230317A00032	5/18/2023	4.27	5/19/2025		102.57573	101.770101	100.9771618	100.1966118	99.42816168	98.67153119	97.92644866	97.19265072	96.46988194
230317A00033	3/17/2023	4.77	9/17/2024		100.44234	100.3092644	100.176553	100.0442072	99.91222552	99.78060633	99.64934814	99.51844941	99.38790864
230317A00047	3/17/2023	4.1	3/17/2028		114.29317	110.5111158	106.8771432	103.3846077	100.0272032	96.79894221	93.69413857	90.7073897	87.83356093
230317A00048	3/17/2023	4.1	3/17/2028		114.29317	110.5111158	106.8771432	103.3846077	100.0272032	96.79894221	93.69413857	90.7073897	87.83356093
230317A00049	3/17/2023	4.1	3/17/2028		114.29317	110.5111158	106.8771432	103.3846077	100.0272032	96.79894221	93.69413857	90.7073897	87.83356093
230317A00050	3/17/2023	4.1	3/17/2028		114.29317	110.5111158	106.8771432	103.3846077	100.0272032	96.79894221	93.69413857	90.7073897	87.83356093
230317A00051	3/17/2023	4.35	3/17/2026		106.09964	104.4531633	102.8404176	101.26043	99.71226589	98.1950262	96.7078456	95.24989093	93.82035968
230320A00005	3/20/2023	4.37	3/20/2025		102.06347	101.4228722	100.7903408	100.1657195	99.5488604	98.93961908	98.33785479	97.74343023	97.15621141
230320A00006	3/20/2023	4.25	3/20/2026		105.97163	104.3181404	102.6986357	101.1121325	99.55768521	98.03438463	96.54135572	95.07775615	93.64277473
230320A00033	3/20/2023	4.35	3/20/2026		106.13618	104.4812905	102.8604116	101.2725586	99.71678514	98.19218143	96.69787179	95.23301332	93.79679426
230320A00092	3/20/2023	4.31	3/20/2026		106.07036	104.4160304	102.7957013	101.2083881	99.65314516	98.12906271	96.63526536	95.17091045	93.73518645
230321A00001	3/21/2023	4.48	3/23/2026		106.38771	104.7225626	103.0917429	101.4942499	99.92912522	98.395447	96.89232847	95.41891612	93.97438815
230321A00002	3/21/2023	4.33	3/19/2027		110.61783	107.9084423	105.280253	102.7303176	100.255819	97.85406097	95.52246275	93.25855271	91.05996307
230321A00009	3/21/2023	4.27	3/21/2028		114.96288	111.1575399	107.5014205	103.9878166	100.6103612	97.36301013	94.24002365	91.23594928	88.34560551
230321A00020	3/21/2023	4.73	11/18/2024		101.03657	100.7319992	100.4292779	100.1283885	99.82931425	99.53203862	99.23654534	98.94281834	98.6508417
230321A00025	3/21/2023	4.57	3/21/2025		102.20193	101.5581114	100.9224313	100.2947316	99.67486233	99.06267743	98.45803432	97.86079398	97.27082076
230321A00029	3/21/2023	4.57	3/21/2025		102.20193	101.5581114	100.9224313	100.2947316	99.67486233	99.06267743	98.45803432	97.86079398	97.27082076
230321A00052	3/21/2023	4.62	3/21/2025		102.23414	101.5902116	100.9544163	100.3266025	99.7066202	99.09432322	98.48956902	97.89221854	97.30213614

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230321A00053	3/21/2023	4.27	3/21/2028		114.96288	111.1575399	107.5014205	103.9878166	100.6103612	97.36301013	94.24002365	91.23594928	88.34560551
230321A00074	3/21/2023	4.23	3/21/2028		114.81642	111.013749	107.3602249	103.8491416	100.4741347	97.22916276	94.10848854	91.10666199	88.21850388
230322A00004	3/22/2023	4.3	3/22/2028		115.0851	111.2747422	107.6138771	104.095775	100.7140543	97.46265739	94.33583197	91.32811375	88.43431016
230322A00005	3/22/2023	4.42	3/22/2029		120.06347	115.1150742	110.4050608	105.9206062	101.6496447	97.58082361	93.70345691	90.00748233	86.4834214
230322A00006	3/22/2023	4.53	3/22/2030		124.73546	118.6218626	112.8563153	107.4170159	102.2836472	97.43726676	92.8602064	88.5359799	84.44919739
230322A00007	3/22/2023	4.54	3/21/2031		128.45	121.1791233	114.3847144	108.03276	102.0918543	96.53298749	91.32935031	86.45615581	81.89047638
230322A00009	3/22/2023	4.59	3/22/2032		132.42307	123.9638712	116.130347	108.8724077	102.1442367	95.90390747	90.11303375	84.73645231	79.74193635
230322A00015	3/22/2023	4.24	3/22/2028		114.86523	111.0588963	107.4019299	103.8876141	100.5095714	97.26174827	94.13839611	91.13405426	88.24353365
230322A00020	3/22/2023	4.2	3/22/2029		119.73181	114.7701523	110.0481926	105.5530064	101.272436	97.19504359	93.31006448	89.60736357	86.07739491
230322A00029	3/22/2023	4.67	3/21/2025		102.26636	101.6223117	100.9864014	100.3584735	99.73837808	99.12596902	98.52110371	97.9236431	97.33345152
230322A00030	3/22/2023	4.86	9/23/2024		100.51372	100.3639758	100.2146879	100.065854	99.91747193	99.76953962	99.62205501	99.47501605	99.32842071
230323A00027	3/23/2023	4.43	3/24/2025		102.141	101.4892336	100.8458058	100.2105548	99.58332541	98.96396603	98.35232899	97.74827029	97.15164947
230323A00028	3/23/2023	4.1	3/23/2028		113.6644	110.0405464	106.5588066	103.2127191	99.99615989	96.90332123	93.92869288	91.06704495	88.31341171
230323A00029	3/23/2023	4.39	3/24/2031		127.47652	120.2289406	113.4573743	107.1277798	101.2087336	95.67121304	90.48839998	85.63550221	81.08958992
230323A00030	3/23/2023	4.72	3/23/2037		150.51846	135.988473	123.1075823	111.6754645	101.5172977	92.48038608	84.4312474	77.25309786	70.84367785
230323A00031	3/23/2023	4.6	9/23/2024		100.47332	100.3236334	100.1744064	100.0256331	99.87731126	99.72943888	99.58201388	99.43503422	99.28849787
230323A00033	3/23/2023	4.43	3/24/2025		102.141	101.4892336	100.8458058	100.2105548	99.58332541	98.96396603	98.35232899	97.74827029	97.15164947
230323A00034	3/23/2023	4.23	3/23/2026		105.97427	104.3126597	102.6853091	101.0912238	99.52944679	97.99905808	96.49917238	95.02893767	93.5875336
230323A00048	3/23/2023	4.07	3/23/2028		114.25402	110.4560798	106.8073822	103.3012072	99.9311768	96.69123721	93.57563996	90.57892467	87.6959028
230323A00051	3/23/2023	3.85	3/23/2028		113.95288	110.1472985	106.4916327	102.9791158	99.60332892	96.35818009	93.23788514	90.2369504	87.35015614
230323A00054	3/23/2023	3.95	3/23/2028		113.81397	110.0240688	106.3831801	102.8845886	99.52192488	96.28914292	93.18050189	90.19054871	87.31410177
230323A00056	3/23/2023	4	3/23/2027		109.78977	107.080527	104.4528083	101.9036437	99.43019443	97.02974434	94.69969381	92.43755373	90.24094001
230323A00058	3/23/2023	3.96	9/23/2027		111.7617	108.514552	105.3802457	102.3541885	99.43200495	96.60952513	93.88277304	91.24795639	88.70145685
230323A00064	3/23/2023	4.25	3/21/2025		101.99574	101.3526705	100.7177271	100.0907575	99.47161192	98.86014434	98.25621227	97.65967678	97.07040233
230323A00065	3/23/2023	3.85	3/23/2028		113.95288	110.1472985	106.4916327	102.9791158	99.60332892	96.35818009	93.23788514	90.2369504	87.35015614
230323A00081	3/23/2023	3.85	3/23/2028		113.95288	110.1472985	106.4916327	102.9791158	99.60332892	96.35818009	93.23788514	90.2369504	87.35015614
230324A00001	3/24/2023	4.04	6/24/2026		106.73868	104.8150529	102.9359355	101.1000328	99.3060957	97.55291941	95.83934139	94.16423975	92.52653148
230324A00004	3/24/2023	4.46	9/24/2024		100.46089	100.3084591	100.1564994	100.0050085	99.8539841	99.70342414	99.55332642	99.40368882	99.25450919
230324A00006	3/24/2023	4.06	3/24/2026		105.70452	104.0425149	102.4148233	100.8204448	99.25841982	97.72782566	96.22777467	94.75741259	93.31591693
230324A00009	3/24/2023	4.19	3/24/2025		101.98438	101.3331829	100.6903213	100.0556316	99.42895828	98.81015008	98.19905934	97.59554213	96.99945807
230324A00021	3/24/2023	3.72	3/24/2028		112.38764	108.8815607	105.5122029	102.273364	99.15916217	96.1640194	93.28264334	90.51001089	87.84135255
230324A00023	3/24/2023	3.69	3/24/2028		113.3758	109.5780195	105.9300416	102.4251015	99.0567792	95.81898169	92.70592434	89.71211323	86.83232862
230324A00029	3/24/2023	4.01	3/24/2025		101.95088	101.2987439	100.6549664	100.019387	99.39184966	98.77220212	98.16029602	97.55598672	96.95913313



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230324A00031	3/24/2023	4.01	3/24/2025		101.95088	101.2987439	100.6549664	100.019387	99.39184966	98.77220212	98.16029602	97.55598672	96.95913313
230324A00032	3/24/2023	3.93	3/24/2028		113.75197	109.9604411	106.3180892	102.8181873	99.45435478	96.22053561	93.11097951	90.12022466	87.24308133
230324A00036	3/24/2023	3.98	3/24/2027		109.74793	107.0365164	104.406762	101.8556862	99.38044307	96.97831014	94.64668162	92.38306268	90.18506382
230324A00050	3/24/2023	4.13	3/24/2026		102.96681	102.0850836	101.219187	100.3686792	99.53313993	98.7121645	97.90536332	97.11236102	96.33279584
230327A00045	3/27/2023	4.42	3/27/2025		102.16366	101.5036431	100.8521667	100.2090678	99.57418519	98.9473621	98.32844555	97.71728646	97.11373947
230327A00046	3/27/2023	4.22	3/27/2026		106.00503	104.3323474	102.6943042	101.0898841	99.51811463	97.97806117	96.46882462	94.98953987	93.53937415
230327A00047	3/27/2023	4.08	3/27/2028		114.33772	110.5271706	106.8667043	103.3495432	99.96925949	96.71975239	93.59522993	90.59019116	87.69940965
230328A00010	3/28/2023	4.68	9/30/2024		100.54936	100.3802433	100.2116918	100.0437036	99.87627587	99.70940588	99.54309085	99.37732803	99.21211472
230328A00011	3/28/2023	4.53	3/28/2025		102.24639	101.5833383	100.9289025	100.2829137	99.64520909	99.01562979	98.39402109	97.78023218	97.17411602
230328A00019	3/28/2023	4.12	3/27/2026		106.05845	104.3815238	102.7393775	101.1309953	99.55539977	98.01165084	96.49884457	95.01611123	93.5626136
230328A00020	3/28/2023	3.98	3/28/2028		114.49019	110.6608312	106.9826761	103.4488783	100.0529474	96.78872456	93.65036317	90.63231117	87.72929422
230328A00024	3/28/2023	4.2	3/28/2028		114.79118	110.9695488	107.2984356	103.7710468	100.3809334	97.12197517	93.98836168	90.97457457	88.07537103
230328A00026	3/28/2023	4.34	3/28/2029		119.75985	114.8015809	110.0829622	105.5910568	101.3137003	97.2394493	93.35753472	89.65781795	86.13075038
230328A00027	3/28/2023	4.22	3/28/2028		113.99239	110.3833859	106.9159191	103.5835475	100.3801615	97.29996813	94.33747204	91.48745811	88.74497532
230328A00028	3/28/2023	4.34	3/27/2026		106.44718	104.7195329	103.0288567	101.3740265	99.7539624	98.16762856	96.61403053	95.09221333	93.60125944
230328A00037	3/28/2023	4.21	3/28/2028		114.44521	110.7164428	107.1352712	103.6949439	100.3890616	97.21155704	94.15667581	91.21895777	88.39322014
230328A00045	3/28/2023	4.21	3/28/2028		114.44521	110.7164428	107.1352712	103.6949439	100.3890616	97.21155704	94.15667581	91.21895777	88.39322014
230328A00047	3/28/2023	4.21	3/28/2028		114.44521	110.7164428	107.1352712	103.6949439	100.3890616	97.21155704	94.15667581	91.21895777	88.39322014
230328A00051	3/28/2023	4.53	3/28/2033		131.80151	123.2278151	115.3377534	108.0715295	101.3749382	95.19881349	89.49853268	84.23357155	79.36710568
230328A00052	3/28/2023	4.53	3/28/2033		131.80151	123.2278151	115.3377534	108.0715295	101.3749382	95.19881349	89.49853268	84.23357155	79.36710568
230328A00061	3/28/2023	4.68	9/27/2024		100.52191	100.3611195	100.2008457	100.0410874	99.88184192	99.7231069	99.56487987	99.4071584	99.24994008
230328A00098	3/28/2023	4.24	3/29/2027		110.49995	107.7647502	105.1121608	102.5391643	100.0428711	97.62051705	95.26945752	92.98716077	90.77120249
230328A00100	3/28/2023	4.19	3/28/2028		114.75438	110.9334149	107.2629572	103.736205	100.3467099	97.08835237	93.95532263	90.94210294	88.04345107
230328A00111	3/28/2023	4.36	3/27/2026		106.23809	104.5634068	102.9233955	101.3170421	99.74337353	98.20145405	96.69038371	95.20929656	93.75735899
230328A00122	3/28/2023	4.58	3/28/2025		102.27957	101.6163959	100.9618382	100.3157287	99.67790434	99.04820645	98.42648023	97.81257485	97.20634326
230329A00019	3/29/2023	4.76	10/1/2024		100.57259	100.4006989	100.2293921	100.0586694	99.88852775	99.71896419	99.5499758	99.38155967	99.2137129
230329A00020	3/29/2023	4.23	3/29/2028		114.91378	111.0871204	107.4112453	103.8793437	100.484952	97.22193628	94.08447345	91.06703324	88.16436169
230329A00043	3/29/2023	4.36	3/27/2026		106.23809	104.5634068	102.9233955	101.3170421	99.74337353	98.20145405	96.69038371	95.20929656	93.75735899
230329A00055	3/29/2023	4.59	3/28/2025		102.28621	101.6230074	100.9684253	100.3222917	99.68444339	99.05472178	98.43297206	97.81904339	97.2127887
230330A00011	3/30/2023	4.21	3/30/2028		114.85222	111.0239156	107.3465599	103.8133318	100.4177566	97.15369041	94.01530042	90.99704756	88.09366967
230330A00029	3/30/2023	4.6	4/1/2025		102.33402	101.6597628	100.9943996	100.337759	99.68967012	99.04996664	98.41848644	97.79507158	97.17956815
230330A00052	3/30/2023	4.79	9/30/2024		100.56797	100.3988287	100.2302535	100.0622416	99.89479034	99.72789684	99.56155836	99.39577216	99.23053553
230330A00061	3/30/2023	4.65	3/31/2025		102.35712	101.6854827	101.0226748	100.3685192	99.72284695	99.08549385	98.45629976	97.83510867	97.2217685

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230330A00062	3/30/2023	4.42	3/30/2026		106.37509	104.6911115	103.0421014	101.4270366	99.84493174	98.29483967	96.77584955	95.28708511	93.82770297
230330A00080	3/30/2023	4.44	3/31/2025		102.3026	101.6300635	100.9663823	100.3113803	99.66488794	99.02674004	98.39677573	97.77483821	97.16077468
230330A00083	3/30/2023	4.1	3/30/2027		110.49995	107.7541139	105.0914384	102.5088716	100.0034977	97.5725283	95.21329531	92.92324516	90.69993288
230331A00013	3/31/2023	4.75	9/30/2024		100.5612	100.3920704	100.2235038	100.0555005	99.88805781	99.72117285	99.5548429	99.38906521	99.22383705
230331A00014	3/31/2023	4.34	3/31/2026		106.25341	104.5677801	102.9171992	101.300634	99.71709594	98.16563456	96.64533606	95.15532136	93.6947444
230331A00033	3/31/2023	4.34	3/31/2026		106.25341	104.5677801	102.9171992	101.300634	99.71709594	98.16563456	96.64533606	95.15532136	93.6947444
230331A00048	3/31/2023	4.75	9/30/2024		100.5612	100.3920704	100.2235038	100.0555005	99.88805781	99.72117285	99.5548429	99.38906521	99.22383705
230331A00055	3/31/2023	4.5	3/31/2025		102.25633	101.5850789	100.9226455	100.2688607	99.62355601	98.98656704	98.35773377	97.73690022	97.12391438
230331A00057	3/31/2023	4.08	3/31/2028		114.38474	110.5622608	106.8906786	103.3631676	99.97325009	96.7147791	93.58191958	90.56913043	87.6711478
230404A00002	4/4/2023	4.1	4/2/2027		110.17261	107.4307468	104.7719934	102.1933022	99.69175593	97.26456458	94.90905905	92.62268485	90.40299628
230404A00004	4/4/2023	4.45	4/4/2025		102.26309	101.5809549	100.9079345	100.2438488	99.58852048	98.94177694	98.30345008	97.67337617	97.05139571
230404A00019	4/4/2023	4.45	4/4/2025		102.26309	101.5809549	100.9079345	100.2438488	99.58852048	98.94177694	98.30345008	97.67337617	97.05139571
230404A00040	4/4/2023	4.28	4/4/2025		102.147	101.4653024	100.7927189	100.129066	99.4741664	98.8278476	98.18994156	97.56028461	96.9387173
230405A00008	4/5/2023	4.01	10/6/2025		103.75725	102.5650006	101.4002256	100.2619778	99.14935735	98.06150479	96.99759863	95.95685345	94.93851785
230405A00010	4/5/2023	3.96	4/6/2026		105.68577	103.9884267	102.3266454	100.6993727	99.10559664	97.54434506	96.01468343	94.51571312	93.04656967
230405A00012	4/5/2023	3.8	4/5/2028		113.40798	109.5893013	105.9220417	102.3993208	99.01461433	95.76173265	92.63480139	89.62824334	86.7367615
230405A00020	4/5/2023	4.17	4/4/2025		102.07188	101.3904685	100.7181677	100.0547948	99.40017259	98.75412862	98.11649487	97.48710771	96.86580774
230405A00021	4/5/2023	3.96	4/6/2026		105.68577	103.9884267	102.3266454	100.6993727	99.10559664	97.54434506	96.01468343	94.51571312	93.04656967
230405A00022	4/5/2023	3.8	4/5/2028		113.40798	109.5893013	105.9220417	102.3993208	99.01461433	95.76173265	92.63480139	89.62824334	86.7367615
230405A00028	4/5/2023	3.78	4/5/2028		113.33392	109.5166079	105.8506745	102.3292414	98.94578559	95.6941188	92.56836799	89.56295721	86.67259064
230405A00037	4/5/2023	3.71	4/6/2026		105.48563	103.7861576	102.1223603	100.4931784	98.89759544	97.33463474	95.8033577	94.30286182	92.83227895
230405A00044	4/5/2023	3.8	4/5/2028		113.40798	109.5893013	105.9220417	102.3993208	99.01461433	95.76173265	92.63480139	89.62824334	86.7367615
230405A00045	4/5/2023	4.15	5/5/2025		102.33137	101.5649582	100.8100464	100.066376	99.33369709	98.6117669	97.9003499	97.19921738	96.50814721
230405A00046	4/5/2023	3.82	10/5/2027		111.45135	108.1756872	105.0148549	101.9641385	99.01904722	96.17530332	93.42883006	90.77574099	88.21232969
230405A00049	4/5/2023	3.81	4/5/2028		113.44501	109.625648	105.9577252	102.4343605	99.04902869	95.79553957	92.66801809	89.66088641	86.76884693
230405A00050	4/5/2023	4.38	10/7/2024		100.55911	100.3707465	100.1831011	99.99616677	99.80993935	99.62441481	99.43958912	99.25545831	99.0720184
230405A00051	4/5/2023	4.17	4/7/2025		102.09982	101.4101677	100.7298457	100.0586683	99.39645165	98.74301702	98.09819025	97.46180181	96.8336866
230406A00016	4/6/2023	3.89	4/6/2028		112.49416	108.9987986	105.6399236	102.4113433	99.30718416	96.32187528	93.45013027	90.68693096	88.02751202
230406A00017	4/6/2023	3.99	4/7/2025		102.06439	101.373728	100.6924272	100.0203	99.35716202	98.70283334	98.05713904	97.41990874	96.79097655
230406A00023	4/6/2023	3.84	4/6/2028		113.56745	109.7429982	106.0702585	102.5423358	99.15268931	95.89511441	92.76372257	89.75292334	86.85740734
230406A00026	4/6/2023	3.92	4/6/2027		109.73484	106.9876838	104.3241293	101.74109	99.23562072	96.80490524	94.44624997	92.15707751	89.93492072
230406A00029	4/6/2023	3.84	4/6/2028		113.56745	109.7429982	106.0702585	102.5423358	99.15268931	95.89511441	92.76372257	89.75292334	86.85740734
230406A00038	4/6/2023	4.24	4/7/2025		102.1482	101.4583639	100.7778581	100.1064985	99.44410151	98.79048817	98.14548436	97.50892052	96.88063152

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230406A00039	3/29/2024	3.43	3/31/2026		104.72848	103.0560548	101.4184326	99.81459523	98.24356025	96.70438341	95.19615674	93.71800678	92.26909293
230406A00041	5/31/2024	3.25	5/29/2026		104.98258	103.1474329	101.3533766	99.59924773	97.88392255	96.20631613	94.56538096	92.9601053	91.38951173
230406A00042	4/6/2023	3.99	4/7/2025		102.06439	101.373728	100.6924272	100.0203	99.35716202	98.70283334	98.05713904	97.41990874	96.79097655
230406A00043	7/31/2024	3.2	7/31/2026		105.46899	103.4588382	101.4975845	99.58372989	97.71583476	95.89251326	94.11243089	92.37430224	90.67688875
230406A00045	4/29/2024	3.41	4/30/2027		108.59973	105.8010161	103.0892999	100.4613045	97.91389861	95.44409226	93.04902884	90.72597816	88.47232975
230406A00046	6/28/2024	3.35	6/30/2027		109.01751	106.0457019	103.1712178	100.3903462	97.69953815	95.095399	92.57468092	90.13427566	87.77120773
230406A00050	4/6/2023	3.67	4/6/2027		109.42418	106.6732974	104.006319	101.4201433	98.91180893	96.47848462	94.11746259	91.82615204	89.60207323
230406A00052	4/6/2023	4.02	4/6/2026		105.7873	104.0890743	102.4264225	100.7982949	99.20367906	97.64160242	96.11113006	94.61136298	93.14143634
230406A00088	4/6/2023	4.23	10/7/2024		100.55653	100.3678993	100.1799888	99.99279347	99.80630907	99.62053151	99.43545669	99.25108055	99.06739909
230406A00091	4/6/2023	3.99	4/7/2025		102.06439	101.373728	100.6924272	100.0203	99.35716202	98.70283335	98.05713904	97.41990874	96.79097656
230406A00105	4/6/2023	3.84	4/6/2028		113.56745	109.7429982	106.0702585	102.5423358	99.15268931	95.89511441	92.76372257	89.75292334	86.85740734
230410A00011	4/10/2023	4.08	4/9/2027		110.20188	107.4399427	104.7622197	102.1655973	99.64710119	97.20388823	94.83323931	92.53255295	90.29933932
230410A00012	4/10/2023	3.98	4/10/2028		114.13322	110.2869507	106.5935467	103.0460379	99.6378199	96.36262858	93.21451988	90.18785148	87.27726545
230411A00028	4/11/2023	4.2	4/11/2025		102.24865	101.5463946	100.8538074	100.1706912	99.49685245	98.83210259	98.17625829	97.52914111	96.89057735
230411A00030	4/11/2023	4.2	4/11/2025		102.24865	101.5463946	100.8538074	100.1706912	99.49685245	98.83210259	98.17625829	97.52914111	96.89057735
230411A00045	4/11/2023	4.66	10/11/2024		100.64956	100.4500822	100.2514065	100.0535298	99.85644728	99.66015416	99.46464559	99.26991682	99.0759631
230411A00054	4/11/2023	3.74	4/11/2028		113.7647	109.9089734	106.2069798	102.6516902	99.23644563	95.95493111	92.80115519	89.76943133	86.85436037
230412A00001	4/12/2023	4.62	10/11/2024		100.64158	100.4421075	100.2434428	100.0455771	99.84850559	99.6522234	99.45672573	99.26200782	99.06806494
230412A00002	4/12/2023	4.42	4/11/2025		102.31262	101.611286	100.9195891	100.2373342	99.5643286	98.90038476	98.24532019	97.59895729	96.96112318
230412A00005	4/12/2023	4.16	4/10/2026		106.07252	104.3606844	102.6848828	101.0440386	99.43712076	97.86313929	96.32114277	94.81021657	93.32948103
230412A00006	4/12/2023	4.04	4/12/2027		110.12891	107.3595396	104.6748263	102.0716342	99.5469656	97.09795497	94.72186241	92.41606692	90.17806031
230412A00007	4/12/2023	3.95	4/12/2028		114.04503	110.1947127	106.4976327	102.946794	99.53556766	96.25766659	93.10712549	90.0782823	87.16576078
230412A00028	4/12/2023	3.69	4/12/2028		113.58962	109.7342938	106.0328151	102.4781455	99.06361644	95.78290364	92.63000733	89.59923329	86.68517526
230412A00031	4/12/2023	3.91	4/10/2026		105.87155	104.1575636	102.4797223	100.8369468	99.22820148	97.6524919	96.10886241	94.59639443	93.11420452
230412A00033	4/12/2023	4.04	4/12/2027		110.12891	107.3595396	104.6748263	102.0716342	99.5469656	97.09795497	94.72186241	92.41606692	90.17806031
230412A00037	4/12/2023	4.62	10/15/2024		100.67878	100.4682538	100.2586256	100.0498868	99.84203154	99.63505422	99.4289492	99.22371088	99.01933373
230412A00038	4/12/2023	3.69	4/12/2028		113.58962	109.7342938	106.0328151	102.4781455	99.06361644	95.78290364	92.63000733	89.59923329	86.68517526
230412A00044	4/12/2023	3.91	4/10/2026		105.87155	104.1575636	102.4797223	100.8369468	99.22820148	97.6524919	96.10886241	94.59639443	93.11420452
230412A00053	4/12/2023	4.2	4/12/2028	4/10/2026	112.30189	109.1796418	106.1746572	103.2817269	100.4959059	97.81249957	95.22704928	92.73531899	90.33328268
230412A00059	4/12/2023	4.2	4/12/2028	4/10/2026	112.30189	109.1796418	106.1746572	103.2817269	100.4959059	97.81249957	95.22704928	92.73531899	90.33328268
230413A00017	4/13/2023	3.88	4/13/2028		113.79593	109.9473963	106.2521715	102.7032535	99.29400492	96.0181311	92.86965975	89.84292245	86.93253712
230413A00018	4/13/2023	3.96	4/13/2027		109.92337	107.1540052	104.4693862	101.8663727	99.34196073	96.89327926	94.51758296	92.21224586	89.97475514
230413A00020	4/13/2023	3.88	4/13/2028		113.79593	109.9473963	106.2521715	102.7032535	99.29400492	96.0181311	92.86965975	89.84292245	86.93253712

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230413A00021	4/13/2023	4.07	4/13/2026		105.95471	104.2355796	102.5527692	100.9051913	99.29180261	97.71160117	96.16362443	94.6469472	93.16067987
230413A00024	4/13/2023	4.41	4/14/2025		102.33552	101.625941	100.9262298	100.2361803	99.55559303	98.88427389	98.22203414	97.56869012	96.9240631
230413A00030	4/13/2023	4.33	4/14/2025		102.27868	101.5693278	100.8698378	100.1800073	99.49963693	98.82853259	98.16650558	97.51337229	96.868954
230413A00031	4/13/2023	4.07	4/13/2026		105.95471	104.2355796	102.5527692	100.9051913	99.29180261	97.71160117	96.16362443	94.6469472	93.16067987
230413A00045	4/13/2023	4.33	4/11/2025		102.24943	101.5483346	100.8568811	100.1748673	99.5021004	98.83839305	98.18356273	97.53743188	96.89982765
230413A00069	4/13/2023	4.33	4/14/2025		102.27868	101.5693278	100.8698378	100.1800073	99.49963693	98.82853259	98.16650558	97.51337229	96.868954
230413A00082	4/13/2023	4.01	4/13/2027		110.05918	107.2879474	104.6015123	101.9967249	99.47057985	97.02020477	94.64285314	92.33589783	90.0968249
230417A00023	4/17/2023	3.86	4/7/2028		114.16483	110.3131164	106.6145002	103.0620089	99.64902915	96.36928768	93.21683184	90.18601096	87.27145905
230417A00034	4/17/2023	4.63	4/17/2025		102.50928	101.791041	101.0829002	100.3846429	99.69606273	99.01695922	98.34713728	97.68640717	97.03458432
230417A00036	4/17/2023	4.63	4/17/2025		102.50928	101.791041	101.0829002	100.3846429	99.69606273	99.01695922	98.34713728	97.68640717	97.03458432
230417A00037	4/17/2023	4.39	4/16/2026		106.54051	104.8078529	103.1119188	101.4516037	99.82584863	98.23363689	96.67399187	95.14597509	93.6486843
230417A00042	4/17/2023	4.58	4/17/2025		102.47334	101.7552505	101.0472509	100.3491334	99.66069178	98.9817254	98.31203927	97.65144368	96.99975406
230417A00044	4/17/2023	4.32	4/17/2026		106.43264	104.6981586	103.0004815	101.3385052	99.71116692	98.11744614	96.5563628	95.02697512	93.52837777
230417A00045	4/17/2023	4.21	4/16/2027		110.63902	107.8513998	105.1492277	102.5293289	99.98866766	97.52434325	95.13358231	92.81373236	90.56225558
230417A00046	4/17/2023	4.13	4/17/2028		114.77581	110.8976944	107.1742638	103.5984444	100.1635264	96.86314712	93.69127082	90.64216957	87.71040549
230417A00085	4/17/2023	4.68	4/17/2026		103.51694	102.5930341	101.6859663	100.795265	99.92047905	99.06117451	98.21693354	97.38735373	96.57204733
230418A00007	4/18/2023	4.61	4/18/2025		102.50537	101.7844283	101.0736591	100.3728469	99.68178318	99.00026506	98.3280954	97.6650824	97.01103952
230418A00035	4/18/2023	4.13	4/18/2028		107.40471	105.4328434	103.5191016	101.6612933	99.85732213	98.10518629	96.40297351	94.74885638	93.14108795
230418A00057	4/18/2023	4.36	4/18/2025		102.43246	101.7104093	100.9985704	100.2967238	99.60465967	98.92217418	98.24906904	97.58515142	96.93023376
230418A00059	4/18/2023	4.09	4/17/2026		106.26437	104.5273864	102.8273346	101.1631005	99.53361589	97.93785576	96.37483553	94.84360918	93.34326734
230419A00016	4/19/2023	4.41	4/18/2025		102.46855	101.7463574	101.0343759	100.3323881	99.64018421	98.9575603	98.28431809	97.62026472	96.96521261
230419A00024	4/19/2023	4.66	4/18/2025		102.54144	101.8203554	101.109444	100.408491	99.71728772	99.03563148	98.36332503	97.70017656	97.04599951
230419A00030	4/19/2023	4.39	4/20/2026		106.59135	104.8470873	103.1399749	101.4688855	99.83274224	98.23051154	96.66120087	95.1238567	93.61756254
230419A00035	4/19/2023	4.16	4/19/2028		114.91237	111.0260045	107.2948241	103.7117226	100.2699608	96.96314875	93.78522511	90.73043813	87.79332774
230419A00072	4/19/2023	4.53	10/20/2025		104.54401	103.3086227	102.1025661	100.924803	99.77434429	98.65024667	97.55160983	96.47757409	95.42731815
230420A00003	4/20/2023	4.06	4/20/2026		106.2492	104.5039731	102.7959883	101.1241171	99.48727808	97.88443375	96.31458769	94.77678277	93.27009906
230420A00024	4/20/2023	4.31	4/20/2026		106.45289	104.7098633	103.0039631	101.3340641	99.69909002	98.09800778	96.52982547	94.99359008	93.48838562
230420A00056	4/20/2023	4.38	4/20/2033		134.39171	124.7313945	115.8733625	107.7458876	100.2840425	93.42901879	87.12751926	81.33121373	75.99625109
230420A00059	4/20/2023	4.72	4/20/2038		153.99801	138.1498413	124.2272423	111.9799073	101.1915741	91.67522081	83.26896171	75.83253875	69.24431913
230420A00060	4/20/2023	4.72	4/20/2038		153.99801	138.1498413	124.2272423	111.9799073	101.1915741	91.67522081	83.26896171	75.83253875	69.24431913
230420A00063	4/20/2023	4.65	4/20/2037		149.88687	135.316252	122.4092927	110.9627656	100.7994566	91.76470129	83.7234014	76.55744959	70.16350549
230420A00067	4/20/2023	4.57	4/21/2025		102.50757	101.7784629	101.0597536	100.3512232	99.65265613	98.96384302	98.28458022	97.61466976	96.9539191
230420A00071	4/20/2023	4.31	4/20/2026		106.45289	104.7098633	103.0039631	101.3340641	99.69909002	98.09800778	96.52982547	94.99359008	93.48838562

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230421A00003	4/21/2023	4.72	10/21/2024		100.75729	100.5301345	100.3040182	100.0789312	99.85486651	99.63181712	99.40977605	99.18873643	98.96869143
230421A00006	4/21/2023	4.04	4/21/2028		114.48719	110.6030491	106.874284	103.2937683	99.85474431	96.55080533	93.3758746	90.32418624	87.39026723
230421A00015	4/21/2023	4.54	4/21/2025		102.48568	101.7566607	101.0380386	100.3295946	99.63111307	98.94238463	98.26320568	97.59337825	96.93270982
230421A00020	4/21/2023	4.23	4/21/2026		106.3267	104.5820144	102.8745384	101.2031428	99.56674768	97.96431623	96.3948531	94.85740204	93.35104402
230421A00023	4/21/2023	4.04	4/21/2028		114.48719	110.6030491	106.874284	103.2937683	99.85474431	96.55080533	93.3758746	90.32418624	87.39026723
230421A00025	4/21/2023	4.04	4/21/2028		114.48719	110.6030491	106.874284	103.2937683	99.85474431	96.55080533	93.3758746	90.32418624	87.39026723
230421A00036	4/21/2023	4.48	4/21/2025		102.4419	101.7130563	100.9946087	100.2863374	99.58802695	98.89946787	98.22045661	97.55079524	96.89029127
230421A00041	4/21/2023	4.22	4/21/2027		110.72747	107.9245337	105.2078628	102.5742388	100.020584	97.54395817	95.1415508	92.81067463	90.54875909
230421A00043	4/21/2023	4.1	4/21/2028		114.71202	110.8236823	107.0908458	103.506378	100.0635171	96.75585168	93.57730114	90.52209566	87.5847585
230421A00044	4/21/2023	4.13	10/21/2027		112.6305	109.2920134	106.071704	102.9646669	99.96623153	97.07195158	94.27759258	91.5791203	88.97268975
230421A00062	4/21/2023	4.33	4/21/2028		107.75281	105.7307776	103.7688306	101.8646887	100.0161772	98.22122	96.47783363	94.78412298	93.13827647
230421A00064	4/21/2023	4.1	4/21/2028		114.71202	110.8236823	107.0908458	103.506378	100.0635171	96.75585168	93.57730114	90.52209566	87.5847585
230424A00003	4/24/2023	4.15	4/26/2027		110.59606	107.7808297	105.0526234	102.4081721	99.84435813	97.35820331	94.9468619	92.60761348	90.33785636
230424A00005	4/24/2023	4.08	4/24/2028		114.67313	110.7769633	107.0369132	103.4458062	99.99684063	96.68356881	93.49987584	90.43996028	87.49831598
230424A00010	4/24/2023	4.55	4/24/2025		102.52387	101.7865316	101.0598248	100.3435207	99.63739664	98.94123649	98.25483011	97.57797325	96.91046733
230424A00011	4/24/2023	4.55	4/24/2025		102.52387	101.7865316	101.0598248	100.3435207	99.63739664	98.94123649	98.25483011	97.57797325	96.91046733
230424A00012	4/24/2023	4.28	4/24/2026		106.45059	104.6964426	102.9798324	101.2996212	99.65471498	98.04406393	96.46666028	94.92153607	93.40776117
230424A00026	4/24/2023	4.28	4/24/2026		106.45059	104.6964426	102.9798324	101.2996212	99.65471498	98.04406393	96.46666028	94.92153607	93.40776117
230424A00037	4/24/2023	4.79	10/24/2024		100.80249	100.567005	100.3326297	100.099356	99.8671759	99.63608179	99.40606599	99.17712094	98.94923912
230424A00064	4/24/2023	4.28	4/24/2026		106.45059	104.6964426	102.9798324	101.2996212	99.65471498	98.04406393	96.46666028	94.92153607	93.40776117
230425A00006	4/25/2023	3.89	4/24/2026		106.00151	104.2473391	102.5307844	100.8507035	99.20599832	97.5956155	96.01854376	94.47381185	92.96048658
230425A00011	4/25/2023	4.3	9/25/2025		103.97858	102.8148899	101.6773336	100.5650372	99.47716498	98.41291776	97.37153085	96.35227229	95.3544411
230425A00013	4/25/2023	4.67	10/25/2024		100.78364	100.5454353	100.3083601	100.0724105	99.83757842	99.603856	99.37123532	99.13970857	98.90926801
230425A00020	4/25/2023	4.62	10/25/2024		100.77172	100.5335348	100.2964786	100.0605478	99.82573458	99.5920309	99.35942889	99.12792075	98.89749874
230425A00024	4/25/2023	4.48	4/25/2025		102.49703	101.7568906	101.0274612	100.3085134	99.59982203	98.90116851	98.21234039	97.53313117	96.86334012
230425A00028	4/25/2023	4.42	4/25/2025		102.43788	101.6981676	100.9691642	100.2506345	99.54235381	98.8441036	98.15567165	97.47685166	96.80744308
230425A00029	4/25/2023	4.14	4/24/2026		106.20675	104.4547875	102.7403253	101.0622233	99.41938843	97.81077205	96.23536733	94.69220728	93.18036266
230425A00030	4/25/2023	4.01	4/26/2027		110.2108	107.4009136	104.6779239	102.0385674	99.47972985	96.99843705	94.59184675	92.25724193	89.99202421
230425A00031	4/25/2023	3.69	4/25/2028		113.73725	109.842069	106.1035796	102.5145578	99.06815725	95.75788863	92.57759865	89.52145033	86.58390459
230425A00032	4/25/2023	3.95	4/25/2028		114.19659	110.3064834	106.5724478	102.9872995	99.54423302	96.2367971	93.05887401	90.00465986	87.0686464
230425A00037	4/25/2023	4.65	10/25/2024		100.77888	100.5406751	100.3036075	100.0676654	99.83284088	99.59912596	99.36651275	99.13499344	98.9045603
230425A00040	4/25/2023	3.89	4/24/2026		106.00151	104.2473391	102.5307844	100.8507035	99.20599832	97.5956155	96.01854376	94.47381185	92.96048658
230425A00045	4/25/2023	3.95	4/25/2028		114.19659	110.3064834	106.5724478	102.9872995	99.54423302	96.2367971	93.05887401	90.00465986	87.0686464



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230425A00047	4/25/2023	4.01	4/26/2027		110.2108	107.4009136	104.6779239	102.0385674	99.47972985	96.99843705	94.59184675	92.25724193	89.99202421
230425A00050	4/25/2023	4.14	4/24/2026		106.20675	104.4547875	102.7403253	101.0622233	99.41938843	97.81077205	96.23536733	94.69220728	93.18036266
230425A00052	4/25/2023	4.01	4/26/2027		110.2108	107.4009136	104.6779239	102.0385674	99.47972985	96.99843705	94.59184675	92.25724193	89.99202421
230425A00053	4/25/2023	4.14	4/24/2026		106.20675	104.4547875	102.7403253	101.0622233	99.41938843	97.81077205	96.23536733	94.69220728	93.18036266
230425A00104	4/25/2023	3.86	7/15/2026		106.88533	104.8986072	102.9592288	101.0657765	99.21688266	97.41122987	95.6475485	93.9246147	92.24124839
230425A00124	4/25/2023	4.42	4/25/2025		102.43788	101.6981676	100.9691642	100.2506345	99.54235381	98.8441036	98.15567165	97.47685166	96.80744308
230426A00003	4/26/2023	3.89	5/9/2028		114.12847	110.2006535	106.431842	102.814691	99.34224041	96.00789165	92.80538627	89.72878625	86.77245559
230426A00004	4/26/2023	3.89	5/9/2028		114.12847	110.2006535	106.431842	102.814691	99.34224041	96.00789165	92.80538627	89.72878625	86.77245559
230426A00005	4/26/2023	3.91	6/13/2028		114.59792	110.563737	106.696481	102.988372	99.43203013	96.02045592	92.74700851	89.60538556	86.58960424
230426A00006	4/26/2023	3.91	6/13/2028		114.59792	110.563737	106.696481	102.988372	99.43203013	96.02045592	92.74700851	89.60538556	86.58960424
230426A00007	4/26/2023	3.92	7/11/2028		114.95197	110.8325893	106.8867499	103.1062076	99.48315746	96.01020463	92.68034034	89.48691976	86.42364112
230426A00008	4/26/2023	3.92	7/11/2028		114.95197	110.8325893	106.8867499	103.1062076	99.48315746	96.01020463	92.68034034	89.48691976	86.42364112
230426A00009	4/26/2023	3.94	8/8/2028		115.34304	111.1387817	107.1146048	103.2618057	99.57215393	96.03785926	92.65154567	89.40622703	86.29528436
230426A00010	4/26/2023	3.94	8/8/2028		115.34304	111.1387817	107.1146048	103.2618057	99.57215393	96.03785926	92.65154567	89.40622703	86.29528436
230426A00011	4/26/2023	3.96	9/12/2028		115.82056	111.508222	107.3839201	103.438408	99.66294313	96.04926033	92.58954284	89.27639531	86.10281862
230426A00012	4/26/2023	3.96	9/12/2028		115.82056	111.508222	107.3839201	103.438408	99.66294313	96.04926033	92.58954284	89.27639531	86.10281862
230426A00013	4/26/2023	3.98	10/10/2028		116.21988	111.8201228	107.6151078	103.5951057	99.75093073	96.07390768	92.55583987	89.18897996	85.96600253
230426A00014	4/26/2023	3.98	10/10/2028		116.21988	111.8201228	107.6151078	103.5951057	99.75093073	96.07390768	92.55583987	89.18897996	85.96600253
230426A00025	4/26/2023	3.62	4/26/2028		113.48469	109.5913911	105.8548579	102.2678564	98.82353162	95.51538661	92.33726102	89.28331144	86.34799293
230426A00026	4/26/2023	4.61	10/25/2024		100.76934	100.5311547	100.2941022	100.0581753	99.82336581	99.58966588	99.35706761	99.12556319	98.89514488
230426A00030	4/26/2023	3.81	4/27/2026		105.89651	104.1349139	102.4112325	100.7243092	99.07303296	97.45633806	95.87320166	94.32264158	92.80371429
230426A00033	4/26/2023	3.88	4/26/2028		113.94498	110.0567427	106.324646	102.7415006	99.30049237	95.99516262	92.81938652	89.7673538	86.83355037
230426A00036	4/26/2023	4.06	4/27/2026		106.10282	104.34344	102.6218588	100.9369211	99.28752086	97.67259723	96.09113186	94.54214686	93.02470272
230426A00037	4/26/2023	3.94	4/26/2027		110.01817	107.2109556	104.4905742	101.853765	99.29741572	96.81855392	94.41433917	92.08205616	89.81910814
230426A00040	4/26/2023	3.9	4/26/2028		114.0202	110.1305529	106.3970893	102.8126171	99.37032095	96.06374044	92.88674947	89.83353643	86.898586
230426A00043	4/26/2023	4.35	4/22/2025		102.35679	101.6255692	100.9048191	100.194316	99.49384227	98.80318626	98.1221423	97.45051043	96.7880962
230426A00045	4/26/2023	4.34	4/25/2025		102.37862	101.6391543	100.9103904	100.1920979	99.48405189	98.78603405	98.09783215	97.41923994	96.7500569
230426A00046	4/26/2023	3.95	4/26/2028		114.20825	110.3150785	106.5781976	102.9904086	99.54489241	96.23518501	93.05515685	89.99899303	87.06117506
230426A00049	4/26/2023	4.13	4/27/2026		106.22532	104.4648349	102.7421696	101.0561675	99.40572193	97.78977156	96.20729751	94.65732142	93.13890332
230426A00051	4/26/2023	4.69	10/28/2024		100.81686	100.5703353	100.3250168	100.0808978	99.83796937	99.59622297	99.35564993	99.11624173	98.87798991
230426A00057	4/26/2023	4.44	4/25/2025		102.45269	101.7129209	100.9838576	100.2652687	99.55692929	98.85862099	98.17013153	97.49125459	96.82178963
230426A00062	4/26/2023	4.13	4/27/2026		106.22532	104.4648349	102.7421696	101.0561675	99.40572193	97.78977156	96.20729751	94.65732142	93.13890332
230426A00063	4/26/2023	4.69	10/25/2024		100.78841	100.5501955	100.3131127	100.0771555	99.84231596	99.60858604	99.37595789	99.14442369	98.91397573

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230426A00064	6/15/2023	3.87	6/15/2028		114.46475	110.4274816	106.5575214	102.8470561	99.28867959	95.87536774	92.60045707	89.45762415	86.44086657
230426A00065	6/15/2023	3.87	6/15/2028		114.46475	110.4274816	106.5575214	102.8470561	99.28867959	95.87536774	92.60045707	89.45762415	86.44086657
230426A00142	4/26/2023	4.51	4/27/2026		103.36602	102.4418572	101.5345621	100.6436616	99.76870327	98.90925162	98.06488748	97.23520716	96.41982174
230427A00013	4/27/2023	4.74	10/28/2024		100.8292	100.5826494	100.3373106	100.0931714	99.85022293	99.60845651	99.36786353	99.12843546	98.89016385
230427A00028	4/27/2023	4.74	10/28/2024		100.8292	100.5826494	100.3373106	100.0931714	99.85022293	99.60845651	99.36786353	99.12843546	98.89016385
230427A00057	4/27/2023	4.74	10/28/2024		100.8292	100.5826494	100.3373106	100.0931714	99.85022293	99.60845651	99.36786353	99.12843546	98.89016385
230427A00066	4/27/2023	4.07	4/27/2027		110.38774	107.5725824	104.844538	102.200333	99.63684325	97.15108482	94.74020657	92.40148302	90.1323078
230427A00069	4/27/2023	4.5	4/28/2025		102.5276	101.7793629	101.0420637	100.3154668	99.59934004	98.89345821	98.19760236	97.51155979	96.83512377
230427A00077	4/27/2023	4.14	10/27/2026		108.40442	106.1218762	103.89919	101.7343492	99.62542504	97.57057009	95.56801378	93.61605854	91.71307613
230427A00078	4/27/2023	4.74	10/29/2024		100.83882	100.589498	100.341413	100.0945524	99.84890727	99.60446855	99.36122744	99.11917514	98.87830296
230428A00010	4/28/2023	4.31	4/28/2025		102.49695	101.7473701	101.0087744	100.2809204	99.56357489	98.85651126	98.15950937	97.47235536	96.79484136
230428A00017	4/28/2023	4.17	4/28/2026		106.30742	104.5434134	102.8173404	101.128044	99.47441291	97.85538097	96.26992506	94.71706271	93.19585004
230428A00018	4/28/2023	3.99	4/28/2028		114.38223	110.4801006	106.7347862	103.1390544	99.68605528	96.36929669	93.18262252	90.12019317	87.17646715
230428A00022	4/28/2023	4.78	10/28/2024		100.83906	100.5925006	100.3471457	100.1029903	99.86002578	99.61824334	99.37763441	99.13819045	98.89990301
230428A00026	4/28/2023	4.56	4/28/2025		102.57254	101.8241143	101.0866315	100.3598529	99.64354628	98.93748641	98.24145431	97.55523724	96.87862847
230428A00029	4/28/2023	4.23	4/28/2026		106.41259	104.6476281	102.9206231	101.2304116	99.5758817	97.955967	96.36964387	94.81592941	93.29387938
230428A00040	4/28/2023	4.78	10/28/2024		100.83906	100.5925006	100.3471457	100.1029903	99.86002578	99.61824334	99.37763441	99.13819045	98.89990301
230428A00050	4/28/2023	4.31	4/28/2028		107.49442	105.5262638	103.6160328	101.761539	99.96069604	98.2115114	96.51208168	94.86058785	93.25529086
230428A00054	4/28/2023	4.62	3/13/2025		102.15185	101.5299997	100.9157392	100.3089346	99.70945023	99.11715404	98.53191694	97.95361296	97.38211913
230428A00055	4/28/2023	4.61	4/28/2026		103.45947	102.534445	101.6263077	100.7345839	99.85882044	98.99858114	98.15344628	97.32301158	96.50688756
230428A00066	4/28/2023	4.78	10/28/2024		100.83906	100.5925006	100.3471457	100.1029903	99.86002578	99.61824334	99.37763441	99.13819045	98.89990301
230501A00011	5/1/2023	4.09	4/26/2027		110.43095	107.6180085	104.8920379	102.2497701	99.68808887	97.20401777	94.79471255	92.45745425	90.18964258
230501A00012	5/1/2023	3.98	5/1/2028		114.3794	110.4688711	106.7157945	103.1128985	99.6532965	96.33046169	93.13820543	90.07065752	87.12224765
230501A00013	5/1/2023	4.54	5/1/2025		102.58867	101.8320211	101.0865526	100.3520187	99.6281798	98.91480349	98.21166388	97.51854158	96.83522346
230501A00022	5/1/2023	4.54	5/1/2025		102.58867	101.8320211	101.0865526	100.3520187	99.6281798	98.91480349	98.21166388	97.51854158	96.83522346
230501A00038	5/1/2023	4.33	5/1/2025		102.54257	101.7846243	101.0379044	100.3021589	99.57714675	98.86263429	98.15839439	97.46420646	96.77985622
230501A00039	5/1/2023	4.33	5/1/2025		102.54257	101.7846243	101.0379044	100.3021589	99.57714675	98.86263429	98.15839439	97.46420646	96.77985622
230501A00041	5/1/2023	4.58	4/28/2025		102.58752	101.8390315	101.1014875	100.3746482	99.6582817	98.95216247	98.25607162	97.5697964	96.89313004
230502A00017	5/2/2023	4.26	5/4/2026		106.53802	104.7555804	103.0117568	101.3053796	99.63532658	98.00052047	96.39992657	94.83255064	93.29743689
230502A00024	5/2/2023	4.38	5/2/2025		102.47765	101.7187571	100.9711189	100.2344897	99.50862754	98.79329741	98.08827106	97.39332683	96.70824937
230502A00025	5/2/2023	4.81	11/1/2024		100.88605	100.6284141	100.3720893	100.1170689	99.86334292	99.61090161	99.35973523	99.10983415	98.86118885
230502A00038	5/2/2023	3.86	5/2/2028		113.93744	110.0324772	106.2849238	102.6875144	99.23336181	95.91593808	92.72905355	89.66683685	86.72371644
230502A00042	5/2/2023	4.64	11/4/2024		100.87123	100.605393	100.3409634	100.0779277	99.81627495	99.55599419	99.29707463	99.03950557	98.78327646

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230502A00045	5/2/2023	4.38	5/2/2025		102.47765	101.7187571	100.9711189	100.2344897	99.50862754	98.79329741	98.08827106	97.39332683	96.70824937
230502A00047	5/2/2023	4.1	5/1/2026		106.22015	104.4486733	102.7154333	101.0192645	99.35904661	97.73370517	96.14220869	94.58356666	93.05682744
230502A00052	5/2/2023	3.96	5/3/2027		110.15269	107.3241934	104.5836897	101.9278674	99.35356648	96.85776851	94.43758884	92.09026974	89.81317373
230502A00055	5/2/2023	4.08	5/4/2026		106.21956	104.4400179	102.6990414	100.9954596	99.32815161	97.69604153	96.09809599	94.53332205	93.00076517
230502A00058	5/2/2023	4.39	5/2/2025		102.48525	101.726325	100.9786552	100.2419949	99.51610198	98.80074137	98.09568484	97.40071074	96.7156037
230502A00076	5/2/2023	3.95	5/3/2027		110.12498	107.2968689	104.5567429	101.9012895	99.32734885	96.8319028	94.412067	92.06508394	89.78831639
230502A00079	5/2/2023	3.6	5/2/2028		113.47512	109.5650706	105.8130636	102.2117866	98.75431092	95.43407007	92.24483836	89.1807109	86.23608491
230502A00081	5/2/2023	3.96	5/3/2027		110.15269	107.3241934	104.5836897	101.9278674	99.35356648	96.85776851	94.43758884	92.09026974	89.81317373
230502A00086	5/2/2023	4.08	5/1/2026		106.18493	104.4137729	102.6808465	100.9849855	99.32506999	97.70002548	96.1088207	94.55046526	93.02400768
230502A00120	5/2/2023	4.38	5/2/2025		102.47765	101.7187571	100.9711189	100.2344897	99.50862754	98.79329741	98.08827106	97.39332683	96.70824937
230502A00122	5/2/2023	3.7	5/3/2027		109.80661	106.9746343	104.2309629	101.5722692	98.99537619	96.49724929	94.07498882	91.72582286	89.44710057
230503A00004	5/3/2023	3.94	5/3/2027		110.09727	107.2695445	104.5297962	101.8747116	99.30113122	96.8060371	94.38654515	92.03989813	89.76345905
230503A00012	5/3/2023	3.82	5/3/2028		113.79725	109.8921743	106.1446446	102.5473847	99.09350038	95.77645704	92.59005829	89.52842626	86.58598308
230503A00014	5/3/2023	3.94	5/3/2027		110.09727	107.2695445	104.5297962	101.8747116	99.30113122	96.8060371	94.38654515	92.03989813	89.76345905
230503A00017	5/3/2023	4.41	11/4/2024		100.84628	100.5800895	100.3153115	100.051934	99.78994578	99.52933587	99.27009332	99.01220733	98.75566722
230503A00020	5/3/2023	3.84	5/3/2028		113.87286	109.9663567	106.2174464	102.6188466	99.16366175	95.84535558	92.65773038	89.59490693	86.65130607
230503A00022	5/3/2023	4.4	5/2/2025		102.49285	101.7338928	100.9861916	100.2495002	99.52357643	98.80818532	98.10309862	97.40809465	96.72295804
230503A00025	5/3/2023	3.84	5/3/2028		113.87286	109.9663567	106.2174464	102.6188466	99.16366175	95.84535558	92.65773038	89.59490693	86.65130607
230503A00029	5/3/2023	4.08	5/4/2026		106.21956	104.4400179	102.6990414	100.9954596	99.32815161	97.69604153	96.09809599	94.53332205	93.00076517
230503A00030	5/3/2023	3.84	5/3/2028		113.87286	109.9663567	106.2174464	102.6188466	99.16366175	95.84535558	92.65773038	89.59490693	86.65130607
230503A00031	5/3/2023	4.4	5/2/2025		102.49285	101.7338928	100.9861916	100.2495002	99.52357643	98.80818532	98.10309862	97.40809465	96.72295804
230503A00032	5/3/2023	4.08	5/1/2026		106.18493	104.4137729	102.6808465	100.9849855	99.32506999	97.70002548	96.1088207	94.55046526	93.02400768
230503A00034	5/3/2023	3.84	5/3/2028		113.87286	109.9663567	106.2174464	102.6188466	99.16366175	95.84535558	92.65773038	89.59490693	86.65130607
230503A00036	5/3/2023	4.15	5/2/2025		102.4161	101.6559663	100.9071353	100.1693528	99.44237534	98.72596655	98.01989699	97.3239438	96.63789049
230503A00038	5/3/2023	4.15	5/2/2025		102.4161	101.6559663	100.9071353	100.1693528	99.44237534	98.72596655	98.01989699	97.3239438	96.63789049
230503A00072	5/3/2023	3.83	5/4/2026		106.01113	104.2293381	102.4862354	100.7806446	99.11143988	97.47754035	95.87790802	94.31154559	92.77749436
230504A00006	5/4/2023	3.79	12/6/2027		112.03371	108.5765071	105.2459842	102.0368386	98.94401668	95.96270139	93.08830044	90.31643442	87.64292582
230504A00007	5/4/2023	3.82	7/6/2027		110.4585	107.4492671	104.5389311	101.723706	98.99996894	96.36425567	93.81325248	91.34378885	88.95283046
230504A00011	5/4/2023	3.7	5/4/2026		105.78085	104.0011648	102.2601241	100.5565578	98.88934097	97.25739384	95.65967935	94.09520112	92.56300136
230504A00018	5/4/2023	4.24	5/5/2025		102.40051	101.6338066	100.8786061	100.1346501	99.40168842	98.67947847	97.9677846	97.26637802	96.57503658
230504A00019	5/4/2023	3.95	5/4/2026		105.98956	104.2121116	102.4731915	100.7716285	99.10630302	97.47614006	95.88010724	94.31721252	92.78650226
230504A00020	5/4/2023	3.83	5/4/2027		109.80321	106.9768778	104.2385828	101.5850124	99.01300596	96.51954376	94.10173998	91.75683544	89.48219112
230504A00021	5/4/2023	3.76	5/4/2028		113.58118	109.6774227	105.9313067	102.3355452	98.88323866	95.56784715	92.38316903	89.32332123	86.38272085

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230504A00034	5/4/2023	3.95	5/4/2026		105.98956	104.2121116	102.4731915	100.7716285	99.10630302	97.47614006	95.88010724	94.31721252	92.78650226
230504A00040	5/4/2023	4.5	11/4/2024		100.83398	100.5682096	100.3038443	100.0408727	99.77928369	99.51906648	99.26021021	99.00270421	98.74653789
230504A00041	5/4/2023	3.95	5/4/2026		105.98956	104.2121116	102.4731915	100.7716285	99.10630302	97.47614006	95.88010724	94.31721252	92.78650226
230504A00042	5/4/2023	3.83	5/4/2027		109.80321	106.9768778	104.2385828	101.5850124	99.01300596	96.51954376	94.10173998	91.75683544	89.48219112
230504A00043	5/4/2023	3.76	5/4/2028		113.58118	109.6774227	105.9313067	102.3355452	98.88323866	95.56784715	92.38316903	89.32332123	86.38272085
230504A00046	5/4/2023	4.24	5/5/2025		102.40051	101.6338066	100.8786061	100.1346501	99.40168842	98.67947847	97.9677846	97.26637802	96.57503658
230504A00047	5/4/2023	4.5	11/4/2024		100.83398	100.5682096	100.3038443	100.0408727	99.77928369	99.51906648	99.26021021	99.00270421	98.74653789
230504A00049	5/4/2023	3.95	5/4/2026		105.98956	104.2121116	102.4731915	100.7716285	99.10630302	97.47614006	95.88010724	94.31721252	92.78650226
230504A00054	5/4/2023	3.95	5/4/2026		105.98956	104.2121116	102.4731915	100.7716285	99.10630302	97.47614006	95.88010724	94.31721252	92.78650226
230504A00055	5/4/2023	4.24	5/5/2025		102.40051	101.6338066	100.8786061	100.1346501	99.40168842	98.67947847	97.9677846	97.26637802	96.57503658
230504A00057	5/4/2023	3.86	5/4/2026		105.83032	104.0543304	102.3168338	100.6166685	98.95271554	97.32390059	95.72919195	94.16759823	92.6381664
230504A00058	5/4/2023	3.69	5/4/2028		113.31636	109.4175983	105.6763211	102.0852555	98.63750732	95.32654168	92.14616188	89.0904896	86.15394638
230504A00059	5/4/2023	4.34	5/4/2026		103.36933	102.4065218	101.4615691	100.5339729	99.62324984	98.72893483	97.85058031	96.98775536	96.14004494
230504A00064	5/4/2023	4.35	11/4/2024		100.79407	100.5283702	100.2640738	100.0011708	99.73965021	99.47950108	99.22071263	98.96327417	98.70717513
230504A00065	5/4/2023	4.11	5/5/2025		102.30064	101.5343589	100.7795754	100.036032	99.30347871	98.58167286	97.87037892	97.1693682	96.4784186
230504A00069	5/4/2023	3.82	5/4/2026		105.75955	103.9842054	102.2473415	100.5477974	98.88445443	97.2562386	95.66211849	94.10110299	92.57223935
230504A00084	5/4/2023	3.5	5/4/2028		113.11727	109.2084615	105.457916	101.8583118	98.40270779	95.08452523	91.89752643	88.83579477	85.89371601
230504A00085	5/4/2023	4.24	5/5/2025		102.40051	101.6338066	100.8786061	100.1346501	99.40168842	98.67947847	97.9677846	97.26637802	96.57503658
230504A00091	5/4/2023	4.66	9/4/2024		100.30898	100.2118985	100.1150105	100.0183161	99.92181449	99.82550526	99.72938776	99.63346142	99.53772564
230504A00092	5/4/2023	4.5	11/4/2024		100.83398	100.5682096	100.3038443	100.0408727	99.77928369	99.51906648	99.26021021	99.00270421	98.74653789
230505A00001	5/5/2023	4.33	5/5/2025		102.46965	101.702655	100.9471658	100.2029241	99.46967976	98.74719005	98.03521929	97.33353867	96.64192596
230505A00002	5/5/2023	4.01	5/5/2026		106.10706	104.3258574	102.5833074	100.8782417	99.20954003	97.57612633	95.9769671	94.411069	92.87747691
230505A00005	5/5/2023	3.99	5/5/2026		106.07162	104.2907408	102.5485081	100.843754	99.17535819	97.54224493	95.94338082	94.37777267	92.84446551
230505A00012	5/5/2023	4.6	11/5/2024		100.87014	100.6015639	100.3344261	100.0687123	99.80441121	99.54151156	99.28000216	99.01987197	98.76111005
230505A00013	5/5/2023	4.33	5/5/2025		102.46965	101.702655	100.9471658	100.2029241	99.46967976	98.74719005	98.03521929	97.33353867	96.64192596
230505A00014	5/5/2023	3.59	5/5/2028		113.46927	109.551054	105.7915183	102.1833176	98.7194935	95.39345083	92.19893595	89.13001687	86.18106458
230505A00016	5/5/2023	3.85	5/5/2028		113.93264	110.0195171	106.2644424	102.6601137	99.1996145	95.87638834	92.68421782	89.61720464	86.66975118
230505A00017	5/5/2023	4.01	5/5/2026		106.10706	104.3258574	102.5833074	100.8782417	99.20954003	97.57612633	95.9769671	94.411069	92.87747691
230505A00022	5/5/2023	3.85	5/5/2028		113.93264	110.0195171	106.2644424	102.6601137	99.1996145	95.87638834	92.68421782	89.61720464	86.66975118
230505A00027	5/5/2023	4.01	5/5/2026		106.10706	104.3258574	102.5833074	100.8782417	99.20954003	97.57612633	95.9769671	94.411069	92.87747691
230505A00035	5/5/2023	3.9	5/5/2027		110.00834	107.1764261	104.4327748	101.7740695	99.19714289	96.69896883	94.27665499	91.9274358	89.64866584
230505A00046	5/5/2023	4.33	5/5/2025		102.46965	101.702655	100.9471658	100.2029241	99.46967976	98.74719005	98.03521929	97.33353867	96.64192596
230505A00048	5/5/2023	4.01	5/5/2026		106.10706	104.3258574	102.5833074	100.8782417	99.20954003	97.57612633	95.9769671	94.411069	92.87747691

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230505A00071	5/5/2023	3.85	5/5/2028		113.93264	110.0195171	106.2644424	102.6601137	99.1996145	95.87638834	92.68421782	89.61720464	86.66975118
230508A00007	5/8/2023	3.92	5/8/2028		114.23119	110.3041867	106.5360323	102.9193916	99.4473125	96.11320407	92.91081525	89.83421528	86.87777519
230508A00012	5/8/2023	4.43	5/8/2025		102.57729	101.8017019	101.0378745	100.2855395	99.5444385	98.81432076	98.09494303	97.38606922	96.68747007
230508A00016	5/8/2023	4.14	5/8/2026		106.37254	104.5808406	102.8281652	101.1133428	99.43525093	97.7928112	96.18498685	94.61078091	93.0692342
230508A00017	5/8/2023	4.01	5/10/2027		110.37009	107.5194996	104.7580966	102.0825362	99.48962516	96.97631108	94.53967522	92.17692557	89.88539043
230508A00018	5/8/2023	3.92	5/8/2028		114.23119	110.3041867	106.5360323	102.9193916	99.4473125	96.11320407	92.91081525	89.83421528	86.87777519
230508A00025	5/8/2023	4.69	11/8/2024		100.92373	100.6468382	100.3714744	100.0976265	99.82528198	99.5544284	99.28505346	99.017145	98.750691
230509A00009	5/9/2023	4.45	5/9/2025		102.60314	101.8247344	101.0581682	100.3031757	99.55949591	98.82687549	98.10506861	97.39383672	96.69294823
230509A00010	5/9/2023	4.14	5/8/2026		106.37254	104.5808406	102.8281652	101.1133428	99.43525093	97.7928112	96.18498685	94.61078091	93.0692342
230509A00019	5/9/2023	4.7	11/8/2024		100.9265	100.6496045	100.3742358	100.100383	99.82803362	99.55717518	99.28779541	99.01988214	98.75342335
230509A00035	5/9/2023	4.14	5/8/2026		106.37254	104.5808406	102.8281652	101.1133428	99.43525093	97.7928112	96.18498685	94.61078091	93.0692342
230509A00036	5/9/2023	4.02	5/10/2027		110.39799	107.5470117	104.7852258	102.1092917	99.51601561	97.00234498	94.56536079	92.20227076	89.91040295
230509A00037	5/9/2023	4.47	11/8/2024		100.90056	100.6232925	100.3475598	100.0733499	99.80065026	99.52944823	99.2597314	98.99148751	98.7247044
230509A00047	5/9/2023	4.43	5/9/2025		102.58756	101.8092162	101.0427158	100.2877885	99.5441732	98.81161656	98.08987281	97.37870339	96.67787674
230509A00048	5/9/2023	4.43	5/9/2025		102.58756	101.8092162	101.0427158	100.2877885	99.5441732	98.81161656	98.08987281	97.37870339	96.67787674
230509A00060	5/9/2023	3.92	5/9/2028		114.24237	110.3124056	106.5415057	102.9223281	99.44791053	96.11165208	92.90729218	89.82889079	86.87080995
230509A00118	5/9/2023	4.12	5/8/2026		106.33693	104.545562	102.7932066	101.0786985	99.40091529	97.75877864	96.15125202	94.57733857	93.03607926
230510A00007	5/10/2023	4.39	5/9/2025		102.55639	101.7781799	101.0118111	100.2570141	99.51352776	98.78109871	98.05948121	97.34843674	96.64773375
230510A00009	5/10/2023	4.07	5/11/2026		106.28246	104.4835195	102.7239079	101.0024612	99.3180563	97.66961373	96.05609497	94.47650074	92.92986909
230510A00014	5/10/2023	4.07	5/11/2026		106.28246	104.4835195	102.7239079	101.0024612	99.3180563	97.66961373	96.05609497	94.47650074	92.92986909
230510A00018	11/10/2023	3.61	11/10/2026		107.3564	105.047254	102.799612	100.6114184	98.48070508	96.40558431	94.38424502	92.4149488	90.49602644
230510A00023	5/10/2023	4.74	9/30/2024		100.55951	100.3903808	100.2218163	100.0538152	99.88637467	99.71949186	99.55316403	99.38738847	99.22216243
230510A00031	5/10/2023	4.14	5/9/2025		102.47767	101.6982577	100.9307272	100.1748089	99.43024032	98.69676682	97.9741413	97.26212398	96.5604821
230510A00033	5/10/2023	4.39	5/12/2025		102.58687	101.8003898	101.0260025	100.2634301	99.51240311	98.77266039	98.04394848	97.32602152	96.61864092
230510A00037	5/10/2023	3.84	5/10/2028		113.94959	110.0224057	106.2543371	102.6380341	99.16653044	95.83322144	92.63184262	89.55645006	86.60140203
230510A00057	5/10/2023	3.98	5/11/2026		106.1215	104.3240362	102.565878	100.8458581	99.16285424	97.51578759	95.90362032	94.32535383	92.78002677
230510A00062	8/10/2023	3.78	8/10/2026		106.7439	104.6935306	102.6933684	100.7418594	98.8375103	96.97888441	95.16459899	93.39332283	91.663774
230511A00011	5/11/2023	4.54	11/5/2024		100.85401	100.5854626	100.3183528	100.0526669	99.78839364	99.52552168	99.26403986	99.00393714	98.74520258
230511A00015	5/11/2023	4.25	5/12/2025		102.47662	101.6906154	100.9166982	100.1545909	99.40402402	98.66473655	97.93647511	97.21899391	96.51205445
230511A00023	5/11/2023	3.95	5/19/2026		106.15732	104.3380065	102.5588784	100.818771	99.1165593	97.45115962	95.82152789	94.22665778	92.66557903
230511A00029	5/11/2023	4.25	5/9/2025		102.4473	101.6695525	100.9036448	100.1493038	99.40626873	98.67428621	97.9531106	97.24250346	96.5422333
230511A00032	5/11/2023	3.7	5/11/2026		105.85693	104.0576918	102.2978732	100.5763041	98.89185725	97.24344902	95.63003715	94.0506188	92.50422862
230511A00034	5/11/2023	4	5/12/2025		102.39699	101.6097725	100.834681	100.0714406	99.31978057	98.57943836	97.85015927	97.13169623	96.42380949



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230511A00036	5/11/2023	3.79	5/19/2027		109.85211	106.9843471	104.2070441	101.5168269	98.91046664	96.38487438	93.93709417	91.5642964	89.26377148
230511A00038	5/11/2023	3.95	5/11/2026		106.06785	104.2708751	102.5132013	100.793657	99.11112022	97.46451221	95.85279544	94.27497152	92.73007933
230511A00039	5/11/2023	3.86	11/27/2026		108.12013	105.754595	103.4531367	101.2136598	99.03414978	96.91266982	94.84735707	92.83641955	90.87813293
230511A00042	5/11/2023	3.72	5/11/2028		113.50427	109.5827648	105.8203352	102.2096311	98.74368558	95.41589308	92.21998804	89.15002546	86.20036243
230511A00043	5/11/2023	3.72	5/16/2028		113.55743	109.6211907	105.8451241	102.221825	98.74427593	95.40582154	92.20014826	89.12126446	86.16348211
230511A00044	5/11/2023	3.79	5/11/2027		109.76685	106.9220264	104.1663441	101.4964652	98.90919817	96.401492	93.97042907	91.61321821	89.32718835
230511A00046	5/11/2023	3.95	5/11/2026		106.06785	104.2708751	102.5132013	100.793657	99.11112022	97.46451221	95.85279544	94.27497152	92.73007933
230511A00050	5/11/2023	3.98	5/11/2026		106.1215	104.3240362	102.565878	100.8458581	99.16285424	97.51578759	95.90362032	94.32535383	92.78002677
230511A00052	5/11/2023	4.25	5/12/2025		102.47662	101.6906154	100.9166982	100.1545909	99.40402402	98.66473655	97.93647511	97.21899391	96.51205445
230511A00053	5/11/2023	4.53	11/12/2024		100.91681	100.6289588	100.3427629	100.0582069	99.77527657	99.49395797	99.21423724	98.93610069	98.65953481
230511A00067	5/11/2023	4.58	11/13/2024		100.94071	100.6500723	100.3611213	100.0738418	99.78821905	99.5042388	99.22188676	98.94114885	98.66201118
230511A00068	5/11/2023	4.31	5/12/2025		102.52387	101.7376616	100.9635429	100.2012362	99.4504722	98.71098962	97.98253512	97.26486289	96.55773437
230511A00069	5/11/2023	3.98	5/12/2026		106.13277	104.3325102	102.57167	100.8490791	99.16361481	97.5141977	95.89978919	94.31938972	92.77203683
230511A00080	5/11/2023	3.49	5/11/2028		113.15212	109.2233639	105.4543902	101.8377977	98.36657499	95.03407502	91.83399361	88.76034966	85.80746659
230512A00007	5/12/2023	4.08	5/12/2025		102.46003	101.6725403	100.8971795	100.1336728	99.38174928	98.64114636	97.91160931	97.192891	96.48475164
230512A00008	5/12/2023	3.75	5/12/2026		105.95747	104.1546077	102.3912931	100.6663541	98.97866279	97.32713449	95.71072577	94.12843248	92.57928779
230512A00009	5/12/2023	4.08	5/12/2025		102.46003	101.6725403	100.8971795	100.1336728	99.38174928	98.64114636	97.91160931	97.192891	96.48475164
230512A00010	5/12/2023	3.75	5/12/2026		105.95747	104.1546077	102.3912931	100.6663541	98.97866279	97.32713449	95.71072577	94.12843248	92.57928779
230512A00011	5/12/2023	3.78	5/12/2028		113.74321	109.8144334	106.0450825	102.4277898	98.9555734	95.62181343	92.42023045	89.34486605	86.3900644
230512A00020	5/12/2023	4.6	11/12/2024		100.93698	100.6490951	100.3628624	100.0782698	99.79530302	99.51394811	99.23419121	98.95601865	98.67941691
230512A00022	5/12/2023	4.33	5/12/2025		102.53962	101.7533436	100.9791578	100.2167847	99.46595493	98.72640731	97.99788846	97.28015255	96.572961
230512A00023	5/12/2023	4.6	11/13/2024		100.94653	100.6558806	100.366919	100.0796288	99.7939955	99.51000469	99.22764215	98.94689378	98.66774569
230512A00026	5/12/2023	4	5/12/2026		106.16859	104.368005	102.6068409	100.8839319	99.19815537	97.54843161	95.93372189	94.35302651	92.80538287
230512A00033	5/12/2023	3.75	5/12/2026		105.95747	104.1546077	102.3912931	100.6663541	98.97866279	97.32713449	95.71072577	94.12843248	92.57928779
230512A00037	5/12/2023	3.86	5/12/2027		109.97322	107.1227776	104.3617039	101.686657	99.09443867	96.58199134	94.14639073	91.78483914	89.494659
230512A00042	5/12/2023	4	5/12/2026		106.16859	104.368005	102.6068409	100.8839319	99.19815537	97.54843161	95.93372189	94.35302651	92.80538287
230515A00011	5/15/2023	4.11	5/15/2026		106.4005	104.5896989	102.8186863	101.0862955	99.39140174	97.73292267	96.10981634	94.52107928	92.96574473
230515A00024	5/15/2023	4.69	11/15/2024		100.99493	100.6986702	100.4041664	100.1113982	99.82035011	99.53100694	99.24335362	98.95737528	98.67305722
230515A00031	5/15/2023	4.41	5/15/2025		102.63326	101.8384375	101.0559602	100.2855431	99.52690825	98.77978639	98.04391637	97.3190449	96.60492625
230515A00034	5/15/2023	4.69	11/15/2024		100.99493	100.6986702	100.4041664	100.1113982	99.82035011	99.53100694	99.24335362	98.95737528	98.67305722
230515A00045	5/15/2023	4.08	5/15/2026		106.34652	104.5362137	102.7656913	101.0337818	99.33936052	97.68134549	96.05869494	94.47040562	92.91551099
230515A00072	5/15/2023	4.42	5/9/2025		102.57977	101.8014572	101.0349896	100.2800949	99.53651184	98.8039871	98.08227491	97.37113673	96.67034099
230515A00074	5/15/2023	4.11	5/15/2026		106.4005	104.5896989	102.8186863	101.0862955	99.39140174	97.73292267	96.10981634	94.52107928	92.96574473

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230515A00078	5/15/2023	3.96	5/17/2027		110.30845	107.4396627	104.6611714	101.969601	99.36172684	96.83446489	94.38486423	92.01010051	89.70746959
230515A00080	5/15/2023	3.88	5/15/2028		114.15694	110.2120688	106.4274978	102.7958195	99.31001392	95.96342369	92.74973332	89.6629495	86.69738274
230516A00009	5/16/2023	4.46	5/16/2025		102.69783	101.8998135	101.11424	100.3408165	99.57926215	98.82930478	98.09068038	97.36313298	96.64641424
230516A00013	5/16/2023	4.11	5/15/2026		106.4005	104.5896989	102.8186863	101.0862955	99.39140174	97.73292267	96.10981634	94.52107928	92.96574473
230516A00035	5/16/2023	4.11	5/15/2026		106.4005	104.5896989	102.8186863	101.0862955	99.39140174	97.73292267	96.10981634	94.52107928	92.96574473
230516A00036	5/16/2023	4	5/17/2027		110.42084	107.550461	104.770418	102.0773325	99.46797894	96.9392721	94.48825999	92.1121172	89.80813861
230516A00037	5/16/2023	3.91	5/16/2028		114.2825	110.3324886	106.5430646	102.9068056	99.41667881	96.06601461	92.84848568	89.75808727	86.78911882
230516A00044	5/16/2023	4.72	11/15/2024		101.00382	100.7075482	100.4130279	100.1202432	99.82917866	99.53981912	99.25214951	98.96615494	98.68182073
230516A00067	5/16/2023	4.44	5/16/2025		102.68186	101.8839118	101.0984072	100.3250519	99.56356509	98.81367446	98.07511611	97.34763404	96.63097996
230516A00069	5/16/2023	4.1	5/15/2026		106.38251	104.5718705	102.8010213	101.0687909	99.37405466	97.71573028	96.09277587	94.50418806	92.94900015
230517A00014	5/17/2023	4.14	5/18/2026		106.48961	104.6698958	102.8903182	101.149707	99.44693576	97.78092011	96.15061531	94.55501463	92.99314762
230517A00019	5/17/2023	4.7	1/17/2025		101.63288	101.1626325	100.6967565	100.2351878	99.77786658	99.32473416	98.87573301	98.43080664	97.98989956
230517A00020	5/17/2023	4.47	7/17/2025		103.37133	102.4016438	101.4502108	100.5165217	99.60008265	98.70041783	97.8170689	96.9495941	96.0975675
230517A00046	5/17/2023	4.53	5/16/2025		102.75373	101.9554694	101.1696546	100.3959923	99.63420186	98.88401086	98.14515533	97.41737924	96.70043421
230517A00048	5/17/2023	4.17	5/15/2026		106.50847	104.6966694	102.9246763	101.191323	99.49548417	97.83607703	96.21205914	94.6224266	93.06621223
230518A00015	5/18/2023	4.64	5/16/2025		102.84157	102.0429288	101.2567346	100.4826973	99.72053569	98.96997757	98.23075883	97.50262337	96.78532274
230518A00017	5/18/2023	4.28	5/18/2026		106.74269	104.9206278	103.1387421	101.395865	99.69086917	98.02266896	96.39021856	94.7925102	93.2285724
230518A00019	5/18/2023	3.81	5/18/2028		114.45091	110.4781089	106.6673355	103.0110871	99.50225473	96.13409687	92.90021792	89.79454856	86.81132714
230519A00002	5/19/2023	4.95	11/19/2024		101.11416	100.8066912	100.5011075	100.1973886	99.89551735	99.59547679	99.29725025	99.00082121	98.70617337
230519A00010	5/19/2023	4.91	12/19/2024		101.41953	101.0291535	100.6417982	100.2574276	99.87600696	99.4975024	99.12188037	98.74910791	98.37915255
230519A00011	5/19/2023	4.73	5/19/2025		102.94687	102.1396069	101.3450504	100.5629007	99.79286831	99.03467272	98.28804191	97.5527122	96.82842788
230519A00012	5/19/2023	4.53	12/19/2025		105.28529	103.8897383	102.5195572	101.1741127	99.85279228	98.55500325	97.28017179	96.02774236	94.79717695
230519A00013	5/19/2023	4.39	5/19/2026		106.95394	105.1272095	103.3408057	101.5935562	99.88433227	98.21204674	96.57565206	94.97413862	93.40653294
230519A00025	5/19/2023	4.95	11/19/2024		101.11416	100.8066912	100.5011075	100.1973886	99.89551735	99.59547679	99.29725025	99.00082121	98.70617337
230519A00026	5/19/2023	4.73	5/19/2025		102.94687	102.1396069	101.3450504	100.5629007	99.79286831	99.03467272	98.28804191	97.5527122	96.82842788
230519A00027	5/19/2023	4.39	5/19/2026		106.95394	105.1272095	103.3408057	101.5935562	99.88433227	98.21204674	96.57565206	94.97413862	93.40653294
230519A00028	5/19/2023	4.73	5/19/2025		102.94687	102.1396069	101.3450504	100.5629007	99.79286831	99.03467272	98.28804191	97.5527122	96.82842788
230519A00029	5/19/2023	4.39	5/19/2026		106.95394	105.1272095	103.3408057	101.5935562	99.88433227	98.21204674	96.57565206	94.97413862	93.40653294
230519A00030	5/19/2023	4.27	5/19/2027		111.20342	108.3164989	105.5205026	102.812036	100.1878563	97.64486086	95.18008068	92.79067355	90.47391785
230519A00038	5/19/2023	3.92	5/19/2028		114.88394	110.9001087	107.0787672	103.4123952	99.89386438	96.51641472	93.27363271	90.1594318	87.16803376
230519A00041	5/19/2023	3.92	5/19/2028		114.88394	110.9001087	107.0787672	103.4123952	99.89386438	96.51641472	93.27363271	90.1594318	87.16803376
230522A00026	5/22/2023	4.35	5/22/2026		106.91838	105.0838708	103.2900181	101.5356456	99.8196234	98.14086268	96.49831353	94.89096344	93.31783559
230522A00029	5/22/2023	4.67	5/22/2025		102.93139	102.116031	101.3136341	100.5238898	99.74649999	98.98117582	98.22763746	97.48561368	96.75484152

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230522A00043	5/22/2023	4.17	5/16/2028		115.27469	111.3058436	107.4981412	103.8441475	100.3368091	96.96943671	93.73568426	90.62952901	87.64525327
230522A00046	5/22/2023	4.17	5/22/2028		115.34594	111.3591148	107.5347702	103.8654009	100.3438915	96.96349211	93.717798	90.60072952	87.60651398
230522A00058	5/22/2023	4.7	5/19/2025		102.92266	102.1155087	101.3210576	100.5390123	99.7690831	99.01098957	98.26445974	97.52922993	96.80504445
230522A00093	5/22/2023	4.17	5/22/2028		115.34594	111.3591148	107.5347702	103.8654009	100.3438915	96.96349211	93.717798	90.60072952	87.60651398
230523A00008	5/23/2023	4.44	5/26/2026		107.1322	105.2848687	103.478677	101.7124464	99.98504405	98.29537754	96.64239254	95.02507146	93.44243181
230523A00024	5/23/2023	4.06	5/24/2027		111.05368	108.1465931	105.3316442	102.6053961	99.96456235	97.40599784	94.92669172	92.5237609	90.19444373
230523A00031	5/23/2023	4.76	11/22/2024		101.1262	100.8100177	100.4958223	100.1835977	99.87332512	99.56498635	99.2585632	98.95403775	98.65139232
230523A00045	5/23/2023	5	11/22/2024		101.16155	100.8457473	100.5319267	100.2200691	99.91015597	99.6021691	99.29609051	98.99190242	98.68958729
230523A00047	5/23/2023	4.77	5/23/2025		103.02415	102.2056548	101.4002125	100.6075098	99.8272456	99.0591282	98.30287508	97.55821236	96.82487459
230523A00048	5/23/2023	4.44	5/26/2026		107.1322	105.2848687	103.478677	101.7124464	99.98504405	98.29537754	96.64239254	95.02507146	93.44243181
230523A00049	5/23/2023	4.31	5/24/2027		111.37648	108.4734106	105.6621389	102.9392466	100.3014655	97.74566754	95.26885803	92.86816904	90.54085327
230523A00083	5/23/2023	4.21	5/23/2028		115.51123	111.5184825	107.6885232	104.0138355	100.4872905	97.10212517	93.85192193	90.73058878	87.73234114
230523A00085	5/23/2023	4.39	5/23/2029		120.64277	115.5043273	110.6211327	105.9791135	101.5650498	97.36651554	93.37182632	89.56999164	85.95066986
230523A00086	5/23/2023	4.42	5/23/2030		124.7403	118.4488749	112.5251389	106.9455535	101.6882062	96.73269263	92.06000464	87.65242805	83.49344801
230523A00088	5/23/2023	4.59	5/23/2033		136.53436	126.6896963	117.6680974	109.3955015	101.8048984	94.83562571	88.43273731	82.54643648	77.13156856
230523A00089	5/23/2023	4.65	5/23/2034		140.53808	129.4717813	119.4192689	110.2808261	101.9670776	94.39786886	87.50126954	81.21268989	75.47409581
230523A00090	5/23/2023	4.71	5/23/2035		144.52825	132.2246939	121.1445703	111.1574565	102.1475527	94.01196927	86.65922397	80.00792143	73.98559119
230523A00091	5/23/2023	4.77	5/23/2036		148.4558	134.9033465	122.8023178	111.9862246	102.308615	93.640566	85.86849905	78.89227727	72.62354759
230524A00009	5/24/2023	3.9	5/24/2028		114.86493	110.8675622	107.0337539	103.3559348	99.82692618	96.43991838	93.18844994	90.06638777	87.06790869
230524A00020	5/24/2023	4.44	5/23/2025		102.86148	102.0422669	101.2361447	100.4427966	99.66192015	98.89322245	98.13641971	97.3912369	96.65740742
230524A00021	5/24/2023	4.44	5/23/2025		102.86148	102.0422669	101.2361447	100.4427966	99.66192015	98.89322245	98.13641971	97.3912369	96.65740742
230524A00028	5/24/2023	4.36	5/26/2026		106.98582	105.1398653	103.3350242	101.5701191	99.84401818	98.15562946	96.50389932	94.8878108	93.30638198
230524A00037	5/24/2023	4.69	5/23/2025		102.95872	102.1405197	101.3353662	100.542949	99.7629671	98.99512897	98.23915207	97.4947626	96.76169514
230524A00038	5/24/2023	4.36	5/26/2026		106.98582	105.1398653	103.3350242	101.5701191	99.84401818	98.15562946	96.50389932	94.8878108	93.30638198
230524A00055	5/24/2023	4.7	11/22/2024		101.10725	100.7910998	100.4769417	100.1647543	99.85451873	99.54621679	99.23983029	98.93534134	98.63273223
230525A00004	5/25/2023	4.87	5/27/2025		103.15203	102.3220658	101.5055021	100.7020157	99.91129357	99.13303301	98.36694061	97.61273217	96.87013228
230525A00014	5/25/2023	5.22	8/23/2024		100.23967	100.1757874	100.1119965	100.0482999	99.98469718	99.92118826	99.85777289	99.79445087	99.731222
230525A00024	5/25/2023	5.06	11/25/2024		101.21301	100.8888527	100.5667825	100.2467748	99.92880975	99.61286789	99.29892986	98.98697661	98.67698932
230525A00094	5/25/2023	4.31	5/25/2028		115.9193	111.9132058	108.0705678	104.3838385	100.8458598	97.44984073	94.18933643	91.05822878	88.05070796
230526A00009	5/26/2023	5.33	8/23/2024		100.24673	100.1828402	100.1190433	100.0553407	99.99173196	99.92821705	99.8647957	99.80146771	99.73823287
230526A00013	5/26/2023	4.39	5/26/2026		107.28406	105.4309293	103.6191338	101.8474886	100.1148539	98.42013032	96.76225709	95.14021042	93.55300191
230526A00016	5/26/2023	4.46	5/26/2027		111.82583	108.9108759	106.0881942	103.3543593	100.7060888	98.14024046	95.65380542	93.2439018	90.90776852
230526A00026	5/26/2023	4.49	5/26/2027		111.91087	108.9946978	106.170832	103.4358414	100.7864424	98.21949213	95.73198082	93.32102579	90.98386516

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230526A00027	5/26/2023	4.49	5/26/2027		111.91087	108.9946978	106.170832	103.4358414	100.7864424	98.21949213	95.73198082	93.32102579	90.98386516
230526A00028	5/26/2023	4.38	5/26/2028		116.20062	112.1863699	108.3359512	104.6418032	101.0967515	97.69398969	94.4270577	91.2898229	88.27646145
230526A00029	5/26/2023	4.53	5/25/2029		121.34437	116.1835273	111.2790761	106.616885	102.1836743	97.96696128	93.95500791	90.13677274	86.50186594
230526A00031	5/26/2023	4.54	5/24/2030		125.4522	119.1375299	113.1917372	107.5912128	102.3139777	97.33956485	92.64890753	88.22423662	84.04898573
230526A00033	5/26/2023	4.63	5/27/2031		129.72152	122.2169472	115.2154324	108.6803369	102.5778765	96.87688683	91.54860684	86.56648207	81.90598465
230526A00034	5/26/2023	4.66	5/26/2032		133.60626	124.9164808	116.8818186	109.448903	102.568984	96.197513	90.29376066	84.82047077	79.74354739
230530A00018	5/30/2023	5.13	11/25/2024		101.23569	100.9114962	100.5893803	100.2693271	99.95131681	99.63532988	99.32134699	99.00934909	98.69931736
230530A00027	5/30/2023	4.22	5/30/2028		115.63367	111.6191604	107.7690207	104.0756612	100.5318786	97.13083756	93.86605039	90.73135713	87.72090756
230530A00041	5/30/2023	4.93	5/27/2025		103.20176	102.3715718	101.5547859	100.7510796	99.96014025	99.1816648	98.41535989	97.66094127	96.91813349
230530A00045	5/30/2023	4.56	5/29/2026		107.66615	105.7487992	103.8759186	102.0462036	100.2583996	98.51129668	96.80372801	95.13456767	93.50272913
230530A00048	5/30/2023	4.45	5/29/2026		107.18818	105.3322004	103.5177059	101.7435169	100.0084991	98.31155766	96.65163522	95.02771073	93.43879775
230530A00054	5/30/2023	4.56	5/29/2026		107.66615	105.7487992	103.8759186	102.0462036	100.2583996	98.51129668	96.80372801	95.13456767	93.50272913
230530A00055	5/30/2023	4.56	5/29/2026		107.66615	105.7487992	103.8759186	102.0462036	100.2583996	98.51129668	96.80372801	95.13456767	93.50272913
230530A00118	5/30/2023	4.4	5/28/2027		111.68044	108.7620682	105.9362496	103.1995485	100.5486744	97.98047697	95.49193894	93.08017004	90.7424007
230530A00161	5/30/2023	5.08	11/29/2024		101.26304	100.9277805	100.5947415	100.2638996	99.93523335	99.60872123	99.28434216	98.96207529	98.64190006
230530A00166	5/30/2023	4.81	5/30/2025		103.13637	102.2983024	101.4738909	100.6628059	99.86472558	99.0793388	98.30634407	97.54544944	96.79637205
230530A00171	5/30/2023	4.43	5/29/2026		107.15142	105.2957876	103.4816337	101.7077791	99.97308953	98.2764703	96.61686432	94.99325064	93.40464298
230531A00006	5/31/2023	5.05	11/25/2024		101.20976	100.8856179	100.5635542	100.243553	99.92559445	99.60965903	99.29572741	98.98378054	98.6737996
230531A00036	5/31/2023	4.79	5/30/2025		103.11963	102.2816367	101.4573009	100.6462905	99.84828405	99.06297028	98.29004775	97.52922451	96.78021774
230531A00037	5/31/2023	4.41	5/29/2026		107.11466	105.2593749	103.4455616	101.6720413	99.93767992	98.24138294	96.58209341	94.95879055	93.37048822
230531A00038	5/31/2023	4.01	5/28/2027		110.95858	108.0418651	105.2179084	102.4832604	99.83461664	97.26881348	94.78282148	92.37373876	90.03878491
230531A00042	5/31/2023	4.01	5/28/2027		110.95858	108.0418651	105.2179084	102.4832604	99.83461664	97.26881348	94.78282148	92.37373876	90.03878491
230531A00060	5/31/2023	4.44	2/27/2026		106.02233	104.4253664	102.8604977	101.326826	99.82348371	98.34963538	96.90447585	95.48722901	94.09714648
230531A00061	5/31/2023	4.42	4/1/2026		106.40025	104.7105767	103.0560686	101.4356948	99.84846167	98.29341439	96.76963475	95.27623951	93.8123787
230531A00062	5/31/2023	4.39	4/30/2026		106.71845	104.9451414	103.2100519	101.5120063	99.84988251	98.22260422	96.62913853	95.06849374	93.53971725
230531A00063	5/31/2023	4.37	5/29/2026		107.04114	105.1865493	103.3734173	101.6005656	99.8668607	98.17120822	96.5125516	94.88987037	93.30217868
230531A00085	5/31/2023	5.05	12/2/2024		101.28591	100.9423815	100.601186	100.2622984	99.92569546	99.59135407	99.25925149	98.92936526	98.60167325
230531A00088	5/31/2023	4.79	5/30/2025		103.11963	102.2816367	101.4573009	100.6462905	99.84828405	99.06297028	98.29004775	97.52922451	96.78021774
230531A00090	5/31/2023	4.41	6/1/2026		107.15229	105.2884752	103.4664772	101.6851158	99.94325106	98.23978238	96.57364645	94.94381604	93.34929842
230531A00091	5/31/2023	4.26	6/1/2027		111.3309	108.4065	105.5752031	102.8335482	100.1782253	97.60606455	95.11402963	92.69921126	90.35882123
230531A00099	5/31/2023	4.41	5/29/2026		107.11466	105.2593749	103.4455616	101.6720413	99.93767992	98.24138294	96.58209341	94.95879055	93.37048822
230601A00006	6/1/2023	4.77	6/2/2025		103.13714	102.290926	101.4586348	100.6399281	99.83447484	99.04195481	98.26205786	97.49448375	96.7389417
230601A00007	6/1/2023	5.04	12/2/2024		101.28247	100.938954	100.5977657	100.2588854	99.92228967	99.58795545	99.25586	98.92598087	98.59829592

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230601A00012	6/1/2023	4.72	6/2/2025		103.09488	102.2488525	101.4167535	100.5982369	99.79297153	99.00063725	98.22092397	97.45353148	96.69816905
230601A00018	6/1/2023	4.1	6/1/2026		106.82492	104.9597856	103.136584	101.3541289	99.61127561	97.90691857	96.2399901	94.6094587	93.01432761
230601A00022	6/1/2023	5.04	12/2/2024		101.28247	100.938954	100.5977657	100.2588854	99.92228967	99.58795545	99.25586	98.92598087	98.59829592
230601A00025	6/1/2023	4.12	6/1/2028		115.2719	111.2587253	107.4101565	103.7185819	100.1767812	96.77790312	93.51544465	90.38323152	87.37539996
230601A00040	6/1/2023	4.35	6/1/2026		107.04152	105.1787508	103.3577835	101.5774338	99.83656215	98.13406847	96.46888998	94.8399999	93.24640597
230602A00012	6/2/2023	4.39	6/2/2026		107.12804	105.2616855	103.4372585	101.6535777	99.90949848	98.20391584	96.53576231	94.90400666	93.30765234
230602A00020	6/2/2023	3.94	6/2/2028		115.12416	111.0966359	107.2348031	103.5309761	99.9778693	96.56857025	93.29651886	90.15548754	87.13956263
230602A00027	6/2/2023	4.2	6/2/2026		107.02232	105.1525265	103.3248224	101.5380133	99.79094866	98.08251753	96.41164702	94.77730067	93.17847696
230602A00030	6/2/2023	4.2	6/2/2026		107.02232	105.1525265	103.3248224	101.5380133	99.79094866	98.08251753	96.41164702	94.77730067	93.17847696
230602A00051	6/2/2023	4.33	6/2/2038		127.85846	120.0431528	112.915077	106.4033565	100.4451851	94.98484099	89.97282668	85.36511947	81.12251798
230605A00022	6/5/2023	4.39	6/4/2027		111.7392	108.8005065	105.955574	103.2009102	100.5331739	97.94916566	95.44582115	93.02020461	90.66950278
230606A00008	6/6/2023	3.98	6/6/2028		115.32709	111.2842366	107.4081043	103.6909415	100.1253997	96.70450813	93.42165195	90.27055263	87.2452489
230606A00014	6/6/2023	4.35	6/7/2027		111.66216	108.7161441	105.8643761	103.1033418	100.4296738	97.84014793	95.33167663	92.90130219	90.54619067
230606A00015	6/6/2023	4.24	6/6/2028		115.79664	111.7591692	107.8877388	104.1746514	100.6126034	97.19466513	93.91426072	90.76514761	87.74139816
230606A00029	6/6/2023	4.45	6/5/2026		107.27752	105.4014104	103.5676207	101.7749451	100.0222242	98.30833866	96.63220745	94.99278632	93.38906634
230607A00001	6/7/2023	4.9	6/6/2025		103.29447	102.4366591	101.5931486	100.7635824	99.94761624	99.14491706	98.35516261	97.57804102	96.81325038
230607A00007	6/7/2023	4.24	6/7/2028		115.80895	111.7683884	107.8941099	104.178393	100.613919	97.19374471	93.91128131	90.76027428	87.73478481
230607A00012	6/7/2023	4.24	6/7/2028		115.80895	111.7683884	107.8941099	104.178393	100.613919	97.19374471	93.91128131	90.76027428	87.73478481
230607A00020	6/7/2023	4.28	6/7/2028		115.49061	111.5603593	107.7925506	104.1795534	100.7141369	97.38944728	94.19898596	91.13658929	88.19640947
230607A00037	6/7/2023	4.96	6/6/2025		103.34585	102.4878023	101.6440555	100.8142558	99.99805884	99.19513148	98.40515143	97.62780679	96.8627956
230607A00038	6/7/2023	4.58	6/5/2026		107.51896	105.6405508	103.8045023	102.0096099	100.254713	98.53869123	96.86046234	95.2189811	93.61323759
230608A00003	6/8/2023	4.23	6/8/2028		115.78245	111.7395595	107.8631584	104.1455156	100.5792986	97.15755104	93.87367206	90.72139587	87.69477318
230608A00015	6/8/2023	4.81	6/9/2025		103.25222	102.3864538	101.5352603	100.698274	99.87514066	99.06551777	98.26907404	97.48548892	96.71445223
230608A00049	6/8/2023	4.47	6/8/2026		107.35336	105.4681976	103.6257242	101.8247217	100.0640161	98.34247384	96.65900062	95.01253943	93.40206915
230609A00016	6/9/2023	4.91	6/9/2025		103.33868	102.4725109	101.6209166	100.7835341	99.96000924	99.14999933	98.353173	97.56920963	96.79779895
230609A00026	6/9/2023	4.11	6/9/2027		111.38861	108.432086	105.5705295	102.8003863	100.118251	97.52086428	95.00510493	92.56798374	90.20663699
230609A00027	6/9/2023	3.99	6/9/2028		115.40202	111.3491538	107.4637323	103.7379615	100.1644473	96.73617642	93.44649441	90.2890858	87.25795484
230609A00034	6/9/2023	3.99	6/9/2028		115.40202	111.3491538	107.4637323	103.7379615	100.1644473	96.73617642	93.44649441	90.2890858	87.25795484
230609A00036	6/9/2023	4.91	6/6/2025		103.30303	102.4451829	101.6016331	100.772028	99.95602334	99.15328613	98.36349408	97.58633531	96.82150791
230609A00038	6/9/2023	4.91	6/10/2025		103.35057	102.4816183	101.6273416	100.7873662	99.96133436	99.14890023	98.34972939	97.56349829	96.78989386
230609A00039	6/9/2023	4.73	12/10/2025		105.4535	104.0807909	102.7326542	101.4084866	100.107703	98.82973692	97.57403986	96.34008036	95.12734355
230609A00040	6/9/2023	4.38	5/12/2027		111.42711	108.5561911	105.7751351	103.0805783	100.4693075	97.93825058	95.48446949	93.10515317	90.79761124
230609A00041	6/9/2023	4.53	7/13/2026		107.91688	105.9300142	103.9902434	102.0961605	100.2464112	98.43969075	96.67474131	94.95035026	93.26534816



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230609A00042	6/9/2023	4.46	11/25/2026		109.49765	107.1213958	104.8092782	102.5591988	100.369138	98.23715497	96.16138329	94.14002814	92.17136282
230609A00043	6/9/2023	4.32	9/29/2027		112.97664	109.6931288	106.524024	103.4646563	100.5105744	97.65753676	94.90149999	92.23860842	89.66518398
230609A00076	7/10/2023	4.19	7/10/2028		116.01232	111.8747744	107.9111799	104.1132919	100.4732966	96.98379005	93.63775467	90.42853684	87.34982606
230612A00023	6/12/2023	4.32	6/12/2026		107.37324	105.4722309	103.6145739	101.7990245	100.0243824	98.28948899	96.59322617	94.9345142	93.31231028
230612A00024	6/12/2023	4.69	6/12/2025		103.29702	102.4213153	101.5605127	100.7142344	99.88211437	99.06379876	98.25894543	97.46722345	96.68831272
230612A00058	6/12/2023	5.16	12/12/2024		101.4373	101.0660726	100.6975738	100.3317766	99.96865124	99.60816834	99.25029901	98.89501475	98.54228748
230613A00010	6/13/2023	4.9	6/13/2025		103.37745	102.5002197	101.6379348	100.7902195	99.95670601	99.13703891	98.33087448	97.53788033	96.75773495
230613A00015	6/13/2023	4.73	6/13/2033	6/13/2028	119.98055	115.085483	110.4836434	106.1540985	102.0775953	98.23640994	94.61421536	91.19596069	87.96776221
230613A00019	6/13/2023	4.49	6/15/2026		107.48135	105.5755032	103.7132054	101.8932082	100.114303	98.37532346	96.67514393	95.01267752	93.38687461
230613A00021	6/13/2023	4.35	6/14/2027		111.74929	108.7823103	105.9108317	103.1312674	100.4401853	97.83430051	95.31046797	92.86567581	90.49703896
230613A00034	6/13/2023	4.56	6/12/2026		107.57384	105.6754455	103.8202559	102.0070362	100.2345921	98.50177075	96.80745923	95.15058288	93.53010375
230613A00055	6/13/2023	5.14	2/13/2025		102.15024	101.6047294	101.0650612	100.5311458	100.0028911	99.4802072	98.96300622	98.45120192	97.94470995
230613A00061	6/13/2023	4.56	6/15/2026		107.61329	105.7061607	103.8426118	102.0213868	100.2412765	98.50111406	96.79977316	95.13616632	93.50924336
230613A00062	6/13/2023	4.97	6/13/2025		103.43875	102.5612234	101.6986511	100.8506519	100.0168578	99.19691338	98.39047483	97.59720972	96.81679647
230613A00080	6/13/2023	5.22	12/13/2024		101.47109	101.097047	100.7257732	100.3572415	99.99142135	99.62828277	99.2677962	98.90993251	98.55466302
230613A00091	6/13/2023	4.58	6/15/2026		107.65098	105.7434915	103.879585	102.0580092	100.2775546	98.53705424	96.83538151	95.17144883	93.54420586
230614A00001	6/14/2023	4.55	6/12/2026		107.55508	105.6568612	103.8018487	101.988803	100.2165296	98.48387579	96.7897288	95.13301403	93.51269359
230614A00029	6/14/2023	4.55	6/15/2026		107.59444	105.6874954	103.8241251	102.0030755	100.2231374	98.48314398	96.78196898	95.11852506	93.49176211
230614A00031	6/14/2023	4.94	6/16/2025		103.44997	102.5642056	101.6936724	100.8379819	99.99675579	99.16962895	98.35624825	97.55627233	96.76937107
230614A00038	6/14/2023	4.3	6/15/2026		107.37413	105.464745	103.5990738	101.7758588	99.99388494	98.2519798	96.54901185	94.88388867	93.25555538
230614A00047	6/14/2023	4.94	6/16/2025		103.44997	102.5642056	101.6936724	100.8379819	99.99675579	99.16962895	98.35624825	97.55627233	96.76937107
230614A00048	6/14/2023	4.55	6/15/2026		107.59444	105.6874954	103.8241251	102.0030755	100.2231374	98.48314398	96.78196898	95.11852506	93.49176211
230615A00023	6/15/2023	4.58	6/15/2026		107.65098	105.7434915	103.879585	102.0580092	100.2775546	98.53705424	96.83538151	95.17144883	93.54420586
230615A00026	6/15/2023	4.84	6/15/2038		156.13388	139.9902521	125.8229141	113.3728906	102.4167059	92.76133566	84.23990328	76.70800317	70.04055858
230615A00033	6/15/2023	4.58	6/15/2026		107.65098	105.7434915	103.879585	102.0580092	100.2775546	98.53705424	96.83538151	95.17144883	93.54420586
230615A00039	6/15/2023	4.16	6/15/2027		111.60651	108.6298695	105.749326	102.9612635	100.2622194	97.64887989	95.11807282	92.66676069	90.29203422
230615A00044	6/15/2023	4.33	6/15/2026		107.43075	105.5208108	103.6546019	101.8308592	100.0483674	98.30595384	96.60248678	94.93687351	93.30805889
230615A00103	6/15/2023	4.99	6/16/2025		103.49417	102.608189	101.7374469	100.8815499	100.0401198	99.21279139	98.39921145	97.59903861	96.81194268
230616A00012	6/16/2023	4.41	6/16/2026		107.59484	105.6805262	103.8100868	101.9822593	100.1958227	98.44959901	96.74245107	95.07328129	93.44102975
230616A00037	6/16/2023	4.48	6/16/2027		112.15019	109.1717488	106.289299	103.4992314	100.7980913	98.18257205	95.6495083	93.1958689	90.81875053
230616A00038	6/16/2023	4.32	6/16/2028		116.2318	112.1574235	108.2516231	104.5065356	100.9147014	97.46904598	94.16285794	90.98976839	87.94373178
230616A00039	6/16/2023	5.07	6/16/2025		103.56488	102.6785625	101.8074861	100.9512587	100.1095023	99.28185129	98.46795258	97.66746464	96.88005726
230616A00040	6/16/2023	4.66	6/16/2026		107.81519	105.9033217	104.0351929	102.2095398	100.4251475	98.68084344	96.97549588	95.30801228	93.67733756

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230616A00106	6/16/2023	4.61	6/16/2026		107.72081	105.8098599	103.9426273	102.1178538	100.3343247	98.59086786	96.88635216	95.21968541	93.58981292
230620A00035	6/20/2023	4.36	6/20/2030		124.66515	118.2956151	112.3029075	106.662644	101.3521423	96.35029416	91.63744894	87.1953054	83.00681269
230620A00042	6/20/2023	5.15	12/20/2024		101.52457	101.1312036	100.7409026	100.3536286	99.96934635	99.58802117	99.20961887	98.83410578	98.46144879
230620A00065	6/20/2023	4.56	6/18/2026		107.65273	105.7368716	103.8649591	102.035726	100.2479481	98.50044437	96.79207498	95.12173959	93.48837572
230620A00089	6/20/2023	4.98	6/20/2025		103.53364	102.6365718	101.755121	100.8888773	100.0374488	99.20045703	98.37753627	97.56833312	96.77250593
230620A00091	6/20/2023	4.56	6/22/2026		107.70533	105.7778127	103.8947424	102.0548274	100.2568237	98.49953122	96.78179192	95.10248816	93.46054097
230621A00016	6/21/2023	4.55	6/22/2026		107.68629	105.7589585	103.8760704	102.0363344	100.2385062	98.48138606	96.76381592	95.08467826	93.44289418
230621A00022	6/21/2023	4.24	6/21/2028		115.98118	111.8974118	107.9832184	104.2306623	100.6322156	97.18074042	93.86946624	90.69196943	87.64215349
230621A00031	6/21/2023	5.19	12/20/2024		101.5403	101.1468956	100.7565577	100.369247	99.98492825	99.60356677	99.22512836	98.84957937	98.47688667
230621A00041	6/21/2023	4.24	6/21/2028		115.98118	111.8974118	107.9832184	104.2306623	100.6322156	97.18074042	93.86946624	90.69196943	87.64215349
230621A00045	6/21/2023	4.95	6/23/2025		103.54277	102.6374835	101.7480962	100.8741879	100.0153561	99.1712126	98.34138209	97.5255021	96.72322229
230621A00047	6/21/2023	4.44	6/21/2028		108.39628	106.3261065	104.3190091	102.3725371	100.4843571	98.65224298	96.87407017	95.14781035	93.47152638
230621A00048	6/21/2023	4.55	6/22/2026		107.68629	105.7589585	103.8760704	102.0363344	100.2385062	98.48138606	96.76381592	95.08467826	93.44289418
230622A00004	6/22/2023	4.23	6/22/2027		111.89684	108.896141	105.9928832	103.1833731	100.4640801	97.83162606	95.2827781	92.81444149	90.42365292
230622A00005	6/22/2023	4.05	6/22/2028		115.79417	111.6964712	107.7694471	104.0050831	100.3957841	96.93434897	93.61394868	90.42810468	87.37066924
230622A00019	6/22/2023	4.33	6/22/2028		115.27082	111.4345189	107.7566133	104.2296302	100.8464888	97.60048019	94.48524578	91.49475696	88.62329617
230622A00027	6/22/2023	4.49	6/22/2026		107.57205	105.6458329	103.7640388	101.9253761	100.1286013	98.37251508	96.65595995	94.97781889	93.3370135
230622A00028	6/22/2023	4.35	6/22/2027		111.84887	108.8579	105.9638699	103.163113	100.4521225	97.82754291	95.28616282	92.82490774	90.44083352
230622A00030	6/22/2023	4.17	6/22/2028		115.71921	111.6376879	107.7258204	103.9756537	100.379651	96.93066615	93.62192105	90.44698515	87.39975562
230622A00039	6/26/2023	4.49	6/26/2026		107.62388	105.6860109	103.793066	101.9437307	100.1367415	98.37087954	96.6449693	94.95787624	93.30850532
230622A00045	6/22/2023	4.91	6/23/2025		103.50664	102.6015337	101.7123206	100.8385844	99.97992265	99.13594711	98.30628258	97.4905666	96.68844889
230622A00047	6/22/2023	4.49	6/22/2026		107.57205	105.6458329	103.7640388	101.9253761	100.1286013	98.37251508	96.65595995	94.97781889	93.3370135
230622A00049	6/22/2023	4.71	12/17/2025		105.51193	104.1200757	102.7534393	101.4113909	100.0933235	98.79864971	97.52680073	96.27722592	95.04939191
230622A00056	6/26/2023	4.49	6/26/2026		107.62388	105.6860109	103.793066	101.9437307	100.1367415	98.37087954	96.6449693	94.95787624	93.30850532
230622A00083	6/22/2023	4.55	6/22/2026		107.68629	105.7589585	103.8760704	102.0363344	100.2385062	98.48138606	96.76381592	95.08467826	93.44289418
230622A00093	6/22/2023	4.55	6/22/2026		107.68629	105.7589585	103.8760704	102.0363344	100.2385062	98.48138606	96.76381592	95.08467826	93.44289418
230622A00095	6/22/2023	4.38	6/22/2027		111.93614	108.9438906	106.0486154	103.2466436	100.5344675	97.90873073	95.36622085	92.90386256	90.51871087
230622A00096	6/22/2023	4.21	6/22/2028		115.87594	111.791366	107.8765385	104.1235017	100.5247155	97.07303012	93.7616645	90.58418503	87.53448601
230623A00002	6/23/2023	4.45	6/23/2026		107.50873	105.5803531	103.6965034	101.8558906	100.0572667	98.2994277	96.58121218	94.90149902	93.259206
230623A00003	6/23/2023	4.29	6/23/2027		111.68662	108.6952048	105.8008488	102.9998759	100.2887717	97.664174	95.12286468	92.66176315	90.27791949
230623A00004	6/23/2023	4.13	6/23/2028		115.57448	111.4929301	107.5811792	103.8312599	100.2356238	96.78711368	93.47894182	90.30466839	87.25818211
230623A00025	6/23/2023	4.45	6/23/2026		107.50873	105.5803531	103.6965034	101.8558906	100.0572667	98.2994277	96.58121218	94.90149902	93.259206
230623A00026	6/23/2023	4.29	6/23/2027		111.68662	108.6952048	105.8008488	102.9998759	100.2887717	97.664174	95.12286468	92.66176315	90.27791949

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230623A00027	6/23/2023	4.13	6/23/2028		115.57448	111.4929301	107.5811792	103.8312599	100.2356238	96.78711368	93.47894182	90.30466839	87.25818211
230623A00031	6/23/2023	4.87	6/23/2025		103.47051	102.5655838	101.676545	100.8029809	99.94448918	99.10068162	98.27118307	97.45563111	96.65367548
230623A00036	6/23/2023	4.45	6/23/2026		107.50873	105.5803531	103.6965034	101.8558906	100.0572667	98.2994277	96.58121218	94.90149902	93.259206
230623A00037	6/23/2023	4.13	6/23/2028		115.57448	111.4929301	107.5811792	103.8312599	100.2356238	96.78711368	93.47894182	90.30466839	87.25818211
230623A00051	6/23/2023	4.18	6/23/2028		115.77053	111.6851604	107.7697045	104.0161928	100.4170724	96.9651823	93.65373051	90.47627354	87.42669647
230623A00053	6/23/2023	4.4	6/23/2026		107.66765	105.7330558	103.8432118	101.9968128	100.1926027	98.42936985	96.70594556	95.02120178	93.37404965
230623A00056	6/23/2023	4.18	6/23/2028		115.77053	111.6851604	107.7697045	104.0161928	100.4170724	96.9651823	93.65373051	90.47627354	87.42669647
230623A00057	6/23/2023	4.52	6/23/2026		107.64221	105.7125218	103.8273922	101.9855236	100.1856673	98.42661874	96.70721575	95.02633668	93.38289872
230623A00058	6/23/2023	4.38	6/23/2027		111.94867	108.9534174	106.0553191	103.2506949	100.5360276	97.90795191	95.36324719	92.89883017	90.51174843
230626A00019	6/26/2023	4.91	6/20/2025		103.47099	102.5742318	101.6930805	100.8271328	99.97599664	99.13929375	98.31665847	97.50773744	96.71218908
230626A00020	6/26/2023	4.49	6/26/2026		107.62388	105.6860109	103.793066	101.9437307	100.1367415	98.37087954	96.6449693	94.95787624	93.30850532
230626A00021	6/26/2023	4.49	6/26/2026		107.62388	105.6860109	103.793066	101.9437307	100.1367415	98.37087954	96.6449693	94.95787624	93.30850532
230626A00022	6/26/2023	4.34	6/25/2027		111.85704	108.8574944	105.955418	103.1471169	100.4290562	97.79785419	95.25027464	92.78321965	90.39372301
230626A00023	6/26/2023	4.18	6/26/2028		115.80694	111.7123167	107.7883134	104.0269178	100.4205315	96.96195123	93.64434566	90.46123461	87.40646901
230626A00026	6/26/2023	4.84	6/26/2025		103.47849	102.5653424	101.6683743	100.7871538	99.92126829	99.07031933	98.23392225	97.41170547	96.60330999
230627A00004	6/27/2023	4.47	6/29/2026		107.62428	105.6780533	103.7771124	101.9201345	100.1058408	98.33299837	96.60041791	94.90695189	93.25149286
230627A00005	6/27/2023	4.3	6/28/2027		111.77729	108.7704518	105.8615891	103.0469742	100.3230452	97.68639499	95.13376321	92.66202939	90.268206
230627A00006	6/27/2023	4.12	6/27/2028		115.58316	111.4900545	107.5676719	103.8079821	100.2033772	96.74664447	93.43094441	90.24978912	87.19702247
230627A00030	6/27/2023	4.17	6/27/2028		115.77976	111.6828157	107.7567076	103.9934059	100.3852981	96.92516744	93.60617032	90.42181506	87.3659419
230627A00035	6/27/2023	4.21	6/27/2028		115.93705	111.8370246	107.9079362	104.141745	100.5308349	97.06798581	93.74635104	90.55943581	87.50107745
230627A00036	6/27/2023	4.38	6/28/2027		112.01132	109.0010443	106.0888241	103.2709337	100.5438086	97.9040389	95.34836193	92.87365485	90.47692786
230627A00037	6/27/2023	4.56	6/26/2026		107.75793	105.8187461	103.9245105	102.0739087	100.2656767	98.49859499	96.77148737	95.08321871	93.43269339
230627A00042	6/27/2023	5.16	1/27/2025		101.96451	101.4659664	100.9723049	100.4834577	99.9993546	99.51992665	99.04510627	98.57482718	98.10902435
230627A00043	6/27/2023	5.12	2/27/2025		102.29982	101.7155645	101.1379972	100.5670001	100.0024615	99.44427208	98.89232519	98.34651643	97.80674376
230627A00044	6/27/2023	5.08	3/27/2025		102.59983	101.9381984	101.2851261	100.6404458	100.0039963	99.37562032	98.75516487	98.1424806	97.53742196
230627A00046	6/27/2023	5.03	4/28/2025		102.92455	102.1746672	101.4357462	100.7075441	99.9898285	99.28237395	98.58496122	97.89737733	97.2194153
230627A00048	6/27/2023	4.99	5/27/2025		103.25149	102.4210778	101.6040696	100.8001436	100.0089869	99.23029659	98.46377918	97.70915037	96.96613469
230627A00049	6/27/2023	4.95	6/27/2025		103.59073	102.6743082	101.774162	100.8898613	100.0209898	99.16714562	98.32794071	97.50300031	96.69196237
230627A00060	6/27/2023	4.89	6/27/2025		103.53588	102.6197296	101.719851	100.8358147	99.96720424	99.11361795	98.27466782	97.44997915	96.63918995
230627A00065	6/27/2023	4.95	6/27/2025		103.59073	102.6743082	101.774162	100.8898613	100.0209898	99.16714562	98.32794071	97.50300031	96.69196237
230627A00078	6/27/2023	4.95	6/27/2025		103.59073	102.6743082	101.774162	100.8898613	100.0209898	99.16714562	98.32794071	97.50300031	96.69196237
230627A00086	6/27/2023	5.35	9/30/2024		100.66271	100.4934453	100.3247494	100.1566172	99.98904585	99.82203264	99.65557478	99.48966954	99.32431419
230627A00087	6/27/2023	4.95	6/30/2025		103.6267	102.7019163	101.7936966	100.901599	100.0251964	99.16407675	98.31784235	97.48610911	96.6685061

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230627A00089	6/27/2023	4.56	6/30/2026		107.81053	105.8596719	103.9542634	102.09297	100.274507	98.4976357	96.76116137	95.0639313	93.40483305
230627A00090	6/27/2023	4.21	6/27/2028		115.93705	111.8370246	107.9079362	104.141745	100.5308349	97.06798581	93.74635104	90.55943581	87.50107745
230627A00102	6/27/2023	4.95	6/27/2025		103.59073	102.6743082	101.774162	100.8898613	100.0209898	99.16714562	98.32794071	97.50300031	96.69196237
230628A00015	6/28/2023	4.98	6/27/2025		103.61816	102.7015975	101.8013174	100.9168846	100.0478826	99.19390945	98.35457715	97.52951089	96.71834859
230628A00016	6/28/2023	4.58	6/26/2026		107.79623	105.8566705	103.962066	102.1111025	100.3025153	98.53508512	96.80763539	95.11903085	93.4681757
230628A00017	6/28/2023	4.41	6/28/2027		112.09908	109.0875165	106.1740373	103.3549186	100.6265949	97.98565536	95.42883645	92.95301439	90.55519856
230628A00018	6/28/2023	4.23	6/28/2028		116.02797	111.9233126	107.9898786	104.219609	100.6048709	97.13842822	93.81341952	90.62333624	87.5620028
230628A00028	6/28/2023	4.58	6/24/2026		107.76982	105.8360968	103.9470781	102.1014605	100.2979899	98.53545624	96.81269236	95.12857168	93.48200675
230628A00038	6/28/2023	4.58	6/24/2026		107.76982	105.8360968	103.9470781	102.1014605	100.2979899	98.53545624	96.81269236	95.12857168	93.48200675
230628A00045	6/28/2023	4.18	6/28/2028		115.83122	111.7304187	107.8007153	104.0340626	100.4228319	96.95979174	93.6380844	90.45120519	87.3929822
230628A00055	6/28/2023	5.19	12/27/2024		101.62034	101.2075332	100.7980913	100.3919693	99.98912677	99.58952414	99.19312236	98.79988302	98.40976834
230628A00059	6/28/2023	4.87	6/27/2025		103.5176	102.6015367	101.7017474	100.8177991	99.94927572	99.09577539	98.25691019	97.43230543	96.62159915
230628A00061	6/28/2023	4.47	6/26/2026		107.58558	105.6480866	103.7555105	101.906537	100.0999028	98.33438941	96.60882128	94.92206411	93.27302302
230628A00063	6/28/2023	4.47	6/29/2026		107.62428	105.6780533	103.7771124	101.9201345	100.1058408	98.33299837	96.60041791	94.90695189	93.25149286
230628A00068	6/28/2023	4.29	6/28/2027		111.74803	108.7416277	105.8331847	103.0189792	100.2954498	97.6591895	95.10693837	92.6355762	90.24211577
230629A00008	6/29/2023	4.34	6/29/2028		116.47338	112.357154	108.4126458	104.6317747	101.0068826	97.53071024	94.19637414	90.99734499	87.92742774
230629A00019	6/29/2023	4.51	6/24/2027		112.34007	109.3362653	106.4299279	103.6173673	100.8950524	98.25960518	95.70779251	93.23651948	90.8428226
230629A00025	6/29/2023	4.7	6/24/2026		107.99896	106.0629955	104.1717764	102.324	100.5184108	98.75379776	97.02899258	95.34286767	93.69433459
230629A00037	6/29/2023	4.69	6/29/2026		108.0474	106.0970015	104.1919693	102.3309773	100.5127448	98.73603668	96.99966162	95.3024702	93.64335311
230629A00041	6/29/2023	5.09	6/30/2025		103.75584	102.8304101	101.9215548	101.0288294	100.1518069	99.29007502	98.44323578	97.61090501	96.79271164
230629A00042	6/29/2023	4.69	6/29/2026		108.0474	106.0970015	104.1919693	102.3309773	100.5127448	98.73603668	96.99966162	95.3024702	93.64335311
230629A00045	6/29/2023	4.69	6/29/2026		108.0474	106.0970015	104.1919693	102.3309773	100.5127448	98.73603668	96.99966162	95.3024702	93.64335311
230629A00046	6/29/2023	4.51	6/29/2027		112.40452	109.3856289	106.4651171	103.6392402	100.9044199	98.25723316	95.69440488	93.21280041	90.80941877
230629A00068	6/29/2023	5.34	12/30/2024		101.71775	101.2964692	100.8786761	100.4643316	100.0533929	99.64581829	99.24156654	98.84059714	98.44287023
230629A00070	6/29/2023	5.09	6/30/2025		103.75584	102.8304101	101.9215548	101.0288294	100.1518069	99.29007502	98.44323578	97.61090501	96.79271164
230629A00071	6/29/2023	4.41	6/29/2028		116.48235	112.4218531	108.5321408	104.8050592	101.2328897	97.80832275	94.52443352	91.37465983	88.35278103
230629A00072	6/29/2023	4.69	6/29/2026		108.0474	106.0970015	104.1919693	102.3309773	100.5127448	98.73603668	96.99966162	95.3024702	93.64335311
230629A00076	6/29/2023	4.51	6/29/2027		112.40452	109.3856289	106.4651171	103.6392402	100.9044199	98.25723316	95.69440488	93.21280041	90.80941877
230629A00094	6/29/2023	4.41	6/29/2028		116.48235	112.4218531	108.5321408	104.8050592	101.2328897	97.80832275	94.52443352	91.37465983	88.35278103
230629A00097	6/29/2023	4.41	6/29/2028		116.48235	112.4218531	108.5321408	104.8050592	101.2328897	97.80832275	94.52443352	91.37465983	88.35278103
230629A00109	6/29/2023	5.3	12/27/2024		101.66572	101.2528031	100.8432498	100.4370171	100.0340646	99.63435255	99.23784204	98.8444946	98.45427246
230629A00120	6/29/2023	5.03	6/27/2025		103.66386	102.7470796	101.8465766	100.9619235	100.0927039	99.23851584	98.39897122	97.57369519	96.7623256
230630A00003	6/30/2023	4.54	6/30/2027		112.50534	109.4821328	106.5575211	103.7277473	100.9892226	98.33851393	95.77233687	93.28754787	90.88113758

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230630A00011	6/30/2023	5.37	12/27/2024		101.6946	101.2816111	100.871987	100.4656839	100.0626613	99.66287972	99.26630002	98.8728838	98.48259326
230630A00028	6/30/2023	4.42	6/30/2027		112.555	109.5219116	106.5879251	103.7492608	101.0023054	98.34360275	95.76984625	93.27787165	90.86464996
230630A00030	6/30/2023	4.23	6/30/2028		116.6029	112.466389	108.5028969	104.7042629	101.0627531	97.57103745	94.22216616	91.00954797	87.92692982
230630A00043	6/30/2023	4.6	6/30/2026		108.14506	106.1861687	104.2729767	102.4041447	100.5783789	98.79443185	97.05110052	95.34722423	93.68168295
230630A00046	6/30/2023	4.6	6/30/2026		108.14506	106.1861687	104.2729767	102.4041447	100.5783789	98.79443185	97.05110052	95.34722423	93.68168295
230630A00055	6/30/2023	4.35	6/30/2028		116.52536	112.4052604	108.4571366	104.6728953	101.0448624	97.56576352	94.22870114	91.02713286	87.95485143
230630A00061	6/30/2023	5	7/11/2025		103.81012	102.8544912	101.9165366	100.9957719	100.0917266	99.20394733	98.33199699	97.475454	96.63391169
230630A00062	6/30/2023	4.6	6/30/2026		108.14506	106.1861687	104.2729767	102.4041447	100.5783789	98.79443185	97.05110052	95.34722423	93.68168295
230630A00079	6/30/2023	4.65	6/30/2026		107.98387	106.0313026	104.1242156	102.2612755	100.4411966	98.66273946	96.9247085	95.2259502	93.56535136
230630A00080	6/30/2023	5.02	6/30/2025		103.69127	102.7661632	101.8576257	100.9652142	100.0885017	99.22707589	98.38053906	97.54850706	96.73060887
230630A00086	6/30/2023	4.72	6/30/2026		108.11869	106.1647931	104.2564006	102.3921797	100.5708441	98.79115351	97.05191183	95.3519649	93.69019894
230630A00088	6/30/2023	4.54	6/30/2027		112.50534	109.4821328	106.5575211	103.7277473	100.9892226	98.33851393	95.77233687	93.28754787	90.88113758
230630A00094	6/30/2023	4.42	6/30/2027		112.555	109.5219116	106.5879251	103.7492608	101.0023054	98.34360275	95.76984625	93.27787165	90.86464996
230703A00013	7/3/2023	4.34	7/3/2028		116.52243	112.3941157	108.4384661	104.6473333	101.012998	97.52814387	94.1858344	90.97949096	87.90287261
230703A00015	7/3/2023	4.34	7/3/2028		116.52243	112.3941157	108.4384661	104.6473333	101.012998	97.52814387	94.1858344	90.97949096	87.90287261
230703A00018	7/3/2023	4.61	7/3/2026		108.20402	106.2364414	104.3149486	102.4381851	100.6048409	98.81365321	97.0634043	95.35291955	93.68106568
230703A00019	7/3/2023	4.61	7/3/2026		108.20402	106.2364414	104.3149486	102.4381851	100.6048409	98.81365321	97.0634043	95.35291955	93.68106568
230703A00021	7/3/2023	4.99	7/3/2025		103.82204	102.8864279	101.9677521	101.0655509	100.1793833	99.30882391	98.45346233	97.6129024	96.78676165
230703A00025	7/3/2023	4.73	7/3/2026		108.17748	106.2149258	104.298264	102.4261411	100.5972548	98.81034975	97.06421505	95.35768276	93.6896259
230703A00027	7/3/2023	5.45	11/4/2024		101.08673	100.8205256	100.5557239	100.2923176	100.0302958	99.76964735	99.51036158	99.25242777	98.99583532
230703A00028	7/3/2023	5.11	7/3/2025		103.81264	102.878773	101.9617762	101.0611995	100.1766037	99.30756566	98.45367672	97.61454256	96.78978245
230703A00029	7/3/2023	4.89	2/3/2026		106.38564	104.857746	103.3598485	101.891139	100.450837	99.03818928	97.65246881	96.29297358	94.9590255
230703A00043	7/3/2023	4.53	7/6/2027		112.55121	109.5109768	106.5704076	103.7256912	100.9731805	98.3093881	95.7309779	93.23475804	90.81767363
230705A00006	7/5/2023	4.26	7/5/2028		116.78315	112.62922	108.6495717	104.8359554	101.1805573	97.67597254	94.31518188	91.09152946	87.99870206
230705A00008	7/5/2023	4.63	7/6/2026		108.2826	106.3061287	104.3761377	102.4912504	100.6501404	98.85152922	97.09418432	95.37691698	93.69858047
230705A00019	7/5/2023	4.44	7/6/2027		112.6898	109.638277	106.686968	103.8320341	101.0698023	98.39676042	95.80954912	93.3049545	90.87990079
230705A00033	7/5/2023	5.12	7/7/2025		103.8732	102.9281373	102.000353	101.0893764	100.1947529	99.31604402	98.45282699	97.60469384	96.77125087
230705A00034	7/5/2023	4.75	7/6/2026		108.25585	106.2844473	104.3593193	102.4791027	100.642479	98.84817708	97.09497147	95.38168018	93.70716287
230705A00035	7/5/2023	5.03	8/8/2025		104.19411	103.1600953	102.1467084	101.1533351	100.1793855	99.22429282	98.28751199	97.3685189	96.46680926
230705A00040	7/5/2023	4.38	7/5/2028		116.70491	112.5674963	108.6033161	104.8041836	101.1623452	97.67045266	94.32153946	91.1089992	88.02656495
230705A00042	7/5/2023	4.42	7/5/2028		116.86308	112.7225548	108.7553617	104.9533086	101.3086381	97.81399868	94.46242053	91.24729414	88.16234962
230705A00103	7/5/2023	4.56	7/6/2027		112.63964	109.5980913	106.6562446	103.8102821	101.0565557	98.39157679	95.81200855	93.31465815	90.89646982
230705A00111	7/5/2023	4.9	1/6/2026		106.03277	104.583529	103.1614569	101.7658508	100.3960357	99.05135887	97.73118948	96.43491716	95.16195143



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230706A00006	7/6/2023	4.59	7/6/2028		117.54813	113.3913772	109.4085948	105.5915648	101.9324993	98.42401756	95.05912286	91.83117998	88.73389487
230706A00014	7/6/2023	4.99	7/6/2038		158.37737	142.0272451	127.6814044	115.0765874	103.9857217	94.21276187	85.58829033	77.96576262	71.21829943
230706A00029	7/6/2023	5.53	1/6/2025		101.88542	101.4445739	101.0075574	100.5743184	100.144808	99.71897804	99.29678122	98.87817108	98.46310193
230706A00032	7/6/2023	5.53	1/6/2025		101.88542	101.4445739	101.0075574	100.5743184	100.144808	99.71897804	99.29678122	98.87817108	98.46310193
230706A00034	7/6/2023	5.18	7/7/2025		103.9297	102.9843509	102.0562837	101.1450277	100.2501284	99.3711471	98.50766105	97.6592622	96.82555675
230707A00021	9/1/2023	4.61	8/30/2030		126.87018	120.2344165	114.0015726	108.1448659	102.6394376	97.46220288	92.5917152	88.00804158	83.69264795
230707A00022	9/1/2023	4.61	8/30/2030		126.87018	120.2344165	114.0015726	108.1448659	102.6394376	97.46220287	92.5917152	88.00804158	83.69264795
230707A00023	9/1/2023	4.61	8/30/2030		126.87018	120.2344165	114.0015726	108.1448659	102.6394376	97.46220288	92.5917152	88.00804158	83.69264795
230707A00031	7/7/2023	4.84	7/7/2026		108.44416	106.4681834	104.5386471	102.6541769	100.8134478	99.01518276	97.25815067	95.54116402	93.8630773
230707A00038	7/7/2023	5.35	1/7/2025		101.81824	101.3748359	100.9353081	100.4996046	100.0676754	99.63947149	99.21494475	98.79404778	98.37673405
230707A00041	7/7/2023	4.44	7/7/2028		117.52245	113.3483848	109.3495156	105.5175407	101.8445985	98.32323991	94.94640388	91.70739538	88.59986442
230710A00008	7/10/2023	5.56	8/1/2024		100.01886	100.0160748	100.0132956	100.0105188	100.0077444	100.0049724	100.0022028	99.99943566	99.99667088
230710A00013	7/10/2023	4.55	7/10/2029		121.98213	116.6744441	111.6366297	106.8534826	102.3107372	97.99500087	93.89369596	89.99500602	86.28782589
230710A00053	7/10/2023	4.98	7/10/2025		103.90223	102.9471171	102.0096424	101.089323	100.1856903	99.29829231	98.42669354	97.57047383	96.72922782
230710A00066	7/10/2023	5	7/10/2025		103.79764	102.8447973	101.9095274	100.9913498	100.0897981	99.20442269	98.33479004	97.48048206	96.64109537
230711A00012	7/11/2023	5.07	7/11/2025		103.87681	102.9208366	101.9825447	101.061447	100.1570729	99.26896899	98.39669806	97.53983848	96.69798347
230711A00013	7/11/2023	4.78	7/13/2026		108.40732	106.4155349	104.4709344	102.5721141	100.7177169	98.90643573	97.13701027	95.40822566	93.71891021
230711A00027	7/11/2023	5.07	7/11/2025		103.87681	102.9208366	101.9825447	101.061447	100.1570729	99.26896899	98.39669806	97.53983848	96.69798347
230711A00038	7/11/2023	4.89	10/10/2025		104.85779	103.6476891	102.4656739	101.3107745	100.1820636	99.07865572	97.99970507	96.9444031	95.91197667
230711A00087	7/11/2023	5.04	6/16/2025		103.53836	102.6521724	101.7812214	100.9251179	100.0834839	99.25595383	98.44217465	97.64180488	96.85451429
230711A00089	7/11/2023	5.32	12/16/2024		101.54423	101.1617859	100.7822421	100.4055622	100.0317138	99.66066486	99.29238385	98.92683973	98.56400194
230712A00002	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00005	7/12/2023	5.2	12/16/2024		101.49837	101.11603	100.7365913	100.3600159	99.9862714	99.61532581	99.24714759	98.88170572	98.51896962
230712A00009	7/12/2023	4.89	6/16/2025		103.40578	102.5202222	101.649898	100.7944138	99.95339175	99.12646651	98.31328505	97.51350606	96.72679947
230712A00014	7/12/2023	4.62	7/13/2026		108.09344	106.1048017	104.1632922	102.2675038	100.4160813	98.60771894	96.84115813	95.1151854	93.4286305
230712A00015	7/12/2023	4.62	7/13/2026		108.09344	106.1048017	104.1632922	102.2675038	100.4160813	98.60771894	96.84115813	95.1151854	93.4286305
230712A00016	7/12/2023	4.45	7/12/2027		112.38928	109.3350883	106.3815692	103.5248487	100.7612234	98.08715306	95.49925201	92.99428171	90.56914339
230712A00017	7/12/2023	4.45	7/12/2027		112.38928	109.3350883	106.3815692	103.5248487	100.7612234	98.08715306	95.49925201	92.99428171	90.56914339
230712A00018	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00019	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00020	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00021	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00027	7/12/2023	4.29	1/12/2028		114.16709	110.5723322	107.1125714	103.7820068	100.5751181	97.48665089	94.51160255	91.64520886	88.88293122

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230712A00032	10/12/2023	5.23	10/11/2024		100.76336	100.5637217	100.3648887	100.1668552	99.96961645	99.77316751	99.57750361	99.38261997	99.18851185
230712A00034	1/12/2024	4.88	1/13/2025		101.67458	101.2151523	100.7598973	100.3087541	99.86166705	99.4185813	98.97944317	98.54419987	98.11279956
230712A00035	1/12/2024	4.36	1/12/2026		105.32146	103.8615902	102.4293922	101.0241435	99.64514948	98.29173913	96.96326374	95.65909611	94.37862961
230712A00039	7/12/2023	4.62	7/13/2026		108.09344	106.1048017	104.1632922	102.2675038	100.4160813	98.60771894	96.84115813	95.1151854	93.4286305
230712A00040	7/12/2023	4.45	7/12/2027		112.38928	109.3350883	106.3815692	103.5248487	100.7612234	98.08715306	95.49925201	92.99428171	90.56914339
230712A00041	7/12/2023	4.31	7/12/2028		116.51263	112.3596982	108.3814874	104.5697027	100.9164887	97.41440212	94.05638879	90.83576069	87.74617519
230712A00046	7/12/2023	4.52	7/13/2026		107.89726	105.9105934	103.9710157	102.0771223	100.227559	98.42102095	96.65625055	94.93203524	93.24720568
230712A00048	7/12/2023	4.95	7/14/2025		103.79952	102.835769	101.8900027	100.9617166	100.0504283	99.1556731	98.27700291	97.41398586	96.56620542
230712A00051	7/12/2023	4.62	7/13/2026		108.09344	106.1048017	104.1632922	102.2675038	100.4160813	98.60771894	96.84115813	95.1151854	93.4286305
230712A00056	7/12/2023	4.22	7/12/2028		116.15501	112.0091445	108.0377765	104.2326247	100.5858415	97.08999161	93.73802826	90.52327052	87.43938253
230713A00014	7/13/2023	4.2	7/13/2028		116.08731	111.9400288	107.9674337	104.1612281	100.5135508	97.0169538	93.66437859	90.44913333	87.3648721
230713A00017	7/13/2023	5.11	1/14/2025		101.79165	101.3291766	100.8709239	100.4168338	99.96684964	99.52091569	99.07897725	98.64098059	98.20687294
230713A00019	7/13/2023	4.51	7/13/2026		107.87764	105.8911725	103.9517881	102.0580842	100.2087068	98.40235115	96.63775979	94.91372023	93.2290632
230713A00021	7/13/2023	4.44	7/13/2026		107.74032	105.7552267	103.8171946	101.9248172	100.0767412	98.27166256	96.50832448	94.78551512	93.10206583
230713A00023	7/13/2023	4.2	7/13/2028		116.08731	111.9400288	107.9674337	104.1612281	100.5135508	97.0169538	93.66437859	90.44913333	87.3648721
230713A00025	7/13/2023	4.82	7/14/2025		103.6746	102.7114936	101.7663641	100.8387066	99.92803888	99.03389626	98.15583096	97.29341124	96.44622072
230713A00026	7/13/2023	4.49	7/13/2026		107.83841	105.8523309	103.9133328	102.0200079	100.1710023	98.36501156	96.60077827	94.87709019	93.19277823
230713A00031	7/13/2023	4.49	7/13/2026		107.83841	105.8523309	103.9133328	102.0200079	100.1710023	98.36501156	96.60077827	94.87709019	93.19277823
230713A00058	7/13/2023	4.08	7/13/2028		116.16432	112.0004271	108.0122845	104.1915265	100.5302307	97.0208917	93.65639726	90.43000543	87.33532328
230714A00018	7/14/2023	4.24	7/14/2027		112.19617	109.1300719	106.1654433	103.2983604	100.5250774	97.84201445	95.24574834	92.73300531	90.30065339
230714A00019	7/14/2023	4.85	7/14/2025		103.70342	102.7401726	101.7948961	100.8670935	99.9562826	99.06199861	98.18379372	97.32123615	96.47390949
230714A00020	7/14/2023	4.52	7/14/2026		107.90986	105.9203743	103.9781079	102.0816485	100.2296366	98.42076217	96.65376259	94.92742065	93.24056254
230714A00022	7/14/2023	4.36	7/14/2027		112.14665	109.0906196	106.1355332	103.2774937	100.5127813	97.83783993	95.24926951	92.74381777	90.31837313
230714A00023	7/14/2023	4.18	7/14/2028		116.0195	111.8708065	107.8969879	104.0897322	100.4411645	96.94382409	93.59064057	90.37491131	87.29028028
230714A00026	7/14/2023	4.18	7/14/2028		116.0195	111.8708065	107.8969879	104.0897322	100.4411645	96.94382409	93.59064057	90.37491131	87.29028028
230714A00030	7/14/2023	4.52	7/17/2026		107.94765	105.9497138	103.9993785	102.0952196	100.2358611	98.41997732	96.64629079	94.91357019	93.22062822
230714A00034	7/14/2023	4.37	7/16/2027		112.20052	109.1382428	106.1772799	103.3137191	100.5438203	97.8640087	95.27086615	92.76112364	90.33165381
230714A00036	7/14/2023	4.37	7/12/2030		124.93279	118.4932901	112.4382648	106.7425992	101.3829512	96.33761429	91.58639461	87.11049825	82.89242718
230714A00042	7/14/2023	4.58	7/14/2026		108.02773	106.0370611	104.0936324	102.196033	100.3429026	98.53293066	96.76485399	95.03745481	93.34955878
230717A00022	7/17/2023	4.59	7/17/2026		108.08575	106.0864148	104.1347125	102.2292127	100.3685387	98.55136425	96.77641108	95.04244723	93.34828478
230717A00061	7/17/2023	4.93	7/17/2025		103.81716	102.8451455	101.8914222	100.9554726	100.0368023	99.13493484	98.2494113	97.37978931	96.52564235
230717A00088	7/17/2023	4.43	7/19/2027		112.41579	109.3421109	106.370363	103.4965997	100.7170492	98.02810625	95.42632463	92.90840856	90.47120552
230718A00012	7/18/2023	5.2	12/16/2024		101.49837	101.11603	100.7365913	100.3600159	99.9862714	99.61532581	99.24714759	98.88170572	98.51896962

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230718A00013	7/18/2023	4.54	7/17/2026		107.98711	105.9887713	104.0380454	102.1335034	100.273769	98.45751644	96.68346802	94.9503922	93.25710152
230718A00014	7/18/2023	4.37	7/19/2027		112.23679	109.1657952	106.1966627	103.3254502	100.5483877	97.86187229	95.26245957	92.74685567	90.31190986
230718A00015	7/18/2023	4.19	7/18/2028		116.10626	111.9448378	107.9592646	104.14116	100.4825858	96.97602264	93.61434532	90.39080041	87.29898462
230718A00016	7/18/2023	4.54	7/17/2026		107.98711	105.9887713	104.0380454	102.1335034	100.273769	98.45751644	96.68346802	94.9503922	93.25710152
230718A00023	7/18/2023	4.54	7/20/2026		108.02507	106.0182677	104.0594659	102.1472187	100.2801334	98.45686837	96.67613099	94.93667549	93.23730088
230718A00038	7/18/2023	4.46	11/13/2026		109.34319	107.002496	104.7242044	102.5062455	100.3466302	98.24345012	96.19487323	94.19914042	92.25456191
230718A00065	7/18/2023	4.3	7/18/2033		118.84804	113.91937	109.2896794	104.9373957	100.8426879	96.98731587	93.35449136	89.92875155	86.6958447
230718A00070	7/18/2023	4.06	7/18/2028		116.14355	111.9662159	107.9657797	104.1337917	100.4622528	96.94358627	93.57061376	90.33653186	87.23489056
230718A00093	7/18/2023	4.06	7/18/2028		116.14355	111.9662159	107.9657797	104.1337917	100.4622528	96.94358627	93.57061376	90.33653186	87.23489056
230719A00006	7/19/2023	4.54	7/20/2026		108.02507	106.0182677	104.0594659	102.1472187	100.2801334	98.45686837	96.67613099	94.93667549	93.23730088
230719A00012	7/19/2023	4.92	7/18/2025		103.81972	102.8449737	101.8886146	100.9501272	100.0290128	99.12479133	98.23700006	97.36519314	96.50894072
230719A00013	7/19/2023	4.54	7/17/2026		107.98711	105.9887713	104.0380454	102.1335034	100.273769	98.45751644	96.68346802	94.9503922	93.25710152
230719A00015	7/19/2023	4.37	7/19/2027		112.23679	109.1657952	106.1966627	103.3254502	100.5483877	97.86187229	95.26245957	92.74685567	90.31190986
230719A00027	7/19/2023	4.92	7/18/2025		103.81972	102.8449737	101.8886146	100.9501272	100.0290128	99.12479133	98.23700006	97.36519314	96.50894072
230719A00034	7/19/2023	4.19	7/19/2028		116.11801	111.9535936	107.9652713	104.1446388	100.4837419	96.97504678	93.61141485	90.38608007	87.29262748
230719A00035	7/19/2023	4.92	7/18/2025		103.81972	102.8449737	101.8886146	100.9501272	100.0290128	99.12479133	98.23700006	97.36519314	96.50894072
230719A00061	7/19/2023	5.18	1/21/2025		101.90505	101.423103	100.9457368	100.4728814	100.0044729	99.54044859	99.08074693	98.62530754	98.17407118
230719A00085	6/10/2024	3.95	6/12/2026		106.42918	104.5417978	102.6974191	100.8948087	99.13277757	97.41017838	95.72590339	94.07888295	92.4680839
230719A00091	11/13/2023	4.56	11/14/2025		104.89452	103.5921194	102.3171558	101.0687591	99.84610016	98.64838474	97.47485138	96.32476978	95.19743922
230719A00096	12/18/2023	4.46	12/19/2025		105.18762	103.7927764	102.4232951	101.0785387	99.75789495	98.4607713	97.18659432	95.93480876	94.70487687
230719A00100	2/12/2024	4.29	2/13/2026		105.60239	104.0507864	102.5299563	101.0390531	99.57726276	98.14380056	96.73790952	95.35885926	94.00594477
230719A00101	10/16/2023	4.65	10/17/2025		104.65489	103.4269738	102.2280159	101.0569987	99.91295174	98.79494919	97.70210713	96.63358129	95.58856486
230720A00025	7/20/2023	5.18	1/21/2025		101.9664	101.4835524	101.0052964	100.5315684	100.0623041	99.5974404	99.13691542	98.68066837	98.22863965
230720A00037	7/20/2023	4.55	7/20/2026		108.30985	106.2952245	104.3288603	102.4093007	100.5351432	98.705037	96.91768075	95.17182032	93.46624678
230720A00038	7/20/2023	4.55	7/20/2026		108.30985	106.2952245	104.3288603	102.4093007	100.5351432	98.705037	96.91768075	95.17182032	93.46624678
230720A00039	7/20/2023	4.68	7/20/2026		108.30242	106.2928021	104.331244	102.4162933	100.5465559	98.7206888	96.93739791	95.1954362	93.49360138
230721A00003	7/21/2023	4.67	7/21/2026		108.29562	106.2833741	104.319313	102.4019798	100.5299746	98.70194938	96.91660514	95.17269014	93.46899769
230721A00006	7/21/2023	4.32	7/21/2028		116.66128	112.4805635	108.4767378	104.6413529	100.9664114	97.44433867	94.06795824	90.83046845	87.725421
230721A00028	7/21/2023	5.03	7/21/2025		103.96431	102.9806295	102.0156514	101.068849	100.1397112	99.22774583	98.33247907	97.45345426	96.59023132
230721A00029	7/21/2023	4.67	7/21/2026		108.29562	106.2833741	104.319313	102.4019798	100.5299746	98.70194938	96.91660514	95.17269014	93.46899769
230721A00031	7/21/2023	5.03	7/21/2025		103.96431	102.9806295	102.0156514	101.068849	100.1397112	99.22774583	98.33247907	97.45345426	96.59023132
230721A00032	7/21/2023	5.03	7/21/2025		103.96431	102.9806295	102.0156514	101.068849	100.1397112	99.22774583	98.33247907	97.45345426	96.59023132
230721A00038	7/21/2023	4.67	7/21/2026		108.29562	106.2833741	104.319313	102.4019798	100.5299746	98.70194938	96.91660514	95.17269014	93.46899769

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230721A00043	7/21/2023	4.98	7/21/2025		103.91531	102.9318783	101.9671546	101.0206032	100.0917132	99.17999242	98.28496708	97.40618061	96.543193
230724A00037	7/24/2023	4.29	7/24/2028		116.57738	112.3900528	108.3802536	104.5394899	100.8597201	97.33332814	93.95309944	90.71219689	87.60413933
230724A00063	7/24/2023	5.08	7/24/2025		104.05141	103.059082	102.0857731	101.1309414	100.1940634	99.2746351	98.37217121	97.48620439	96.61628431
230724A00064	7/24/2023	4.53	7/19/2027		112.71412	109.6359704	106.6598634	103.781849	100.9981516	98.30516285	95.69943306	93.17766339	90.7366983
230724A00065	7/24/2023	4.37	7/18/2028		116.82448	112.6488113	108.6494414	104.8179653	101.146428	97.62729437	94.25342418	91.01804958	87.91475355
230724A00066	7/24/2023	4.71	8/18/2026		108.74705	106.6539061	104.6122433	102.620453	100.6769924	98.78037791	96.9291823	95.1220321	93.35760515
230725A00004	7/25/2023	5.06	7/25/2025		104.04428	103.0492623	102.0733644	101.116042	100.1767675	99.25503287	98.35034922	97.46224558	96.59026826
230725A00014	7/25/2023	5.32	1/27/2025		102.04422	101.54544	101.0515496	100.5624751	100.0781463	99.59849426	99.12345131	98.65295119	98.18692886
230725A00016	7/25/2023	4.75	7/31/2026		108.58663	106.544417	104.5517208	102.6070321	100.708894	98.8559044	97.04671282	95.28001858	93.5545684
230725A00018	7/25/2023	4.4	7/25/2028		117.03043	112.8313195	108.8102479	104.9586974	101.2686001	97.73231584	94.34260678	91.09261431	87.97583697
230725A00023	7/25/2023	4.57	4/9/2027		111.52733	108.7473204	106.0519404	103.4380691	100.9027196	98.44303638	96.05628857	93.73986335	91.49125998
230725A00028	7/25/2023	4.46	7/25/2030		125.60068	119.1051355	112.9992469	107.2574327	101.8559229	96.77262216	91.98698338	87.47989138	83.23355607
230725A00071	7/25/2023	4.4	7/25/2028		117.03043	112.8313195	108.8102479	104.9586974	101.2686001	97.73231584	94.34260678	91.09261431	87.97583697
230726A00011	7/26/2023	4.24	7/26/2028		116.96199	112.7461377	108.7095537	104.8436376	101.1402461	97.59166875	94.19060222	90.93012678	87.80368392
230726A00012	7/26/2023	4.24	7/26/2028		116.96199	112.7461377	108.7095537	104.8436376	101.1402461	97.59166875	94.19060222	90.93012678	87.80368392
230726A00023	7/26/2023	4.24	7/26/2028		116.96199	112.7461377	108.7095537	104.8436376	101.1402461	97.59166875	94.19060222	90.93012678	87.80368392
230726A00058	7/26/2023	4.99	7/28/2025		104.14235	103.1367549	102.1506668	101.1835207	100.2347739	99.303904	98.39040827	97.49380275	96.61362127
230726A00060	7/26/2023	4.99	7/28/2025		104.14235	103.1367549	102.1506668	101.1835207	100.2347739	99.303904	98.39040827	97.49380275	96.61362127
230727A00016	7/27/2023	4.51	7/27/2033		136.41828	126.3956985	117.2266244	108.8328733	101.1438329	94.09569599	87.63077186	81.69686995	76.24674882
230727A00020	7/27/2023	4.39	7/27/2028		117.01493	112.8105891	108.7847463	104.9288467	101.2347917	97.69491251	94.30194494	91.04900579	87.92957081
230727A00033	7/27/2023	4.82	7/27/2026		108.93971	106.8526284	104.8170389	102.8313237	100.8939282	99.00335758	97.15817487	95.3569976	93.59849555
230727A00037	7/27/2023	4.82	7/27/2026		108.93971	106.8526284	104.8170389	102.8313237	100.8939282	99.00335758	97.15817487	95.3569976	93.59849555
230727A00063	7/27/2023	4.38	7/27/2028		117.53786	113.3077121	109.2574284	105.3783756	101.6623813	98.10170751	94.6890251	91.41739	88.28022082
230727A00070	7/27/2023	4.75	7/27/2026		108.53371	106.502838	104.5209638	102.5865959	100.6983	98.85469525	97.05445179	95.29628822	93.57896972
230727A00073	7/27/2023	4.81	7/27/2026		108.65373	106.6216279	104.6385498	102.7030012	100.8135472	98.96880637	97.16744811	95.4081905	93.68979815
230727A00075	7/27/2023	4.5	7/27/2028		117.45657	113.2434212	109.2090446	105.3448755	101.6428049	98.09515406	94.69464947	91.43439892	88.3078696
230728A00004	7/28/2023	4.77	7/28/2026		108.587	106.5528818	104.567898	102.6305533	100.7394079	98.89307524	97.09022008	95.32955605	93.60984354
230728A00005	7/28/2023	4.59	7/28/2027		113.00739	109.900208	106.8967993	103.993115	101.1852869	98.46961927	95.84258054	93.3007947	90.84103361
230728A00006	7/28/2023	4.46	7/28/2028		117.30846	113.095495	109.0614413	105.1977225	101.4962176	97.9492367	94.54949596	91.29009374	88.16448852
230728A00017	7/28/2023	5.15	7/22/2025		104.09483	103.1077243	102.139442	101.1894427	100.2572111	99.34225085	98.44408425	97.56225091	96.69630723
230731A00012	7/31/2023	4.5	7/31/2029		121.96608	116.6002554	111.5102268	106.6802837	102.0956974	97.74265119	93.60817822	89.68010532	85.94700011
230731A00036	7/31/2023	5.1	7/31/2025		104.16043	103.1484131	102.1561472	101.1830606	100.2286003	99.29223448	98.37345122	97.47175787	96.58668003
230731A00037	7/31/2023	4.74	7/31/2026		108.56652	106.5245109	104.5320175	102.5875276	100.6895846	98.83678638	97.02778256	95.26127256	93.53600322

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230801A00001	8/1/2023	5.14	8/1/2025		104.21407	103.199035	102.2038658	101.2279834	100.27083	99.33186932	98.41058537	97.50648149	96.6190795
230801A00021	8/1/2023	4.49	8/1/2028		117.47955	113.2520407	109.2044639	105.3281712	101.6149771	98.05713172	94.64729549	91.3785149	88.24420015
230801A00022	8/1/2023	4.65	8/2/2027		113.25285	110.1281903	107.1082589	104.1889532	101.3663547	98.63672105	95.99647623	93.44220268	90.97063313
230801A00024	8/1/2023	4.82	8/3/2026		108.76847	106.7161806	104.7137616	102.759688	100.852488	98.99074515	97.17309557	95.39822582	93.66487058
230801A00028	8/1/2023	5.14	8/1/2025		104.21407	103.199035	102.2038658	101.2279834	100.27083	99.33186932	98.41058537	97.50648149	96.6190795
230801A00042	8/1/2023	5.53	8/1/2024		100.01873	100.0159506	100.0131715	100.0103948	100.0076205	100.0048486	100.0020791	99.99931195	99.99654724
230802A00007	8/2/2023	5.46	8/2/2024		100.02918	100.0236148	100.0180573	100.0125048	100.0069573	100.0014148	99.99587715	99.99034449	99.98481677
230802A00017	8/2/2023	4.79	8/3/2026		108.70789	106.6562195	104.6544137	102.7009414	100.7943312	98.93316677	97.11608477	95.34177199	93.60896336
230802A00022	9/8/2023	4.41	9/8/2028		117.63453	113.2964181	109.1466217	105.1759072	101.3755472	97.73728948	94.25332805	90.91627645	87.71914279
230802A00023	10/16/2023	4.37	10/16/2028		117.93596	113.4836239	109.2285835	105.1609562	101.2714167	97.5511591	93.99186507	90.5856735	87.32515261
230803A00029	8/3/2023	5.24	2/3/2025		102.1528	101.6337614	101.1200119	100.6114695	100.1080552	99.60969157	99.11630273	98.62781434	98.14415353
230804A00030	8/4/2023	4.88	8/4/2027		106.92632	105.3045458	103.7239569	102.1831744	100.6808726	99.21578002	97.7866774	96.39239452	95.03180815
230807A00010	8/7/2023	4.4	8/7/2028		117.19254	112.9539174	108.896325	105.011034	101.2897832	97.72475317	94.30853954	91.0341289	87.89487591
230807A00018	8/7/2023	4.65	8/7/2026		108.47801	106.4177875	104.4078019	102.4465095	100.5324213	98.66410467	96.84018044	95.05932073	93.32024655
230807A00023	8/7/2023	5.26	2/7/2025		102.14452	101.6153966	101.0917728	100.5735615	100.0606789	99.55304303	99.05057339	98.55319129	98.06081957
230807A00024	8/7/2023	5.03	8/7/2025		104.18108	103.1498684	102.1391702	101.1483802	100.1769131	99.22420654	98.28971967	97.37293236	96.47334411
230807A00025	8/7/2023	4.69	8/7/2026		108.55924	106.498167	104.4873554	102.5252529	100.6103702	98.74127427	96.91658551	95.13497563	93.39516523
230807A00033	8/7/2023	4.57	8/7/2026		108.58746	106.5209754	104.5049696	102.5378848	100.6182226	98.74454153	96.91545405	95.12962423	93.38576542
230807A00087	11/7/2023	4.75	11/7/2025		105.04693	103.7608456	102.5038843	101.2750591	100.0734237	98.89807399	97.748146	96.62281349	95.52128596
230807A00093	2/7/2024	4.49	2/6/2026		105.81752	104.2851432	102.7829466	101.3101132	99.86585387	98.44940711	97.06003811	95.69703748	94.35972014
230808A00008	8/8/2023	4.67	4/24/2026		107.12987	105.3696246	103.6470308	101.9609441	100.3102675	98.69394846	97.11097636	95.56038057	94.04122842
230808A00010	8/8/2023	4.95	8/8/2025		104.11174	103.078174	102.0652342	101.0723018	100.0987871	99.14412337	98.20776573	97.2891902	96.38789261
230808A00014	8/8/2023	4.6	8/7/2026		108.37649	106.317313	104.3083602	102.3480803	100.4349852	98.56764267	96.74467409	94.96475211	93.2265982
230808A00029	8/8/2023	4.6	8/7/2026		108.37649	106.317313	104.3083602	102.3480803	100.4349852	98.56764267	96.74467409	94.96475211	93.2265982
230808A00054	8/8/2023	4.19	8/8/2028		116.92106	112.6695289	108.6001291	104.7040565	100.9729798	97.39901385	93.97469348	90.69294851	87.54708076
230808A00057	8/8/2023	4.19	8/8/2028		116.92106	112.6695289	108.6001291	104.7040565	100.9729798	97.39901385	93.97469348	90.69294851	87.54708076
230808A00060	8/8/2023	4.19	8/8/2028		116.92106	112.6695289	108.6001291	104.7040565	100.9729798	97.39901385	93.97469348	90.69294851	87.54708076
230809A00020	8/9/2023	4.51	11/9/2026		109.40617	107.0759782	104.8076445	102.5991073	100.4483863	98.35358286	96.3128752	94.32451502	92.38682376
230809A00026	8/9/2023	4.59	8/7/2026		108.35618	106.2972181	104.2884718	102.3283945	100.415498	98.54835027	96.72557283	94.94583839	93.20786853
230809A00034	8/9/2023	4.59	8/10/2026		108.39533	106.3277674	104.3107449	102.3427041	100.4221425	98.5476145	96.71772866	94.93114557	93.18657528
230810A00001	8/10/2023	4.22	8/10/2028		117.06785	112.8077109	108.7302249	104.8265563	101.0883426	97.5076695	94.07704464	90.78937259	87.63793157
230810A00010	8/10/2023	4.62	8/10/2026		108.4565	106.3882946	104.3706477	102.4019947	100.4808326	98.60571561	96.77525198	94.98810197	93.24297533
230810A00013	8/10/2023	4.34	8/10/2028		116.98712	112.7441953	108.6828169	104.7942118	101.0700826	97.50257603	94.08425662	90.8080822	87.66738081



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230810A00024	8/10/2023	4.34	8/7/2028		116.94982	112.7160763	108.663207	104.7824918	101.0656757	97.50494448	94.09289913	90.82253125	87.68720031
230810A00025	8/10/2023	4.37	5/8/2028		115.93852	111.9792719	108.179835	104.5328383	101.0312947	97.66857966	94.43841034	91.33482547	88.35216694
230810A00026	8/10/2023	4.4	1/10/2028		114.52412	110.9286601	107.4679618	104.136245	100.928008	97.83801374	94.8612758	91.99304489	89.22879623
230810A00046	8/10/2023	4.88	11/18/2025		105.36562	104.0500702	102.761055	101.4977763	100.2594716	99.04540849	97.85488363	96.68722103	95.54177077
230810A00053	8/10/2023	4.82	1/20/2026		106.09562	104.6084551	103.1498627	101.7190917	100.3154153	98.93813145	97.58656184	96.26005099	94.95796521
230810A00057	8/10/2023	4.62	8/10/2026		108.4565	106.3882946	104.3706477	102.4019947	100.4808326	98.60571561	96.77525198	94.98810197	93.24297533
230811A00017	8/11/2023	4.78	8/11/2026		108.79628	106.7218011	104.6980538	102.7234701	100.7965404	98.91581251	97.07988874	95.2874236	93.53712143
230811A00018	8/11/2023	5.1	8/11/2025		104.30584	103.2630235	102.2411706	101.239654	100.2578697	99.29523743	98.35119936	97.42521924	96.5167813
230814A00028	8/14/2023	4.86	8/14/2026		109.00099	106.9161491	104.8824065	102.8981757	100.9619317	99.07220764	97.22759207	95.4267264	93.66830253
230814A00029	8/14/2023	4.71	2/12/2027		111.13849	108.5230375	105.9838229	103.5181665	101.1235004	98.79736304	96.53739418	94.34132981	92.20699768
230815A00031	8/15/2023	5.14	8/13/2025		104.37401	103.3253555	102.2978877	101.2909719	100.3039944	99.33636585	98.38751996	97.45691235	96.54401952
230815A00037	8/15/2023	4.53	8/15/2028		117.81841	113.54476	109.4542427	105.5379976	101.7876387	98.19522972	94.75325784	91.45460847	88.29254198
230815A00038	8/15/2023	4.57	8/16/2027		113.6137	110.4347845	107.3635328	104.3956772	101.5271467	98.75405515	96.07269207	93.4795132	90.97113221
230815A00084	8/15/2023	5.14	8/15/2025		104.40067	103.3463968	102.3135392	101.3014466	100.3094958	99.33708846	98.38364971	97.4486271	96.53148944
230816A00025	8/16/2023	4.62	4/16/2027		112.12817	109.3119495	106.5820701	103.9353222	101.3686359	98.87907778	96.46384345	94.12025092	91.84573422
230817A00036	8/17/2023	4.91	8/17/2026		109.14528	107.0506927	105.00756	103.0142768	101.0693032	99.1711577	97.31841542	95.50970486	93.74370574
230817A00054	5/17/2024	4.5	5/15/2026		107.1023	105.285007	103.5076213	101.7689741	100.0679375	98.40342599	96.77439456	95.17983689	93.61878343
230817A00055	11/17/2023	5.28	11/15/2024		101.16985	100.8732723	100.5784424	100.2853495	99.99397819	99.70431315	99.41633935	99.1300419	98.84540611
230818A00005	8/18/2023	5.01	8/18/2025		104.44096	103.37626	102.3333808	101.3116572	100.3104486	99.32914033	98.36714198	97.42388633	96.49882823
230818A00007	8/18/2023	4.73	8/18/2026		109.06482	106.9630899	104.9131276	102.9133145	100.9620968	99.05798076	97.19952915	95.38535914	93.61413962
230818A00024	8/18/2023	4.81	8/18/2026		108.95313	106.8578198	104.8140318	102.8201579	100.8746541	98.97603577	97.12287458	95.31379599	93.54747683
230818A00025	8/18/2023	4.68	8/18/2027		113.55594	110.3821592	107.3157984	104.3526013	101.4885077	98.71964158	96.0423022	93.45295455	90.94822106
230818A00064	8/18/2023	5.09	8/18/2025		104.38779	103.3253911	102.2847391	101.2651685	100.2660419	99.28674745	98.32669757	97.3853276	96.46209489
230818A00065	8/18/2023	4.82	8/18/2026		108.97374	106.8782112	104.8342107	102.8401284	100.8944203	98.99560156	97.14224381	95.33297238	93.566464
230821A00004	8/21/2023	5.38	2/21/2025		102.37851	101.810413	101.24864	100.6930869	100.1436504	99.60022997	99.06272681	98.53104452	98.00508873
230821A00006	8/21/2023	4.66	8/21/2028		118.42704	114.1241188	110.0060189	106.0637708	102.2888898	98.67334787	95.20954669	91.89029189	88.70876942
230821A00035	8/21/2023	5.36	2/21/2025		102.36717	101.7991071	101.2373704	100.6818532	100.1324526	99.58906754	99.05159957	98.51995219	97.99403103
230821A00074	8/21/2023	5.18	8/21/2025		104.52324	103.4518752	102.4025982	101.3747322	100.3676252	99.38065142	98.41321005	97.46472403	96.53463886
230821A00085	8/21/2023	5.04	2/23/2026		106.91479	105.3225381	103.7621449	102.2327239	100.7334192	99.26340611	97.82188997	96.40810437	95.02131013
230821A00087	8/21/2023	5.37	3/3/2025		102.49497	101.8991643	101.3103038	100.7282676	100.1529374	99.58419778	99.02193567	98.46604073	97.9164051
230823A00010	8/23/2023	5.44	8/23/2024		100.25379	100.189893	100.1260901	100.0623814	99.99876674	99.93524584	99.87181851	99.80848455	99.74524375
230823A00019	8/23/2023	5.44	8/23/2024		100.25379	100.189893	100.1260901	100.0623814	99.99876674	99.93524584	99.87181851	99.80848455	99.74524375
230823A00036	8/23/2023	4.87	8/24/2026		109.15971	107.0457547	104.9840115	102.9728465	101.0106858	99.09601609	97.22738214	95.40338384	93.62267383

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230823A00066	8/23/2023	4.68	8/23/2027		113.62233	110.4335966	107.3531218	104.3766017	101.4999314	98.71919294	96.03064628	93.43071949	90.91600038
230824A00008	8/24/2023	4.69	8/24/2028		115.17544	111.6291349	108.2273369	104.9631619	101.8301025	98.82199993	95.93302402	93.15765299	90.49065541
230824A00018	2/20/2024	4.78	2/20/2026		106.46184	104.8823037	103.334291	101.816926	100.3293656	98.87079756	97.44043869	96.03753372	94.66135398
230824A00019	2/20/2024	4.6	2/19/2027		110.95727	108.3228498	105.7656593	103.2829644	100.8721477	98.53070122	96.25622087	94.04640147	91.89903195
230824A00031	8/24/2023	4.49	8/24/2028		118.35094	114.0250812	109.8857384	105.9238316	102.1307703	98.49842783	95.0191142	91.68554957	88.49084029
230824A00043	8/24/2023	4.89	8/24/2026		109.20126	107.0868608	105.0246858	103.0130976	101.0505219	99.13544525	97.26641213	95.44202226	93.66092807
230824A00061	8/24/2023	4.61	8/24/2028		118.26237	113.9543041	109.8316024	105.8852561	102.1067425	98.48799847	95.02139292	91.69970136	88.51608182
230825A00005	8/25/2023	5.14	11/21/2025		105.74993	104.4242707	103.1244714	101.8497914	100.5995181	99.37296619	98.16947623	96.98841337	95.82916622
230825A00009	8/25/2023	4.91	8/25/2026		109.25674	107.1390038	105.0736131	103.0589248	101.0933595	99.17539873	97.30358245	95.47650594	93.69281747
230825A00010	8/25/2023	4.62	8/25/2028		118.3165	114.0044996	109.8781207	105.9283328	102.1465977	98.52483793	95.05540913	91.73107441	88.54498025
230825A00019	8/25/2023	5.41	2/25/2025		102.44456	101.8653074	101.2926173	100.7263832	100.1664962	99.61284992	99.06534024	98.52386545	97.98832604
230825A00037	8/25/2023	4.91	8/25/2026		109.25674	107.1390038	105.0736131	103.0589248	101.0933595	99.17539873	97.30358245	95.47650594	93.69281747
230825A00043	8/25/2023	4.89	8/25/2026		109.21514	107.0978439	105.032886	103.018622	101.0534728	99.13592002	97.26450392	95.43781997	93.65451665
230825A00044	8/25/2023	5.2	8/25/2025		104.59851	103.5157667	102.4555665	101.4172106	100.4000275	99.40337287	98.42662853	97.46920077	96.53051936
230825A00045	8/25/2023	5.57	8/26/2024		100.2953	100.223077	100.150962	100.0789594	100.0070689	99.9352904	99.86362356	99.79206812	99.72062385
230825A00062	8/25/2023	5.21	8/25/2025		104.60928	103.5264692	102.4662082	101.4277923	100.4105501	99.4138372	98.4370354	97.47955098	96.54081368
230828A00036	8/28/2023	4.8	8/28/2026		109.34943	107.2171084	105.1377062	103.1095574	101.131058	99.20066657	97.31690075	95.47833504	93.68359792
230828A00047	8/28/2023	4.92	8/28/2026		109.31942	107.1927722	105.1188084	103.0958736	101.1223735	99.19677542	97.31760592	95.48344759	93.69293669
230828A00055	8/28/2023	5.24	8/28/2025		104.68237	103.5909218	102.5223665	101.4759844	100.4510891	99.44702239	98.46315268	97.4988737	96.55360326
230828A00056	8/28/2023	4.92	8/28/2026		109.31942	107.1927722	105.1188084	103.0958736	101.1223735	99.19677542	97.31760592	95.48344759	93.69293669
230828A00060	8/28/2023	5.53	8/30/2024		100.34762	100.2641775	100.1808733	100.0977095	100.0146857	99.93180161	99.84905678	99.76645091	99.68398364
230829A00006	8/29/2023	5.21	8/29/2025		104.66334	103.5692679	102.4981939	101.4493992	100.4221925	99.41591091	98.42991855	97.46360499	96.51638411
230830A00028	8/30/2023	4.45	8/30/2027		113.42833	110.2130906	107.1077391	104.1078751	101.2093058	98.40803097	95.70023325	93.0822682	90.55065544
230830A00029	8/30/2023	4.45	8/30/2027		113.42833	110.2130906	107.1077391	104.1078751	101.2093058	98.40803097	95.70023325	93.0822682	90.55065544
230830A00030	8/30/2023	5.03	8/29/2025		104.46761	103.3746649	102.3047083	101.2570147	100.2308933	99.22568141	98.24074362	97.27546984	96.32927429
230830A00034	8/30/2023	4.44	8/30/2028		117.64294	113.3305309	109.2043885	105.25543	101.4750633	97.85516141	94.38803434	91.06640324	87.88337602
230830A00047	8/30/2023	5.5	8/30/2024		100.33371	100.2503917	100.1672146	100.0841764	100.0012767	99.91851522	99.83589162	99.75340556	99.67105671
230830A00051	8/30/2023	4.45	8/30/2027		113.42833	110.2130906	107.1077391	104.1078751	101.2093058	98.40803097	95.70023325	93.0822682	90.55065544
230830A00055	8/30/2023	4.47	8/30/2028		116.79257	112.7042714	108.7915234	105.0457109	101.4586978	98.02279392	94.73072707	91.57561828	88.55095784
230830A00101	8/30/2023	5.06	8/31/2026		104.69301	103.5930991	102.5150141	101.4581275	100.4218376	99.40556559	98.40875375	97.43086503	96.47138184
230831A00001	8/31/2023	4.77	8/31/2026		109.04682	106.9148411	104.8358237	102.8080936	100.8300431	98.90012754	97.0168616	95.17881697	93.38461958
230831A00006	8/31/2023	4.61	8/31/2027		113.51143	110.3021302	107.2023509	104.2077157	101.3140503	98.5173719	95.81387954	93.19994427	90.67210037
230831A00007	8/31/2023	4.48	8/31/2028		117.82011	113.5012675	109.3690291	105.4142868	101.6284299	98.00331414	94.53123352	91.20489411	88.01738973

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230831A00016	8/31/2023	4.65	8/31/2026		109.07655	106.9388791	104.8544003	102.8214346	100.8383648	98.90363685	97.01575694	95.17328846	93.37484946
230831A00041	8/31/2023	4.48	8/31/2028		117.82011	113.5012675	109.3690291	105.4142868	101.6284299	98.00331414	94.53123352	91.20489411	88.01738973
230831A00066	8/31/2023	4.77	8/31/2026		109.04682	106.9148411	104.8358237	102.8080936	100.8300431	98.90012754	97.0168616	95.17881697	93.38461958
230831A00069	8/31/2023	4.61	8/31/2027		113.51143	110.3021302	107.2023509	104.2077157	101.3140503	98.5173719	95.81387954	93.19994427	90.67210037
230831A00070	8/31/2023	4.48	8/31/2028		117.82011	113.5012675	109.3690291	105.4142868	101.6284299	98.00331414	94.53123352	91.20489411	88.01738973
230901A00007	9/1/2023	4.55	9/1/2027		113.33853	110.1290741	107.0292428	104.0346526	101.1411215	98.34466025	95.64146126	93.02788974	90.50047448
230901A00016	9/1/2023	4.6	8/3/2026		108.59462	106.5390362	104.5335086	102.5764963	100.6665198	98.80215537	96.98203236	95.20483078	93.46927908
230901A00029	9/1/2023	5.04	3/3/2025		102.37557	101.7792088	101.1898186	100.6072727	100.0314521	99.46224068	98.89952496	98.34319399	97.79313939
230901A00037	9/1/2023	4.3	9/1/2028		117.6734	113.3385679	109.1915773	105.2232399	101.4248673	97.78824245	94.3055917	90.96955817	87.77317702
230901A00044	9/1/2023	4.55	9/1/2027		113.33853	110.1290741	107.0292428	104.0346526	101.1411215	98.34466025	95.64146126	93.02788974	90.50047448
230905A00030	9/5/2023	4.55	9/5/2028		118.17374	113.8332332	109.6807099	105.7069673	101.9033103	98.26151597	94.77380531	91.43281646	88.23158005
230905A00033	9/5/2023	4.71	9/4/2026		109.25869	107.1077556	105.0105398	102.9653329	100.9704948	99.0244501	97.12568439	95.27274183	93.46422224
230905A00037	9/5/2023	5.16	3/5/2025		102.47123	101.8690959	101.2740591	100.6859968	100.1047866	99.53030908	98.96244739	98.4010875	97.84611798
230905A00038	9/5/2023	5.16	3/5/2025		102.47123	101.8690959	101.2740591	100.6859968	100.1047866	99.53030908	98.96244739	98.4010875	97.84611798
230906A00020	9/6/2023	5.19	9/8/2025		104.77859	103.6565091	102.5586046	101.4841006	100.4322529	99.40234871	98.39370504	97.40566685	96.43760585
230907A00012	9/7/2023	5.17	9/8/2025		104.75629	103.6343427	102.5365683	101.4621924	100.410471	99.38069124	98.37217019	97.38425287	96.41631103
230907A00047	9/7/2023	5.08	9/5/2025		104.61558	103.502661	102.4135501	101.3474885	100.3037485	99.28163303	98.28047356	97.29962905	96.33848434
230907A00050	9/7/2023	5.05	9/5/2025		104.72679	103.6110781	102.5192688	101.4505951	100.4043258	99.37976017	98.37622667	97.39308112	96.42970547
230907A00051	9/7/2023	4.79	9/8/2026		109.48458	107.3198952	105.2094575	103.1515368	101.1444697	99.18665874	97.27656879	95.41272435	93.5937066
230908A00009	9/8/2023	4.55	9/8/2028		117.63894	113.4194854	109.3832656	105.5212214	101.8247951	98.285901	94.89689658	91.65055523	88.54004109
230908A00010	9/8/2023	4.73	9/9/2030		114.78921	111.303055	107.9729431	104.7904361	101.7476199	98.83706466	96.05179211	93.38524496	90.83125866
230911A00001	9/11/2023	4.49	9/11/2028		118.59158	114.2088199	110.0168218	106.0062054	102.1681054	98.49414077	94.97638495	91.60733893	88.37990551
230911A00010	9/11/2023	4.9	9/11/2026		109.47521	107.3076392	105.1944417	103.1338796	101.1242829	99.16404788	97.2516337	95.38555938	93.56440099
230911A00014	9/11/2023	4.61	9/11/2028		118.50124	114.136664	109.9616643	105.9669342	102.1436785	98.48358193	94.97877922	91.62182863	88.40568643
230911A00026	9/11/2023	5.08	9/11/2025		104.69632	103.5665194	102.4612481	101.3797084	100.3211401	99.28481546	98.27003691	97.27613599	96.30247165
230911A00030	9/11/2023	5.09	9/11/2025		104.70755	103.5776842	102.4723469	101.3907422	100.33211	99.29572222	98.28088152	97.28691935	96.31319463
230912A00026	9/12/2023	4.84	9/14/2026		109.38961	107.2145043	105.0941191	103.0266977	101.0105541	99.04406956	97.12568887	95.25391765	93.4273193
230912A00036	9/12/2023	4.57	9/12/2028		118.34879	113.9844501	109.8098206	105.8155787	101.992918	98.3335123	94.82948697	91.47339131	88.25817347
230912A00053	9/12/2023	4.74	9/7/2027		114.01079	110.7737288	107.6476069	104.627973	101.7105785	98.89137123	96.16648494	93.53222946	90.98508152
230912A00085	9/12/2023	5.56	9/12/2024		100.4892	100.3698792	100.2508609	100.1321391	100.0137127	99.89558053	99.77774147	99.66019439	99.54293815
230913A00013	9/13/2023	4.87	9/14/2026		109.45366	107.2778606	105.1567926	103.0887019	101.0719023	99.10477459	97.18576327	95.31337358	93.48616859
230913A00014	9/13/2023	5.34	3/13/2025		102.59989	101.9764726	101.36066	100.7523165	100.1513066	99.55749781	98.97076089	98.39096971	97.81800113
230913A00020	9/13/2023	5.37	3/17/2025		102.66798	102.0334048	101.4067087	100.7877446	100.1763698	99.57244484	98.97583383	98.38640409	97.80402617

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230913A00030	9/13/2023	5.16	9/15/2025		104.84087	103.6992637	102.5826715	101.4902771	100.421298	99.37498542	98.35062224	97.34752125	96.36502377
230913A00031	9/13/2023	4.91	9/15/2026		109.55326	107.3735543	105.2487229	103.177006	101.1567112	99.18621331	97.26395153	95.38842585	93.55819441
230913A00032	9/13/2023	4.74	9/15/2027		114.12067	110.8590006	107.7097301	104.6683154	101.7304285	98.89194253	96.14892153	93.49760989	90.93442303
230913A00043	9/13/2023	5.59	9/12/2024		100.49277	100.3734553	100.2544336	100.1357084	100.0172786	99.89914306	99.78130061	99.66375014	99.54649052
230913A00046	9/13/2023	4.91	9/14/2026		109.53907	107.3623358	105.2403572	103.1713741	101.1536999	99.18571462	97.26586246	95.39264816	93.56463432
230913A00049	9/13/2023	4.74	9/13/2027		114.0932	110.8376855	107.6942051	104.6582375	101.7254747	98.89180854	96.15332061	93.50627171	90.94709264
230913A00050	9/13/2023	4.6	9/13/2028		118.48643	114.1163666	109.9363326	105.9369877	102.1095068	98.44554611	94.93721464	91.57704652	88.3579757
230914A00021	9/14/2023	5.49	9/13/2024		100.49224	100.3701627	100.2483941	100.1269355	100.0057858	99.88494367	99.76440797	99.64417746	99.52425096
230914A00027	9/14/2023	4.76	1/8/2027		110.78533	108.2734081	105.8323338	103.4597009	101.1532031	98.91062606	96.72984264	94.60880933	92.54556228
230914A00031	9/14/2023	5.08	9/15/2025		104.75014	103.6090758	102.4930213	101.4011562	100.3326986	99.28689986	98.26304291	97.26044079	96.27843499
230914A00050	9/14/2023	4.67	9/14/2027		113.88711	110.6319769	107.4889727	104.4535662	101.5214422	98.68848605	95.95077328	93.30455905	90.74626894
230914A00051	9/14/2023	4.84	9/14/2026		109.38961	107.2145043	105.0941191	103.0266977	101.0105541	99.04406956	97.12568887	95.25391765	93.4273193
230914A00059	7/26/2024	4.39	7/24/2026		107.77688	105.7618269	103.7952366	101.8756399	100.0016234	98.17182583	96.38493614	94.63969083	92.93487214
230914A00060	9/14/2023	5.28	3/14/2025		102.57466	101.9486042	101.3302185	100.7193662	100.1159098	99.51971534	98.93065184	98.3485916	97.77340989
230914A00069	7/26/2024	4.34	7/26/2027		112.23135	109.1413459	106.1544616	103.266678	100.4741561	97.7732279	95.160388	92.63228521	90.18571485
230914A00070	7/26/2024	4.3	7/26/2028		116.64154	112.4474102	108.4313129	104.5847198	100.8995568	97.36817787	93.98334004	90.73818019	87.62619284
230914A00076	9/14/2023	5.48	9/16/2024		100.52552	100.395119	100.26507	100.1353728	100.0060257	99.87702736	99.74837633	99.62007114	99.49211038
230915A00026	9/15/2023	4.57	9/15/2028		118.3847	114.0110486	109.8278109	105.8256207	101.995625	98.32945462	94.81919479	91.45735779	88.23685738
230915A00028	9/15/2023	4.57	9/15/2028		118.3847	114.0110486	109.8278109	105.8256207	101.995625	98.32945462	94.81919479	91.45735779	88.23685738
230915A00030	9/15/2023	4.7	9/8/2027		113.89957	110.6613927	107.5342857	104.5137882	101.5956434	98.77579162	96.05035926	93.41564951	90.86813286
230915A00054	9/15/2023	4.88	9/15/2026		109.48913	107.3101171	105.1859704	103.1149244	101.0952872	99.12543406	97.20380445	95.32889874	93.49927541
230915A00055	9/15/2023	4.7	9/15/2027		113.99494	110.7352558	107.5879149	104.5483802	101.6123253	98.77562516	96.03434516	93.38473121	90.82320016
230915A00057	9/15/2023	4.75	6/15/2027		112.91758	109.9308074	107.0401239	104.2419204	101.5327429	98.90928514	96.36838221	93.90700307	91.52224444
230918A00008	9/18/2023	4.91	9/18/2026		109.59585	107.4072068	105.273814	103.1938933	101.1657355	99.18769945	97.25820924	95.37575062	93.53886829
230918A00010	9/18/2023	4.72	9/18/2029		123.67416	118.1241768	112.8650927	107.8800069	103.1530935	98.66952763	94.41541616	90.37773416	86.54426582
230918A00011	9/18/2023	4.91	9/18/2026		109.59585	107.4072068	105.273814	103.1938933	101.1657355	99.18769945	97.25820924	95.37575062	93.53886829
230918A00013	9/18/2023	4.74	9/18/2030		127.86886	121.1475605	114.8369021	108.9094097	103.3395962	98.10380554	93.1800725	88.5479923	84.18860182
230918A00018	9/18/2023	5.01	3/18/2026		107.19421	105.5357609	103.911294	102.3198337	100.760437	99.2321973	97.73424166	96.26572983	94.82585252
230918A00023	9/18/2023	4.91	9/18/2026		109.59585	107.4072068	105.273814	103.1938933	101.1657355	99.18769945	97.25820924	95.37575062	93.53886829
230918A00027	9/18/2023	5.11	9/30/2025		104.98721	103.8035925	102.6468159	101.5159713	100.4101921	99.32865012	98.27055328	97.23514368	96.22169582
230918A00030	9/18/2023	5.01	9/17/2027		107.35007	105.6803329	104.0538437	102.4691269	100.9247692	99.41941613	97.95176917	96.52058299	95.1246628
230918A00045	9/18/2023	5.52	9/12/2024		100.48442	100.3651109	100.2460972	100.12738	100.0089581	99.89083049	99.77299596	99.65545339	99.53820166
230918A00088	9/18/2023	5.53	9/18/2024		100.55507	100.4191123	100.283536	100.1483398	100.0135222	99.87908138	99.74501588	99.61132405	99.4780043

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230919A00010	9/19/2023	4.76	9/20/2027		114.25248	110.9744192	107.809692	104.7537062	101.8020824	98.95064617	96.19541664	93.53259622	90.95856092
230919A00029	9/19/2023	4.63	9/19/2028		118.68741	114.295923	110.0959784	106.0781349	102.23347	98.5535499	95.03040004	91.65647693	88.42464246
230919A00043	9/19/2023	4.62	9/19/2028		118.64577	114.2551443	110.0560323	106.0389947	102.1951102	98.51594624	94.99352895	91.62031584	88.3891697
230919A00044	9/19/2023	4.93	9/21/2026		109.68153	107.4834693	105.3410471	103.2524655	101.2159978	99.22998683	97.29284117	95.40303204	93.55909035
230919A00045	9/19/2023	5.52	9/13/2024		100.49591	100.3738219	100.2520497	100.1305876	100.0094343	99.88858869	99.76804947	99.64781544	99.52788543
230919A00047	9/19/2023	4.98	8/19/2026		109.31759	107.215702	105.1655162	103.1654216	101.2138673	99.30936211	97.45047151	95.63581501	93.86406381
230919A00055	9/19/2023	4.65	9/19/2028		118.77069	114.3774804	110.1758708	106.1564153	102.3101894	98.62875722	95.10414222	91.72879909	88.49558798
230919A00082	9/19/2023	5.17	9/19/2025		104.90702	103.7540592	102.6265975	101.5237951	100.4448477	99.38898518	98.35547077	97.34359858	96.35269225
230920A00002	9/20/2023	4.47	10/2/2028		118.78863	114.3406818	110.0885522	106.0224952	102.1333118	98.41231144	94.85128147	91.4424574	88.1784959
230920A00025	9/20/2023	5.14	9/16/2025		104.83181	103.6875169	102.5683602	101.4735141	100.4021908	99.35363628	98.32712847	97.32197561	96.33751466
230920A00026	9/20/2023	4.9	9/16/2026		109.54605	107.3635996	105.2361438	103.1619168	101.1392209	99.16642586	97.24196577	95.36433607	93.53209054
230921A00021	9/21/2023	4.62	9/21/2028		119.26947	114.8434975	110.6110723	106.5626318	102.6891377	98.98204798	95.4332871	92.03521725	88.7806122
230921A00028	9/21/2023	5.07	9/21/2026		109.98314	107.7817715	105.6361061	103.5443464	101.5047639	99.51569958	97.57556023	95.68281546	93.83599455
230921A00032	5/31/2024	5.03	5/30/2025		103.32053	102.4816241	101.6563816	100.844475	100.0455825	99.25939255	98.48560365	97.72392363	96.9740695
230921A00033	6/7/2024	5.01	6/6/2025		103.38867	102.5304216	101.686478	100.8564837	100.0400943	99.23697682	98.44680879	97.66927827	96.90408328
230921A00034	6/14/2024	4.98	6/13/2025		103.44751	102.5699382	101.7073249	100.8592851	100.0254509	99.20546687	98.39898916	97.60568535	96.82523382
230921A00035	6/21/2024	4.96	6/20/2025		103.51574	102.6187604	101.7373952	100.871236	100.0198911	99.18298181	98.36014262	97.55102007	96.75527254
230921A00036	6/28/2024	4.94	6/27/2025		103.58159	102.6652118	101.7651101	100.8808535	100.0120255	99.15822434	98.31906189	97.49416345	96.68316697
230922A00019	9/22/2023	5.53	9/16/2024		100.53204	100.4016326	100.271577	100.1418732	100.0125195	99.88351459	99.75485699	99.62654526	99.49857796
230922A00020	9/22/2023	5.35	3/24/2025		102.74138	102.087428	101.4418294	100.8044274	100.1750661	99.55359384	98.93986264	98.33372823	97.73504986
230922A00022	9/22/2023	4.99	9/22/2026		109.82521	107.6227435	105.4760703	103.3833857	101.3429567	99.35311983	97.41227787	95.51889655	93.67150156
230922A00025	9/22/2023	5.18	9/22/2025		104.95966	103.7981558	102.6625178	101.5518873	100.465443	99.40239912	98.36200387	97.34353722	96.34630947
230922A00032	9/22/2023	5.18	9/22/2025		104.95966	103.7981558	102.6625178	101.5518873	100.465443	99.40239912	98.36200387	97.34353722	96.34630947
230925A00003	9/25/2023	4.99	9/25/2026		109.86847	107.6570316	105.501772	103.4008625	101.3525529	99.35516366	97.4070822	95.50675986	93.65270869
230925A00004	9/25/2023	4.74	9/25/2028		119.22758	114.8074796	110.5806866	106.537638	102.6693043	98.96715227	95.42311465	92.02956193	88.77927591
230925A00028	12/22/2023	5.5	12/23/2024		101.69907	101.2970615	100.8982408	100.5025735	100.1100223	99.72055022	99.33412117	98.95069941	98.57024984
230925A00034	9/25/2023	5.53	9/25/2024		100.63564	100.4802415	100.3253298	100.1709027	100.016958	99.86349326	99.71050636	99.55799502	99.40595703
230925A00056	9/25/2023	5.19	9/25/2025		105.01246	103.8424082	102.6985874	101.5801238	100.4861789	99.41595127	98.36867376	97.34361223	96.34006351
230925A00057	9/25/2023	5.19	9/30/2025		105.08124	103.8970398	102.739687	101.6082751	100.5019375	99.41984571	98.36120739	97.32526446	96.31129122
230925A00080	9/25/2023	5.07	9/30/2025		105.09407	103.9074697	102.7478093	101.614178	100.5057052	99.42155844	98.36094197	97.3230943	96.30728652
230925A00114	9/25/2023	5.09	3/25/2026		107.42492	105.7454723	104.1006942	102.4895744	100.9111426	99.36446578	97.84864626	96.36282032	94.90615636
230925A00121	9/25/2023	5.2	9/25/2025		105.02408	103.8539533	102.7100622	101.5915293	100.4975162	99.4272213	98.37987762	97.35475088	96.35113792
230926A00010	9/26/2023	4.74	9/26/2028		119.24127	114.8179763	110.5882332	106.5424604	102.6716123	98.96714105	95.42096558	92.02544371	88.77334545



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230926A00019	9/26/2023	5.52	9/26/2024		100.64556	100.4873888	100.3297152	100.1725417	100.015866	99.85968567	99.70399837	99.54880178	99.39409356
230926A00020	9/26/2023	5.2	9/26/2025		105.03786	103.8649084	102.7183116	101.5971893	100.5006978	99.42802995	98.37841372	97.35111013	96.34541151
230926A00021	9/26/2023	4.73	9/26/2028		119.19943	114.7770122	110.5481092	106.5031495	102.6330888	98.92938017	95.38394356	91.98913769	88.73773349
230926A00048	9/26/2023	5.2	9/26/2025		105.03786	103.8649084	102.7183116	101.5971893	100.5006978	99.42802995	98.37841372	97.35111013	96.34541151
230926A00076	9/26/2023	4.73	9/26/2028		119.19943	114.7770122	110.5481092	106.5031495	102.6330888	98.92938017	95.38394356	91.98913769	88.73773349
230927A00006	9/27/2023	5.36	3/27/2025		102.78487	102.1225553	101.4688059	100.8234547	100.1863403	99.55730563	98.93619731	98.32286599	97.71716604
230927A00007	9/27/2023	5.19	9/29/2025		105.06749	103.8861151	102.7314697	101.6026481	100.4987895	99.41907068	98.36270445	97.32893751	96.3170487
230927A00008	9/27/2023	4.98	9/28/2026		109.88999	107.6698193	105.5062042	103.3972975	101.3413318	99.3366114	97.38150854	95.47446017	93.61396476
230927A00020	9/27/2023	5.01	10/16/2026		110.20978	107.9366665	105.7224333	103.565127	101.4628729	99.41387401	97.41640725	95.46881951	93.56952424
230927A00021	9/27/2023	4.96	1/29/2027		111.56636	108.9874202	106.4827598	104.0498062	101.6860891	99.38923903	97.15698242	94.98713694	92.87760733
230927A00031	9/27/2023	5.4	3/28/2025		102.82373	102.1585405	101.5019837	100.8538934	100.2141064	99.58246366	98.95881011	98.34299466	97.73487
230927A00032	9/27/2023	5.02	9/23/2026		109.90443	107.6982568	105.5480236	103.4519133	101.4081869	99.41517512	97.47127528	95.57494797	93.72471399
230927A00033	9/27/2023	4.78	9/25/2028		119.39479	114.97123	110.7410812	106.6947841	102.8233048	99.11810602	95.57111659	92.17470326	88.92164429
230927A00034	9/27/2023	4.82	9/27/2028		119.58983	115.1563973	110.9169746	106.8619636	102.9822941	99.26939496	95.71516373	92.31193794	89.05246867
230928A00001	9/28/2023	4.91	9/28/2026		110.03111	107.8036791	105.6330757	103.5174492	101.4550211	99.4440847	97.48300204	95.57020031	93.70416873
230928A00014	9/28/2023	4.9	9/28/2027		114.80787	111.4980348	108.3031905	105.2186523	102.2399536	99.36283821	96.58324853	93.89731501	91.30134609
230928A00016	9/28/2023	4.83	9/28/2028		119.64563	115.208122	110.9648974	106.906338	103.0233566	99.30736612	95.75024941	92.34433028	89.08234709
230928A00017	9/28/2023	4.83	9/28/2028		119.64563	115.208122	110.9648974	106.906338	103.0233566	99.30736612	95.75024941	92.34433028	89.08234709
230928A00033	9/28/2023	5.03	9/28/2026		109.99867	107.777298	105.6125043	103.5024426	101.4453451	99.4395153	97.48332486	95.5752101	93.7136689
230928A00047	9/28/2023	5.21	9/29/2025		105.09094	103.9094227	102.7546338	101.6256711	100.5216735	99.44181784	98.38531684	97.35141717	96.33939759
230928A00051	9/28/2023	5.04	9/28/2026		110.18394	107.9302114	105.7351866	103.5968997	101.513464	99.48307204	97.5039916	95.57456174	93.69318927
230928A00058	9/28/2023	5.04	9/28/2026		110.18394	107.9302114	105.7351866	103.5968997	101.513464	99.48307204	97.5039916	95.57456174	93.69318927
230928A00059	9/28/2023	4.84	9/28/2028		119.08321	114.7755394	110.6567281	106.7173366	102.9484588	99.34168574	95.8890747	92.58312015	89.41672698
230928A00060	9/28/2023	4.84	9/28/2028		119.08321	114.7755394	110.6567281	106.7173366	102.9484588	99.34168574	95.8890747	92.58312015	89.41672698
230928A00061	9/28/2023	4.84	9/28/2028		119.08321	114.7755394	110.6567281	106.7173366	102.9484588	99.34168574	95.8890747	92.58312015	89.41672698
230928A00064	9/28/2023	4.78	9/30/2027		114.89496	111.5674804	108.3559872	105.2557375	102.2622128	99.37110784	96.57831898	93.87993348	91.27221915
230929A00018	9/29/2023	5.14	9/29/2025		105.00885	103.8278463	102.6735593	101.5450907	100.4415795	99.36220277	98.30617346	97.27273838	96.26117649
230929A00027	9/29/2023	5.52	9/23/2024		100.61113	100.4612877	100.3119041	100.1629745	100.0144968	99.86646895	99.71888885	99.57175448	99.4250638
230929A00031	9/29/2023	5.14	9/29/2025		105.00885	103.8278463	102.6735593	101.5450907	100.4415795	99.36220277	98.30617346	97.27273838	96.26117649
230929A00033	9/29/2023	4.92	9/29/2026		109.77379	107.5520831	105.3870218	103.2767616	101.2195301	99.21362693	97.25742006	95.34934227	93.48788815
230929A00039	9/29/2023	5.52	9/30/2024		100.69147	100.5221682	100.3534357	100.1852669	100.0176591	99.85060957	99.68411548	99.5181741	99.35278271
230929A00046	9/29/2023	4.66	9/29/2027		114.49808	111.1798325	107.9772237	104.885528	101.9002425	99.0170766	96.23194061	93.54093488	90.9403396
230929A00049	9/29/2023	4.87	9/30/2030		114.51092	111.1826708	108.0004201	104.9563661	102.0431886	99.25401173	96.58237423	94.02220134	91.56777914

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230929A00059	9/29/2023	5.14	9/29/2025		105.00885	103.8278463	102.6735593	101.5450907	100.4415795	99.36220277	98.30617346	97.27273838	96.26117649
230929A00061	9/29/2023	4.92	9/29/2026		109.77379	107.5520831	105.3870218	103.2767616	101.2195301	99.21362693	97.25742006	95.34934227	93.48788815
230929A00062	9/29/2023	4.78	9/29/2027		114.44024	111.1333916	107.9415605	104.860056	101.8844067	99.01035177	96.23382946	93.55096644	90.95806771
231002A00018	10/2/2023	4.87	10/1/2027		114.75447	111.4369583	108.2349606	105.1437517	102.1588357	99.27592881	96.49094771	93.7999988	91.19936798
231002A00042	10/2/2023	4.73	10/2/2028		119.88363	115.4128251	111.1385776	107.0511137	103.1412055	99.40013525	95.8196642	92.39200299	89.10978463
231003A00005	10/3/2023	4.84	10/3/2028		119.75603	115.3019458	111.0433895	106.9706484	103.0745539	99.34644375	95.77813092	92.36187467	89.09035341
231003A00011	10/3/2023	4.89	10/15/2027		115.01176	111.6512824	108.4089271	105.2798168	102.2593091	99.34298318	96.52662755	93.80622872	91.17796041
231003A00036	10/3/2023	4.84	10/3/2028		119.75603	115.3019458	111.0433895	106.9706484	103.0745539	99.34644375	95.77813092	92.36187467	89.09035341
231003A00064	10/3/2023	5.56	10/3/2024		100.73398	100.5563776	100.3794098	100.2030684	100.02735	99.85225132	99.67776908	99.50390002	99.33064088
231004A00006	10/4/2023	4.88	10/4/2028		119.93776	115.4770777	111.2122712	107.1336122	103.2319117	99.49848833	95.92513743	92.50410163	89.22804393
231004A00011	10/5/2023	5.51	10/4/2024		100.73687	100.5565239	100.3768248	100.1977732	100.0193656	99.8415984	99.66446827	99.48797169	99.31210526
231004A00012	10/5/2023	5.51	10/4/2024		100.73687	100.5565239	100.3768248	100.1977732	100.0193656	99.8415984	99.66446827	99.48797169	99.31210526
231004A00016	10/4/2023	5.36	4/4/2025		102.88453	102.2000356	101.5246767	100.8582744	100.2006511	99.55163397	98.9110545	98.27874866	97.65455662
231005A00003	10/5/2023	5.14	10/6/2025		105.1041	103.9033661	102.7302375	101.5837688	100.4630566	99.36723804	98.29548843	97.24701916	96.22107583
231005A00007	10/5/2023	5.51	10/4/2024		100.73687	100.5565239	100.3768248	100.1977732	100.0193656	99.8415984	99.66446827	99.48797169	99.31210526
231005A00035	10/5/2023	4.98	10/5/2026		109.98887	107.7482927	105.5651654	103.4375977	101.3637812	99.34198152	97.37053435	95.44784219	93.57237098
231005A00037	10/5/2023	4.88	10/5/2027		114.84153	111.5115395	108.2978114	105.1955761	102.200296	99.30764815	96.5135128	93.81396211	91.20525
231005A00039	10/5/2023	5.16	10/6/2025		105.12794	103.927054	102.7537775	101.6071633	100.4863079	99.39034837	98.31845993	97.26985396	96.24377597
231005A00040	10/5/2023	4.98	10/5/2026		109.98887	107.7482927	105.5651654	103.4375977	101.3637812	99.34198152	97.37053435	95.44784219	93.57237098
231005A00054	10/5/2023	4.98	10/5/2026		109.98887	107.7482927	105.5651654	103.4375977	101.3637812	99.34198152	97.37053435	95.44784219	93.57237098
231006A00009	10/6/2023	4.98	10/15/2027		115.30209	111.9369182	108.6899965	105.5564395	102.5316006	99.61105507	96.7905876	94.06618114	91.43400594
231006A00010	10/6/2023	4.93	10/16/2028		120.30945	115.8072378	111.5039482	107.3896309	103.4548973	99.69088121	96.08920697	92.64195875	89.34165265
231006A00015	10/6/2023	5.38	4/7/2025		102.93614	102.2432746	101.5597742	100.8854486	100.2201136	99.56358979	98.91570267	98.27628224	97.64516295
231006A00032	10/6/2023	5.08	10/6/2026		110.22245	107.9765375	105.7882484	103.6556898	101.577046	99.55057554	97.57460771	95.64753873	93.7678286
231006A00033	10/6/2023	4.98	10/6/2027		115.17543	111.8373127	108.6157762	105.506036	102.5035395	99.60394991	96.80313427	94.09715238	91.48224645
231010A00007	10/10/2023	4.83	10/12/2027		114.77723	111.4288632	108.1979803	105.07974	102.0695337	99.16297281	96.35587573	93.64425709	91.02431695
231010A00025	10/10/2023	4.66	10/10/2028		119.69645	115.2068981	110.9156445	106.8127855	102.8889708	99.13536979	95.54363928	92.10589365	88.81467684
231010A00026	10/10/2023	4.66	10/10/2028		119.69645	115.2068981	110.9156445	106.8127855	102.8889708	99.13536979	95.54363928	92.10589365	88.81467684
231010A00030	10/10/2023	4.88	10/15/2026		109.90702	107.6400635	105.4317884	103.2802512	101.1835852	99.14000105	97.14778261	95.20528357	93.3109238
231010A00031	10/10/2023	5.08	10/10/2025		105.08634	103.8747883	102.691344	101.5350384	100.4049436	99.3001735	98.21988172	97.1632592	96.12953226
231010A00057	10/10/2023	4.66	10/10/2028		119.69645	115.2068981	110.9156445	106.8127855	102.8889708	99.13536979	95.54363928	92.10589365	88.81467684
231010A00068	10/10/2023	4.83	10/8/2027		114.72259	111.3861949	108.1665433	105.0588392	102.058516	99.1612238	96.36281763	93.65934617	91.04704141
231010A00075	10/10/2023	4.78	10/10/2028		119.59738	115.1269188	110.8534944	106.7672868	102.8590211	99.11993698	95.54175686	92.11665629	88.83723634

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231010A00076	10/10/2023	4.66	10/10/2028		119.69645	115.2068981	110.9156445	106.8127855	102.8889708	99.13536979	95.54363928	92.10589365	88.81467684
231010A00101	10/10/2023	4.78	10/10/2028		119.59738	115.1269188	110.8534944	106.7672868	102.8590211	99.11993698	95.54175686	92.11665629	88.83723634
231010A00129	10/10/2023	4.93	10/13/2026		109.99028	107.7278435	105.5238591	103.3763911	101.2835838	99.24365855	97.25490937	95.31569931	93.42445715
231010A00131	10/10/2023	5.44	10/4/2024		100.72426	100.5439224	100.3642398	100.1852046	100.0068134	99.82906256	99.65194871	99.47546838	99.29961815
231010A00135	10/10/2023	5.44	10/10/2024		100.79371	100.5967839	100.4006382	100.20527	100.0106747	99.81684758	99.62378407	99.43147959	99.23992959
231011A00004	10/11/2023	4.81	10/8/2027		114.65846	111.3230941	108.1044455	104.9977183	101.9983466	99.10198162	96.30447905	93.6018884	90.99044238
231011A00016	10/11/2023	4.75	10/11/2028		119.484	115.0130993	110.7393913	106.6530415	102.744762	99.00578095	95.42780985	92.00301434	88.72398636
231011A00028	10/11/2023	4.92	10/9/2026		109.91271	107.6620701	105.4693598	103.3326691	101.2501668	99.22009661	97.24077412	95.31058258	93.42796981
231011A00029	10/11/2023	4.81	10/8/2027		114.65846	111.3230941	108.1044455	104.9977183	101.9983466	99.10198162	96.30447905	93.6018884	90.99044238
231011A00030	10/11/2023	4.75	10/11/2028		119.484	115.0130993	110.7393913	106.6530415	102.744762	99.00578095	95.42780985	92.00301434	88.72398636
231012A00013	10/12/2023	5.07	3/16/2026		107.2643	105.6106794	103.9908781	102.4039185	100.848865	99.3248178	97.83091052	96.36630907	94.93021
231012A00014	10/12/2023	5.55	10/11/2024		100.82725	100.6275193	100.428598	100.2304765	100.03315	99.83661361	99.64086249	99.44589191	99.25169712
231012A00015	10/12/2023	5.33	4/11/2025		102.95162	102.247795	101.5536369	100.8689446	100.1935249	99.52718987	98.86975676	98.22104757	97.58088907
231012A00016	10/12/2023	5.14	10/14/2025		105.21293	103.9896288	102.7949584	101.6279224	100.4875677	99.37298459	98.28330427	97.21769675	96.17536857
231012A00017	10/12/2023	5.24	7/15/2025		104.09132	103.1233425	102.1734627	101.2411798	100.326007	99.42747525	98.54513246	97.67854292	96.8272864
231012A00019	10/12/2023	5.39	2/18/2025		102.34756	101.7877651	101.2341153	100.6865104	100.1448514	99.60904172	99.0789867	98.55459377	98.03577236
231012A00020	10/12/2023	5.08	2/9/2026		106.76569	105.216765	103.6984209	102.2098221	100.750165	99.31867449	97.91460275	96.53722801	95.18585338
231012A00021	10/12/2023	4.85	12/30/2027		115.93357	112.3440873	108.8878068	105.5590706	102.3524879	99.26292507	96.28549188	93.41552842	90.64859316
231012A00027	10/12/2023	4.78	10/16/2028		119.67369	115.1848412	110.8944755	106.7926645	102.8700364	99.11774136	95.52741896	92.09116806	88.80151871
231012A00039	10/12/2023	5.33	4/11/2025		102.95162	102.247795	101.5536369	100.8689446	100.1935249	99.52718987	98.86975676	98.22104757	97.58088907
231013A00017	10/13/2023	5.13	10/14/2025		105.20079	103.9775676	102.7829737	101.616013	100.4757324	99.3612222	98.27161366	97.20607681	96.16381822
231013A00020	10/13/2023	4.98	10/13/2026		110.10103	107.8373416	105.632135	103.4834696	101.3894892	99.34841433	97.35853834	95.41822366	93.52589844
231016A00004	10/16/2023	5.55	10/16/2024		100.88662	100.673041	100.4603836	100.2486395	100.0378026	99.82786699	99.61882693	99.41067659	99.2034102
231016A00016	10/16/2023	5.01	10/16/2026		110.20978	107.9366665	105.7224333	103.565127	101.4628729	99.41387401	97.41640725	95.46881951	93.56952424
231016A00047	10/16/2023	4.98	2/10/2027		111.79672	109.1788834	106.6371816	104.1689409	101.7716023	99.44271252	97.17991891	94.98096458	92.8436839
231016A00049	10/16/2023	4.95	7/19/2027		113.96711	110.8701802	107.8757652	104.9798959	102.1787819	99.46880056	96.84648846	94.30853365	91.85176795
231017A00008	10/17/2023	5.26	10/17/2025		105.4004	104.167676	102.963989	101.7883196	100.6396953	99.51718807	98.41991219	97.34702152	96.29770747
231017A00009	10/17/2023	5.42	4/17/2025		103.07702	102.3565313	101.6461589	100.9456919	100.2549238	99.5736535	98.90168573	98.23883038	97.58490255
231017A00017	10/17/2023	5.11	10/16/2026		110.4321	108.1564701	105.9397748	103.7800566	101.6754395	99.62412499	97.6243887	95.6745762	93.7730997
231017A00029	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00032	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00033	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00034	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231017A00035	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00036	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00037	10/17/2023	4.99	10/17/2028		119.97366	115.5899186	111.4004062	107.3953828	103.5656501	99.90252015	96.39778441	93.04368445	89.8328847
231017A00039	10/17/2023	5.12	10/16/2026		110.62934	108.3187594	106.0695188	103.8795968	101.7470497	99.67001163	97.64669089	95.67536608	93.754383
231017A00040	10/17/2023	5.12	10/16/2026		110.62934	108.3187594	106.0695188	103.8795968	101.7470497	99.67001163	97.64669089	95.67536608	93.754383
231017A00041	10/17/2023	5.12	10/16/2026		110.62934	108.3187594	106.0695188	103.8795968	101.7470497	99.67001163	97.64669089	95.67536608	93.754383
231017A00046	10/17/2023	5.26	10/17/2025		105.4004	104.167676	102.963989	101.7883196	100.6396953	99.51718807	98.41991219	97.34702152	96.29770747
231018A00026	10/18/2023	5.28	1/7/2026		106.59581	105.1396504	103.7108304	102.3086428	100.9324071	99.5814653	98.25518144	96.95294027	95.67414664
231019A00006	10/19/2023	5.29	10/20/2025		105.47911	104.2376534	103.0256281	101.8419939	100.685759	99.55597766	98.45174701	97.37220504	96.31652817
231019A00007	10/19/2023	5.19	10/19/2026		110.65375	108.3673871	106.1403921	103.9707876	101.856678	99.79624653	97.78775157	95.82952239	93.91995578
231019A00009	10/19/2023	5.14	10/19/2027		115.87628	112.4906778	109.2242892	106.0721812	103.0296574	100.0922467	97.25569016	94.51592975	91.86909723
231019A00031	1/22/2024	5.12	1/30/2026		106.6763	105.1577849	103.6689457	102.2089843	100.7771338	99.37265392	97.99482976	96.64297089	95.31641023
231019A00035	10/19/2023	5.54	10/18/2024		100.90817	100.689052	100.4709005	100.2537086	100.0374699	99.82217809	99.60782685	99.39440997	99.18192127
231019A00036	10/19/2023	5.27	10/20/2025		105.4545	104.2132053	103.001337	101.8178573	100.6617744	99.53214263	98.42805919	97.34866212	96.29312791
231019A00041	10/19/2023	5.08	10/19/2028		120.98776	116.4627921	112.1379152	108.0031087	104.0489177	100.2664145	96.64716591	93.18320252	89.8669904
231019A00043	10/19/2023	5.19	10/19/2026		110.65375	108.3673871	106.1403921	103.9707876	101.856678	99.79624653	97.78775157	95.82952238	93.91995578
231019A00044	10/19/2023	5.14	10/19/2027		115.87628	112.4906778	109.2242892	106.0721812	103.0296574	100.0922467	97.25569016	94.51592975	91.86909723
231020A00041	10/20/2023	5.19	10/20/2025		105.35607	104.1154126	102.9041726	101.7213109	100.565836	99.43680253	98.3333079	97.25449044	96.19952685
231020A00048	10/20/2023	5.08	10/20/2026		110.42259	108.1361091	105.9090711	103.739492	101.625472	99.56519022	97.55690098	95.59892994	93.68967049
231020A00049	10/20/2023	5.03	10/20/2027		115.53444	112.1515886	108.8879891	105.7386984	102.6990148	99.76446199	96.93077653	94.19389617	91.54994885
231020A00051	10/20/2023	5.02	10/20/2028		120.74698	116.2242494	111.9016796	107.7692389	103.817463	100.0374156	96.42065543	92.95920614	89.64552733
231020A00060	10/20/2023	5.5	10/21/2024		100.9346	100.7071757	100.4807891	100.2554328	100.0310997	99.80778282	99.58547518	99.36416991	99.14386016
231020A00061	10/20/2023	5.32	4/21/2025		103.05483	102.3235182	101.6026276	100.8919377	100.1912326	99.5003026	98.81894361	98.14695737	97.48415102
231020A00067	10/20/2023	5.32	4/15/2025		102.99451	102.2796182	101.5746919	100.8795256	100.1939173	99.5176702	98.85059314	98.19250003	97.5432098
231020A00069	10/20/2023	5.08	10/15/2026		110.35111	108.0791325	105.8659449	103.7095955	101.6082147	99.56001018	97.56326332	95.61632514	93.717613
231020A00070	10/20/2023	5.19	10/15/2025		105.28737	104.0608498	102.8631002	101.6931137	100.5499308	99.43263568	98.34035381	97.27224983	96.22752523
231023A00028	10/23/2023	5.33	4/23/2025		103.08702	102.350117	101.623794	100.9078218	100.20198	99.50605425	98.81983617	98.14312328	97.47571867
231023A00029	10/23/2023	5.19	10/23/2025		105.39729	104.1481404	102.9288004	101.7382094	100.575357	99.43927953	98.32905769	97.2438138	96.18270957
231023A00034	4/23/2024	4.95	4/23/2026		107.60331	105.8416157	104.1175496	102.4299659	100.7777699	99.15991118	97.57538133	96.02321158	94.50247103
231023A00048	10/23/2023	5.04	10/25/2027		115.63803	112.2395624	108.9612937	105.7982291	102.7456132	99.79891958	96.95383784	94.20626189	91.55227864
231024A00007	10/30/2023	5.5	10/30/2024		101.04012	100.7877088	100.5365559	100.2866536	100.0379928	99.79056425	99.54435879	99.29936742	99.05558117
231024A00008	10/30/2023	5.5	10/30/2024		101.04012	100.7877088	100.5365559	100.2866536	100.0379928	99.79056425	99.54435879	99.29936742	99.05558117
231024A00010	12/18/2023	5.43	12/18/2024		101.61047	101.2223912	100.8372922	100.4551394	100.0758989	99.6995374	99.32602196	98.95532027	98.58740048

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231024A00011	12/18/2023	5.43	12/18/2024		101.61047	101.2223912	100.8372922	100.4551394	100.0758989	99.6995374	99.32602196	98.95532027	98.58740048
231024A00017	10/24/2023	4.97	10/25/2027		115.41029	112.0155332	108.7408753	105.5813265	102.5321346	99.58877608	96.74694373	94.00253431	91.35163751
231024A00029	10/24/2023	4.97	10/25/2027		115.41029	112.0155332	108.7408753	105.5813265	102.5321346	99.58877608	96.74694373	94.00253431	91.35163751
231024A00030	10/24/2023	4.96	10/24/2028		120.54743	116.0175841	111.6887029	107.5506904	103.5940231	99.80971043	96.18926113	92.72465258	89.40830184
231024A00039	10/24/2023	5.06	10/26/2026		110.46335	108.1599628	105.9167917	103.7318193	101.6031092	99.52880615	97.50713218	95.53638241	93.61492148
231024A00046	10/24/2023	4.96	10/24/2028		120.54743	116.0175841	111.6887029	107.5506904	103.5940231	99.80971043	96.18926113	92.72465258	89.40830184
231024A00076	10/24/2023	5.31	4/24/2025		103.0847	102.3450822	101.6161163	100.8975758	100.189238	99.49088609	98.80230971	98.12330422	97.45367068
231024A00079	10/24/2023	5.18	10/24/2025		105.39862	104.1467155	102.9247543	101.7316648	100.5664301	99.42808056	98.31569123	97.22837913	96.165301
231024A00082	10/24/2023	5.05	10/23/2026		110.39821	108.1037819	105.8691785	103.6923932	101.5715079	99.504685	97.49016298	95.52625254	93.61133297
231025A00003	10/25/2023	5.07	10/24/2025		105.42476	104.1701859	102.945655	101.7500961	100.5824874	99.44185495	98.32726957	97.23784433	96.17273223
231025A00004	10/25/2023	5.07	10/24/2025		105.42476	104.1701859	102.945655	101.7500961	100.5824874	99.44185495	98.32726957	97.23784433	96.17273223
231025A00009	10/25/2023	5.49	10/21/2024		100.93233	100.7049059	100.4785228	100.25317	100.0288403	99.80552685	99.58322263	99.36192076	99.14161441
231025A00013	10/25/2023	5.08	10/26/2026		110.50837	108.2044616	105.9607861	103.7753198	101.6461257	99.57134847	97.54920983	95.57800463	93.65609724
231025A00018	10/25/2023	5.19	10/27/2025		105.45225	104.1917662	102.9616191	101.7607177	100.5880257	99.44255527	98.32336432	97.2295538	96.16026529
231025A00024	10/25/2023	5	10/25/2028		120.73181	116.1952402	111.8599953	107.7159596	103.7535886	99.9638719	96.33830007	92.86883341	89.5478731
231025A00036	10/25/2023	5.08	10/21/2026		110.43689	108.1475027	105.917693	103.745467	101.6289185	99.56622098	97.55562339	95.59544625	93.68407814
231025A00068	10/25/2023	5.33	4/25/2025		103.11191	102.3694436	101.6377154	100.9164887	100.2055381	99.50464478	98.813596	98.13218504	97.46021094
231027A00015	10/27/2023	5.08	2/23/2026		106.97786	105.385093	103.8241936	102.2942752	100.7944817	99.32398828	97.8819999	96.46775	95.08049918
231027A00019	10/27/2023	4.99	10/27/2026		110.31986	108.0153647	105.7711897	103.5853026	101.4557618	99.38070715	97.35835632	95.38700021	93.46499947
231027A00021	10/27/2023	5.13	10/30/2025		105.41799	104.1495046	102.911739	101.7035849	100.5239869	99.37193892	98.24648194	97.14670094	96.07172252
231027A00024	10/27/2023	5.46	10/28/2024		101.00681	100.7599719	100.5143416	100.269912	100.0266742	99.78461953	99.54373939	99.30402524	99.06546862
231027A00028	10/27/2023	4.92	10/23/2028		120.36326	115.8401393	111.5176124	107.3856144	103.4346427	99.65572635	96.04039239	92.58063517	89.26888763
231027A00035	10/27/2023	4.99	10/30/2026		110.362	108.048805	105.7963193	103.6024987	101.4653828	99.38309433	97.3538343	95.37587812	93.44757184
231027A00036	10/27/2023	5.13	11/3/2025		105.47516	104.1961174	102.947211	101.7273775	100.5356036	99.37092253	98.23241177	97.11919041	96.03041684
231027A00043	10/27/2023	4.99	10/27/2026		110.31986	108.0153647	105.7711897	103.5853026	101.4557618	99.38070715	97.35835632	95.38700021	93.46499947
231030A00007	10/30/2023	5.32	4/30/2025		103.16657	102.4102258	101.6650083	100.9306708	100.2069761	99.49369376	98.79059998	98.09747737	97.41411464
231030A00035	10/30/2023	4.85	10/30/2028		120.78053	116.2112312	111.8457058	107.6736725	103.6854283	99.87181559	96.22418842	92.73438039	89.39467503
231030A00057	10/30/2023	5.52	10/30/2024		101.04517	100.7927447	100.5415833	100.2916726	100.0430034	99.79556649	99.54935271	99.30435303	99.06055852
231030A00061	10/30/2023	5.32	4/30/2025		103.16657	102.4102258	101.6650083	100.9306708	100.2069761	99.49369376	98.79059998	98.09747737	97.41411464
231031A00021	10/31/2023	5.18	10/30/2025		105.48088	104.2119817	102.973806	101.7652489	100.5852544	99.4328164	98.30697575	97.20681721	96.13146723
231031A00022	10/31/2023	5.04	10/30/2026		110.47509	108.1605901	105.9068313	103.7117637	101.5734265	99.48994136	97.45950874	95.48040336	93.55097058
231031A00033	10/31/2023	5.05	10/30/2026		110.49771	108.1829471	105.9289337	103.7336167	101.5950352	99.51131076	97.48064363	95.50130841	93.57165032
231031A00035	4/30/2024	5.25	4/30/2025		103.11376	102.3576336	101.6126335	100.8785111	100.1550292	99.44195757	98.73907235	98.04615619	97.36299786



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231031A00040	4/30/2024	5.1	10/31/2025		105.39375	104.1226897	102.8824795	101.6720012	100.4901928	99.33604233	98.20858519	97.10690104	96.03011152
231031A00041	10/31/2023	5.51	10/25/2024		100.98389	100.7453634	100.5079698	100.271703	100.036555	99.80251767	99.56958325	99.33774389	99.10699185
231101A00016	11/1/2023	4.99	11/3/2025		105.46386	104.18231	102.9310031	101.7088671	100.5148837	99.34808192	98.20753522	97.09235877	96.00170732
231101A00017	11/1/2023	5.25	5/1/2025		103.12629	102.3673968	101.6197095	100.8829798	100.1569679	99.44144068	98.73617209	98.04094232	97.35553788
231102A00022	11/2/2023	4.91	11/10/2026		110.33597	107.9921462	105.7105464	103.4891008	101.3258206	99.21879832	97.16620353	95.1662794	93.21733894
231102A00024	11/2/2023	4.78	11/2/2028		119.90111	115.3593784	111.0203	106.8736551	102.9097977	99.11962344	95.49453583	92.02641429	88.70758507
231102A00025	11/2/2023	4.9	12/8/2026		110.70439	108.2779024	105.9177081	103.6216311	101.3875785	99.21353749	97.09757256	95.03782149	93.03249235
231102A00026	11/2/2023	4.9	1/12/2027		111.18355	108.6557928	106.1995985	103.8125278	101.4922418	99.23649509	97.04313121	94.91007886	92.83534781
231102A00027	11/2/2023	4.89	2/9/2027		111.55265	108.941009	106.4052777	103.9427988	101.5510228	99.22750516	96.96990148	94.77596279	92.64353094
231102A00028	11/2/2023	4.88	3/9/2027		111.93578	109.2363459	106.6170677	104.0750684	101.6075912	99.21199669	96.88575692	94.62644993	92.43175447
231102A00029	11/2/2023	4.88	4/13/2027		112.42212	109.6185406	106.9005072	104.2648539	101.7085526	99.2287086	96.82255434	94.48744224	92.22083876
231102A00030	11/2/2023	4.87	5/11/2027		112.78348	109.8962224	107.0991175	104.3887947	101.7620313	99.21574638	96.7469936	94.35295422	92.03093062
231102A00031	11/2/2023	5.1	11/3/2025		105.43709	104.1583054	102.909649	101.6900614	100.4985292	99.3340858	98.1958089	97.08281765	95.99427052
231102A00032	11/2/2023	4.91	11/2/2026		110.22311	107.9031442	105.6442645	103.444413	101.30162	99.21399837	97.17973956	95.19710937	93.26444428
231102A00033	11/2/2023	4.83	11/2/2027		115.06472	111.6531885	108.3630881	105.1893486	102.1271455	99.17188694	96.31920122	93.56492423	90.90508821
231102A00039	11/2/2023	4.91	10/28/2026		110.15341	107.8480861	105.6031688	103.4166231	101.2865024	99.21094221	97.18815563	95.21642954	93.29412077
231102A00041	11/2/2023	5.46	11/1/2024		101.05359	100.7956693	100.5390604	100.283757	100.0297492	99.77702714	99.52558108	99.27540141	99.02647859
231102A00064	1/22/2024	5.01	1/22/2026		106.40398	104.9090724	103.4429814	102.0049469	100.5942333	99.2101304	97.85195204	96.5190352	95.210739
231102A00070	2/15/2024	4.86	2/16/2027		111.58074	108.9473859	106.3909895	103.9088402	101.498337	99.15698751	96.88240206	94.67228901	92.52444995
231103A00002	11/3/2023	4.67	11/29/2027		114.90595	111.4197683	108.0602223	104.8220437	101.7002088	98.68992899	95.78663753	92.98597872	90.28379676
231103A00005	11/3/2023	5.12	5/5/2025		103.07655	102.3069909	101.5489675	100.8022183	100.0664926	99.34154723	98.62714608	97.9230599	97.22906604
231103A00007	11/3/2023	5.05	8/4/2025		104.16238	103.1394453	102.1367009	101.1535507	100.1894235	99.24376987	98.31606157	97.40579029	96.51246677
231103A00008	11/3/2023	4.97	11/3/2025		105.27214	103.9944534	102.7468804	101.5283579	100.3378731	99.17445996	98.03719649	96.92520234	95.83763646
231103A00028	11/3/2023	5.53	9/3/2024		100.38197	100.2875843	100.1933775	100.0993521	100.0055077	99.91184365	99.81835949	99.72505467	99.63192868
231103A00029	11/3/2023	4.75	11/3/2026		109.87358	107.5548365	105.2972307	103.0987082	100.9572994	98.8711172	96.83835256	94.85727075	92.92620748
231103A00034	11/3/2023	4.49	11/3/2028		119.2889	114.7397363	110.3942932	106.2422672	102.273939	98.48013595	94.85219781	91.38194468	88.06164746
231106A00007	11/6/2023	4.78	11/5/2027		114.94244	111.5243385	108.2281949	105.048919	101.9816661	99.02182457	96.16500303	93.40701792	90.7438824
231106A00016	11/6/2023	5.39	11/6/2024		101.09425	100.8225378	100.5522978	100.2835137	100.0161739	99.75026665	99.4857804	99.22270372	98.96102532
231106A00020	11/6/2023	5.02	11/6/2025		105.37827	104.0924329	102.8360001	101.6079626	100.4073565	99.23326139	98.0847978	96.96112517	95.86143956
231107A00005	11/7/2023	5.39	11/15/2024		101.20247	100.9058252	100.6109346	100.3177811	100.0263495	99.73662447	99.44859092	99.16223398	98.87753895
231107A00008	11/7/2023	5.17	5/7/2025		103.13958	102.3643169	101.6007574	100.8486349	100.1076936	99.37768475	98.65836731	97.94950716	97.25087698
231107A00009	11/7/2023	5.03	11/7/2025		105.4053	104.1167976	102.8574646	101.6263079	100.42238	99.24477562	98.09262983	96.96511538	95.86144081
231107A00011	11/7/2023	4.84	11/9/2026		110.16162	107.82264	105.5457062	103.3287475	101.1697785	99.06689536	97.01827153	95.02215402	93.07685977

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231107A00028	11/7/2023	5.4	11/7/2024		101.10873	100.8342484	100.5612699	100.2897781	100.0197607	99.75120566	99.4841011	99.21843521	98.95419632
231108A00011	11/8/2023	5.06	5/8/2025		103.18261	102.402904	101.6350339	100.8787271	100.1337231	99.39976959	98.67662135	97.96404053	97.26179621
231108A00015	11/8/2023	4.83	11/9/2026		110.13873	107.8000139	105.5233407	103.3066372	101.1479182	99.04527983	96.99689588	95.00101344	93.05594959
231108A00026	11/8/2023	5.04	11/7/2025		105.4181	104.1295102	102.8700925	101.6388525	100.4348427	99.25715782	98.10493283	96.97734045	95.8735892
231108A00028	11/8/2023	4.83	11/9/2026		110.13873	107.8000139	105.5233407	103.3066372	101.1479182	99.04527983	96.99689588	95.00101344	93.05594959
231109A00014	5/17/2024	5.03	5/16/2025		103.15301	102.3530119	101.5654731	100.7901056	100.0266284	99.27476864	98.53426215	97.80485255	97.08629115
231109A00025	11/9/2023	4.75	11/9/2028		118.74549	114.4329357	110.3124972	106.3745032	102.6098212	99.00982417	95.56636069	92.27172564	89.11863371
231109A00026	11/9/2023	5.19	5/9/2025		103.17978	102.3989077	101.6299047	100.8725016	100.1264365	99.3914558	98.66731322	97.95376978	97.25059347
231113A00007	11/13/2023	4.86	11/13/2028		120.39529	115.8110854	111.4326263	107.2495169	103.2519485	99.43066008	95.77690488	92.28241864	88.93939018
231113A00034	11/13/2023	5.16	11/13/2025		105.65937	104.3542427	103.0768748	101.826382	100.6019161	99.40266451	98.2278489	97.07672302	95.94857113
231113A00036	11/13/2023	5.3	5/15/2025		103.34148	102.5435788	101.7580538	100.9846218	100.2230046	99.47293227	98.73414306	98.00638313	97.28940623
231113A00038	11/13/2023	4.97	11/13/2026		110.51632	108.1619156	105.870209	103.6391146	101.4666351	99.35085402	97.28993193	95.28210234	93.32566843
231114A00023	11/14/2023	5.46	9/13/2024		100.48858	100.3665035	100.2447384	100.1232834	100.0021372	99.88129865	99.76076647	99.64053948	99.52061648
231114A00025	11/14/2023	5.13	5/14/2025		103.19401	102.399469	101.6172167	100.8469694	100.0884515	99.341396	98.60554383	97.88064375	97.16645199
231114A00026	11/14/2023	4.97	11/14/2025		105.42715	104.1211231	102.8425866	101.5906776	100.3645654	99.16345395	97.98658031	96.83321266	95.70264881
231114A00027	11/14/2023	4.76	11/13/2026		110.03327	107.6845075	105.3983248	103.1726391	101.0054566	98.89486418	96.8390254	94.83617684	92.88462457
231114A00028	11/14/2023	4.68	11/15/2027		114.74963	111.3061219	107.9864299	104.7853934	101.6980972	98.7198595	95.84621943	93.07292504	90.39592229
231114A00032	11/14/2023	5.35	11/14/2024		101.17636	100.8825461	100.5904476	100.300054	100.0113501	99.72432122	99.4389527	99.15523004	98.87313894
231114A00046	11/14/2023	4.62	11/14/2028		119.3687	114.8036678	110.443892	106.2789978	102.2991918	98.49522781	94.85837265	91.38037505	88.0534362
231114A00072	11/14/2023	4.67	11/15/2027		114.71652	111.2735574	107.9543991	104.7538821	101.6670917	98.68934657	95.81618617	93.04335907	90.36681163
231114A00074	11/14/2023	4.6	11/14/2028		119.28233	114.719148	110.3611589	106.1979928	102.2198588	98.41751285	94.782224	91.30574308	87.98027323
231115A00039	11/15/2023	4.85	11/16/2026		110.28212	107.9219892	105.624917	103.3888174	101.2116874	99.09160469	97.0267229	95.01526852	93.05553726
231117A00001	11/17/2023	4.99	11/12/2025		105.42484	104.1237933	102.8507186	101.6047138	100.3849144	99.19049315	98.02065756	96.87464832	95.75173749
231117A00002	11/17/2023	4.76	11/12/2026		110.01957	107.6737892	105.3904406	103.1674476	101.0028186	98.89464323	96.84108784	94.84039189	92.89086447
231117A00003	11/17/2023	4.59	11/17/2028		119.27818	114.7064047	110.3405685	106.1702588	102.1856435	98.37743928	94.73687733	91.25567228	87.92599271
231120A00025	11/20/2023	5.49	8/14/2024		100.1592	100.1202857	100.0814212	100.0426044	100.0038352	99.96511345	99.92643917	99.88781221	99.84923249
231120A00026	11/20/2023	5.43	9/18/2024		100.54148	100.405532	100.2699699	100.1347879	99.99998445	99.86555783	99.73150645	99.59782871	99.46452301
231120A00027	11/20/2023	5.4	10/16/2024		100.85459	100.6410646	100.4284536	100.2167557	100.0059649	99.79607527	99.58708101	99.37897632	99.17175544
231120A00028	11/20/2023	5.38	11/13/2024		101.17347	100.882407	100.5930286	100.3053234	100.0192768	99.73487456	99.45210228	99.17094591	98.89139153
231121A00015	11/21/2023	4.75	11/30/2026		110.24266	107.8434512	105.5092856	103.2380429	101.0276857	98.8762539	96.78186189	94.74269493	92.7570062
231122A00029	11/22/2023	5.05	11/24/2025		105.67422	104.3416149	103.0341461	101.7511274	100.4918984	99.25582257	98.04228614	96.85069717	95.68048448
231122A00032	11/22/2023	5.2	5/22/2025		103.36338	102.5461051	101.7418078	100.9501842	100.1709357	99.40377316	98.64841644	97.90459388	97.17204219
231122A00034	11/22/2023	5.42	9/23/2024		100.59615	100.4463252	100.2969587	100.1480461	99.99958534	99.85157437	99.70401114	99.55689358	99.41021967

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231122A00035	11/22/2023	5.2	5/22/2025		103.36338	102.5461051	101.7418078	100.9501842	100.1709357	99.40377316	98.64841644	97.90459388	97.17204219
231122A00044	11/22/2023	5.38	11/22/2024		101.28157	100.9655308	100.6514741	100.3393815	100.0292344	99.72101458	99.41470416	99.1102853	98.80774046
231127A00024	11/27/2023	4.78	11/27/2026		110.27181	107.8807316	105.5542751	103.2903262	101.0868549	98.94190929	96.85361224	94.82015793	92.8398087
231127A00025	11/27/2023	4.68	11/29/2027		114.93945	111.4527062	108.0926142	104.8539042	101.7315523	98.72076902	95.81698738	93.01585115	90.31320412
231127A00026	11/27/2023	4.61	11/27/2028		119.49539	114.8899661	110.4931519	106.2943774	102.283666	98.45159546	94.78926396	91.28825872	87.94062663
231127A00065	11/27/2023	5.03	11/26/2025		105.67621	104.3386069	103.0256674	101.7367386	100.4711947	99.22843196	98.00786719	96.80893711	95.63109744
231128A00002	11/28/2023	4.41	11/30/2028		119.29473	114.6667756	110.2493431	106.0317424	102.0038798	98.15622273	94.47976572	90.96599849	87.60687631
231128A00003	11/28/2023	4.41	11/30/2028		119.29473	114.6667756	110.2493431	106.0317424	102.0038798	98.15622273	94.47976572	90.96599849	87.60687631
231128A00009	11/28/2023	4.73	12/14/2026		110.3811	107.9421763	105.5703181	103.2633122	101.0190284	98.83541885	96.71051462	94.64242189	92.62931877
231129A00006	11/29/2023	4.25	11/29/2028		118.58215	113.9725328	109.5726711	105.371908	101.3601846	97.52800115	93.86638387	90.36685252	87.02139104
231129A00013	11/29/2023	5.25	11/29/2024		101.32002	100.9846435	100.6514859	100.320526	99.99174235	99.66511339	99.34061806	99.01823549	98.69794514
231129A00039	11/29/2023	4.97	5/30/2025		103.27031	102.4316273	101.6066114	100.7949289	99.99625786	99.21028699	98.43671467	97.67524885	96.92560656
231129A00073	11/29/2023	4.81	5/29/2025		103.23458	102.3973109	101.5736616	100.7633045	99.96591922	99.18119573	98.40883376	97.64854248	96.90004014
231130A00031	11/30/2023	5.41	8/30/2024		100.32621	100.2429036	100.1597329	100.0767011	99.99380786	99.91105278	99.82843555	99.74595586	99.66361336
231130A00057	11/30/2023	5.27	12/2/2024		101.36147	101.0177868	100.6764311	100.3373843	100.0006228	99.66612373	99.33386423	99.00382187	98.67597449
231130A00064	11/30/2023	5.41	8/30/2024		100.32621	100.2429036	100.1597329	100.0767011	99.99380786	99.91105278	99.82843555	99.74595586	99.66361336
231130A00065	11/30/2023	5.33	10/30/2024		100.99724	100.7449039	100.4938228	100.2439922	99.99540269	99.7480452	99.50191053	99.25698968	99.01327368
231130A00072	11/30/2023	4.83	12/1/2025		105.47722	104.1283851	102.8033251	101.5014603	100.2222328	98.96510237	97.72954542	96.51505455	95.32113787
231130A00073	11/30/2023	4.61	11/30/2026		109.91407	107.5187797	105.1884447	102.9209518	100.714266	98.56642941	96.47555871	94.43984126	92.45753228
231130A00074	11/30/2023	4.45	11/30/2028		118.83658	114.2366918	109.8456938	105.6529928	101.6485892	97.82303833	94.16741688	90.6732913	87.33268866
231201A00009	12/1/2023	5.27	11/25/2024		101.28107	100.9567834	100.634576	100.3144318	99.99633094	99.68025386	99.36618125	99.05409405	98.74397344
231201A00024	12/1/2023	4.36	12/1/2028		118.45586	113.8614281	109.4758495	105.288532	101.2894699	97.46921288	93.81883292	90.32989232	86.99441452
231201A00026	12/1/2023	4.51	12/1/2026		109.69201	107.2966482	104.9663344	102.6989422	100.4924318	98.34484085	96.25428156	94.21893728	92.23705938
231201A00027	12/1/2023	5.19	12/2/2024		101.334	100.9903667	100.6490692	100.3100803	99.97337651	99.63893477	99.30673232	98.97674674	98.64895586
231201A00034	12/1/2023	4.62	3/2/2026		106.34787	104.7398161	103.1641813	101.6200476	100.1065352	98.6227968	97.1680162	95.74140674	94.34220999
231204A00006	12/4/2023	4.86	8/4/2025		103.96883	102.9469509	101.9452473	100.9631237	100.000009	99.05535435	98.12863171	97.21933307	96.32696947
231205A00025	12/5/2023	4.61	12/15/2025		105.53071	104.1411773	102.7767787	101.4368859	100.1208948	98.82822109	97.55829883	96.3105801	95.0845342
231205A00026	12/5/2023	5.02	12/16/2024		101.47825	101.0954055	100.7154639	100.3383963	99.9641701	99.59275297	99.22411323	98.8582196	98.49504131
231206A00003	12/6/2023	5.18	12/6/2024		101.37624	101.0215704	100.6693949	100.3196833	99.97240975	99.62754878	99.28507519	98.94496418	98.60719128
231206A00012	12/6/2023	4.31	12/6/2028		118.2965	113.6916287	109.296726	105.1011109	101.0946966	97.26795814	93.61189811	90.11801486	86.77827267
231206A00016	12/6/2023	4.74	6/6/2025		103.26995	102.4107248	101.5658426	100.7349498	99.91770071	99.11376052	98.32280554	97.54452244	96.77860791
231206A00044	12/8/2023	4.71	12/8/2025		105.40156	104.0345686	102.6919622	101.3731452	100.0775388	98.80458252	97.55373367	96.32446635	95.11627098
231206A00046	12/6/2023	4.39	12/6/2027		114.05524	110.5639824	107.2003334	103.9589578	100.8347704	97.8229241	94.91879772	92.11798423	89.41627963

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231206A00047	12/6/2023	4.31	12/6/2028		118.2965	113.6916287	109.296726	105.1011109	101.0946966	97.26795814	93.61189811	90.11801486	86.77827267
231206A00070	12/6/2023	4.58	12/8/2025		105.40322	104.0333846	102.6880234	101.3665402	100.0683531	98.79289888	97.53963203	96.30802412	95.09756309
231207A00010	12/7/2023	4.38	12/7/2027		114.03394	110.540293	107.1744409	103.931035	100.804979	97.79141567	94.88571422	92.08345862	89.38043644
231207A00011	12/7/2023	4.28	12/7/2028		118.17683	113.571772	109.1768482	104.9813563	100.9751961	97.14882973	93.49324839	89.99993973	86.66085825
231207A00014	12/7/2023	4.7	12/8/2025		105.38791	104.021015	102.6785045	101.3597818	100.0642681	98.79140301	97.54064384	96.31146475	95.1033562
231207A00016	12/7/2023	4.47	12/7/2026		109.67317	107.2617809	104.9162801	102.6345042	100.4143744	98.25389171	96.1511333	94.10424938	92.11145987
231207A00027	12/7/2023	4.15	12/7/2028		118.23947	113.6148059	109.2016359	104.9891696	100.9672228	97.12617976	93.45695894	89.95098026	86.60013501
231207A00034	12/7/2023	4.7	12/5/2025		105.3512	103.9925806	102.6580715	101.3470866	100.0590564	98.79342932	97.54967122	96.32726439	95.1257071
231207A00035	12/7/2023	4.47	12/7/2026		109.67317	107.2617809	104.9162801	102.6345042	100.4143744	98.25389171	96.1511333	94.10424938	92.11145987
231208A00019	3/15/2024	4.95	3/14/2025		102.3684	101.743067	101.1253986	100.5152573	99.91250593	99.31701038	98.72863989	98.14726678	97.57276645
231208A00020	3/15/2024	4.85	6/16/2025		103.37042	102.4850354	101.6148784	100.7595594	99.91870053	99.09193655	98.27891448	97.47929304	96.69274218
231208A00021	3/15/2024	4.75	9/15/2025		104.37586	103.2370509	102.1232138	101.0335328	99.9672264	98.92354694	97.90177818	96.90123389	95.92125628
231208A00022	3/15/2024	4.69	12/15/2025		105.45972	104.0735927	102.7124962	101.3758059	100.0629212	98.77326077	97.50626187	96.26137944	95.03808552
231208A00023	3/15/2024	4.61	3/16/2026		106.51243	104.8651645	103.2516025	101.6707719	100.1217403	98.60361065	97.11551936	95.65663504	94.2261568
231211A00013	12/11/2023	5.42	9/11/2024		100.46128	100.3447546	100.2285099	100.1125482	99.99686862	99.88146999	99.76635125	99.65151136	99.53694926
231211A00057	12/11/2023	4.58	12/11/2029		123.90092	118.1035738	112.6220432	107.4373971	102.5319333	97.88909435	93.49338807	89.33031373	85.38629377
231211A00071	12/11/2023	5.22	12/16/2024		101.50601	101.123656	100.7441997	100.3676069	99.99384514	99.62288232	99.25468697	98.88922806	98.52647501
231212A00007	12/12/2023	5.16	2/5/2025		102.0685	101.5450662	101.0270109	100.5142543	100.0067152	99.50431415	99.00697329	98.51461633	98.02716848
231212A00008	12/12/2023	5.26	12/12/2024		101.47442	101.1031017	100.7345199	100.3686401	100.0054326	99.64486795	99.28691733	98.9315522	98.5787445
231212A00009	12/12/2023	5.01	6/12/2025		103.46162	102.5867055	101.726655	100.8810896	100.0496449	99.23196848	98.42771969	97.63656899	96.85819758
231212A00016	12/12/2023	4.59	12/7/2026		109.95713	107.5423297	105.1934937	102.9084533	100.6851276	98.52151554	96.41569246	94.36580667	92.37007628
231212A00018	12/12/2023	4.5	12/6/2027		114.42586	110.9283528	107.5586308	104.3113464	101.1814086	98.16396493	95.25438889	92.44826836	89.7413945
231212A00067	12/12/2023	4.82	12/12/2025		105.60199	104.2228609	102.8685078	101.5383156	100.2316926	98.94806598	97.68688104	96.44760054	95.22970397
231213A00018	12/13/2023	4.99	6/16/2025		103.49417	102.608189	101.7374469	100.8815499	100.0401198	99.21279139	98.39921145	97.59903861	96.81194268
231213A00019	12/13/2023	4.97	6/13/2025		103.43875	102.5612234	101.6986511	100.8506519	100.0168578	99.19691338	98.39047483	97.59720972	96.81679647
231213A00044	12/13/2023	5.07	12/13/2024		101.41501	101.0410904	100.6699429	100.3015367	99.93584146	99.57282708	99.21246405	98.85472326	98.49957601
231213A00049	12/13/2023	4.14	12/13/2028		117.63123	113.021396	108.6227758	104.4245741	100.4166032	96.58924466	92.93341547	89.44053499	86.10249481
231214A00003	12/14/2023	4.7	6/16/2025		103.23784	102.3530852	101.4835549	100.6288553	99.78860842	98.96244923	98.15002488	97.35099422	96.56502735
231214A00029	12/14/2023	4.49	12/15/2025		105.18285	103.7987267	102.4395997	101.1048457	99.7938649	98.50607698	97.24091992	95.99784951	94.77633854
231214A00036	12/14/2023	4.19	12/14/2026		109.09289	106.669545	104.3129321	102.0208467	99.79116829	97.62185837	95.51095681	93.45657841	91.45690954
231214A00058	12/14/2023	4.69	6/13/2025		103.19357	102.3172086	101.4557858	100.6089223	99.77625064	98.95741551	98.15207342	97.35989217	96.58055042
231214A00074	12/14/2023	4.69	6/13/2025		103.19357	102.3172086	101.4557858	100.6089223	99.77625064	98.95741551	98.15207342	97.35989217	96.58055042
231214A00075	12/14/2023	4.49	12/15/2025		105.18285	103.7987267	102.4395997	101.1048457	99.7938649	98.50607698	97.24091992	95.99784951	94.77633854

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231215A00004	12/15/2023	4.07	12/15/2028		117.34162	112.7326731	108.3352146	104.1384203	100.1320764	96.3065415	92.65271081	89.16198405	85.82623478
231215A00018	12/15/2023	4.19	12/15/2027		113.4882	109.98183	106.604562	103.3509575	100.2158383	97.19427026	94.281551	91.47319735	88.76493416
231218A00020	12/18/2023	5.32	8/19/2024		100.20459	100.1518001	100.0990813	100.0464345	99.99385959	99.94135637	99.88892472	99.83656447	99.78427549
231218A00023	12/18/2023	4.76	6/18/2025		103.31381	102.4232575	101.5481132	100.6879831	99.84248267	99.01124013	98.19389634	97.3901041	96.59952774
231218A00027	12/18/2023	4.96	2/19/2025		102.11828	101.5564792	101.0008822	100.4513823	99.90787931	99.37027517	98.83847406	98.31238219	97.79190779
231218A00046	12/18/2023	4.76	6/18/2025		103.31381	102.4232575	101.5481132	100.6879831	99.84248267	99.01124013	98.19389634	97.3901041	96.59952774
231218A00047	12/18/2023	5.24	9/18/2024		100.51565	100.3797293	100.2441943	100.1090394	99.97426284	99.83986309	99.70583853	99.57218755	99.43890855
231218A00048	12/18/2023	5.32	8/19/2024		100.20459	100.1518001	100.0990813	100.0464345	99.99385959	99.94135637	99.88892472	99.83656447	99.78427549
231218A00052	12/18/2023	4.54	12/18/2025		105.28745	103.8945544	102.5269393	101.183973	99.86504623	98.56956913	97.29697083	96.04669855	94.8182169
231218A00070	12/18/2023	4.6	6/18/2025		103.28683	102.3948098	101.5182567	100.6567659	99.80995069	98.97743773	98.15886621	97.35388736	96.56216399
231219A00007	12/19/2023	5.05	12/19/2024		101.47419	101.0836907	100.6962079	100.3117104	99.93016366	99.55153367	99.17578691	98.80289041	98.43281168
231219A00008	12/19/2023	5.05	12/19/2024		101.47419	101.0836907	100.6962079	100.3117104	99.93016366	99.55153367	99.17578691	98.80289041	98.43281168
231219A00009	12/19/2023	4.75	6/19/2025		103.31636	102.4230738	101.5452897	100.68261	99.83464651	99.00102433	98.18138112	97.37536671	96.58264254
231219A00011	12/19/2023	4.75	6/19/2025		103.31636	102.4230738	101.5452897	100.68261	99.83464651	99.00102433	98.18138112	97.37536671	96.58264254
231219A00012	12/19/2023	4.54	12/19/2025		105.29924	103.90359	102.5333089	101.1877661	99.86634904	98.56846495	97.29354	96.04101859	94.81036267
231219A00013	12/19/2023	4.27	12/18/2026		109.33164	106.8945767	104.5248798	102.2203153	99.97873425	97.79807125	95.67634069	93.61163315	91.60211202
231219A00015	12/19/2023	4.17	12/20/2027		113.47938	109.9594508	106.569598	103.3043214	100.1583857	97.12680364	94.20482264	91.38791276	88.67175489
231219A00016	12/19/2023	4.27	12/18/2026		109.33164	106.8945767	104.5248798	102.2203153	99.97873425	97.79807125	95.67634069	93.61163315	91.60211202
231219A00017	12/19/2023	4.26	1/15/2027		109.64135	107.1247383	104.6797163	102.3038408	99.99476283	97.75022781	95.56807087	93.44621281	91.38265616
231219A00018	12/19/2023	4.25	2/16/2027		110.01806	107.4049325	104.8683109	102.4054952	100.0138982	97.69104008	95.43454386	93.24212978	91.11161097
231219A00019	12/19/2023	4.17	12/15/2027		113.42032	109.9151009	106.5389529	103.2864379	100.1523788	97.13184258	94.22012773	91.41275207	88.70544133
231219A00020	12/19/2023	4.16	2/1/2028		113.95168	110.3056765	106.798664	103.4245736	100.1776392	97.05237727	94.04357131	91.1462572	88.35570957
231219A00021	12/19/2023	4.14	3/15/2028		114.41535	110.6366091	107.0056201	103.5157627	100.1607524	96.93462215	93.83170439	90.84661397	87.97423243
231219A00022	12/19/2023	4.13	4/14/2028		114.73935	110.8704619	107.1556084	103.5877548	100.160232	96.86671509	93.70120356	90.65800213	87.73170337
231219A00023	12/19/2023	4.12	6/15/2028		115.43949	111.3833228	107.4950401	103.7668066	100.1911948	96.76116031	93.47002026	90.3114327	87.27937751
231219A00025	12/19/2023	4.06	12/15/2028		117.29758	112.6895941	108.2930636	104.0971663	100.0916899	96.26699397	92.61397503	89.12403389	85.78904517
231219A00060	12/19/2023	4.22	6/21/2027		111.45862	108.4761751	105.5903509	102.7974987	100.0941252	97.47688797	94.94258783	92.4881619	90.11067704
231220A00008	12/20/2023	4.99	12/18/2024		101.43988	101.0521987	100.6674953	100.285736	99.9068867	99.53091423	99.15778572	98.78746884	98.41993175
231220A00014	12/20/2023	4.99	12/20/2024		101.46165	101.0684353	100.678282	100.2911549	99.90701872	99.52583878	99.1475809	98.77221144	98.39969727
231220A00015	12/20/2023	4.48	12/19/2025		105.21552	103.8204798	102.4507986	101.1058456	99.78500847	98.48769471	97.21333074	95.96136122	94.73124832
231220A00027	12/20/2023	4.99	12/16/2024		101.41811	101.0359571	100.6567023	100.2803098	99.90674717	99.53598245	99.16798414	98.8027212	98.44016306
231220A00028	12/20/2023	4.13	12/20/2027		113.34306	109.8254595	106.4378644	103.1747839	100.0309849	97.00148216	94.08152519	91.26658591	88.55234706
231220A00030	12/20/2023	4.48	12/22/2025		105.25041	103.8470947	102.4694199	101.1167426	99.7884407	98.48391259	97.20257585	95.94386673	94.7072393



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231220A00031	12/20/2023	4.23	12/21/2026		109.27138	106.8269203	104.4502474	102.1391013	99.89131362	97.70480039	95.57755842	93.50766162	91.49325756
231220A00032	12/20/2023	4.57	12/19/2025		105.3411	103.9451452	102.574564	101.2287263	99.90701933	98.60885007	97.33364463	96.08084728	94.84991985
231220A00034	12/20/2023	4.99	12/20/2024		101.46165	101.0684353	100.678282	100.2911549	99.90701872	99.52583878	99.1475809	98.77221144	98.39969727
231221A00003	12/21/2023	4.39	12/22/2025		105.12409	103.7216977	102.3449332	100.9931507	99.66572873	98.3620659	97.08158024	95.82370837	94.58790473
231221A00006	12/21/2023	4.14	12/21/2026		109.05494	106.613122	104.23903	101.9304097	99.68509407	97.50100088	95.37612844	93.30855212	91.29642091
231221A00008	12/21/2023	3.99	12/21/2028		117.05467	112.4354016	108.0288911	103.8242133	99.81105907	95.97969846	92.32094539	88.82612436	85.48703953
231221A00014	12/21/2023	4.14	6/21/2027		111.22613	108.247081	105.364571	102.5749524	99.87473466	97.26057782	94.72928506	92.27779581	89.90317918
231221A00022	12/21/2023	4.01	12/21/2028		115.29366	111.1530832	107.198879	103.4215069	99.81196652	96.36176648	93.06289254	89.90777822	86.88927734
231221A00039	12/21/2023	3.99	12/21/2028		117.05467	112.4354016	108.0288911	103.8242133	99.81105907	95.97969846	92.32094539	88.82612436	85.48703953
231221A00086	12/21/2023	4.48	6/23/2025		103.23538	102.3299783	101.4405066	100.5665466	99.70769442	98.8635602	98.03376736	97.21795206	96.41576272
231221A00103	12/21/2023	4.3	12/30/2025		105.27367	103.8457847	102.4443802	101.0687853	99.71834889	98.39244139	97.09045375	95.81179668	94.55589984
231221A00104	12/21/2023	4.3	12/30/2025		105.27367	103.8457847	102.4443802	101.0687853	99.71834889	98.39244139	97.09045375	95.81179668	94.55589984
231222A00004	12/22/2023	4	12/22/2028		117.1098	112.4865571	108.0763636	103.8682708	99.85195019	96.0176544	92.35618093	88.85883908	85.51741893
231222A00014	12/22/2023	4.92	12/20/2024		101.43412	101.0409742	100.6508855	100.2638227	99.87975039	99.49863399	99.12043929	98.74513267	98.37268099
231222A00019	12/22/2023	4.92	12/23/2024		101.46619	101.0647424	100.6664787	100.2713653	99.8793647	99.49044018	99.10455552	98.72167506	98.34176372
231222A00027	12/22/2023	4.84	2/21/2025		102.07226	101.5051526	100.9443599	100.3897793	99.84130774	99.2988446	98.76229131	98.23155153	97.70653097
231222A00032	12/22/2023	4.94	12/16/2024		101.399	101.0168922	100.6376811	100.2613321	99.88781282	99.51709118	99.1491357	98.78391536	98.4213996
231222A00039	12/22/2023	4.44	12/22/2025		105.19427	103.7913627	102.4140925	101.0618129	99.73390205	98.4297585	97.14880003	95.89046302	94.65420172
231226A00016	12/26/2023	3.92	12/26/2028		116.71308	112.2354043	107.9648726	103.8907017	100.0027301	96.29137743	92.74760838	89.36289838	86.12920222
231226A00024	12/26/2023	4.03	12/26/2028		117.28651	112.6483326	108.224322	104.0034543	99.9753262	96.13012062	92.45857057	88.95192559	85.60192028
231226A00027	12/26/2023	4.22	12/28/2026		109.3302	106.8660589	104.4707276	102.1418994	99.87735825	97.674975	95.53270371	93.44857773	91.42070615
231226A00043	12/26/2023	4.46	12/26/2025		105.26863	103.8544887	102.4663558	101.1035779	99.76552004	98.45156833	97.16112858	95.89362578	94.64850321
231226A00095	12/26/2023	4.22	12/28/2026		109.3302	106.8660589	104.4707276	102.1418994	99.87735825	97.674975	95.53270371	93.44857773	91.42070615
231226A00098	12/26/2023	4.67	6/26/2025		103.32355	102.4111661	101.5149518	100.6344759	99.76932574	98.91910326	98.0834239	97.26191629	96.45422157
231227A00005	12/27/2023	4.17	12/28/2026		109.20899	106.7463418	104.352467	102.0250639	99.76191742	97.56089935	95.41996459	93.33714733	91.31055747
231227A00013	12/27/2023	4.44	6/27/2025		103.24306	102.3267133	101.4266722	100.5425076	99.67380178	98.82015134	97.98116687	97.15647228	96.34570427
231227A00014	12/27/2023	4.29	12/26/2025		105.21351	103.7967984	102.4061895	101.0410238	99.70066334	98.38449117	97.09191034	95.8223431	94.57523021
231227A00023	12/27/2023	3.98	12/27/2028		117.07567	112.4393471	108.0172911	103.7984577	99.77243238	95.92938775	92.26004755	88.75565288	85.40793066
231227A00026	12/27/2023	4.6	6/27/2025		103.27078	102.3559331	101.4573481	100.5745893	99.70724069	98.85490089	98.0171822	97.19371022	96.38412325
231227A00027	12/27/2023	4.42	12/26/2025		105.21205	103.7983233	102.4106012	101.0482271	99.71056625	98.39700496	97.10694924	95.8398242	94.5950733
231227A00028	12/27/2023	4.85	2/4/2025		101.89565	101.375457	100.8605858	100.3509536	99.84648068	99.34708887	98.85270158	98.36324375	97.87864182
231227A00030	12/27/2023	4.44	6/27/2025		103.24306	102.3267133	101.4266722	100.5425076	99.67380178	98.82015134	97.98116687	97.15647228	96.34570427
231227A00039	12/27/2023	4.6	6/27/2025		103.27078	102.3559331	101.4573481	100.5745893	99.70724069	98.85490089	98.0171822	97.19371022	96.38412325

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
231228A00008	12/28/2023	5.18	9/30/2024		100.67648	100.5016758	100.3274553	100.1538177	99.98075998	99.80827931	99.63637283	99.4650377	99.29427111
231228A00020	12/28/2023	4.93	12/27/2024		101.51307	101.1005318	100.6913531	100.2854926	99.88291018	99.48356607	99.08742129	98.69443745	98.30457679
231228A00022	12/28/2023	4.61	6/27/2025		103.27992	102.3650295	101.4663999	100.583597	99.71620495	98.86382217	98.02606101	97.20254708	96.39291865
231228A00023	12/28/2023	4.4	12/26/2025		105.18376	103.7702406	102.3827239	101.0205516	99.68308935	98.36972328	97.07985956	95.8129234	94.56835834
231228A00024	12/28/2023	4.15	12/28/2026		109.16051	106.698455	104.3051627	101.9783297	99.71574108	97.51526909	95.37486895	93.29257517	91.26649799
231228A00025	12/28/2023	4.05	12/28/2027		113.16229	109.6258544	106.2209135	102.9418777	99.78342454	96.74048537	93.80823147	90.98206158	88.25758992
231228A00026	12/28/2023	3.96	12/28/2028		116.99774	112.3603642	107.9374459	103.7179243	99.6913696	95.8479406	92.1783481	88.67382133	85.32607627
231228A00038	12/28/2023	5.18	9/30/2024		100.67648	100.5016758	100.3274553	100.1538177	99.98075998	99.80827931	99.63637283	99.4650377	99.29427111
231229A00002	12/29/2023	4.95	12/23/2024		101.50763	101.0912922	100.6782737	100.2685329	99.86203059	99.4587286	99.05858915	98.66157509	98.26764986
231229A00017	12/29/2023	4.42	12/29/2025		105.24644	103.8244359	102.4287193	101.0586227	99.71350173	98.39273325	97.09571431	95.82186146	94.57060993
231229A00058	12/29/2023	4.9	1/29/2025		101.85659	101.3528749	100.8541497	100.3603385	99.87136902	99.38717019	98.9076724	98.43280738	97.96250819
231229A00059	12/29/2023	4.9	1/29/2025		101.85659	101.3528749	100.8541497	100.3603385	99.87136902	99.38717019	98.9076724	98.43280738	97.96250819
231229A00060	12/29/2023	4.9	1/29/2025		101.85659	101.3528749	100.8541497	100.3603385	99.87136902	99.38717019	98.9076724	98.43280738	97.96250819
231229A00061	12/29/2023	4.74	4/29/2025		102.71817	101.9664159	101.2256909	100.4957514	99.77636286	99.06729753	98.36833415	97.67925775	96.99985943
231229A00062	12/29/2023	4.74	4/29/2025		102.71817	101.9664159	101.2256909	100.4957514	99.77636286	99.06729753	98.36833415	97.67925775	96.99985943
231229A00063	12/29/2023	4.74	4/29/2025		102.71817	101.9664159	101.2256909	100.4957514	99.77636286	99.06729753	98.36833415	97.67925775	96.99985943
231229A00065	12/29/2023	4.6	7/29/2025		103.63384	102.6301042	101.6458763	100.6805911	99.73370501	98.80469484	97.89305715	96.99830726	96.11997839
231229A00066	12/29/2023	4.6	7/29/2025		103.63384	102.6301042	101.6458763	100.6805911	99.73370501	98.80469484	97.89305715	96.99830726	96.11997839
231229A00067	12/29/2023	4.6	7/29/2025		103.63384	102.6301042	101.6458763	100.6805911	99.73370501	98.80469484	97.89305715	96.99830726	96.11997839
231229A00068	12/29/2023	4.42	12/29/2025		105.24644	103.8244359	102.4287193	101.0586227	99.71350173	98.39273325	97.09571431	95.82186146	94.57060993
231229A00070	12/29/2023	4.42	12/29/2025		105.24644	103.8244359	102.4287193	101.0586227	99.71350173	98.39273325	97.09571431	95.82186146	94.57060993
231229A00071	12/29/2023	4.42	12/29/2025		105.24644	103.8244359	102.4287193	101.0586227	99.71350173	98.39273325	97.09571431	95.82186146	94.57060993
240102A00029	1/2/2024	4.66	7/2/2025		103.3823	102.4533021	101.5410548	100.645105	99.76501842	98.90037581	98.05077273	97.21581871	96.39513672
240102A00055	1/2/2024	4.23	1/4/2027		109.43727	106.9528945	104.5383959	102.1914114	99.9096748	97.69100936	95.5333241	93.43460972	91.39293489
240103A00003	1/3/2024	4.71	7/3/2025		103.44038	102.5083762	101.5932254	100.6944713	99.81167545	98.94441502	98.09228189	97.25488218	96.43183558
240103A00004	1/3/2024	4.48	1/5/2026		105.41413	103.9722168	102.5572891	101.1686544	99.80564332	98.46760881	97.15392513	95.86398699	94.59720875
240103A00005	1/3/2024	4.28	1/4/2027		109.55944	107.073552	104.6575745	102.3091432	100.0259907	97.80593953	95.64689775	93.54685522	91.50387979
240103A00010	1/3/2024	4.84	1/18/2039		158.19638	141.3100615	126.563289	113.6658355	102.368636	92.45773647	83.74916301	76.08456409	69.32750689
240103A00011	1/3/2024	4.84	1/18/2039		158.19638	141.3100615	126.563289	113.6658355	102.368636	92.45773647	83.74916301	76.08456409	69.32750689
240103A00018	1/3/2024	4.28	1/4/2027		109.55944	107.073552	104.6575745	102.3091432	100.0259907	97.80593953	95.64689775	93.54685522	91.5038798
240103A00023	3/29/2024	4.45	7/29/2025		103.48351	102.4805852	101.4971543	100.5326554	99.586545	98.65830028	97.74741798	96.85341365	95.97582071
240103A00025	1/3/2024	4.48	1/2/2026		105.37869	103.9450369	102.5380669	101.1571011	99.8014811	98.47057032	97.16375292	95.88043314	94.62003443
240103A00026	1/3/2024	4.28	1/4/2027		109.55944	107.073552	104.6575745	102.3091432	100.0259907	97.80593953	95.64689775	93.54685522	91.5038798

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240103A00032	3/29/2024	4.45	7/29/2025		103.48351	102.4805852	101.4971543	100.5326554	99.586545	98.65830028	97.74741798	96.85341365	95.97582071
240103A00033	3/29/2024	4.45	7/29/2025		103.48351	102.4805852	101.4971543	100.5326554	99.586545	98.65830028	97.74741798	96.85341365	95.97582071
240103A00034	3/29/2024	4.45	7/29/2025		103.48351	102.4805852	101.4971543	100.5326554	99.586545	98.65830028	97.74741798	96.85341365	95.97582071
240103A00035	3/29/2024	4.45	7/29/2025		103.48351	102.4805852	101.4971543	100.5326554	99.586545	98.65830028	97.74741798	96.85341365	95.97582071
240103A00039	6/28/2024	4.11	10/29/2025		104.12418	102.8669993	101.6402634	100.4428753	99.27378972	98.13201071	97.01658844	95.92661673	94.86123055
240103A00042	6/28/2024	4.11	10/29/2025		104.12418	102.8669993	101.6402634	100.4428753	99.27378972	98.13201071	97.01658844	95.92661673	94.86123055
240103A00043	6/28/2024	4.11	10/29/2025		104.12418	102.8669993	101.6402634	100.4428753	99.27378972	98.13201071	97.01658844	95.92661673	94.86123055
240103A00044	6/28/2024	4.11	10/29/2025		104.12418	102.8669993	101.6402634	100.4428753	99.27378972	98.13201071	97.01658844	95.92661673	94.86123055
240103A00045	6/28/2024	4.11	10/29/2025		104.12418	102.8669993	101.6402634	100.4428753	99.27378972	98.13201071	97.01658844	95.92661673	94.86123055
240103A00047	6/28/2024	4.05	1/29/2026		105.04914	103.5460702	102.0723491	100.6271911	99.20983878	97.81956124	96.45565251	95.11743072	93.80423701
240103A00049	6/28/2024	4.05	1/29/2026		105.04914	103.5460702	102.0723491	100.6271911	99.20983878	97.81956124	96.45565251	95.11743072	93.80423701
240103A00050	6/28/2024	4.05	1/29/2026		105.04914	103.5460702	102.0723491	100.6271911	99.20983878	97.81956124	96.45565251	95.11743072	93.80423701
240103A00051	6/28/2024	4.05	1/29/2026		105.04914	103.5460702	102.0723491	100.6271911	99.20983878	97.81956124	96.45565251	95.11743072	93.80423701
240103A00052	6/28/2024	4.05	1/29/2026		105.04914	103.5460702	102.0723491	100.6271911	99.20983878	97.81956124	96.45565251	95.11743072	93.80423701
240103A00054	6/28/2024	3.94	6/29/2026		106.60495	104.6687689	102.7776846	100.9303767	99.12557202	97.36204245	95.63860351	93.95411233	92.30746592
240103A00056	6/28/2024	3.94	6/29/2026		106.60495	104.6687689	102.7776846	100.9303767	99.12557202	97.36204245	95.63860351	93.95411233	92.30746592
240103A00057	6/28/2024	3.94	6/29/2026		106.60495	104.6687689	102.7776846	100.9303767	99.12557202	97.36204245	95.63860351	93.95411233	92.30746592
240103A00058	6/28/2024	3.94	6/29/2026		106.60495	104.6687689	102.7776846	100.9303767	99.12557202	97.36204245	95.63860351	93.95411233	92.30746592
240103A00059	6/28/2024	3.94	6/29/2026		106.60495	104.6687689	102.7776846	100.9303767	99.12557202	97.36204245	95.63860351	93.95411233	92.30746592
240104A00014	1/4/2024	4.72	7/3/2025		103.44969	102.5176361	101.6024391	100.7036395	99.82079866	98.95349379	98.10131676	97.26387369	96.44078425
240104A00064	1/4/2024	5.04	1/3/2025		101.63613	101.2041271	100.775801	100.3511058	99.92999545	99.51242471	99.09834898	98.68772447	98.2805081
240104A00068	1/4/2024	4.76	7/3/2025		103.48691	102.5546758	101.6392942	100.7403123	99.85729149	98.98980885	98.13745625	97.29983973	96.47657894
240105A00011	1/5/2024	5.06	12/5/2024		101.35406	100.989711	100.6279088	100.2686246	99.91183223	99.55750567	99.20561943	98.85614831	98.5090675
240105A00015	1/5/2024	4.99	1/6/2025		101.64772	101.2074928	100.7710899	100.3384607	99.90955617	99.48432835	99.06272997	98.64471458	98.23023654
240105A00017	1/5/2024	4.29	1/5/2027		109.59584	107.1068075	104.6878401	102.3365712	100.0507259	97.8281195	95.66665336	93.56431088	91.51915382
240105A00019	1/5/2024	5.02	12/5/2024		101.33974	100.9755207	100.6138472	100.2546908	99.89802519	99.54382459	99.19206343	98.84271655	98.49575911
240105A00028	1/5/2024	4.76	7/7/2025		103.5342	102.5908554	101.6647689	100.7554685	99.86250002	98.98542552	98.1238226	97.27728373	96.44541559
240108A00018	1/8/2024	4.94	1/8/2025		101.64755	101.2018634	100.7600955	100.3221971	99.88811724	99.45780602	99.03121437	98.60829406	98.1889977
240108A00020	1/8/2024	4.68	7/8/2025		103.47047	102.5247286	101.5963441	100.684838	99.7897521	98.9106448	98.04709021	97.19867748	96.36501014
240108A00022	1/8/2024	4.46	1/8/2026		105.42056	103.9706035	102.5479301	101.151836	99.7816409	98.43668744	97.11633992	95.81998355	94.5470236
240108A00023	1/8/2024	4.27	1/8/2027		109.58267	107.0856985	104.6592429	102.3009116	100.0084079	97.77952652	95.61214916	93.50424076	91.4538456
240108A00030	1/8/2024	5.29	9/3/2024		100.4042	100.3069677	100.20992	100.1130594	100.0163853	99.9198971	99.82359432	99.7274764	99.63154279
240108A00031	1/8/2024	5.2	9/30/2024		100.67797	100.5034008	100.3294208	100.1560228	99.98320386	99.81096121	99.63929196	99.46819327	99.29766234

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240108A00032	1/8/2024	5.14	10/16/2024		100.83713	100.6167479	100.397314	100.1788243	99.96127266	99.74465288	99.52895896	99.31418489	99.10032472
240108A00033	1/8/2024	4.96	1/2/2025		101.61728	101.17253	100.7315566	100.2943092	99.86074066	99.43080484	99.00445622	98.5816501	98.1623425
240108A00034	1/8/2024	5.07	11/4/2024		101.02065	100.7457799	100.4723626	100.2003895	99.92984916	99.66073024	99.39302155	99.126712	98.86179063
240108A00035	1/8/2024	5.04	12/2/2024		101.3137	100.9582182	100.6051516	100.25448	99.90617891	99.56022452	99.21659314	98.87526145	98.53620645
240108A00037	1/8/2024	4.69	7/8/2025		103.47991	102.5341248	101.6056929	100.69414	99.79900784	98.91985489	98.05625523	97.20779799	96.37408667
240108A00038	1/8/2024	4.13	1/8/2029		117.87521	113.1881699	108.7190112	104.4564365	100.3897912	96.50902546	92.80465689	89.26773554	85.88981119
240108A00040	1/8/2024	4.13	1/8/2029		117.87521	113.1881699	108.7190112	104.4564365	100.3897912	96.50902546	92.80465689	89.26773554	85.88981119
240108A00041	1/9/2024	4.13	1/9/2029		117.88632	113.1962728	108.724372	104.4592978	100.3903767	96.50754187	92.80129489	89.2626711	85.88320667
240108A00047	1/11/2024	4.95	1/10/2025		101.6739	101.2226815	100.7754786	100.3322418	99.8929185	99.45745673	99.02580561	98.59791511	98.17373607
240108A00049	1/11/2024	4.95	1/10/2025		101.6739	101.2226815	100.7754786	100.3322418	99.8929185	99.45745673	99.02580561	98.59791511	98.17373607
240109A00006	1/9/2024	4.71	7/9/2025		103.51048	102.5618227	101.6306197	100.7163939	99.81868324	98.9370423	98.07104155	97.22026666	96.38431788
240109A00025	1/9/2024	4.47	1/9/2026		105.44685	103.9940266	102.5685913	101.1698342	99.79707112	98.44964117	97.12690523	95.82824528	94.55306346
240109A00030	1/9/2024	4.99	1/9/2025		101.6809	101.2323872	100.7878492	100.3472293	99.91047557	99.47753726	99.04836431	98.62290761	98.20111887
240109A00031	1/9/2024	4.73	7/9/2025		103.52943	102.5806696	101.6493712	100.7350513	99.8372477	98.95551498	98.0894236	97.23855921	96.40252201
240109A00042	1/9/2024	3.99	1/9/2029		117.90829	113.198797	108.7088539	104.4270496	100.3426221	96.44542192	92.72587408	89.17494251	85.78409694
240109A00048	1/9/2024	4.12	1/9/2029		117.84159	113.1525333	108.6815888	104.4174386	100.3494107	96.46743938	92.76202754	89.22421165	85.84552902
240110A00001	1/10/2024	4.42	1/9/2026		105.37419	103.9219233	102.4970286	101.0988027	99.72656189	98.37964549	97.0574146	95.75925143	94.48455833
240110A00003	1/10/2024	4.78	1/10/2025		101.65462	101.2027659	100.7549482	100.3111108	99.87120053	99.43516522	99.00295362	98.57451539	98.14980108
240110A00010	1/10/2024	4.42	1/12/2026		105.40913	103.9486016	102.515748	101.1098549	99.73022736	98.3761941	97.04710612	95.74233596	94.4612767
240110A00017	1/10/2024	4.94	1/6/2025		101.65145	101.1953417	100.7432122	100.2950066	99.85067382	99.4101639	98.97342758	98.54041648	98.11108306
240110A00021	1/10/2024	4.13	1/10/2028		113.58837	110.009109	106.5641564	103.2477503	100.0544044	96.97889662	94.01625473	91.16174303	88.4108498
240110A00029	1/10/2024	4.5	7/10/2025		103.44597	102.4931892	101.5580202	100.6399769	99.73859126	98.8534121	97.98400437	97.12994851	96.29083975
240111A00016	1/11/2024	4.63	7/11/2025		103.45763	102.5038078	101.5676365	100.6486321	99.74632474	98.86026145	97.99000559	97.13513605	96.2952466
240111A00020	1/11/2024	4.93	1/13/2025		101.69755	101.2380661	100.7827498	100.3315457	99.88439803	99.44125211	99.00205419	98.56675148	98.13529214
240111A00021	1/11/2024	4.47	7/11/2025		103.42884	102.4734177	101.5357121	100.6152282	99.71149372	98.82405383	97.95246986	97.09631884	96.25519272
240111A00025	1/11/2024	4.19	1/11/2027		109.42141	106.9183452	104.4862073	102.1225815	99.82515035	97.59168884	95.4200602	93.30821181	91.2541714
240111A00028	1/11/2024	4.09	1/11/2029		117.7294	113.0373075	108.5637559	104.2973869	100.2274951	96.34398429	92.63732903	89.09853988	85.71913024
240111A00031	1/11/2024	4.19	1/11/2027		109.42141	106.9183452	104.4862073	102.1225815	99.82515035	97.59168884	95.4200602	93.30821181	91.2541714
240111A00053	1/11/2024	4.93	1/10/2025		101.66488	101.2136808	100.7665016	100.3232885	99.8839886	99.44855013	99.01692216	98.58905466	98.16489848
240112A00014	1/12/2024	4.8	1/10/2025		101.63042	101.1635043	100.7007597	100.2421343	99.78757339	99.33702287	98.89042979	98.44774209	98.00890862
240112A00015	1/12/2024	4.78	1/17/2025		101.67052	101.2001736	100.7341951	100.2725245	99.81510198	99.36186899	98.91276794	98.4677423	98.02673661
240112A00021	1/12/2024	4.8	1/13/2025		101.63781	101.1784901	100.7233333	100.2722877	99.82529747	99.38230801	98.94326554	98.50811729	98.07681144
240112A00022	1/12/2024	4.24	1/12/2026		105.1461	103.6875674	102.2566806	100.8527207	99.47499372	98.12282919	96.79557898	95.49261643	94.21333542

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240112A00027	1/12/2024	4.79	1/15/2025		101.65422	101.1893891	100.7288218	100.2724638	99.82025729	99.37214562	98.92807315	98.48798525	98.05182829
240112A00033	1/12/2024	4.46	7/11/2025		103.29568	102.3426831	101.407331	100.4891355	99.58762659	98.70235172	97.8328744	96.97877375	96.13964371
240112A00034	1/12/2024	4.46	7/11/2025		103.29568	102.3426831	101.407331	100.4891355	99.58762659	98.70235172	97.8328744	96.97877375	96.13964371
240112A00036	1/12/2024	4.07	1/12/2027		109.13726	106.6350399	104.2038228	101.841186	99.54480704	97.31245605	95.14199178	93.03135741	90.97857668
240112A00040	1/12/2024	4.24	1/12/2026		105.1461	103.6875674	102.2566806	100.8527207	99.47499372	98.12282919	96.79557898	95.49261643	94.21333542
240112A00044	1/12/2024	4.24	1/12/2026		105.1461	103.6875674	102.2566806	100.8527207	99.47499372	98.12282919	96.79557898	95.49261643	94.21333542
240112A00047	1/12/2024	4.46	7/14/2025		103.32866	102.3673464	101.4239804	100.4980636	99.58911424	98.69666811	97.82027789	96.9595123	96.11395538
240112A00050	1/12/2024	4.3	7/11/2025		103.26677	102.3121879	101.3753033	100.4556298	99.55269554	98.66604567	97.79524181	96.9398612	96.099496
240112A00052	1/12/2024	4.07	1/12/2027		109.13726	106.6350399	104.2038228	101.841186	99.54480704	97.31245605	95.14199178	93.03135741	90.97857668
240116A00006	1/16/2024	4.5	7/16/2025		103.38931	102.422241	101.4733325	100.5420717	99.62796857	98.73055134	97.84936523	96.98397195	96.13394886
240116A00008	1/16/2024	4.81	1/17/2025		101.68464	101.2142515	100.7482346	100.2865257	99.82906526	99.37579456	98.92665603	98.48159318	98.04055051
240116A00052	1/16/2024	4.65	1/16/2025		101.65874	101.1904525	100.7264954	100.2668121	99.81134337	99.36003124	98.91281876	98.46965002	98.03047011
240116A00083	1/16/2024	4.53	7/16/2025		103.4183	102.4510834	101.5020263	100.5706188	99.65637097	98.75881085	97.87748367	97.01195109	96.16179044
240117A00021	1/17/2024	4.06	1/17/2029		118.31308	113.5723251	109.0534927	104.7449914	100.6358977	96.71591314	92.9753245	89.40496797	85.99619502
240117A00023	1/17/2024	4.13	1/19/2027		109.70049	107.1653362	104.7027411	102.3102061	99.98533702	97.72583636	95.52949869	93.39420646	91.31792581
240117A00024	1/17/2024	4.78	1/17/2025		101.7304	101.2591759	100.792335	100.3298186	99.8715664	99.41751948	98.9676199	98.52181077	98.08003628
240117A00054	1/17/2024	4.22	1/18/2028		113.99555	110.3873386	106.915269	103.5734606	100.3563217	97.25853093	94.2750236	91.40097726	88.63179899
240118A00004	1/18/2024	4.74	1/17/2025		101.71157	101.2403989	100.7736094	100.311144	99.85294248	99.39894593	98.94909638	98.50333697	98.06161185
240118A00020	1/18/2024	4.25	2/18/2027		110.04452	107.4249893	104.8822674	102.4136409	100.0165076	97.68837403	95.42684988	93.2296431	91.09455513
240119A00003	1/19/2024	4.68	7/21/2025		103.62125	102.639371	101.6761738	100.7311288	99.8037254	98.89347199	97.99989515	97.12253873	96.26096309
240119A00007	1/19/2024	4.23	1/19/2029		118.44339	113.7134569	109.2046368	104.9053942	100.8048544	96.89276442	93.15945374	89.59579828	86.19318667
240119A00008	1/19/2024	4.89	1/24/2025		101.7977	101.3078484	100.8227235	100.3422579	99.86638452	99.39503752	98.92815245	98.46566604	98.00751619
240119A00013	1/19/2024	4.88	1/31/2025		101.86801	101.3587925	100.8546711	100.3555664	99.86140361	99.3721097	98.88761296	98.40784309	97.93273115
240119A00022	1/19/2024	4.9	1/30/2025		101.86738	101.3608997	100.8594561	100.362978	99.87139182	99.38462556	98.90260854	98.42527147	97.95254643
240119A00024	1/19/2024	4.49	1/20/2026		105.60613	104.1227443	102.667863	101.2407396	99.8406488	98.46689027	97.11878732	95.795686	94.49695409
240119A00028	1/19/2024	4.48	1/13/2026		105.50862	104.0446669	102.6085017	101.1994056	99.81667981	98.45964916	97.12766098	95.82008428	94.53630882
240119A00029	1/19/2024	4.3	1/13/2027		109.7163	107.2041543	104.7633179	102.3913595	100.0859446	97.84483188	95.66586929	93.54698961	91.48620671
240119A00044	1/23/2024	4.23	1/23/2029		118.48891	113.7468867	109.2270369	104.9177443	100.8080586	96.88765659	93.14680321	89.57631464	86.16752438
240122A00002	1/22/2024	4.66	7/22/2025		103.61319	102.6286287	101.6628532	100.7153276	99.7855371	98.87298633	97.97719812	97.09771279	96.23408737
240122A00005	1/22/2024	4.45	1/22/2026		105.57026	104.0818043	102.6220565	101.1902563	99.78567105	98.40759336	97.05533981	95.72825001	94.42568561
240122A00006	1/22/2024	4.25	1/22/2027		109.69965	107.1633773	104.6997791	102.3063566	99.98070786	97.72052847	95.52360634	93.38781766	91.31112271
240122A00014	1/22/2024	4.93	1/16/2025		101.75283	101.2685986	100.788855	100.3135377	99.84258554	99.37593856	98.91353779	98.45532535	98.00124444
240122A00015	1/22/2024	4.93	1/16/2025		101.75283	101.2685986	100.788855	100.3135377	99.84258554	99.37593856	98.91353779	98.45532535	98.00124444



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240122A00016	1/22/2024	4.66	7/22/2025		103.61319	102.6286287	101.6628532	100.7153276	99.7855371	98.87298633	97.97719812	97.09771279	96.23408737
240122A00050	1/22/2024	4.25	1/22/2027		109.69965	107.1633773	104.6997791	102.3063566	99.98070786	97.72052847	95.52360634	93.38781766	91.31112271
240122A00081	1/22/2024	4.93	1/22/2025		101.79553	101.311158	100.8314108	100.3562224	99.88552772	99.41926317	98.95736623	98.49977557	98.04643101
240123A00017	1/23/2024	5.08	11/22/2024		101.21703	100.8909363	100.5668942	100.2448842	99.92488724	99.60688435	99.29085691	98.97678649	98.66465493
240123A00037	1/23/2024	4.2	1/17/2029		118.28578	113.5648885	109.0644777	104.7730571	100.6797942	96.77447481	93.04746431	89.489672	86.09251738
240123A00057	1/23/2024	4.48	1/23/2026		105.62673	104.1351695	102.6724219	101.2377267	99.83034722	98.44957238	97.0947151	95.76511152	94.46011998
240125A00007	1/25/2024	4.27	1/25/2027		109.78527	107.2397889	104.767475	102.3657963	100.0323279	97.76474308	95.56080895	93.41838196	91.33540375
240125A00019	1/25/2024	4.98	12/18/2024		101.46208	101.0615265	100.6640581	100.2696411	99.87824043	99.48982145	99.10435009	98.72179278	98.34211647
240125A00035	1/25/2024	4.89	1/24/2025		101.7977	101.3078484	100.8227235	100.3422579	99.86638452	99.39503752	98.92815245	98.46566604	98.00751619
240125A00040	1/25/2024	4.24	12/15/2026		109.22406	106.7964247	104.4356964	102.1396645	99.906201	97.7332601	95.61887486	93.56115357	91.5582764
240125A00046	1/25/2024	5.29	8/26/2024		100.31623	100.2420879	100.1680602	100.0941479	100.0203507	99.94666845	99.87310082	99.79964755	99.7263084
240125A00061	1/25/2024	4.64	7/25/2025		103.62799	102.6351798	101.6614658	100.7062982	99.7691499	98.84951366	97.9469011	97.06084188	96.19088288
240125A00068	1/25/2024	4.11	1/25/2028		114.17672	110.5339605	107.0296114	103.6576564	100.4123722	97.28831468	94.28030391	91.38340967	88.59293804
240125A00069	1/25/2024	4.11	1/25/2028		114.17672	110.5339605	107.0296114	103.6576564	100.4123722	97.28831468	94.28030391	91.38340967	88.59293804
240126A00004	1/26/2024	4.9	1/21/2025		101.79147	101.2931772	100.7996373	100.3107802	99.82653947	99.34684996	98.87164762	98.40086963	97.93445437
240126A00006	1/26/2024	4.89	1/31/2025		101.8731	101.3638693	100.8597331	100.3606135	99.86643603	99.37712752	98.89261628	98.41283201	97.93770579
240126A00007	1/26/2024	4.9	1/24/2025		101.82349	101.3165269	100.8144734	100.3172607	99.82481904	99.33707999	98.85397638	98.37544235	97.90141326
240126A00031	1/26/2024	4.31	1/26/2026		105.60399	104.1013553	102.6279518	101.1829987	99.76574408	98.37546227	97.01145237	95.67303732	94.35956284
240126A00032	1/26/2024	4.31	1/26/2026		105.60399	104.1013553	102.6279518	101.1829987	99.76574408	98.37546227	97.01145237	95.67303732	94.35956284
240129A00009	1/29/2024	4.72	1/29/2025		101.83002	101.325612	100.826207	100.3317329	99.84211682	99.35728729	98.8771743	98.4017092	97.93082464
240129A00030	1/29/2024	5.03	12/2/2024		101.30671	100.952256	100.6002106	100.2505532	99.90325954	99.55830576	99.21566828	98.87532384	98.5372495
240129A00049	1/29/2024	4.48	7/29/2025		103.64369	102.6380442	101.6519693	100.6849005	99.73629148	98.80561665	97.89237027	96.99606547	96.11623337
240129A00054	1/29/2024	4.72	1/29/2025		101.83002	101.325612	100.826207	100.3317329	99.84211682	99.35728729	98.8771743	98.4017092	97.93082464
240129A00056	1/29/2024	4.72	1/29/2025		101.83002	101.325612	100.826207	100.3317329	99.84211682	99.35728729	98.8771743	98.4017092	97.93082464
240129A00066	1/29/2024	4.88	1/23/2025		101.80257	101.2987843	100.7998583	100.3057177	99.81629357	99.33151877	98.8513272	98.37565404	97.90443571
240130A00003	1/30/2024	4.62	7/30/2025		103.66531	102.6586826	101.6716664	100.7036946	99.75421917	98.82271303	97.90866886	97.01159834	96.13103119
240130A00005	1/30/2024	4.62	7/30/2025		103.66531	102.6586826	101.6716664	100.7036946	99.75421917	98.82271303	97.90866886	97.01159834	96.13103119
240130A00034	1/30/2024	4.43	10/30/2025		104.70169	103.4354171	102.199884	100.9939844	99.81665981	98.66690207	97.54374977	96.44628583	95.37363491
240130A00036	1/30/2024	4.94	1/30/2025		101.88764	101.3810972	100.8795945	100.3830577	99.89141325	99.40458913	98.92251465	98.44512054	97.97233885
240130A00037	1/30/2024	5.03	11/29/2024		101.27416	100.9283697	100.5848787	100.2436599	99.90469093	99.56794964	99.23341415	98.90106288	98.57087454
240130A00044	1/30/2024	4.14	1/30/2029		118.1608	113.4067286	108.8763881	104.5580246	100.4405669	96.51358054	92.76722831	89.19223232	85.77983947
240130A00047	1/30/2024	4.01	1/30/2029		118.23327	113.4580794	108.9081202	104.5715374	100.4371652	96.4944814	92.73356686	89.14506764	85.72015983
240130A00051	1/30/2024	4.94	1/24/2025		101.84269	101.3357904	100.833806	100.3366618	99.84428792	99.356616	98.87357888	98.3951107	97.92114685

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240130A00057	1/30/2024	4.15	1/29/2027		109.87	107.3055179	104.8151838	102.3964197	100.0467542	97.76381643	95.54533191	93.38911764	91.2930779
240130A00059	1/30/2024	4.33	1/30/2026		105.68108	104.1671195	102.6828083	101.2273522	99.79998359	98.39996184	97.02657177	95.6791227	94.3569473
240130A00068	1/30/2024	4.17	1/30/2029		118.29672	113.539608	109.0063261	104.6851214	100.5649186	96.63527915	92.88636198	89.30888553	85.89409324
240130A00070	1/30/2024	4.33	1/30/2026		105.68108	104.1671195	102.6828083	101.2273522	99.79998359	98.39996184	97.02657177	95.6791227	94.3569473
240130A00076	1/30/2024	4.94	1/30/2025		101.88764	101.3810972	100.8795945	100.3830577	99.89141325	99.40458913	98.92251465	98.44512054	97.97233885
240130A00089	1/30/2024	4.17	1/30/2029		118.29672	113.539608	109.0063261	104.6851214	100.5649186	96.63527915	92.88636198	89.30888553	85.89409324
240131A00013	1/31/2024	4.13	2/1/2027		109.51719	106.9558671	104.468705	102.0531186	99.70663243	97.42687235	95.21156051	93.05851096	90.96562528
240131A00014	1/31/2024	4.04	1/31/2029		117.71857	112.9716578	108.4483916	104.1370126	100.0264446	96.10624929	92.36658599	88.79817403	85.39225812
240131A00015	1/31/2024	4.02	1/31/2029		109.7225	107.0678425	104.5098108	102.0440382	99.66638539	97.3729292	95.15994954	93.02391771	90.96148525
240131A00020	2/1/2024	5.33	8/1/2024		100.05446	100.0516179	100.0487774	100.0459394	100.0431038	100.0402707	100.0374401	100.0346118	100.0317861
240131A00021	1/31/2024	4.8	1/27/2025		101.80459	101.2897713	100.7800212	100.2752632	99.77542426	99.28043283	98.79021868	98.30471291	97.82384799
240131A00022	3/1/2024	4.13	3/1/2027		109.87721	107.2268094	104.6548119	102.1584155	99.73493892	97.38181422	95.096581	92.87688122	90.72045415
240131A00026	1/31/2024	4.31	1/30/2026		105.45257	103.9436665	102.4642697	101.0135879	99.59085843	98.19534528	96.82633767	95.48314909	94.16511625
240131A00028	1/31/2024	4.8	1/27/2025		101.80459	101.2897713	100.7800212	100.2752632	99.77542426	99.28043283	98.79021868	98.30471291	97.82384799
240131A00033	1/31/2024	4.18	1/30/2026		105.45423	103.9420563	102.4594983	101.0057649	99.58008965	98.18173255	96.80997921	95.46413966	94.14354731
240131A00034	1/31/2024	4	1/29/2027		109.49254	106.932863	104.4472276	102.0330586	99.6878875	97.40934672	95.19516459	93.0431609	90.95124263
240131A00036	1/31/2024	4.51	7/31/2025		103.5659	102.5570933	101.5679951	100.5980332	99.64665572	98.71333153	97.79754976	96.89881861	96.01666455
240131A00039	1/31/2024	4.22	7/31/2026		107.52065	105.4893917	103.5074443	101.5732963	99.68549688	97.84264933	96.04340873	94.28647958	92.57061365
240131A00044	1/31/2024	4.8	1/27/2025		101.80459	101.2897713	100.7800212	100.2752632	99.77542426	99.28043283	98.79021868	98.30471291	97.82384799
240131A00054	1/31/2024	4.8	1/31/2025		101.82727	101.3181777	100.8141757	100.3151894	99.82114429	99.33196718	98.8475864	98.36793168	97.89293408
240131A00059	1/31/2024	4.57	7/31/2025		103.62636	102.6172275	101.6278072	100.6575276	99.70583653	98.77220302	97.85611601	96.95708362	96.07463223
240131A00076	1/31/2024	4.35	1/30/2026		105.513	104.003623	102.5237599	101.0726198	99.64943993	98.25348398	96.88404098	95.54042424	94.22197027
240131A00080	1/31/2024	4.16	1/29/2027		109.55659	107.0031928	104.5235064	102.1149766	99.77514994	97.50167291	95.29228728	93.14482554	91.05720673
240201A00003	2/1/2024	4.17	2/2/2026		105.47656	103.9555417	102.4644275	101.0024067	99.5687014	98.16256125	96.78326176	95.4301034	94.1024105
240201A00009	2/1/2024	3.96	2/1/2029		117.36777	112.6256492	108.107163	103.8005467	99.69471676	95.77922864	92.04423589	88.480453	85.07912039
240201A00021	2/1/2024	4.81	2/3/2025		101.86422	101.346848	100.8347373	100.3278094	99.82598558	99.32918912	98.83734465	98.3503783	97.86821769
240201A00023	2/1/2024	4.5	8/1/2025		103.56739	102.5558605	101.5641448	100.5916688	99.637876	98.70223102	97.78421888	96.88334389	95.99912881
240201A00027	2/1/2024	3.83	2/1/2029		117.4379	112.6747078	108.1366532	103.811868	99.68917392	95.7580383	92.00853285	88.43129585	85.01749682
240201A00029	2/1/2024	4.52	8/1/2025		103.5876	102.5759597	101.5841361	100.6115537	99.65765581	98.72190722	97.80379283	96.90281694	96.01850227
240201A00030	2/1/2024	4.35	2/2/2026		105.55074	104.0324321	102.543918	101.0843965	99.65309347	98.2492622	96.87218166	95.52115557	94.19551137
240201A00038	2/1/2024	4.3	2/2/2026		105.47479	103.9570804	102.4691552	101.0102123	99.57947806	98.17620594	96.79967516	95.44918972	94.12407725
240201A00040	2/1/2024	4.08	2/1/2030		121.6904	115.806987	110.252834	105.007692	100.0526602	95.37009138	90.94350308	86.75749427	82.79766915
240201A00042	2/1/2024	4.24	2/1/2033		132.47294	123.1199769	114.5284978	106.6317785	99.36928971	92.68609171	86.53229081	80.86255146	75.63565776

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240201A00043	2/1/2024	4.27	2/1/2034		135.8585	125.3307497	115.7458269	107.0131396	99.0512825	91.7870589	85.15461257	79.09465623	73.55378444
240201A00051	2/1/2024	4.83	2/3/2025		101.87457	101.3571665	100.8450251	100.3380667	99.83621266	99.33938619	98.84751191	98.36051597	97.87832598
240201A00052	2/1/2024	4.5	8/1/2025		103.56739	102.5558605	101.5641448	100.5916688	99.637876	98.70223102	97.78421888	96.88334389	95.99912881
240201A00054	2/1/2024	4.83	2/3/2025		101.87457	101.3571665	100.8450251	100.3380667	99.83621266	99.33938619	98.84751191	98.36051597	97.87832598
240201A00055	2/1/2024	5.32	8/1/2024		100.05435	100.0515081	100.0486677	100.0458298	100.0429944	100.0401614	100.0373309	100.0345028	100.0316772
240201A00056	2/1/2024	4.3	2/2/2026		105.47479	103.9570804	102.4691552	101.0102123	99.57947806	98.17620594	96.79967516	95.44918972	94.12407725
240201A00057	2/1/2024	4.83	2/3/2025		101.87457	101.3571665	100.8450251	100.3380667	99.83621266	99.33938619	98.84751191	98.36051597	97.87832598
240201A00061	2/1/2024	4.5	8/1/2025		103.56739	102.5558605	101.5641448	100.5916688	99.637876	98.70223102	97.78421888	96.88334389	95.99912881
240201A00063	2/1/2024	4.81	2/3/2025		101.86422	101.346848	100.8347373	100.3278094	99.82598558	99.32918912	98.83734465	98.3503783	97.86821769
240201A00064	2/1/2024	4.51	8/1/2025		103.5775	102.5659101	101.5741404	100.6016112	99.6477659	98.71206912	97.79400586	96.89308042	96.00881554
240201A00065	2/1/2024	4.33	2/2/2026		105.52036	104.0022914	102.5140129	101.0547228	99.62364731	98.2200397	96.84317906	95.49236923	94.16693772
240201A00069	5/1/2024	4.44	4/30/2025		102.50265	101.749067	101.0065817	100.2749482	99.55392954	98.84329594	98.14282404	97.45229689	96.77150365
240202A00014	2/2/2024	4.51	8/1/2025		103.70872	102.6945352	101.7002503	100.725279	99.7690619	98.83106097	97.91075866	97.00765685	96.12127596
240202A00016	2/2/2024	4.25	2/2/2027		109.83287	107.2645009	104.7705263	102.3483525	99.99549433	97.70956829	95.48828789	93.3294589	91.23097504
240202A00017	2/2/2024	4.23	8/3/2026		107.84637	105.7985311	103.8005889	101.8510146	99.94833301	98.09112431	96.27802169	94.50770888	92.77891791
240202A00022	2/2/2024	4.96	2/3/2025		101.94184	101.4242365	100.9118957	100.4047393	99.90268872	99.40566712	98.91359912	98.42641084	97.94402988
240202A00023	2/2/2024	4.96	2/3/2025		101.94184	101.4242365	100.9118957	100.4047393	99.90268872	99.40566712	98.91359912	98.42641084	97.94402988
240202A00025	2/2/2024	4.82	2/3/2025		101.93538	101.4169923	100.9038883	100.3959866	99.89320835	99.39547617	98.90271424	98.41484827	97.93180544
240202A00029	2/2/2024	4.15	2/2/2029		118.2421	113.4772708	108.9370168	104.6095217	100.4836565	96.54893341	92.79546565	89.21392966	85.79553006
240202A00030	2/2/2024	4.32	2/3/2031		126.53555	119.4636355	112.8484651	106.6579108	100.8622752	95.43409113	90.34794323	85.58030447	81.10938642
240205A00004	2/5/2024	5.19	11/6/2024		101.07038	100.7905729	100.5122806	100.2354912	99.9601926	99.68637277	99.41401975	99.14312172	98.87366701
240205A00020	2/5/2024	4.99	2/5/2025		101.97959	101.4564258	100.9386362	100.4261434	99.91886612	99.41672501	98.91964221	98.42754143	97.94034793
240205A00042	2/5/2024	5.39	8/5/2024		100.09692	100.082705	100.0685031	100.0543151	100.0401409	100.0259806	100.0118341	99.9977014	99.9835825
240205A00044	2/5/2024	4.99	2/5/2025		101.97959	101.4564258	100.9386362	100.4261434	99.91886612	99.41672501	98.91964221	98.42754143	97.94034793
240206A00017	2/6/2024	4.33	8/6/2027		112.3351	109.2133019	106.1965219	103.2806288	100.4616812	97.73591541	95.09973568	92.54970617	90.08254261
240206A00026	2/6/2024	4.59	8/6/2025		103.8505	102.8219031	101.8137603	100.8254623	99.85642623	98.90609205	97.97392123	97.05939576	96.16201718
240207A00002	2/7/2024	4.81	2/7/2025		101.97423	101.4448	100.9208863	100.4024001	99.8892573	99.38137529	98.87867331	98.38107219	97.88849441
240207A00006	2/7/2024	4.06	2/7/2029		118.56038	113.7532455	109.1737153	104.8097604	100.6500559	96.68393237	92.90133461	89.29278275	85.84933636
240207A00009	2/7/2024	5.38	8/7/2024		100.11755	100.0976503	100.0777719	100.057914	100.0380767	100.0182598	99.99846333	99.9786873	99.95893164
240207A00022	2/7/2024	4.25	2/7/2028		114.34701	110.6762727	107.1459068	103.749766	100.4820074	97.33707552	94.30968651	91.39481323	88.58767134
240207A00025	2/8/2024	4.2	1/8/2029		118.18813	113.4941616	109.0183167	104.7492812	100.6763911	96.78958761	93.07937969	89.53680924	86.15341827
240207A00039	2/7/2024	4.55	8/7/2025		103.82157	102.7904037	101.7797976	100.7891386	99.81783936	98.86533545	97.93108422	97.01456373	96.11527182
240207A00040	2/7/2024	4.55	8/7/2025		103.82157	102.7904037	101.7797976	100.7891386	99.81783936	98.86533545	97.93108422	97.01456373	96.11527182

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240208A00053	2/8/2024	4.58	2/9/2026		105.99656	104.4537724	102.9414594	101.4587871	100.0049547	98.57918999	97.18074764	95.80890841	94.46297788
240208A00055	2/8/2024	4.37	2/8/2027		110.217	107.6255494	105.1094839	102.6661588	100.293043	97.98770957	95.74783113	93.57117472	91.45559753
240209A00007	2/9/2024	4.5	12/9/2025		105.30597	103.9341455	102.5868801	101.2635682	99.96362516	98.6864851	97.43159998	96.19843892	94.98648756
240209A00019	2/9/2024	4.39	2/9/2027		110.2814	107.686099	105.1663405	102.7194801	100.3429787	98.03440235	95.79141657	93.61178199	91.49334967
240209A00020	2/9/2024	4.58	2/9/2026		105.99656	104.4537724	102.9414594	101.4587871	100.0049547	98.57918999	97.18074764	95.80890841	94.46297788
240212A00029	2/12/2024	4.58	2/12/2026		106.03789	104.4857901	102.9644304	101.472972	100.0106029	98.57654027	97.170029	95.79034032	94.43677082
240213A00017	2/13/2024	4.26	2/13/2029		119.55302	114.7047031	110.086366	105.6858295	101.4916244	97.49294741	93.67961901	90.04204369	86.57117346
240213A00022	2/13/2024	4.6	8/13/2026		108.45496	106.3785686	104.3530561	102.3768435	100.4484137	98.56630726	96.7291199	94.93549979	93.18414531
240214A00001	2/14/2024	4.79	11/10/2025		105.13892	103.8447767	102.5790506	101.3408053	100.1291437	98.94320818	97.78217784	96.64526685	95.53172249
240214A00007	2/14/2024	4.7	2/17/2026		106.29402	104.7248612	103.1869255	101.6793546	100.2013175	98.752013	97.33066844	95.93653862	94.56890442
240214A00012	2/14/2024	5.1	2/14/2025		102.13985	101.5916409	101.0493335	100.5128357	99.98205424	99.45689785	98.93727726	98.42310505	97.91429564
240214A00019	2/15/2024	4.41	1/26/2029		119.33662	114.5673294	110.0216387	105.6878396	101.5548991	97.61241739	93.85058764	90.2601594	86.83240391
240215A00013	2/15/2024	4.82	8/15/2025		104.06501	103.0126167	101.9816114	100.9713449	99.98119478	99.0105633	98.05887614	97.12558139	96.21014842
240215A00026	2/15/2024	4.48	2/10/2027		110.52409	107.922631	105.3969355	102.9443457	100.5623133	98.24839539	96.0002494	93.81562803	91.69237492
240215A00033	2/15/2024	4.35	2/16/2027		110.62129	107.9929943	105.4417415	102.9648083	100.5595857	98.22357355	95.9543751	93.74969207	91.60731991
240215A00046	4/1/2024	4.49	4/1/2027		111.20707	108.4540065	105.7842306	103.194685	100.6824506	98.24473547	95.8788686	93.5822934	91.35256201
240216A00012	2/16/2024	4.53	8/16/2027		113.07031	109.9095616	106.855714	103.9045417	101.0520078	98.29425871	95.62761454	93.04856007	90.55373643
240220A00031	2/20/2024	4.68	2/20/2026		106.30499	104.7267282	103.1799681	101.6638337	100.1774828	98.72010354	97.29091331	95.88915737	94.51410758
240220A00073	2/20/2024	5.08	2/20/2025		102.19702	101.6322411	101.0737217	100.5213594	99.97505249	99.43470166	98.90020967	98.37148142	97.84842387
240221A00012	2/21/2024	5.23	12/20/2024		101.57869	101.1729985	100.7704805	100.3710948	99.97480487	99.58157461	99.19136866	98.80415213	98.41989067
240221A00013	2/21/2024	5.23	12/23/2024		101.61297	101.1986324	100.7875994	100.3798281	99.97527993	99.57391664	99.17570068	98.78059509	98.38856347
240221A00014	2/21/2024	4.53	2/22/2027		110.81938	108.1776197	105.6134996	103.1242619	100.7072683	98.35999127	96.08000839	93.86499709	91.71272998
240221A00015	2/21/2024	4.48	2/22/2028		115.36635	111.6328933	108.0433256	104.5912949	101.270762	98.07598811	95.00151802	92.04216417	89.192992
240221A00022	2/21/2024	4.97	2/21/2025		102.21902	101.6505395	101.0884012	100.5325	99.98273229	99.4389968	98.90119438	98.3692281	97.84300312
240222A00007	2/22/2024	5.26	12/23/2024		101.62498	101.2105975	100.7995216	100.3917079	99.98711749	99.58571236	99.18745488	98.7923081	98.40023562
240222A00030	2/22/2024	4.99	2/21/2025		102.23037	101.66185	101.0996753	100.5437381	99.99393457	99.45016357	98.91232591	98.38032466	97.85406498
240222A00035	2/22/2024	5.17	2/24/2025		102.29421	101.7181815	101.1486558	100.5855232	100.0286766	99.47801082	98.93342331	98.39481369	97.86208378
240222A00036	2/22/2024	5.17	2/24/2025		102.29421	101.7181815	101.1486558	100.5855232	100.0286766	99.47801082	98.93342331	98.39481369	97.86208378
240222A00037	2/22/2024	5.17	2/24/2025		102.29421	101.7181815	101.1486558	100.5855232	100.0286766	99.47801082	98.93342331	98.39481369	97.86208378
240223A00004	2/23/2024	5	2/24/2025		102.2706	101.6937384	101.1233977	100.5594716	100.001852	99.45043334	98.90511249	98.36578851	97.83236272
240223A00007	2/23/2024	4.81	8/22/2025		104.2805	103.2057472	102.1532518	101.1223257	100.1123096	99.12257079	98.15250175	97.20151919	96.26906266
240223A00008	2/23/2024	5.44	9/23/2024		100.6327	100.4790135	100.3257918	100.1730363	100.0207448	99.86891534	99.71754565	99.56663368	99.41617733
240223A00020	2/23/2024	5.16	2/24/2025		102.28846	101.7124463	101.1429393	100.5798253	100.022997	99.47234944	98.92778001	98.38918832	97.85647621

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240223A00022	2/23/2024	5.22	1/23/2025		101.96583	101.4621546	100.9633357	100.4693011	99.97998199	99.49531119	99.01522263	98.53965152	98.06853428
240226A00010	2/26/2024	4.53	7/15/2027		112.664	109.597521	106.6323561	103.7645918	100.9904926	98.30648732	95.70916162	93.19524976	90.76162736
240226A00025	2/26/2024	4.43	2/26/2027		110.96821	108.3048198	105.7200866	103.2112011	100.7754773	98.41034246	96.11333141	93.88208143	91.71432711
240226A00037	2/26/2024	5.17	2/26/2025		102.3174	101.7358292	101.1608788	100.5924401	100.0304026	99.47465856	98.9251027	98.38163192	97.84414547
240227A00009	2/27/2024	5.24	1/27/2025		102.02149	101.5064329	100.9964423	100.4914462	99.99137155	99.49614664	99.00570126	98.5199665	98.03887476
240227A00015	2/27/2024	5.18	2/27/2025		102.33484	101.7504685	101.1727861	100.6016747	100.0370228	99.47872099	98.9266626	98.38074324	97.84086084
240227A00020	2/27/2024	5.18	2/27/2025		102.33484	101.7504685	101.1727861	100.6016747	100.0370228	99.47872099	98.9266626	98.38074324	97.84086084
240227A00021	2/27/2024	4.97	8/27/2025		104.37665	103.2897042	102.2255128	101.1833618	100.1625706	99.16248591	98.18248128	97.22195508	96.28032962
240227A00025	2/27/2024	5.02	2/27/2025		102.31684	101.7316008	101.1530705	100.5811332	100.0156766	99.45659087	98.90376872	98.35710517	97.81649764
240228A00007	2/28/2024	5.17	2/27/2025		102.329	101.7446511	101.1669879	100.5958956	100.0312626	99.4729795	98.9209397	98.37503877	97.83517466
240228A00018	2/28/2024	5.48	8/28/2024		100.34543	100.2658837	100.1864639	100.1071723	100.0280087	99.9489726	99.87006386	99.79128213	99.71262711
240228A00035	5/28/2024	4.99	5/28/2025		103.26335	102.4301505	101.6104483	100.8039122	100.0102262	99.22908471	98.46019146	97.7032596	96.95801116
240229A00015	2/29/2024	5.25	12/30/2024		101.70013	101.2660165	100.8355106	100.408571	99.98515352	99.5652148	99.14871216	98.73560365	98.32584796
240229A00026	2/29/2024	4.74	2/27/2026		106.49866	104.8977745	103.3290567	101.7916033	100.2845449	98.80704428	97.35829456	95.937518	94.54396465
240229A00027	2/29/2024	4.54	2/26/2027		110.90129	108.2462849	105.6695421	103.1682754	100.7398165	98.38160934	96.09120451	93.86625421	91.70450721
240301A00001	3/1/2024	5.03	6/2/2025		103.35694	102.5097083	101.6764173	100.8567223	100.0502921	99.25680611	98.47595407	97.70743553	96.95095951
240301A00002	3/1/2024	5.24	1/2/2025		101.73044	101.2877786	100.84887	100.4136698	99.98213138	99.5542086	99.12985624	98.70902978	98.29168547
240301A00003	3/1/2024	5.19	2/3/2025		102.0765	101.5416396	101.0122406	100.4882212	99.96949962	99.45599599	98.94763193	98.44433062	97.94601679
240301A00022	3/1/2024	4.94	3/3/2025		102.31607	101.7199138	101.1307225	100.5483738	99.9727489	99.40373153	98.84120825	98.28506818	97.73520292
240301A00023	3/1/2024	4.17	3/1/2029		119.3465	114.4530595	109.7937318	105.356013	101.1281383	97.09903185	93.25826283	89.59600405	86.10299374
240301A00024	3/1/2024	4.17	3/1/2029		119.3465	114.4530595	109.7937318	105.356013	101.1281383	97.09903185	93.25826283	89.59600405	86.10299374
240301A00025	3/1/2024	4.45	3/1/2027		110.70844	108.0471302	105.464473	102.9576569	100.5239933	98.16090702	95.86593096	93.6367005	91.47094861
240301A00031	3/1/2024	5.1	3/3/2025		102.3344	101.7391357	101.1508113	100.5693068	99.99450397	99.42628731	98.86454393	98.30916352	97.76003827
240305A00008	3/5/2024	4.84	9/5/2025		104.34998	103.2386216	102.1510504	101.0865055	100.0442602	99.02361752	98.02390977	97.04449631	96.08476249
240305A00010	3/5/2024	4.66	3/5/2026		106.4508	104.8337957	103.2494886	101.6969535	100.1752992	98.68366754	97.22123207	95.7871964	94.38079286
240305A00011	3/5/2024	4.55	9/4/2026		108.63838	106.4995448	104.4140577	102.3802277	100.3964279	98.46109557	96.57272844	94.72988217	92.93116757
240305A00035	3/5/2024	5.11	2/28/2025		102.30541	101.7184035	101.1381433	100.5645125	99.99739815	99.43668949	98.88227843	98.33405925	97.79192859
240306A00006	3/6/2024	4.65	9/5/2025		104.28378	103.1706824	102.0814449	101.0153048	99.97153178	98.94942628	97.94831747	96.96756206	96.00654281
240306A00010	3/6/2024	4.22	3/6/2029		118.95173	114.0736531	109.4290862	105.0055472	100.7912941	96.77527349	92.9470759	89.29689495	85.81548892
240306A00014	3/6/2024	5.09	3/6/2025		102.36322	101.7596927	101.1633015	100.573922	99.99143076	99.41570728	98.84663389	98.28409563	97.72798016
240306A00015	3/6/2024	4.93	3/6/2025		102.34462	101.7401891	101.1429167	100.5526792	99.96935255	99.39281564	98.82295015	98.2596405	97.70277379
240306A00025	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354
240306A00026	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240306A00027	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354
240306A00028	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354
240306A00029	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354
240306A00030	3/19/2024	5.07	3/19/2025		102.50104	101.861603	101.2301743	100.6066037	99.99074488	99.38245502	98.78159486	98.18802855	97.60162354
240307A00022	3/7/2024	4.09	3/7/2029		119.04482	114.1413688	109.4732831	105.0279573	100.7935291	96.75883311	92.91335606	89.24719523	85.7510194
240308A00005	3/8/2024	4.03	3/8/2029		118.77739	113.877256	109.2125235	104.7705759	100.5395415	96.50824675	92.66617137	89.0034061	85.51061403
240308A00008	3/8/2024	4.99	4/1/2025		102.59713	101.9218805	101.2555367	100.5979246	99.94887329	99.30821622	98.67579115	98.05144002	97.43500877
240308A00009	3/8/2024	4.74	9/8/2025		104.27687	103.1577646	102.0627873	100.9911669	99.94216022	98.91505565	97.90917105	96.92385243	95.95847243
240308A00011	3/8/2024	4.54	3/9/2026		106.3091	104.6824672	103.0888727	101.5273734	99.99706371	98.49707217	97.02655949	95.5847172	94.1707662
240308A00018	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00019	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00020	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00021	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00022	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00023	3/8/2024	5.06	3/10/2025		102.39115	101.7766316	101.1695159	100.5696692	99.97696122	99.39126472	98.81245553	98.24041238	97.67501683
240308A00027	3/8/2024	4.23	3/8/2027		110.57585	107.8895152	105.2831641	102.7539187	100.2990242	97.91584315	95.60184965	93.35462377	91.17184634
240308A00031	3/8/2024	4.46	9/16/2026		108.60418	106.432003	104.3146133	102.2502511	100.2372245	98.27390862	96.35874307	94.49022838	92.66692329
240311A00006	3/11/2024	4.6	3/11/2026		106.43175	104.7986851	103.1988585	101.6313173	100.0951483	98.58947228	97.11344297	95.6662451	94.24709316
240311A00009	3/11/2024	4.38	3/11/2027		110.65081	107.9628977	105.355038	102.8243524	100.3680812	97.98358269	95.66832685	93.41989006	91.23594971
240311A00010	3/11/2024	5.07	3/11/2025		102.40882	101.7915165	101.1816823	100.579182	99.98388373	99.39565851	98.81438051	98.23992686	97.67217759
240311A00011	3/11/2024	4.89	7/11/2025		103.70533	102.7502339	101.8128095	100.8925682	99.98903955	99.10177045	98.23032387	97.37427839	96.53322747
240311A00012	3/11/2024	4.8	9/11/2025		104.38183	103.2539059	102.1504815	101.0707611	100.013985	98.97942619	97.96638779	96.97420194	96.00222818
240311A00014	3/11/2024	5.07	3/11/2025		102.40882	101.7915165	101.1816823	100.579182	99.98388373	99.39565851	98.81438051	98.23992686	97.67217759
240312A00009	3/12/2024	4.68	3/12/2026		106.57449	104.9375301	103.3339133	101.7626893	100.2229405	98.71378363	97.23436847	95.78387612	94.36151758
240312A00013	3/12/2024	4.68	3/12/2026		106.57449	104.9375301	103.3339133	101.7626893	100.2229405	98.71378363	97.23436847	95.78387612	94.36151758
240312A00015	3/12/2024	4.13	3/12/2029		119.28833	114.3651753	109.6788393	105.216607	100.9665177	96.91731523	93.05840262	89.37979963	85.87210347
240312A00019	3/12/2024	4.87	9/12/2025		104.47333	103.3421288	102.235554	101.1528042	100.0931142	99.05575152	98.0400143	97.04522992	96.07075343
240312A00020	3/12/2024	4.82	11/3/2025		105.08181	103.8053934	102.5590704	101.341777	100.1525008	98.9902763	97.85418216	96.74333853	95.65690485
240312A00028	3/12/2024	4.87	9/12/2025		104.47333	103.3421288	102.235554	101.1528042	100.0931142	99.05575152	98.0400143	97.04522992	96.07075343
240313A00007	3/13/2024	4.88	9/12/2025		104.48459	103.3533207	102.2466797	101.1638646	100.1041103	99.06668427	98.05088463	97.05603872	96.08150158
240313A00023	3/13/2024	4.68	3/13/2026		106.58758	104.9478015	103.3414617	101.7676034	100.2253051	98.71367992	97.23187433	95.77906617	94.35446337
240314A00008	3/14/2024	4.55	3/10/2027		111.0842	108.3932803	105.7824085	103.2487021	100.7894048	98.40187788	96.08359406	93.83213224	91.64517208
240314A00009	3/14/2024	4.75	3/10/2026		106.66158	105.0292974	103.4301942	101.8633233	100.3277743	98.82267066	97.34716854	95.90045508	94.48174697

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240314A00012	3/14/2024	4.62	3/13/2026		106.70558	105.0611325	103.4502751	101.872044	100.3255123	98.80978808	97.32401287	95.86735992	94.43903274
240314A00013	3/14/2024	4.62	3/13/2026		106.70558	105.0611325	103.4502751	101.872044	100.3255123	98.80978808	97.32401287	95.86735992	94.43903274
240314A00026	3/14/2024	5.25	1/14/2025		101.87262	101.3961734	100.9240945	100.4563207	99.9927933	99.53345451	99.07824764	98.62711702	98.18000798
240314A00027	3/14/2024	5.15	3/14/2025		102.49341	101.867635	101.2495318	100.6389596	100.035781	99.43986187	98.85107138	98.26928182	97.69436853
240315A00015	3/15/2024	4.8	3/16/2026		106.82298	105.1730946	103.5569555	101.9735933	100.4220745	98.90150056	97.41100701	95.94976127	94.51696138
240318A00014	3/18/2024	4.67	3/18/2026		106.85416	105.1948635	103.5696404	101.9775037	100.4175067	98.88873925	97.39032521	95.92142123	94.4812151
240318A00015	3/18/2024	4.47	2/20/2029		119.92989	115.0712471	110.4432584	106.0336903	101.8310262	97.8244196	94.00365095	90.35908826	86.88164997
240318A00020	3/18/2024	4.48	3/19/2029		118.12244	113.6975742	109.4801991	105.4592332	101.6242552	97.9654608	94.47362178	91.14004909	87.95655776
240319A00003	3/19/2024	4.65	3/19/2026		106.8347	105.1728536	103.5451653	101.9506486	100.3883531	98.85736498	97.35680492	95.88582637	94.44361409
240319A00004	3/19/2024	4.47	3/19/2027		111.34867	108.6217418	105.976627	103.4103531	100.920078	98.50308213	96.15676219	93.87862527	91.66628336
240319A00007	3/19/2024	5.16	3/19/2025		102.55853	101.9188907	101.2872581	100.6634855	100.0474264	99.43893804	98.8378811	98.2441197	97.65752127
240319A00011	3/19/2024	5.12	5/1/2025		103.02785	102.2693703	101.5220892	100.7857616	100.0601475	99.34501415	98.64013537	97.94529148	97.26026904
240319A00012	3/19/2024	4.77	4/14/2026		107.1665	105.4338856	103.7378861	102.0774061	100.4513927	98.85883483	97.29876131	95.77023863	94.27236922
240319A00014	3/19/2024	4.44	3/19/2029		120.12103	115.179748	110.4761488	105.9974588	101.7316645	97.66746154	93.79420813	90.10188279	86.58104454
240319A00021	3/19/2024	4.83	9/19/2025		104.66716	103.5134174	102.3852402	101.2817827	100.2022373	99.14583125	98.11182479	97.09950945	96.1082064
240320A00010	3/20/2024	4.77	3/20/2036		147.88933	134.549491	122.6204716	111.9423927	102.3743994	93.79230537	86.0865359	79.16033566	72.92820412
240320A00013	3/20/2024	5.46	8/19/2024		100.24069	100.1869251	100.1332369	100.079622	100.0260804	99.97261173	99.91921597	99.86589292	99.81264245
240320A00014	3/20/2024	5.45	9/27/2024		100.67342	100.5089252	100.3449573	100.1815171	100.0186021	99.85620992	99.69433793	99.53298365	99.37214463
240320A00015	3/20/2024	5.35	12/11/2024		101.51536	101.1367431	100.7609047	100.3878099	100.0174284	99.64973078	99.28468774	98.92227053	98.5624508
240321A00006	3/21/2024	4.88	9/22/2025		104.61364	103.4542458	102.3206902	101.2121101	100.1276849	99.06662983	98.02819363	97.0116571	96.01633123
240321A00007	3/21/2024	4.7	3/23/2026		106.75153	105.0832771	103.4494046	101.848913	100.2808423	98.74426926	97.23830584	95.76209716	94.31482015
240321A00019	3/21/2024	4.88	9/22/2025		104.61364	103.4542458	102.3206902	101.2121101	100.1276849	99.06662983	98.02819363	97.0116571	96.01633123
240321A00021	3/21/2024	5.43	9/18/2024		100.56964	100.4307823	100.2923138	100.154234	100.0165412	99.87923378	99.74231011	99.60576852	99.46960739
240321A00025	3/21/2024	5.06	4/17/2025		102.8183	102.0988395	101.389484	100.690024	100.0002529	99.31997003	98.64898011	97.98709322	97.33412462
240321A00026	3/21/2024	5.03	5/19/2025		103.18892	102.3805891	101.5849777	100.8017847	100.0307205	99.27150415	98.52386359	97.7875349	97.06226219
240321A00029	3/21/2024	5.44	8/21/2024		100.261	100.2015856	100.142252	100.0830027	100.0238376	99.96475644	99.90575905	99.84684526	99.78801489
240321A00031	3/21/2024	5.41	10/21/2024		100.93896	100.7062006	100.4745006	100.2438572	100.0142633	99.78571141	99.55819458	99.33170569	99.10623774
240322A00007	3/22/2024	4.67	3/23/2026		106.70192	105.0340888	103.4006326	101.8005498	100.2328808	98.69670258	97.1911271	95.71529975	94.2683976
240322A00008	3/22/2024	4.65	4/22/2026		107.06819	105.3140849	103.5974163	101.9170451	100.2718837	98.66088791	97.08305554	95.53742366	94.02306691
240322A00012	3/22/2024	4.92	3/21/2025		102.51062	101.8646447	101.2268376	100.5970476	99.97512377	99.36091914	98.75429023	98.15509716	97.56320347
240322A00013	3/22/2024	4.18	3/22/2029		119.63808	114.6785887	109.958721	105.4655534	101.1869316	97.11142076	93.22825901	89.52731399	85.99904235
240322A00014	3/22/2024	4.51	5/22/2026		107.45148	105.6076524	103.8047398	102.0415587	100.3169706	98.62987798	96.97922289	95.36398509	93.78318041
240322A00015	3/22/2024	4.65	11/21/2025		105.27676	103.9516724	102.652479	101.3784401	100.1288413	98.90299542	97.70024131	96.51994251	95.36148613

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240322A00018	3/22/2024	4.34	3/22/2027		111.04204	108.3109473	105.6620057	103.0922276	100.5987515	98.17883971	95.8298721	93.54933988	91.33484016
240322A00020	3/22/2024	4.92	3/21/2025		102.51062	101.8646447	101.2268376	100.5970476	99.97512377	99.36091914	98.75429023	98.15509716	97.56320347
240322A00021	3/22/2024	4.93	3/21/2025		102.51707	101.8710676	101.2332375	100.6034246	99.98147815	99.36725106	98.76059989	98.16138475	97.56946919
240322A00022	3/22/2024	5.08	3/17/2025		102.48432	101.850399	101.224349	100.6060253	99.99528534	99.39198974	98.79600266	98.20719152	97.62542694
240322A00029	3/22/2024	4.36	3/22/2027		111.09525	108.3634352	105.7137959	103.143336	100.6491936	98.22863053	95.87902613	93.59787122	91.38276247
240322A00032	3/22/2024	4.67	3/23/2026		106.70192	105.0340888	103.4006326	101.8005498	100.2328808	98.69670258	97.1911271	95.71529975	94.2683976
240325A00023	3/25/2024	4.71	9/25/2025		104.60651	103.4366793	102.2931282	101.1749806	100.0813957	99.01156895	97.96473092	96.94014505	95.93710595
240325A00024	3/25/2024	4.71	9/25/2025		104.60651	103.4366793	102.2931282	101.1749806	100.0813957	99.01156895	97.96473092	96.94014505	95.93710595
240325A00027	4/1/2024	4.91	10/1/2025		104.7651	103.5801396	102.4221228	101.2901355	100.1833058	99.10080019	98.04182187	97.00560837	95.99142991
240325A00028	4/1/2024	4.91	10/1/2025		104.7651	103.5801396	102.4221228	101.2901355	100.1833058	99.10080019	98.04182187	97.00560837	95.99142991
240325A00040	3/25/2024	4.46	4/30/2027		111.50075	108.66164	105.9104893	103.2439845	100.658965	98.15241263	95.72144384	93.36330244	91.07535305
240325A00060	3/25/2024	4.57	3/25/2026		106.7821	105.1043814	103.4613695	101.8520526	100.2754577	98.73064947	97.21672799	95.73282743	94.27811424
240326A00012	3/26/2024	5.44	9/26/2024		100.65932	100.4978214	100.3368348	100.1763593	100.0163927	99.85693244	99.69797619	99.53952154	99.38156612
240326A00013	3/26/2024	4.91	9/26/2025		104.70018	103.5293116	102.3847654	101.2656619	100.1711582	99.10044783	98.05275963	97.02735532	96.02352795
240326A00027	3/26/2024	4.95	3/26/2025		102.58769	101.9277596	101.2763427	100.6332784	99.99840659	99.37157109	98.75261975	98.14140424	97.53777989
240326A00042	3/26/2024	4.71	3/26/2026		106.80758	105.1307106	103.4885097	101.8799634	100.3041002	98.75998572	97.2467213	95.76344216	94.30931579
240327A00008	3/27/2024	4.72	10/1/2025		104.69516	103.5083151	102.3484953	101.2147856	100.1063101	99.02223182	97.96175041	96.92410025	95.90854855
240327A00014	3/27/2024	4.88	9/24/2025		104.63944	103.4744217	102.3354778	101.2217411	100.1323798	99.06659836	98.02363573	97.00276319	96.00328282
240327A00016	3/27/2024	4.56	3/27/2026		106.79176	105.108513	103.4601642	101.8456901	100.26411	98.71448107	97.19589653	95.70748395	94.24840351
240327A00025	3/27/2024	4.35	3/26/2027		111.11957	108.3763962	105.7159844	103.1353135	100.6314915	98.20175235	95.84344894	93.55404725	91.33112059
240327A00028	3/27/2024	4.4	3/27/2028		115.51473	111.6826043	108.0011917	104.4636901	101.0636492	97.79494665	94.65177018	91.62859919	88.72018851
240328A00016	3/29/2024	4.98	3/28/2025		102.6307	101.9651343	101.3082252	100.6598043	100.0197078	99.38777585	98.76385274	98.14778667	97.53942968
240328A00017	3/28/2024	4.6	3/30/2026		106.89815	105.2058242	103.5486871	101.9257094	100.3358981	98.77829894	97.25199442	95.75610177	94.28977144
240328A00018	3/28/2024	4.39	3/29/2027		111.26495	108.5115248	105.841352	103.2513813	100.738697	98.30051068	95.93415426	93.6370739	91.40682426
240328A00022	3/28/2024	4.3	3/28/2028		115.67094	111.8198789	108.120654	104.5663971	101.1505952	97.86706772	94.70994741	91.67366241	88.75291946
240328A00023	3/28/2024	4.22	3/28/2029		119.8963	114.9138262	110.1727117	105.6599028	101.3631259	97.2708367	93.37217201	89.65690598	86.11540888
240328A00024	3/28/2024	5.14	3/24/2025		102.60434	101.9508837	101.3057806	100.6688695	100.0399948	99.41900488	98.8057517	98.20009109	97.60188238
240328A00026	3/28/2024	4.6	3/27/2026		106.85842	105.1746029	103.5256902	101.9106624	100.3285382	98.77837473	97.25926489	95.77033601	94.31074805
240328A00027	3/28/2024	4.39	3/29/2027		111.26495	108.5115248	105.841352	103.2513813	100.738697	98.30051068	95.93415426	93.6370739	91.40682426
240328A00031	3/28/2024	4.92	9/24/2025		104.6858	103.5204937	102.3812695	101.2672569	100.1776239	99.1115749	98.06834872	97.04721653	96.04748032
240328A00039	3/28/2024	5.14	3/28/2025		102.65119	101.986641	101.3307181	100.6832558	100.0440911	99.41306503	98.79002259	98.17481277	97.56728835
240328A00049	3/28/2024	5.39	11/26/2024		101.35148	101.0161557	100.6830123	100.3520244	100.023171	99.69643151	99.37178567	99.04921338	98.7286948
240328A00050	3/28/2024	5.39	11/26/2024		101.35148	101.0161557	100.6830123	100.3520244	100.023171	99.69643151	99.37178567	99.04921338	98.7286948

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240328A00051	3/28/2024	5.39	11/26/2024		101.35148	101.0161557	100.6830123	100.3520244	100.023171	99.69643151	99.37178567	99.04921338	98.7286948
240328A00052	3/28/2024	4.34	3/28/2029		119.75985	114.8015809	110.0829622	105.5910568	101.3137003	97.2394493	93.35753472	89.65781795	86.13075038
240328A00054	3/28/2024	5.2	2/27/2025		102.34651	101.7621032	101.1843823	100.6132329	100.0485432	99.49020396	98.9381084	98.39215218	97.8522332
240328A00055	3/28/2024	5.2	2/27/2025		102.34651	101.7621032	101.1843823	100.6132329	100.0485432	99.49020396	98.9381084	98.39215218	97.8522332
240328A00057	3/28/2024	5.2	2/27/2025		102.34651	101.7621032	101.1843823	100.6132329	100.0485432	99.49020396	98.9381084	98.39215218	97.8522332
240328A00058	3/28/2024	5.1	4/28/2025		102.97697	102.2268772	101.487742	100.7593278	100.0414025	99.33374018	98.63612182	97.94833436	97.27017078
240328A00059	3/28/2024	5.1	4/28/2025		102.97697	102.2268772	101.487742	100.7593278	100.0414025	99.33374018	98.63612182	97.94833436	97.27017078
240328A00061	3/28/2024	4.35	3/28/2029		119.80673	114.847376	110.1277099	105.6347938	101.3564617	97.28126878	93.39844441	89.69784865	86.16993159
240328A00063	3/28/2024	4.47	3/28/2030		124.45576	118.3329889	112.5597593	107.1141244	101.9756312	97.12521399	92.54509332	88.21868188	84.13049824
240328A00064	3/28/2024	4.48	3/28/2031		128.11609	120.8363284	114.0349823	107.6778123	101.7332092	96.17198126	90.96715694	86.09380418	81.52886581
240328A00065	7/16/2024	4.46	7/16/2032		132.50928	123.7169682	115.5992847	108.1003527	101.1692097	94.75935522	88.82833817	83.3373846	78.25106146
240401A00003	4/1/2024	4.81	10/1/2025		104.80128	103.6137718	102.4532994	101.3189474	100.2098396	99.12513873	98.06404425	97.02579028	96.00964379
240401A00004	4/1/2024	4.81	10/1/2025		104.80128	103.6137718	102.4532994	101.3189474	100.2098396	99.12513873	98.06404425	97.02579028	96.00964379
240401A00006	4/1/2024	4.32	4/2/2029		119.0519	114.3661791	109.9054487	105.6574999	101.6108598	97.75474316	94.07900685	90.57410773	87.23106344
240401A00009	4/1/2024	4.79	4/1/2026		107.02129	105.3262349	103.6664414	102.0408765	100.448544	98.88848653	97.35978349	95.86154934	94.3929319
240401A00016	4/1/2024	4.47	4/1/2027		111.51877	108.7535468	106.0721102	103.471379	100.9484125	98.50039817	96.1246453	93.81857888	91.57973354
240401A00023	4/1/2024	5.17	4/1/2025		102.71857	102.0428579	101.3760615	100.718001	100.0685055	99.42740833	98.79454717	98.16976391	97.55290444
240401A00024	4/1/2024	4.97	10/1/2025		104.83579	103.6503882	102.4919372	101.3595227	100.2522724	99.1693527	98.10996656	97.07335139	96.05877726
240401A00027	4/1/2024	4.82	4/1/2026		107.07165	105.3761531	103.7159311	102.0899453	100.4971993	98.93673562	97.40763338	95.90900689	94.44000379
240402A00015	4/2/2024	4.61	11/15/2027		114.51784	111.0781702	107.7622146	104.5648149	101.4810592	98.50626899	95.63598665	92.86596326	90.1921477
240402A00044	4/2/2024	4.83	4/2/2026		107.10235	105.4037985	103.7406269	102.1117929	100.5162957	98.95317357	97.42150174	95.92039081	94.44898489
240403A00002	4/3/2024	5.01	10/3/2025		104.90941	103.7180926	102.5539828	101.416155	100.3037246	99.21584642	98.15171254	97.11055004	96.09161931
240403A00006	4/3/2024	4.71	4/3/2026		107.13786	105.4323411	103.7624506	102.1271368	100.5253892	98.95623648	97.41874532	95.91201789	94.43519037
240403A00008	4/3/2024	4.67	4/2/2027		111.70348	108.9408732	106.2618613	103.6633778	101.1424908	98.69639652	96.32241227	94.01797069	91.78061368
240403A00010	4/3/2024	4.54	4/5/2027		111.76102	108.9811411	106.2857518	103.6717352	101.1361156	98.67604783	96.28881042	93.97179941	91.72252219
240403A00013	4/3/2024	4.58	4/17/2028		116.45706	112.5476578	108.7938666	105.1885749	101.7250399	98.3968671	95.19799046	92.12265305	89.1653893
240403A00018	4/3/2024	4.67	4/5/2027		111.74392	108.9722728	106.2847045	103.6781195	101.1495612	98.69620267	96.31533965	94.00438433	91.76085945
240403A00022	4/3/2024	4.53	4/3/2029		120.72423	115.7264675	110.9706953	106.4438209	102.133534	98.02825597	94.11709238	90.38978839	86.83668756
240404A00004	4/4/2024	4.45	4/4/2029		120.35998	115.3677875	110.6175524	106.0961715	101.7913275	97.69143591	93.78559703	90.06355169	86.51563972
240404A00012	4/4/2024	4.46	4/4/2029		120.40705	115.4137671	110.6624762	106.1400768	101.8342497	97.73340889	93.8266534	90.10372258	86.55495494
240404A00014	4/4/2024	4.78	4/6/2026		107.0734	105.3639444	103.6902663	102.0513096	100.4460565	98.87352904	97.33278745	95.82292787	94.34308081
240404A00015	4/4/2024	4.6	4/5/2027		111.55534	108.7862555	106.1011898	103.4970497	100.9708804	98.51985676	96.14127608	93.83255221	91.59120942
240404A00019	6/3/2024	4.55	6/1/2027		112.1577	109.2214371	106.3785639	103.6256103	100.9592571	98.3763262	95.87377291	93.44868008	91.09825194

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240404A00020	6/3/2024	4.55	6/1/2027		112.1577	109.2214371	106.3785639	103.6256103	100.9592571	98.3763262	95.87377291	93.44868008	91.09825194
240404A00021	4/4/2024	4.57	4/1/2031		125.19011	118.8107536	112.8354346	107.2356662	101.985143	97.05956049	92.43645131	88.09503629	84.01608789
240404A00022	4/4/2024	4.78	4/6/2026		107.0734	105.3639444	103.6902663	102.0513096	100.4460565	98.87352904	97.33278745	95.82292787	94.34308081
240404A00023	4/4/2024	4.51	4/24/2028		116.28797	112.3615972	108.5922426	104.9726921	101.4961118	98.15602309	94.94628158	91.86105768	88.89481831
240404A00062	4/4/2024	5.13	4/4/2025		102.72747	102.0435647	101.3687968	100.70298	100.0459368	99.39749428	98.75748415	98.12574242	97.50210935
240405A00004	4/5/2024	4.99	10/6/2025		104.92531	103.7257069	102.5536872	101.4083098	100.2886717	99.19391062	98.12320217	97.07575823	96.05082477
240405A00005	4/5/2024	4.81	4/6/2026		107.12417	105.4142682	103.7401549	102.1007707	100.4950977	98.92215772	97.38101077	95.8707528	94.39051414
240405A00006	4/5/2024	4.63	4/5/2027		111.63616	108.8659772	106.179839	103.574651	101.0474579	98.59543358	96.21587475	93.90619455	91.66391657
240405A00017	4/5/2024	4.5	4/5/2027		111.65306	108.8746583	106.1807042	103.5680896	101.03384	98.575111	96.18918227	93.87345069	91.62542456
240408A00015	4/8/2024	4.54	4/5/2029		120.79602	115.7907865	111.028139	106.4949337	102.1788186	98.06817724	94.15207988	90.42023936	86.86296935
240408A00018	4/8/2024	4.87	10/6/2025		104.93817	103.7361182	102.5617489	101.4141127	100.2923023	99.1954515	98.12273225	97.07335288	96.04655606
240408A00020	4/8/2024	4.86	4/8/2026		107.23678	105.5203098	103.8398493	102.1943304	100.5827258	99.00404903	97.45735174	95.94172224	94.45628355
240408A00025	4/8/2024	5.03	10/8/2025		104.9996	103.7940556	102.6163647	101.4655634	100.3407362	99.24100894	98.16554637	97.11354987	96.08425565
240408A00026	4/8/2024	4.86	4/8/2026		107.23678	105.5203098	103.8398493	102.1943304	100.5827258	99.00404903	97.45735174	95.94172224	94.45628355
240409A00021	4/9/2024	4.83	4/9/2026		107.19977	105.4808262	103.7979934	102.1501942	100.5363973	98.95561211	97.40688666	95.88930574	94.40198903
240409A00033	4/9/2024	5.46	9/9/2024		100.46821	100.3552102	100.2424751	100.1300017	100.017789	99.90583604	99.79414198	99.68270583	99.57152668
240409A00035	4/9/2024	4.66	4/9/2027		111.77079	108.987451	106.2888278	103.6717884	101.1333434	98.67063502	96.28093027	93.96161424	91.71018418
240410A00005	4/10/2024	5.14	4/10/2025		102.89669	102.194637	101.5022051	100.8191954	100.1454159	99.4806802	98.82480649	98.177618	97.53894263
240410A00007	4/10/2024	4.64	4/10/2028		117.10651	113.1916401	109.4321139	105.8208513	102.3511411	99.01661799	95.81124218	92.72928058	89.76528922
240410A00008	4/10/2024	4.56	4/10/2029		121.66246	116.6011103	111.7860187	107.2037973	102.8418594	98.68837038	94.73219898	90.96287077	87.37052579
240412A00003	4/12/2024	5.47	10/11/2024		100.83286	100.6291842	100.4263354	100.2243037	100.0230842	99.82267184	99.62306177	99.42424909	99.22622896
240412A00005	4/12/2024	5.46	11/12/2024		101.20338	100.9086539	100.6156264	100.3242816	100.0346049	99.74658199	99.4601986	99.1754407	98.89229439
240412A00006	4/12/2024	5.44	12/12/2024		101.55682	101.1763657	100.7987229	100.4238575	100.0517389	99.68233693	99.31562177	98.95156408	98.59013497
240412A00009	4/12/2024	5.47	10/11/2024		100.83286	100.6291842	100.4263354	100.2243037	100.0230842	99.82267184	99.62306177	99.42424909	99.22622896
240412A00010	4/12/2024	5.26	4/11/2025		102.90246	102.1988328	101.504864	100.8203592	100.1451251	99.47897409	98.82172317	98.17319447	97.53321477
240412A00012	4/12/2024	5.46	11/12/2024		101.20338	100.9086539	100.6156264	100.3242816	100.0346049	99.74658199	99.4601986	99.1754407	98.89229439
240412A00017	4/12/2024	4.84	4/10/2026		107.45737	105.7294316	104.0378916	102.3816633	100.7597043	99.17101356	97.61462933	96.08962693	94.59511715
240412A00019	4/12/2024	5.47	10/11/2024		100.83286	100.6291842	100.4263354	100.2243037	100.0230842	99.82267184	99.62306177	99.42424909	99.22622896
240415A00018	4/15/2024	5.41	1/15/2025		101.95404	101.4762983	101.0029549	100.5339537	100.0692348	99.60873975	99.15241106	98.70019226	98.25202791
240415A00019	4/15/2024	5.41	1/15/2025		101.95404	101.4762983	101.0029549	100.5339537	100.0692348	99.60873975	99.15241106	98.70019226	98.25202791
240415A00020	4/15/2024	5.41	1/15/2025		101.95404	101.4762983	101.0029549	100.5339537	100.0692348	99.60873975	99.15241106	98.70019226	98.25202791
240415A00060	4/15/2024	5.06	4/15/2026		107.67818	105.9382416	104.2351047	102.567666	100.9348659	99.33568716	97.7691525	96.23432283	94.73029518
240415A00070	4/15/2024	5.51	8/15/2024		100.19283	100.150559	100.108344	100.066182	100.0240728	99.98201646	99.94001273	99.89806156	99.85616284



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240416A00008	4/16/2024	5.52	8/16/2024		100.20443	100.1593439	100.1143137	100.0693413	100.0244265	99.97956926	99.93476945	99.89002697	99.84534168
240416A00017	4/16/2024	5.17	10/16/2025		105.27672	104.047533	102.8472407	101.6748317	100.5293403	99.40984465	98.31546492	97.24536049	96.19872796
240416A00018	4/16/2024	5.04	4/16/2026		107.65834	105.9157722	104.2101102	102.5402421	100.9051042	99.30367513	97.73497384	96.19805755	94.69201988
240416A00019	4/16/2024	4.91	4/16/2027		112.54603	109.7322195	107.0044728	104.3595933	101.794527	99.30635485	96.89228645	94.54965275	92.27589999
240416A00020	4/16/2024	4.85	4/17/2028		117.46581	113.5376359	109.7656282	106.1426532	102.661948	99.31709909	96.10202224	93.01094314	90.03837958
240416A00030	4/16/2024	4.78	4/16/2027		112.56485	109.7426166	107.0068704	104.3543923	101.782108	99.28707996	96.86649981	94.51768178	92.23805623
240416A00050	4/16/2024	5.14	4/16/2025		102.97079	102.2520654	101.5434125	100.8446251	100.1554975	99.47583001	98.80542827	98.14410325	97.49167104
240417A00005	4/17/2024	5.51	9/17/2024		100.56359	100.4280671	100.2929183	100.1581422	100.0237373	99.88970183	99.75603439	99.62273339	99.48979728
240417A00015	4/17/2024	4.76	4/16/2027		112.51026	109.6887832	106.9537704	104.3020085	101.730424	99.23607968	96.81616777	94.46800292	92.18901598
240417A00016	4/17/2024	4.63	4/17/2029		122.08577	116.993948	112.1506288	107.5422564	103.1560895	98.98015173	95.00318044	91.21458032	87.60437974
240417A00017	4/17/2024	4.63	4/17/2029		122.08577	116.993948	112.1506288	107.5422564	103.1560895	98.98015173	95.00318044	91.21458032	87.60437974
240418A00001	4/18/2024	5.15	4/18/2025		103.00271	102.2783891	101.5642973	100.8602202	100.1659475	99.48127496	98.80600405	98.13994157	97.48289961
240418A00004	4/18/2024	4.87	4/18/2031		130.95375	123.5198448	116.5765461	110.0885422	104.0232511	98.35059937	93.04281537	88.07424089	83.42115919
240418A00006	4/18/2024	5.5	9/20/2024		100.59605	100.4520602	100.308487	100.1653306	100.0225892	99.88026113	99.73834442	99.59683729	99.45573795
240418A00012	4/18/2024	5.19	10/17/2025		105.31485	104.0826774	102.8795331	101.7043975	100.5562985	99.4343082	98.33754112	97.26515133	96.21633045
240418A00018	4/18/2024	5.31	4/18/2025		103.01036	102.2874086	101.5746476	100.8718633	100.1788467	99.49539489	98.82131022	98.15640066	97.50047937
240418A00019	4/18/2024	5.05	4/17/2026		107.69006	105.9444101	104.2357737	102.5630354	100.9251269	99.32102248	97.74973705	96.210324	94.70187331
240419A00026	4/23/2024	5.07	4/1/2026		107.49127	105.7921383	104.1283451	102.4988519	100.9026604	99.33881139	97.80638253	96.30448651	94.83226946
240422A00038	4/22/2024	5.03	10/22/2025		105.34773	104.0991544	102.8803579	101.6902795	100.5279106	99.39228942	98.28249822	97.19766096	96.1369408
240422A00040	4/22/2024	4.85	10/22/2026		110.23847	107.9426387	105.7067232	103.5287209	101.4067095	99.33884716	97.32336853	95.35858056	93.44285903
240422A00041	4/22/2024	4.92	4/22/2026		107.76848	106.0040535	104.2773276	102.5871564	100.9324432	99.31213552	97.72522282	96.17073452	94.64773785
240423A00024	4/23/2024	5.33	3/31/2025		102.81399	102.1406465	101.4761414	100.8203042	100.1729659	99.53396204	98.90313226	98.28032029	97.66537385
240423A00025	4/23/2024	5.28	6/30/2025		103.9311	103.0047946	102.0950766	101.2014994	100.3236356	99.46107265	98.61341257	97.78027088	96.9612763
240423A00027	4/23/2024	4.93	3/31/2027		112.37338	109.6073724	106.924858	104.3227811	101.7982197	99.34837875	96.97058412	94.66227604	92.42100352
240423A00028	4/23/2024	5.08	3/31/2026		107.49345	105.7970951	104.1359764	102.5090612	100.9153557	99.35390472	97.82378958	96.32412662	94.85406538
240423A00032	4/23/2024	5.06	4/20/2026		107.75094	105.9963386	104.2790735	102.5980145	100.9520796	99.34023045	97.76146982	96.21483968	94.69941921
240423A00033	4/23/2024	5.15	4/23/2025		103.06459	102.3263424	101.5987159	100.881479	100.1744099	99.47729292	98.78991869	98.11208353	97.44358945
240423A00034	4/23/2024	4.92	4/19/2027		112.61578	109.7924778	107.0557353	104.4023319	101.829188	99.33336077	96.91203726	94.5625273	92.28225729
240424A00008	4/24/2024	5.29	4/24/2025		103.06994	102.3303835	101.601477	100.8829954	100.1747158	99.47642163	98.78790235	98.1089534	97.43937586
240424A00013	4/24/2024	5.13	4/24/2025		103.06219	102.3212223	101.5909472	100.8711365	100.161566	99.46201797	98.77228065	98.09214831	97.42142094
240424A00014	4/24/2024	5.4	1/24/2025		102.05666	101.5536975	101.0556116	100.5623284	100.0737785	99.58989397	99.11060828	98.63585605	98.16557316
240424A00015	4/24/2024	5.48	11/25/2024		101.36435	101.0330218	100.7038242	100.3767404	100.0517499	99.72883277	99.40796917	99.08913953	98.77232453
240424A00030	4/24/2024	4.89	4/21/2027		112.56198	109.7337262	106.9923344	104.3345657	101.7573243	99.25765253	96.83272309	94.47983264	92.19639512

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240425A00010	4/25/2024	4.83	4/26/2027		112.84465	109.989935	107.2234055	104.5417475	101.9418003	99.42054485	96.97509667	94.60269821	92.30071245
240425A00019	4/25/2024	5.34	4/21/2025		103.06943	102.338053	101.6171043	100.9063568	100.2055947	99.51460818	98.8331933	98.16115171	97.49829053
240425A00021	4/25/2024	4.83	4/26/2027		112.84465	109.989935	107.2234055	104.5417475	101.9418003	99.42054485	96.97509667	94.60269821	92.30071245
240425A00028	4/25/2024	4.9	4/25/2028		117.76687	113.8099439	110.0110728	106.3629951	102.8588337	99.49206912	96.25651824	93.14631479	90.15589089
240425A00029	4/25/2024	4.85	4/25/2029		122.51627	117.4126753	112.5584443	107.939942	103.5443623	99.35966935	95.37454654	91.57834919	87.96106062
240425A00030	4/25/2024	4.85	4/25/2029		122.51627	117.4126753	112.5584443	107.939942	103.5443623	99.35966935	95.37454654	91.57834919	87.96106062
240425A00032	4/25/2024	4.92	4/25/2030		127.34666	121.0608359	115.1368946	109.5518776	104.2844154	99.31460522	94.62390125	90.19501506	86.01182318
240425A00033	4/25/2024	4.96	4/27/2026		107.91136	106.1315703	104.3900301	102.685572	101.0170761	99.38346783	97.78371621	96.21683103	94.68186104
240425A00034	4/25/2024	4.96	4/27/2026		107.91136	106.1315703	104.3900301	102.685572	101.0170761	99.38346783	97.78371621	96.21683103	94.68186104
240426A00011	4/26/2024	5.17	10/27/2025		105.42725	104.1669382	102.9369529	101.7362107	100.5636753	99.41835892	98.29931954	97.20565817	96.13651648
240426A00012	4/26/2024	4.92	4/27/2026		107.84128	106.0621214	104.3212024	102.6173542	100.9494572	99.31643723	97.71726353	96.15094618	94.6165342
240426A00017	4/26/2024	5.52	9/5/2024		100.42563	100.3241839	100.2229442	100.1219138	100.021092	99.92047813	99.82007154	99.71987155	99.61987753
240426A00019	4/26/2024	5.5	10/28/2024		101.03405	100.7825155	100.5322159	100.2831423	100.0352857	99.78863726	99.54318807	99.29892944	99.05585274
240426A00024	4/26/2024	4.79	4/26/2029		120.83352	116.051361	111.5007493	107.1690886	103.0445376	99.11595952	95.37287674	91.80542807	88.40432929
240426A00025	4/26/2024	5.32	4/21/2025		103.05483	102.3235182	101.6026276	100.8919377	100.1912326	99.5003026	98.81894361	98.14695737	97.48415102
240426A00026	4/26/2024	5.05	4/30/2026		107.87888	106.0950694	104.3496633	102.6414883	100.9694173	99.33236877	97.72930517	96.15923014	94.62118663
240426A00027	4/26/2024	5.32	4/25/2025		103.1045	102.3620669	101.6303687	100.9091716	100.1982504	99.49738608	98.80636606	98.12498358	97.45303766
240426A00029	4/26/2024	5.19	10/27/2025		105.45225	104.1917662	102.9616191	101.7607177	100.5880257	99.44255527	98.32336432	97.2295538	96.16026529
240426A00044	4/26/2024	4.78	4/26/2027		112.7068	109.8540067	107.0893471	104.4095151	101.8113515	99.29183862	96.84809316	94.47735883	92.1769998
240429A00006	4/29/2024	4.86	10/29/2026		110.35947	108.0429891	105.7873653	103.5905413	101.4505514	99.36551272	97.33362138	95.35314793	93.4224338
240429A00007	4/29/2024	5.04	10/29/2025		105.45596	104.18743	102.9495939	101.7413498	100.5616438	99.40947136	98.28387477	97.18394027	96.10879562
240429A00008	4/29/2024	4.93	4/29/2026		107.88798	106.1027618	104.3560055	102.6465304	100.9732076	99.33495416	97.73073103	96.15954048	94.62042411
240429A00019	4/29/2024	5.53	8/26/2024		100.31311	100.2399176	100.1668349	100.093866	100.0210109	99.94826919	99.87564065	99.80312501	99.73072203
240429A00021	4/29/2024	5.51	9/25/2024		100.652	100.4940931	100.3366805	100.1797609	100.023332	99.86739153	99.71193712	99.55696653	99.40247749
240429A00024	4/29/2024	5.5	11/26/2024		101.38193	101.0479485	100.7161379	100.3864742	100.0589365	99.73350425	99.41015727	99.08887554	98.7696393
240429A00028	4/29/2024	5.32	4/29/2025		103.15415	102.4005964	101.6580836	100.9263748	100.2052351	99.49443637	98.79375712	98.10298207	97.42190203
240429A00045	4/29/2024	5.1	8/5/2025		104.35962	103.3309656	102.3226951	101.3342026	100.3649091	99.41425827	98.4817148	97.56676388	96.66891006
240429A00047	4/29/2024	5.46	1/6/2025		101.86486	101.4137288	100.9665332	100.5232185	100.0837345	99.64803159	99.2160611	98.78777518	98.36312681
240429A00052	4/29/2024	4.91	5/3/2027		112.78527	109.9200168	107.1436291	104.4527663	101.8442415	99.31501062	96.86216432	94.48292119	92.17462097
240430A00016	4/30/2024	5.08	10/30/2025		105.52002	104.2483064	103.0074309	101.7962783	100.6137878	99.45894875	98.3307974	97.22841447	96.1509225
240430A00017	4/30/2024	5.08	10/30/2025		105.52002	104.2483064	103.0074309	101.7962783	100.6137878	99.45894875	98.3307974	97.22841447	96.1509225
240430A00026	4/30/2024	5.53	9/3/2024		100.40286	100.307105	100.2115354	100.1161499	100.0209481	99.92592943	99.83109333	99.73643927	99.64196671
240430A00029	4/30/2024	5.51	11/1/2024		101.08274	100.8199743	100.5585533	100.2984651	100.0396997	99.78224693	99.52609692	99.2712398	99.01766582

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240430A00030	4/30/2024	5.44	2/3/2025		102.19742	101.6659847	101.1399738	100.6193079	100.103906	99.59368865	99.08857798	98.58849766	98.0933729
240430A00031	4/30/2024	5.36	5/1/2025		103.20958	102.4503424	101.7023113	100.9652414	100.2388928	99.52303236	98.81743392	98.12187765	97.43614997
240430A00034	4/30/2024	4.69	4/30/2029		122.5435	117.4026109	112.5141494	107.8642565	103.4399129	99.22888571	95.21967682	91.40147373	87.76410474
240430A00035	4/30/2024	4.94	4/30/2027		112.82693	109.9693538	107.2001759	104.5160667	101.9138524	99.39050193	96.94311926	94.5689364	92.26530655
240430A00036	4/30/2024	5.51	9/30/2024		100.70867	100.5366287	100.3651626	100.1942701	100.0239484	99.85419457	99.68500586	99.51637947	99.34831263
240430A00038	4/30/2024	5.37	3/28/2025		102.80382	102.138706	101.4822223	100.8342045	100.1944893	99.56291767	98.93933463	98.32358906	97.71553366
240430A00075	4/30/2024	5.2	4/30/2025		103.18894	102.4310203	101.6842714	100.9484451	100.2233026	99.50861228	98.80414896	98.10969406	97.42503511
240501A00008	5/1/2024	5.51	8/1/2024		100.03392	100.0311087	100.0283038	100.0255013	100.0227013	100.0199037	100.0171085	100.0143157	100.0115254
240501A00017	5/1/2024	5.13	5/1/2026		108.03397	106.2460416	104.4966537	102.7846302	101.1088428	99.46820918	97.86169032	96.28828849	94.74704507
240501A00054	5/6/2024	4.79	5/4/2029		122.34582	117.2203103	112.3464336	107.7103882	103.2992079	99.10070796	95.10343333	91.29661042	87.67010268
240502A00002	5/2/2024	5.53	9/4/2024		100.41385	100.315305	100.2169588	100.1188092	100.0208556	99.9230972	99.82553358	99.7281641	99.63098816
240502A00012	5/2/2024	5.53	8/2/2024		100.04494	100.0393265	100.0337169	100.0281123	100.0225127	100.0169181	100.0113285	100.0057439	100.0001643
240502A00013	5/2/2024	4.68	5/2/2028		117.56499	113.577859	109.7510687	106.0772198	102.5493001	99.16066328	95.90500769	92.7763557	89.76903504
240502A00014	5/2/2024	5.5	11/4/2024		101.11561	100.8444197	100.5746678	100.3063408	100.0394273	99.77391611	99.50979629	99.24705685	98.98568698
240502A00017	5/2/2024	4.81	5/2/2028		117.52608	113.5536144	109.7405746	106.0796118	102.5637659	99.18643946	95.94137645	92.82264201	89.82460391
240502A00027	5/2/2024	5.53	8/2/2024		100.04494	100.0393265	100.0337169	100.0281123	100.0225127	100.0169181	100.0113285	100.0057439	100.0001643
240502A00030	5/2/2024	4.75	5/2/2029		122.12934	117.0145933	112.1507674	107.5240983	103.1216605	98.93130816	94.94162277	91.14186566	87.52193327
240502A00048	5/2/2024	4.89	5/3/2027		112.72984	109.8653679	107.0897357	104.3996105	101.7918063	99.2632792	96.81112063	94.43254958	92.12490629
240503A00007	5/3/2024	5.22	4/28/2025		103.06685	102.3163801	101.5768777	100.8481001	100.1298149	99.42179658	98.72382571	98.03568928	97.35718019
240503A00009	5/3/2024	4.61	5/3/2029		121.47154	116.3695191	111.5181232	106.9035986	102.5130271	98.3342694	94.35591361	90.56722707	86.95811203
240503A00016	5/3/2024	4.72	5/3/2028		117.19949	113.2303815	109.4207248	105.7631727	102.2507619	98.87689166	95.63530257	92.52005649	89.52551793
240503A00020	5/3/2024	5.46	11/4/2024		101.10466	100.8335651	100.5639072	100.2956737	100.0288532	99.76343454	99.49940674	99.23675886	98.97548005
240503A00021	5/3/2024	5.3	3/3/2025		102.45334	101.8576754	101.2689539	100.6870555	100.1118621	99.54325803	98.9811304	98.42536887	97.87586555
240503A00022	5/3/2024	5.22	5/5/2025		103.15337	102.3834891	101.6251449	100.8780783	100.1420385	99.41678232	98.70207353	97.99768284	97.30338757
240503A00023	5/3/2024	5.13	8/4/2025		104.24387	103.2204955	102.2173129	101.2337306	100.269177	99.32310273	98.39497941	97.48429859	96.59057089
240503A00024	5/3/2024	5.04	11/3/2025		105.36096	104.0826814	102.834525	101.615429	100.4243802	99.26041234	98.12260317	97.01007212	95.92197788
240503A00028	5/3/2024	5.48	10/3/2024		100.73769	100.5572715	100.3774919	100.1983495	100.0198409	99.8419628	99.66471183	99.48808467	99.31207801
240503A00035	5/3/2024	4.92	5/1/2026		107.66416	105.8795879	104.1334923	102.4247013	100.7520883	99.11457244	97.5111164	95.94072385	94.4024376
240503A00041	5/3/2024	5.51	8/2/2024		100.0445	100.0388853	100.0332768	100.0276734	100.0220749	100.0164814	100.010893	100.0053095	99.99973102
240503A00042	5/3/2024	5.51	9/3/2024		100.40021	100.3045033	100.2089833	100.1136474	100.018495	99.92352563	99.82873875	99.73413383	99.63971032
240503A00043	5/3/2024	5.48	10/2/2024		100.72608	100.5484861	100.3715107	100.195151	100.0194039	99.84426613	99.66973458	99.49580608	99.32247751
240503A00044	5/3/2024	5.46	11/1/2024		101.06912	100.806536	100.545296	100.2853879	100.0268016	99.76952712	99.51355445	99.25887378	99.00547536
240503A00046	5/3/2024	5.46	12/2/2024		101.43962	101.0888101	100.7403861	100.3943255	100.0506044	99.7091991	99.37008625	99.03324285	98.69864619

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240503A00047	5/3/2024	5.41	1/6/2025		101.8421	101.3913836	100.9445976	100.501689	100.0626076	99.62730387	99.19572911	98.76783554	98.34357619
240503A00048	5/3/2024	5.35	2/3/2025		102.15028	101.6194242	101.0939903	100.5738956	100.0590592	99.54940159	99.04484507	98.54531338	98.05073181
240503A00050	5/3/2024	5.3	3/3/2025		102.45334	101.8576754	101.2689539	100.6870555	100.1118621	99.54325803	98.9811304	98.42536887	97.87586555
240503A00051	5/3/2024	5.26	4/1/2025		102.77928	102.1033465	101.4363239	100.7780393	100.1283216	99.48700439	98.85392518	98.22892586	97.61185228
240503A00052	5/3/2024	5.22	5/1/2025		103.10357	102.3447753	101.5971818	100.8605448	100.1346247	99.4191884	98.71400977	98.01886905	97.33355276
240506A00010	5/6/2024	5.51	8/6/2024		100.08808	100.0712407	100.0544182	100.0376127	100.020824	100.0040523	99.98729733	99.97055922	99.95383789
240506A00011	5/6/2024	4.46	5/4/2029		121.48899	116.361695	111.4870047	106.8510278	102.4407165	98.24381089	94.24878696	90.44480783	86.82167884
240506A00012	5/6/2024	5.04	11/6/2025		105.40381	104.1178037	102.8612022	101.6329989	100.4322297	99.25797417	98.1093528	96.98552493	95.88568656
240506A00016	5/6/2024	5.23	5/6/2025		103.17353	102.4008419	101.6397767	100.89007	100.1514683	99.4237258	98.70660377	97.99987049	97.30330095
240506A00017	5/6/2024	5.48	11/6/2024		101.13326	100.8565796	100.5814022	100.3077109	100.0354938	99.76473891	99.49543438	99.22756856	98.96112991
240506A00020	5/6/2024	4.73	5/6/2027		112.3262	109.459119	106.6812288	103.9891862	101.3797959	98.85000449	96.39689319	94.01767084	91.70966724
240506A00031	5/6/2024	5.08	5/6/2025		103.1732	102.3989908	101.6364478	100.8853065	100.1453122	99.41621738	98.69778216	97.98977352	97.29196519
240506A00040	5/6/2024	5.21	5/6/2025		103.15811	102.3854876	101.624487	100.8748442	100.1363057	99.40862578	98.69156567	97.98489369	97.28838481
240507A00017	5/7/2024	4.51	5/8/2028		117.00056	113.0072377	109.1752339	105.4970976	101.965768	98.57455131	95.31709943	92.18738961	89.17970581
240507A00019	5/7/2024	4.51	5/8/2028		117.00056	113.0072377	109.1752339	105.4970976	101.965768	98.57455131	95.31709943	92.18738961	89.17970581
240507A00020	5/7/2024	4.6	5/7/2027		112.35835	109.4796356	106.6907234	103.98824	101.3689642	98.82981806	96.36785926	93.98027413	91.66437093
240507A00021	5/7/2024	4.77	5/7/2026		107.71764	105.9121278	104.1459179	102.4178263	100.7267184	99.07150445	97.45113732	95.86461011	94.31095443
240507A00034	5/7/2024	4.9	5/7/2026		107.71172	105.9104679	104.148352	102.4241996	100.7368824	99.08531676	97.46846089	95.8853133	94.33491061
240507A00042	5/7/2024	4.57	5/7/2029		121.32781	116.2179302	111.3596162	106.739052	102.3432587	98.16003923	94.17792675	90.38613668	86.7745221
240507A00043	5/7/2024	4.9	5/7/2026		107.71172	105.9104679	104.148352	102.4241996	100.7368824	99.08531676	97.46846089	95.8853133	94.33491061
240507A00048	5/7/2024	4.73	5/7/2027		112.33945	109.469432	106.6887737	103.9941242	101.3822836	98.8501937	96.39493108	94.01369976	91.7038248
240507A00049	5/7/2024	4.64	5/8/2028		116.96292	112.9843231	109.1661167	105.5009064	101.981684	98.60180502	95.3549674	92.23519159	89.23680199
240507A00051	5/7/2024	4.57	5/7/2029		121.32781	116.2179302	111.3596162	106.739052	102.3432587	98.16003923	94.17792675	90.38613668	86.7745221
240508A00004	5/8/2024	5.51	8/7/2024		100.09867	100.079025	100.0594034	100.0398021	100.020221	100.0006602	99.98111947	99.96159894	99.94209851
240508A00005	5/8/2024	4.59	5/8/2031		130.26646	122.7588958	115.7521959	109.2099854	103.0987265	97.38748231	92.04770118	87.05302058	82.37908781
240508A00006	5/8/2024	4.92	5/8/2026		107.76112	105.956708	104.1915479	102.4644684	100.7743409	99.12008079	97.50064545	95.91503231	94.36227678
240508A00007	5/8/2024	5.51	8/8/2024		100.10975	100.0872969	100.0648706	100.0424682	100.0200896	99.99773463	99.97540338	99.95309576	99.93081174
240508A00010	5/8/2024	5.48	12/9/2024		101.53072	101.1601827	100.792315	100.4270915	100.0644838	99.70446371	99.34700355	98.992076	98.63965412
240509A00005	5/9/2024	4.62	5/9/2029		121.59189	116.4701192	111.600672	106.9696891	102.5641487	98.37181342	94.38117787	90.58142101	86.96236145
240509A00007	5/9/2024	5.22	5/8/2025		103.19071	102.4125127	101.646101	100.8912091	100.147578	99.41495672	98.69310142	97.98177555	97.28074945
240509A00008	5/9/2024	4.6	5/10/2027		112.3982	109.5106411	106.7133831	104.0030414	101.3763806	98.83030854	96.36186841	93.96823203	91.64669313
240509A00009	5/9/2024	5.33	3/13/2025		102.59367	101.9702715	101.3544805	100.7461585	100.1451697	99.55138193	98.96466584	98.38489532	97.81194721
240509A00010	5/9/2024	4.6	5/10/2027		112.3982	109.5106411	106.7133831	104.0030414	101.3763806	98.83030854	96.36186841	93.96823203	91.64669313

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240509A00011	5/9/2024	5.37	2/12/2025		102.26824	101.711911	101.1615377	100.617029	100.0782915	99.54523387	99.01776648	98.49580174	97.97925385
240509A00012	5/9/2024	5.5	10/10/2024		100.8217	100.6216414	100.4223822	100.2239142	100.0262328	99.82933316	99.6332106	99.43786046	99.24327812
240509A00014	5/9/2024	5.52	8/15/2024		100.18749	100.1453705	100.1033066	100.0612955	100.0193371	99.97743127	99.93557789	99.89377687	99.85202811
240509A00022	5/9/2024	4.66	5/9/2028		117.05203	113.0689571	109.2465428	105.5773771	102.0544402	98.67107604	95.42097149	92.29813624	89.29688431
240509A00023	5/9/2024	4.6	5/9/2029		121.49581	116.3763181	111.5090671	106.8802018	102.476704	98.28633948	94.29760607	90.49968569	86.88239976
240509A00039	5/9/2024	4.87	11/10/2025		105.41085	104.1122374	102.842173	101.5997155	100.3839628	99.19405247	98.02915903	96.88849237	95.77129567
240510A00007	5/10/2024	5.52	8/12/2024		100.15394	100.12026	100.0866208	100.0530211	100.0194607	99.98593955	99.95245763	99.91901484	99.88561111
240510A00015	5/10/2024	4.91	11/10/2025		105.46242	104.1634576	102.8930495	101.650254	100.4341691	99.24393195	98.07871712	96.93773428	95.82022648
240510A00016	5/10/2024	4.91	11/10/2025		105.46242	104.1634576	102.8930495	101.650254	100.4341691	99.24393195	98.07871712	96.93773428	95.82022648
240510A00020	5/10/2024	4.63	5/10/2027		112.48207	109.5933277	106.7949171	104.08345	101.4556902	98.90854471	96.43905591	94.04439484	91.72185451
240513A00007	5/13/2024	5.51	9/13/2024		100.51187	100.3881603	100.2647615	100.1416772	100.0189063	99.89644738	99.77429936	99.65246096	99.53093097
240513A00010	5/13/2024	5.52	8/13/2024		100.16431	100.1278406	100.0914123	100.0550276	100.0186865	99.98238898	99.94613489	99.90992416	99.87375672
240513A00011	5/13/2024	5.52	8/12/2024		100.15321	100.1195441	100.0859202	100.0523357	100.0187905	99.98528461	99.95181788	99.91839025	99.88500166
240513A00012	5/13/2024	5.52	8/12/2024		100.15321	100.1195441	100.0859202	100.0523357	100.0187905	99.98528461	99.95181788	99.91839025	99.88500166
240513A00013	5/13/2024	5.52	8/12/2024		100.15321	100.1195441	100.0859202	100.0523357	100.0187905	99.98528461	99.95181788	99.91839025	99.88500166
240513A00016	5/13/2024	5.52	8/12/2024		100.15321	100.1195441	100.0859202	100.0523357	100.0187905	99.98528461	99.95181788	99.91839025	99.88500166
240513A00020	5/13/2024	5.23	5/13/2025		103.26084	102.4687314	101.6888313	100.9208581	100.1645389	99.41960936	98.68581292	97.96290076	97.25063141
240513A00022	5/13/2024	4.92	5/13/2026		107.83038	106.0117767	104.2329842	102.4928313	100.7901873	99.12396472	97.49311702	95.89663674	94.33355367
240513A00024	5/13/2024	4.74	5/13/2027		112.44692	109.5588908	106.7612293	104.0505562	101.4236433	98.87740354	96.4088845	94.01526104	91.69382907
240513A00025	5/13/2024	4.67	5/12/2028		117.12975	113.136842	109.3052729	105.6276086	102.0967976	98.7061529	95.44933156	92.32031425	89.31338698
240513A00026	5/13/2024	4.6	5/14/2029		121.55593	116.4209166	111.5395343	106.8978363	102.4827193	98.28186788	94.28370296	90.47733356	86.85251211
240513A00032	5/13/2024	5.5	11/13/2024		101.22107	100.9247918	100.6302341	100.3373841	100.0462269	99.75674768	99.46893193	99.18276523	98.89823338
240513A00041	5/13/2024	5.06	11/13/2025		105.52973	104.2254888	102.9489888	101.6993492	100.4757221	99.27729544	98.10329125	96.95296361	95.82559715
240513A00045	5/17/2024	4.73	6/17/2027		112.88678	109.8947888	106.9992306	104.1964736	101.4830456	98.85562359	96.31102642	93.846208	91.45825081
240514A00029	5/14/2024	5.52	9/13/2024		100.5129	100.3892028	100.2658184	100.1427485	100.019992	99.89754741	99.77541367	99.65358953	99.53207375
240514A00049	5/14/2024	4.84	2/5/2026		106.54006	105.0016098	103.4934718	102.0148229	100.5648707	99.14285062	97.7480249	96.37968129	95.03713196
240514A00065	5/14/2024	4.59	5/14/2029		121.50775	116.3738845	111.4936063	106.852973	102.4388827	98.23902192	94.24181303	90.43636658	86.81243643
240515A00002	5/15/2024	4.4	11/13/2028		119.03115	114.4583969	110.0916856	105.9205774	101.9352236	98.12632663	94.4851066	91.00326892	87.67297486
240515A00003	5/15/2024	4.36	5/15/2029		121.13824	115.9880936	111.093208	106.4395157	102.0137971	97.80362956	93.79733422	89.98392773	86.35307686
240515A00005	5/15/2024	5.52	8/15/2024		100.18604	100.1439579	100.1019322	100.0599592	100.0180388	99.97617091	99.93435546	99.89259233	99.85088141
240515A00014	5/15/2024	4.81	11/17/2025		105.43174	104.1155497	102.8262288	101.5629647	100.3249738	99.11150419	97.92183394	96.75526974	95.6111454
240515A00020	5/15/2024	5.45	1/15/2025		101.96789	101.4920865	101.0206687	100.5535753	100.0907469	99.63212517	99.17765283	98.72727365	98.28093243
240515A00023	5/15/2024	4.51	5/15/2029		121.1297	116.0021414	111.1281054	106.493644	102.0856532	97.89181715	93.90055641	90.10097953	86.48283858



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240515A00024	5/15/2024	4.59	5/15/2028		116.86444	112.8681901	109.0337748	105.3537343	101.8209921	98.42883738	95.17090345	92.04114807	89.03383504
240515A00026	5/15/2024	4.64	5/17/2027		112.21905	109.323235	106.5183623	103.8010363	101.1680125	98.61618754	96.14259216	93.74438431	91.41884286
240515A00027	5/15/2024	4.5	5/19/2027		112.23572	109.3255899	106.5071789	103.7770618	101.1319635	98.56875065	96.08442528	93.67611748	91.34107931
240515A00030	5/15/2024	5.52	9/16/2024		100.54733	100.4151875	100.283405	100.1519793	100.0209088	99.89019218	99.75982786	99.62981439	99.50015034
240515A00034	5/15/2024	5.2	5/15/2025		103.26191	102.4643495	101.6791668	100.9060736	100.1447915	99.39505071	98.65658949	97.92915412	97.21249837
240515A00035	5/15/2024	4.57	5/15/2028		116.78818	112.7933698	108.9603586	105.2816803	101.7502603	98.35938911	95.10270147	91.97415657	88.96801948
240515A00036	5/17/2024	4.63	6/17/2027		112.59727	109.6094918	106.7180456	103.9193011	101.2097892	98.58618995	96.04532522	93.58415176	91.19975478
240515A00037	5/15/2024	4.5	5/15/2029		121.0815	115.9550839	111.0821533	106.4487576	102.0417946	97.8489502	93.85864646	90.05999344	86.44274466
240515A00038	5/15/2024	4.5	5/15/2029		121.0815	115.9550839	111.0821533	106.4487576	102.0417946	97.8489502	93.85864646	90.05999344	86.44274466
240515A00039	5/15/2024	4.57	5/15/2030		125.53668	119.2450034	113.3194378	107.7365994	102.4747233	97.51354212	92.83417498	88.41902531	84.25168687
240515A00041	7/1/2024	4.69	7/1/2027		112.95795	109.9253463	106.9916751	104.1531672	101.4062188	98.74738322	96.1733626	93.6810009	91.26727687
240515A00043	5/15/2024	5.2	5/15/2025		103.26191	102.4643495	101.6791668	100.9060736	100.1447915	99.39505071	98.65658949	97.92915412	97.21249837
240515A00044	5/15/2024	4.97	11/14/2025		105.42715	104.1211231	102.8425866	101.5906776	100.3645654	99.16345395	97.98658031	96.83321266	95.70264881
240515A00048	7/1/2024	4.55	7/2/2029		121.89059	116.6074775	111.5919016	106.8288556	102.304252	98.00486155	93.91825648	90.03275813	86.33738782
240515A00050	7/1/2024	4.55	7/2/2029		121.89059	116.6074775	111.5919016	106.8288556	102.304252	98.00486155	93.91825648	90.03275813	86.33738782
240515A00052	7/1/2024	4.79	7/3/2034		142.30653	131.0389615	120.8122795	111.5231891	103.0792014	95.39745288	88.40365717	82.03117523	76.2201909
240515A00064	5/15/2024	5.45	1/15/2025		101.96789	101.4920865	101.0206687	100.5535753	100.0907469	99.63212517	99.17765283	98.72727365	98.28093243
240515A00066	6/28/2024	4.8	6/29/2026		108.25896	106.3064756	104.3993977	102.5363988	100.7161968	98.93755583	97.19928348	95.50022935	93.83928323
240515A00067	6/28/2024	4.8	6/29/2026		108.25896	106.3064756	104.3993977	102.5363988	100.7161968	98.93755583	97.19928348	95.50022935	93.83928323
240515A00068	6/28/2024	4.8	6/29/2026		108.25896	106.3064756	104.3993977	102.5363988	100.7161968	98.93755583	97.19928348	95.50022935	93.83928323
240515A00089	5/15/2024	4.5	5/15/2029		121.0815	115.9550839	111.0821533	106.4487576	102.0417946	97.8489502	93.85864646	90.05999344	86.44274466
240516A00024	5/16/2024	5.29	4/16/2025		102.97126	102.253913	101.5466062	100.8491272	100.1612716	99.48284078	98.81364153	98.15348589	97.50219097
240516A00025	5/17/2024	4.55	10/16/2028		118.69886	114.2304998	109.9599507	105.877316	101.9732497	98.23892692	94.66601068	91.24662233	87.97331334
240516A00026	5/16/2024	5.21	5/20/2025		103.34661	102.53486	101.7359198	100.9494877	100.1752711	99.41298622	98.66235817	97.9231204	97.19501449
240516A00030	5/16/2024	5	11/17/2025		105.50865	104.1946106	102.9073533	101.6460699	100.40998	99.19833506	98.01041631	96.84553335	95.7030228
240516A00038	5/16/2024	4.9	5/18/2026		107.86349	106.0310124	104.2389048	102.4859934	100.7711457	99.09327099	97.45131865	95.84427626	94.27116789
240517A00011	5/17/2024	4.61	5/17/2028		116.96689	112.9631086	109.1216573	105.4350473	101.89618	98.49832274	95.23508779	92.10041251	89.08854098
240517A00017	5/17/2024	4.4	5/17/2029		121.35555	116.194536	111.2895206	106.626383	102.1918621	97.97349532	93.95956632	90.13905605	86.50159756
240517A00026	5/17/2024	4.68	5/17/2027		112.33144	109.4340333	106.6276089	103.9087678	101.2742646	98.72099476	96.24598792	93.846401	91.51951187
240517A00033	5/17/2024	5.3	4/17/2025		102.99078	102.2706341	101.5606006	100.8604693	100.1700335	99.48909234	98.81745052	98.154918	97.50130991
240517A00034	5/17/2024	5.02	11/17/2025		105.5348	104.2205784	102.9331448	101.6716879	100.4354275	99.22361484	98.03553115	96.87048594	95.72781573
240517A00038	5/17/2024	5.43	1/22/2025		102.04345	101.5477929	101.056886	100.5706622	100.0890548	99.61199812	99.13942794	98.67128111	98.20749567
240520A00010	5/20/2024	5.35	3/20/2025		102.6922	102.0493531	101.4145839	100.7877448	100.1686874	99.55726696	98.95334258	98.35677662	97.76743483

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240520A00011	5/20/2024	5.25	5/20/2025		103.37899	102.5671001	101.7680183	100.9814463	100.2070912	99.44466932	98.69390576	97.95453395	97.22629542
240520A00012	5/20/2024	5.18	7/21/2025		104.11134	103.1268831	102.1611418	101.2135862	100.283705	99.37100604	98.47501504	97.59527521	96.73134628
240520A00016	5/20/2024	4.57	8/16/2027		113.6137	110.4347845	107.3635328	104.3956772	101.5271467	98.75405515	96.07269207	93.4795132	90.97113221
240520A00017	5/20/2024	4.94	4/15/2026		107.47214	105.7340269	104.0326805	102.3669999	100.7359267	99.13844436	97.57357652	96.04038482	94.53796707
240520A00018	5/20/2024	4.84	10/15/2026		109.81821	107.5522497	105.3449571	103.1943824	101.0986594	99.05599922	97.06468647	95.12307526	93.22958596
240520A00020	5/20/2024	4.79	1/15/2027		110.9524	108.419369	105.958294	103.5667154	101.2422738	98.98270435	96.78583252	94.64956974	92.57190952
240520A00025	5/20/2024	4.75	4/15/2027		112.09644	109.2916427	106.5726052	103.9361455	101.3792218	98.89892754	96.49248332	94.15723086	91.89062657
240520A00026	5/20/2024	5.52	8/20/2024		100.24072	100.1846274	100.1286124	100.0726754	100.0168164	99.96103504	99.90533128	99.84970491	99.79415577
240520A00027	5/20/2024	4.7	10/15/2027		114.39885	111.0482736	107.8155582	104.6958355	101.6844715	98.77705365	95.96937855	93.25744028	90.63741986
240520A00031	5/20/2024	4.96	9/19/2025		104.81615	103.6615002	102.532431	101.4280953	100.3476849	99.29042679	98.25558095	97.24243857	96.25032051
240520A00040	5/20/2024	4.89	11/20/2025		105.5792	104.2545052	102.9559861	101.6828775	100.4344465	99.20998909	98.00882792	96.83031153	95.67381289
240520A00041	5/20/2024	4.83	11/25/2026		110.36096	107.9744831	105.6523585	103.3924822	101.1928288	99.05145118	96.96647737	94.93610695	92.95860793
240521A00002	5/21/2024	5.38	2/21/2025		102.37851	101.810413	101.24864	100.6930869	100.1436504	99.60022997	99.06272681	98.53104452	98.00508873
240521A00005	5/21/2024	5.04	11/21/2025		105.61809	104.2933464	102.9944437	101.720645	100.4712383	99.24553868	98.04288699	96.8626488	95.70421307
240521A00006	5/21/2024	4.9	5/21/2026		107.90489	106.0638762	104.2635787	102.5028169	100.7804566	99.09540525	97.44660947	95.83305368	94.25375828
240521A00030	5/21/2024	5.52	8/21/2024		100.2516	100.1927076	100.1338967	100.0751694	100.0165255	99.9579648	99.89948715	99.84109237	99.78278028
240521A00031	5/21/2024	5.5	9/25/2024		100.64565	100.4882704	100.3313815	100.1749839	100.0190754	99.86365367	99.7087164	99.55426134	99.40028623
240521A00032	5/21/2024	5.5	9/20/2024		100.58882	100.4455345	100.3026683	100.160217	100.0181787	99.87655153	99.73533376	99.59452357	99.45411914
240521A00033	5/21/2024	5.48	11/21/2024		101.3117	100.9930523	100.6763964	100.3617102	100.0489753	99.73817356	99.42928705	99.12229803	98.817189
240522A00009	5/22/2024	5.51	8/22/2024		100.26184	100.2001491	100.1385444	100.0770289	100.0156025	99.9542649	99.893016	99.83185558	99.77078344
240522A00012	5/22/2024	4.67	5/22/2028		117.26229	113.2389219	109.3791293	105.67537	102.1204884	98.70769634	95.43055235	92.28294176	89.25905843
240522A00027	5/22/2024	4.62	5/21/2027		112.60086	109.6800071	106.8513281	104.1113835	101.4568845	98.88468472	96.39177281	93.97526575	91.63240257
240522A00028	5/22/2024	5.48	12/23/2024		101.69876	101.2890756	100.8826577	100.4794649	100.079459	99.68260228	99.28885752	98.89818821	98.51055836
240522A00031	5/22/2024	5.51	8/22/2024		100.26184	100.2001491	100.1385444	100.0770289	100.0156025	99.9542649	99.893016	99.83185558	99.77078344
240522A00037	5/22/2024	5.11	5/22/2025		103.3972	102.5783273	101.7724859	100.9793622	100.1986561	99.43007701	98.67334338	97.92818225	97.19432903
240522A00039	5/22/2024	4.76	5/24/2027		112.64952	109.7283285	106.8993638	104.1592002	101.5045561	98.93229041	96.43939606	94.02299313	91.68032286
240523A00021	5/23/2024	4.96	11/24/2025		105.72917	104.3934554	103.0829707	101.797031	100.5349724	99.29615503	98.07996217	96.88579885	95.71309109
240523A00025	5/23/2024	4.96	11/18/2025		105.64247	104.3223344	103.0288549	101.7612352	100.5187081	99.300537	98.1060144	96.93446038	95.78522133
240523A00027	5/23/2024	4.49	5/24/2029		121.87651	116.6831435	111.7481205	107.0571819	102.5969282	98.35476572	94.31885334	90.47805407	86.82188936
240523A00033	5/24/2024	4.8	12/24/2027		115.6805	112.1120015	108.6753946	105.3650998	102.1758004	99.10243205	96.14016952	93.28441394	90.53078103
240523A00035	5/24/2024	4.78	11/24/2027		115.20527	111.7284112	108.3773422	105.146823	102.031864	99.02770966	96.12982655	93.3338916	90.63578112
240523A00037	5/24/2024	4.78	1/24/2028		116.02943	112.3692019	108.8473468	105.4578667	102.1950598	99.05350206	96.02803145	93.11373414	90.30593101
240523A00043	5/24/2024	4.81	2/24/2028		116.57828	112.8171472	109.2009388	105.7232444	102.377979	99.15936065	96.0618931	93.08035024	90.20976103

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240523A00056	5/23/2024	5.48	11/25/2024		101.359	101.0290868	100.7012964	100.3756107	100.0520094	99.7304726	99.41098055	99.09351376	98.778053
240524A00001	5/24/2024	4.98	11/24/2025		105.75573	104.4198264	103.1091598	101.8230412	100.5608067	99.32181642	98.10545343	96.91112275	95.73825032
240524A00011	5/24/2024	5.02	5/19/2026		108.09455	106.2572047	104.4603834	102.7029077	100.9836436	99.30149875	97.65542077	96.04439527	94.46744422
240524A00017	5/24/2024	5.51	8/23/2024		100.27246	100.2079765	100.1435866	100.0792918	100.0150918	99.95098652	99.88697562	99.82305896	99.75923631
240524A00020	5/24/2024	5.31	5/19/2025		103.41483	102.6055058	101.8089098	101.0247432	100.2527158	99.49254682	98.74396382	98.00670276	97.28050755
240524A00027	5/24/2024	4.82	6/30/2027		113.326	110.2907048	107.3542984	104.5130182	101.763266	99.10159979	96.5247265	94.02949427	91.61288578
970806A00017	8/1/1997	7.02	7/23/2026		106.56604	105.4929783	104.4407341	103.4087193	102.3963662	101.4031285	100.4284799	99.47191333	98.53294021
970806A00018	8/1/1997	6.7	10/23/2026		107.07036	105.8661135	104.6867761	103.531613	102.399919	101.2910159	100.204251	99.13899615	98.09464654
970806A00059	8/1/1997	8.25	9/22/2025		104.27735	103.6613661	103.0551583	102.458464	101.8710348	101.2926315	100.7230236	100.1619887	99.60931248
ADV1006427	5/28/2024	5.471	10/23/2024		100.9626	100.7264275	100.4913628	100.2573934	100.0245115	99.79270951	99.56197997	99.33231536	99.10370829
ADV1006431	5/28/2024	5.468	10/31/2024		101.05444	100.7956423	100.5381524	100.2819592	100.0270529	99.77342403	99.52106295	99.26996022	99.0201065
ADV1006436	5/28/2024	5.272	6/30/2025		103.9242	102.9979301	102.0882478	101.1947056	100.3168762	99.45434703	98.60672005	97.77361086	96.95464819
ADV1006437	5/28/2024	4.799	6/28/2027		113.23753	110.2091995	107.2793687	104.4442978	101.7004083	99.04427687	96.472628	93.98232641	91.57037045
ADV1006438	5/28/2024	4.644	5/29/2029		121.94605	116.7594945	111.8309349	107.1461447	102.6917542	98.45519506	94.42464803	90.58899474	86.93777261
ADV1006450	5/28/2024	5.047	5/28/2026		108.27172	106.4082193	104.5862751	102.8047104	101.0623864	99.3582038	97.69110155	96.06005507	94.46407475
ADV1006451	5/28/2024	5.204	11/28/2025		105.93794	104.593511	103.2732891	101.9766669	100.7030533	99.45187626	98.22258296	97.01463834	95.8275246
ADV1006454	5/28/2024	5.333	5/28/2025		103.54905	102.7145412	101.8935382	101.0857162	100.290759	99.50836063	98.73822467	97.98006395	97.23360023
ADV1006456	5/28/2024	5.456	11/26/2024		101.36212	101.0296423	100.6993275	100.3711498	100.0450885	99.72112323	99.3992338	99.0794003	98.76160308
ADV1006457	5/28/2024	5.436	1/28/2025		102.11776	101.6056847	101.098677	100.5966598	100.0995599	99.6073052	99.11982532	98.63705104	98.15891456
ADV1006458	5/28/2024	5.492	9/24/2024		100.63153	100.4771344	100.3232165	100.1697738	100.0168041	99.86430532	99.71227516	99.56071147	99.4096121
ADV1006464	5/28/2024	5.174	5/28/2025		103.5262	102.6903172	101.8679858	101.0588782	100.2626768	99.47907396	98.70777198	97.9484823	97.20092541
ADV1006473	5/28/2024	5.505	8/28/2024		100.32657	100.2480793	100.1697133	100.0914738	100.0133606	99.93537319	99.85751145	99.77977504	99.70216366
ADV1006474	5/28/2024	5.044	5/28/2026		108.26622	106.4027652	104.580872	102.7993573	101.0570824	99.352948	97.68589309	96.05489311	94.45895847
ADV1006478	5/28/2024	4.775	5/30/2028		117.77354	113.7179819	109.828043	106.096077	102.5148351	99.07743876	95.77735862	92.60839522	89.56466051
ADV1006508	5/29/2024	4.746	9/12/2028		119.07847	114.6991217	110.5099637	106.5016544	102.6653688	98.99276349	95.47594678	92.10745213	88.88021246
ADV1006512	5/29/2024	4.762	7/17/2028		118.37549	114.171853	110.1452359	106.287215	102.589815	99.04548096	95.64705341	92.38774578	89.26112287
ADV1006529	5/29/2024	5.175	5/29/2025		103.53953	102.7008587	101.8758261	101.0641016	100.2653645	99.47930438	98.70562079	97.9440226	97.19422776
ADV1006531	5/29/2024	5.446	11/29/2024		101.39412	101.053193	100.7145259	100.3780992	100.0438907	99.71187852	99.38204122	99.05435746	98.72880627
ADV1006532	5/29/2024	5.092	2/27/2026		107.05778	105.4522907	103.8790456	102.3371441	100.8257147	99.34391811	97.89094546	96.4660171	95.0683812
ADV1006538	5/29/2024	4.952	11/25/2026		110.64585	108.2559911	105.9305564	103.6674398	101.4646136	99.32012888	97.23211163	95.19875967	93.21833925
ADV1006540	5/29/2024	5.496	9/27/2024		100.66601	100.5031772	100.3408733	100.1790919	100.0178304	99.85708637	99.69685723	99.53714057	99.37793393
ADV1006544	5/29/2024	5.306	5/29/2025		103.53909	102.7018993	101.8783058	101.0679761	100.2705911	99.48584189	98.71342941	97.95306392	97.20446472
ADV1006550	5/29/2024	5.453	11/21/2024		101.30171	100.9834814	100.6672412	100.3529682	100.0406439	99.73025029	99.42176935	99.11518341	98.81047499

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1006551	5/29/2024	5.5	8/29/2024		100.337	100.2557081	100.1745511	100.0935273	100.0126364	99.93187823	99.85125233	99.77075842	99.69039619
ADV1006553	5/29/2024	5.471	10/29/2024		101.03186	100.7787639	100.5269176	100.2763166	100.0269516	99.77881354	99.53189339	99.28618222	99.04167118
ADV1006558	5/29/2024	5.422	12/30/2024		101.75814	101.3290504	100.903531	100.4815364	100.0630232	99.64794842	99.23626997	98.82794632	98.42293667
ADV1006559	5/29/2024	4.894	7/30/2027		113.94915	110.8222408	107.799823	104.8778164	102.0523212	99.31961222	96.67612956	94.11847057	91.64338183
ADV1006562	5/29/2024	4.768	6/29/2029		122.93386	117.6337734	112.6013189	107.8215171	103.2803048	98.96447421	94.861616	90.96006729	87.24886294
ADV1006570	5/29/2024	4.908	5/28/2027		113.1234	110.1843909	107.3384342	104.5820765	101.9120119	99.32507509	96.81823478	94.38858696	92.03334892
ADV1006582	5/30/2024	5.037	5/29/2026		108.26708	106.4009159	104.5764237	102.7924219	101.0477712	99.34137164	97.67216126	96.03911438	94.44124016
ADV1006583	5/30/2024	4.859	5/28/2027		112.98401	110.0470002	107.2029966	104.4485451	101.7803414	99.19522177	96.69015613	94.26224183	91.90869745
ADV1006584	5/30/2024	5.447	11/27/2024		101.37062	101.0354219	100.7024141	100.371577	100.0428896	99.71633089	99.39188032	99.06951751	98.74922238
ADV1006587	5/30/2024	5.5	9/30/2024		100.70054	100.5292775	100.3585865	100.1884664	100.0189145	99.84992798	99.681504	99.5136398	99.34633262
ADV1006588	5/30/2024	5.446	11/29/2024		101.39394	101.0530617	100.7144444	100.3780672	100.0439079	99.71194464	99.38215588	99.05452036	98.72901707
ADV1006589	5/30/2024	5.268	5/30/2025		103.51977	102.6799449	101.8538034	101.041008	100.2412367	99.45417798	98.67952992	97.91700027	97.16630583
ADV1006593	5/30/2024	5.512	8/30/2024		100.34886	100.2647659	100.1808147	100.0970038	100.0133326	99.92980098	99.84640848	99.7631548	99.68003961
ADV1006594	5/30/2024	5.501	9/30/2024		100.70071	100.5294484	100.3587568	100.1886361	100.0190837	99.85009656	99.68167202	99.51380726	99.34649952
ADV1006595	5/30/2024	5.031	5/29/2026		108.25605	106.3899921	104.565602	102.7817006	101.0371483	99.33084543	97.66172999	96.02877635	94.43099373
ADV1006596	5/30/2024	4.859	5/28/2027		112.98401	110.0470002	107.2029966	104.4485451	101.7803414	99.19522177	96.69015613	94.26224183	91.90869745
ADV1006597	5/30/2024	5.452	11/21/2024		101.30121	100.9830296	100.6668376	100.3526125	100.0403357	99.72998936	99.42155539	99.11501614	98.81035411
ADV1006598	5/30/2024	4.783	5/30/2028		117.80392	113.7477858	109.8572812	106.1247673	102.5429944	99.10508335	95.80450419	92.63505685	89.59085271
ADV1006599	5/30/2024	4.695	5/30/2029		122.2057	117.0100949	112.0729845	107.3801129	102.9180839	98.67430354	94.63692867	90.79481813	87.13748777
ADV1006600	5/30/2024	5.512	8/29/2024		100.33776	100.2564827	100.1753355	100.0943215	100.0134404	99.93269195	99.85207578	99.7715916	99.69123907
ADV1006606	5/30/2024	4.579	5/30/2029		119.87987	115.2256197	110.7979306	106.5843495	102.5731736	98.75340466	95.11470313	91.64734486	88.34218137
ADV1006609	5/30/2024	5.445	11/29/2024		101.3936	101.0527266	100.7141111	100.3777355	100.0435779	99.71161626	99.38182913	99.05419523	98.72869356
ADV1006611	5/30/2024	5.452	11/21/2024		101.30121	100.9830296	100.6668376	100.3526125	100.0403357	99.72998936	99.42155539	99.11501614	98.81035411
ADV1006629	5/31/2024	5.447	12/2/2024		101.43008	101.0807357	100.7337676	100.389153	100.0468681	99.70688937	99.3691935	99.03375759	98.70055905
ADV1006633	5/31/2024	4.653	5/28/2027		112.78815	109.8452281	106.995702	104.2360968	101.5630884	98.97349443	96.46426723	94.03248754	91.67535823
ADV1006634	5/31/2024	4.572	5/31/2028		117.54455	113.4761802	109.5744587	105.831676	102.2405237	98.79406686	95.48572344	92.30924421	89.2586943
ADV1006649	5/31/2024	5.135	5/30/2025		103.51852	102.6772198	101.8496408	101.0354524	100.234331	99.44596357	98.67004674	97.90628684	97.15439937
ADV1006650	5/31/2024	4.854	5/29/2026		108.17626	106.3065384	104.4786451	102.6913921	100.9436342	99.23426547	97.56221858	95.92646258	94.32600164
ADV1006651	5/31/2024	5.134	5/30/2025		103.51769	102.676386	101.8488108	101.0346261	100.2335085	99.44514469	98.66923147	97.90547515	97.15359122
ADV1006652	5/31/2024	4.854	5/29/2026		108.17626	106.3065384	104.4786451	102.6913921	100.9436342	99.23426547	97.56221858	95.92646258	94.32600164
ADV1006656	5/31/2024	4.99	5/29/2026		108.18069	106.3153458	104.4916541	102.708438	100.9645586	99.25891634	97.59044964	95.95813317	94.36097646
ADV1006657	5/31/2024	4.811	5/28/2027		112.84769	109.9126282	107.0705263	104.3179311	101.6515397	99.06818964	96.56485237	94.13862648	91.78673177
ADV1006659	5/31/2024	4.732	5/31/2028		117.62075	113.5653361	109.6756628	105.9440851	102.3633468	98.92656236	95.62719568	92.45904056	89.41620248

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1006680	6/3/2024	4.924	6/3/2026		108.13516	106.2564809	104.4200277	102.6246097	100.8690727	99.15230241	97.47322256	95.83079343	94.22401035
ADV1006681	6/3/2024	4.731	6/3/2027		112.7061	109.7563777	106.9005735	104.1352001	101.4569149	98.86251681	96.34893974	93.91324621	91.55262114
ADV1006683	6/3/2024	4.637	6/5/2028		117.32654	113.2625111	109.365191	105.6268624	102.0402029	98.59826511	95.29445566	92.12251505	89.07649918
ADV1006695	6/3/2024	5.516	9/3/2024		100.39367	100.2984134	100.2033368	100.1084434	100.0137327	99.91920421	99.82485733	99.73069156	99.63670637
ADV1006697	6/3/2024	5.459	11/4/2024		101.09839	100.8285386	100.5601151	100.2931094	100.0275103	99.7633066	99.5004874	99.23904178	98.97895898
ADV1006698	6/3/2024	5.407	1/3/2025		101.79931	101.3591798	100.922806	100.4901445	100.0611482	99.6357706	99.21396613	98.79568991	98.38089783
ADV1006700	6/3/2024	5.362	3/3/2025		102.4963	101.9004862	101.3116193	100.7295769	100.1542408	99.58549533	99.02322764	98.46732731	97.91768647
ADV1006703	6/3/2024	5.223	6/3/2025		103.53877	102.6879815	101.8512323	101.0281769	100.2184804	99.42181909	98.6378794	97.86635786	97.10696058
ADV1006704	6/3/2024	5.517	9/3/2024		100.39377	100.2985099	100.203433	100.1085394	100.0138285	99.91929974	99.82495263	99.73078662	99.63680119
ADV1006721	6/4/2024	5.207	6/4/2025		103.53788	102.6843645	101.8449814	101.0193801	100.2072226	99.408182	98.62194174	97.84819547	97.08664653
ADV1006724	6/4/2024	4.536	6/4/2027		112.5532	109.5940389	106.7293849	103.9557153	101.2696577	98.66798315	96.14759923	93.7055435	91.33897733
ADV1006733	6/4/2024	5.194	6/4/2025		103.5268	102.6733398	101.8340073	101.0084561	100.1963482	99.39735652	98.61116467	97.83746625	97.07596463
ADV1006734	6/4/2024	4.987	12/4/2025		105.73326	104.3746147	103.0400348	101.7289386	100.4407585	99.17494467	97.93096432	96.70830133	95.50645543
ADV1006742	6/4/2024	4.992	12/4/2025		105.74004	104.3813429	103.0467157	101.7355731	100.4473474	99.18148857	97.93746403	96.71475758	95.51286889
ADV1006756	6/5/2024	5.504	9/5/2024		100.41485	100.3140131	100.2133861	100.1129672	100.0127555	99.91275052	99.81295156	99.71335796	99.61396907
ADV1006757	6/5/2024	4.883	12/5/2025		105.78346	104.4189586	103.0787089	101.7621228	100.4686264	99.19766398	97.94869721	96.7212046	95.51468073
ADV1006758	6/5/2024	5.431	12/5/2024		101.45977	101.102201	100.7471293	100.3945287	100.0443736	99.69663843	99.35129819	99.00832814	98.66770393
ADV1006759	6/5/2024	4.502	6/5/2029		121.34349	116.1514266	111.2187748	106.5311812	102.0751589	97.83803121	93.80787906	89.97349193	86.32432226
ADV1006760	6/5/2024	5.504	9/5/2024		100.41485	100.3140131	100.2133861	100.1129672	100.0127555	99.91275052	99.81295156	99.71335796	99.61396907
ADV1006761	6/5/2024	5.463	11/5/2024		101.11094	100.8383425	100.5672007	100.2975073	100.0292507	99.76241926	99.49700177	99.23298691	98.97036357
ADV1006762	6/5/2024	5.197	6/5/2025		103.54203	102.685764	101.8437236	101.0155537	100.2009128	99.39947095	98.61090848	97.83491617	97.07119462
ADV1006769	6/5/2024	5.514	8/5/2024		100.06963	100.055665	100.0417106	100.0277699	100.0138428	99.99992934	99.98602944	99.97214311	99.95827032
ADV1006779	6/5/2024	5.052	6/5/2025		103.53039	102.672648	101.8291815	100.999631	100.1836537	99.38091767	98.59110196	97.81389585	97.04899855
ADV1006780	6/5/2024	4.435	6/1/2029		120.96988	115.7983559	110.8847886	106.2149328	101.7754006	97.55360638	93.5377155	89.71659541	86.07977064
ADV1006781	6/5/2024	4.998	10/31/2025		105.27086	104.0006519	102.7612799	101.5516254	100.3706269	99.21727277	98.09059877	96.98968495	95.91365328
ADV1006782	6/5/2024	5.4	12/19/2024		101.6164	101.219117	100.8249211	100.4337721	100.0456348	99.6604743	99.27825648	98.89894757	98.52251435
ADV1006787	6/6/2024	5.501	8/6/2024		100.08025	100.0634878	100.0467443	100.0300177	100.0133079	99.99661481	99.97993852	99.96327898	99.94663613
ADV1006791	6/6/2024	5.171	6/6/2025		103.53217	102.6732196	101.8285873	100.9979133	100.1808529	99.37707276	98.58625046	97.80807381	97.04224064
ADV1006792	6/6/2024	4.967	12/8/2025		105.75781	104.3882714	103.0431623	101.7218859	100.4238622	99.14852965	97.89534424	96.66377905	95.45332342
ADV1006793	6/6/2024	4.835	6/8/2026		108.03956	106.1478299	104.2989142	102.491591	100.7246826	98.99705236	97.30760271	95.6552736	94.03904098
ADV1006802	6/6/2024	4.287	6/6/2029		121.0458	115.835156	110.8857328	106.1830369	101.7134519	97.46418147	93.42319609	89.57918321	85.92150098
ADV1006822	6/7/2024	5.487	10/7/2024		100.77815	100.5874119	100.3974008	100.2081107	100.0195373	99.83167668	99.64452464	99.45807715	99.2723302
ADV1006828	6/7/2024	5.503	8/2/2024		100.03571	100.0301218	100.024543	100.0189692	100.0134003	100.0078365	100.0022776	99.99672369	99.99117475



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1006831	6/7/2024	5.501	9/9/2024		100.45963	100.3476128	100.2358518	100.1243502	100.0131071	99.9021215	99.79139256	99.68091931	99.57070083
ADV1006833	6/7/2024	5.504	8/7/2024		100.09114	100.0715896	100.052057	100.0325446	100.0130524	99.99358034	99.97412834	99.9546964	99.93528448
ADV1006838	6/7/2024	4.941	1/7/2026		106.30094	104.8439005	103.4142679	102.0113325	100.6344112	99.28284343	97.95599084	96.65323596	95.37398147
ADV1006841	6/7/2024	5.505	8/7/2024		100.09116	100.0716114	100.0520788	100.0325664	100.0130741	99.99360203	99.97415	99.95471803	99.93530607
ADV1006842	6/7/2024	5.458	12/9/2024		101.51737	101.1485106	100.7823098	100.4187413	100.0577767	99.69938806	99.3435477	98.99022847	98.63940356
ADV1006844	6/7/2024	4.772	6/7/2027		112.87728	109.9137409	107.0448841	104.2671741	101.5772301	98.97181529	96.44782959	94.00230353	91.63239177
ADV1006845	6/7/2024	4.686	6/7/2028		117.54294	113.4689835	109.5623233	105.815202	102.2202635	98.77052881	95.45937488	92.28051458	89.22797794
ADV1006846	6/7/2024	4.579	6/7/2029		121.74294	116.5354577	111.5883062	106.8870664	102.4181938	98.16895831	94.1273914	90.28223664	86.62290385
ADV1006860	6/10/2024	4.544	6/10/2030		126.52176	120.0972408	114.0512495	108.3593769	102.9989112	97.94871156	93.18909242	88.7017159	84.46949304
ADV1006862	6/10/2024	4.698	6/12/2028		117.65625	113.5657135	109.6436871	105.8823308	102.2742128	98.81228344	95.48985383	92.30057545	89.23842109
ADV1006864	6/10/2024	4.684	6/10/2030		126.47752	120.0846025	114.0674037	108.4017461	103.0651287	98.03660438	93.29666488	88.82713519	84.61107584
ADV1006866	6/10/2024	4.751	6/10/2032		134.47594	125.7099144	117.6072532	110.1137064	103.1797368	96.7600914	90.81341023	85.30187289	80.19087864
ADV1006868	6/10/2024	4.737	6/10/2031		130.6038	123.0294056	115.9648332	109.3728009	103.21894	97.47155636	92.10140914	87.08150942	82.38693576
ADV1006869	6/10/2024	5.493	8/9/2024		100.11227	100.0871393	100.0620345	100.036957	100.0119067	99.98688375	99.96188796	99.93691933	99.91197779
ADV1006872	6/10/2024	4.778	6/10/2027		112.93428	109.9614119	107.0837624	104.2977735	101.6000363	98.9872876	96.45640276	94.00438881	91.62837834
ADV1006873	6/10/2024	4.612	6/4/2029		121.86663	116.6648426	111.7226465	107.0256875	102.5604806	98.3143499	94.27537692	90.432351	86.774724
ADV1006874	6/11/2024	4.614	6/1/2029		121.83989	116.6474328	111.7136992	107.0244044	102.5661277	98.32625297	94.29291631	90.45495751	86.80187483
ADV1006899	6/11/2024	5.276	5/12/2025		103.28886	102.4992956	101.7218561	100.9562651	100.2022528	99.45955717	98.72792424	98.00710758	97.29686799
ADV1006901	6/11/2024	5.24	6/11/2025		103.65384	102.7806842	101.92231	101.0783441	100.2484253	99.43220417	98.62934274	97.83951423	97.0624024
ADV1006902	6/11/2024	5.241	6/12/2025		103.6675	102.7915479	101.9304718	101.0838941	100.2514501	99.43278717	98.6275643	97.8354517	97.05613032
ADV1006904	6/11/2024	5.456	11/12/2024		101.19084	100.8987175	100.6082776	100.3195055	100.0323868	99.74690726	99.46305278	99.18080943	98.90016345
ADV1006907	6/11/2024	5.438	12/11/2024		101.53349	101.1592075	100.7876669	100.4188385	100.0526925	99.68919965	99.328331	98.97005816	98.6143531
ADV1006912	6/11/2024	4.816	6/11/2026		108.29488	106.387751	104.5240215	102.7024483	100.9218313	99.1810123	97.47887319	95.81433434	94.186353
ADV1006919	6/11/2024	5.486	9/11/2024		100.47973	100.3621687	100.2448979	100.127913	100.0112129	99.89479654	99.77866286	99.66281079	99.54723924
ADV1006930	6/12/2024	5.489	9/11/2024		100.47986	100.362317	100.2450629	100.1280948	100.0114113	99.89501162	99.77889453	99.663059	99.54750396
ADV1006931	6/12/2024	4.404	6/12/2029		120.945	115.7422978	110.8006313	106.1054985	101.6432784	97.40117164	93.36714676	89.52989013	85.87875973
ADV1006934	6/12/2024	4.933	12/12/2025		105.76151	104.3811926	103.0256692	101.6943275	100.3865753	99.10183892	97.83956328	96.59921053	95.38025963
ADV1006935	6/12/2024	4.796	6/12/2026		108.02065	106.1179047	104.2584553	102.4410568	100.6645125	98.92766742	97.22940648	95.56865298	93.94436695
ADV1006936	6/12/2024	4.561	6/14/2027		112.36216	109.3862719	106.5061008	103.7180555	101.0186972	98.40473409	95.87301494	93.42052172	91.04436351
ADV1006937	6/12/2024	4.656	6/12/2026		108.00838	106.1012053	104.237501	102.4160188	100.635555	98.89494815	97.19307699	95.52885891	93.90124834
ADV1006940	6/12/2024	5.018	10/1/2025		104.89646	103.7106999	102.5518991	101.4191394	100.3115486	99.228293	98.16857537	97.13163305	96.11673602
ADV1006942	6/12/2024	4.955	11/28/2025		105.60847	104.2663865	102.9484786	101.6541329	100.3827588	99.1337855	97.90666098	96.70085102	95.51583867
ADV1006943	6/12/2024	5.018	10/1/2025		104.89646	103.7106999	102.5518991	101.4191394	100.3115486	99.228293	98.16857537	97.13163305	96.11673602

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1006944	6/12/2024	5.018	10/1/2025		104.89646	103.7106999	102.5518991	101.4191394	100.3115486	99.228293	98.16857537	97.13163305	96.11673602
ADV1006945	6/12/2024	5.018	10/1/2025		104.89646	103.7106999	102.5518991	101.4191394	100.3115486	99.228293	98.16857537	97.13163305	96.11673602
ADV1006946	6/12/2024	5.143	6/12/2025		103.58188	102.7063322	101.8456575	100.9994766	100.1674246	99.34914906	98.54430913	97.75257506	96.97362788
ADV1006947	6/12/2024	5.018	10/1/2025		104.89646	103.7106999	102.5518991	101.4191394	100.3115486	99.228293	98.16857537	97.13163305	96.11673602
ADV1006948	6/12/2024	4.955	11/28/2025		105.60847	104.2663865	102.9484786	101.6541329	100.3827588	99.1337855	97.90666098	96.70085102	95.51583867
ADV1006949	6/12/2024	4.955	11/28/2025		105.60847	104.2663865	102.9484786	101.6541329	100.3827588	99.1337855	97.90666098	96.70085102	95.51583867
ADV1006950	6/12/2024	4.952	11/28/2025		105.60445	104.2623993	102.9445192	101.6502006	100.3788533	99.12990632	97.90280769	96.6970232	95.51203591
ADV1006952	6/12/2024	5.489	9/12/2024		100.49121	100.3708646	100.2508198	100.1310743	100.0116271	99.89247696	99.77362279	99.65506344	99.53679777
ADV1006953	6/12/2024	4.55	6/14/2027		112.3304	109.3549687	106.4752475	103.6876414	100.9887116	98.37516687	95.84385622	93.39176195	91.01599342
ADV1006954	6/12/2024	4.466	6/12/2028		116.75342	112.6803544	108.7752649	105.030334	101.4381493	97.99168011	94.68425532	91.5095435	88.46153374
ADV1006955	6/12/2024	4.371	6/12/2029		120.78335	115.5845515	110.6466472	105.9551398	101.4964146	97.257678	93.22690401	89.39278426	85.74468169
ADV1006956	6/12/2024	4.382	6/12/2029		120.83723	115.6371336	110.6979752	106.0052593	101.5453692	97.30550921	93.27365159	89.43848622	85.78937437
ADV1006960	6/12/2024	4.668	6/12/2026		108.03094	106.1235439	104.2596261	102.4379344	100.657265	98.91645637	97.21438705	95.5499744	93.92217273
ADV1006962	6/12/2024	4.822	6/12/2026		108.06946	106.1662451	104.3063344	102.4884833	100.7114949	98.97421369	97.27552461	95.61435067	93.98965171
ADV1006965	6/17/2024	4.601	7/1/2027		112.69916	109.6704003	106.7404784	103.9056267	101.1622445	98.5068881	95.93626238	93.44721401	91.03672433
ADV1006966	6/12/2024	4.44	6/12/2029		121.12135	115.9143848	110.968614	106.2695261	101.8034934	97.55771015	93.52013885	89.67946017	86.02502669
ADV1006967	6/12/2024	4.643	6/14/2027		112.59895	109.6196231	106.7360976	103.9447791	101.2422261	98.62514424	96.0903799	93.63491275	91.25584962
ADV1006968	6/12/2024	5.195	6/12/2025		103.62731	102.7515487	101.890661	101.0442695	100.2120096	99.39352847	98.58848534	97.79655042	97.01740469
ADV1006980	6/13/2024	4.665	6/15/2026		108.06657	106.1504439	104.2781619	102.4484609	100.6601226	98.91197111	97.20287162	95.53172857	93.89748403
ADV1006988	6/13/2024	4.393	6/13/2029		120.90247	115.6979103	110.7546287	106.0581038	101.5946949	97.35158454	93.31672466	89.47878641	85.8271138
ADV1006989	6/13/2024	4.955	12/15/2025		105.83039	104.4415424	103.0777725	101.7384549	100.4229876	99.13078798	97.86129214	96.61395384	95.38824402
ADV1006993	6/13/2024	5.413	12/13/2024		101.54787	101.1680711	100.7910948	100.4169117	100.0454907	99.67680124	99.31081314	98.94749668	98.58682258
ADV1006998	6/13/2024	5.149	6/13/2025		103.59942	102.7210679	101.8576774	101.0088709	100.1742801	99.35354941	98.54633475	97.75230347	96.97113375
ADV1006999	6/13/2024	4.935	12/15/2025		105.80268	104.4140406	103.050468	101.7113442	100.3960675	99.10405544	97.83474401	96.58758714	95.36205583
ADV1007000	6/13/2024	4.793	6/15/2026		108.05616	106.1447171	104.2769339	102.451555	100.667369	98.92320662	97.21793958	95.55047834	93.91977075
ADV1007001	6/13/2024	4.268	6/13/2029		119.50594	114.6257101	109.9881806	105.5798149	101.387909	97.40053229	93.60647631	89.9952074	86.55682244
ADV1007002	6/13/2024	5.487	8/13/2024		100.15552	100.1192177	100.0829621	100.04675	100.0105812	99.97445583	99.93837367	99.90233467	99.86633874
ADV1007003	6/13/2024	5.484	9/13/2024		100.50172	100.3785882	100.2557721	100.1332691	100.0110779	99.88919733	99.76762612	99.64636308	99.52540698
ADV1007016	6/13/2024	4.324	6/13/2028		116.75727	112.6666616	108.7452252	104.9850671	101.3787045	97.91904061	94.59934294	91.4132224	88.35461415
ADV1007017	6/13/2024	4.543	8/4/2027		112.95882	109.8331072	106.8123245	103.8923582	101.0692767	98.33932468	95.69891466	93.14461812	90.6731576
ADV1007019	6/13/2024	4.42	6/14/2027		112.34964	109.3649945	106.4765376	103.6806531	100.9738791	98.35290258	95.81455174	93.35578939	90.97370639
ADV1007020	6/13/2024	4.251	2/2/2029		119.3701	114.5603858	109.9775742	105.609709	101.4455327	97.47443747	93.68642417	90.07206417	86.62246371
ADV1007052	6/14/2024	4.323	6/14/2029		120.57055	115.37113	110.4329773	105.7415592	101.2832261	97.0451531	93.01528525	89.18228791	85.53550002

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007053	6/14/2024	5.498	9/13/2024		100.50323	100.3801146	100.2573127	100.1348238	100.0126467	99.89078014	99.76922295	99.64797389	99.52703175
ADV1007055	6/14/2024	5.503	8/14/2024		100.16696	100.1278731	100.0888308	100.0498364	100.0108898	99.97199092	99.93313969	99.89433599	99.85557975
ADV1007058	6/14/2024	5.144	6/16/2025		103.63399	102.7472858	101.8758266	101.0192221	100.1770938	99.34907624	98.53481607	97.73397167	96.94621269
ADV1007059	6/14/2024	5.015	6/16/2025		103.63469	102.7464007	101.8734124	101.0153275	100.171766	99.3423606	98.52675625	97.72460982	96.93558941
ADV1007060	6/14/2024	4.361	5/21/2029		120.48278	115.3538131	110.4794167	105.8455607	101.4390649	97.24754053	93.25933907	89.46350368	85.84972468
ADV1007061	6/14/2024	4.959	12/15/2025		105.8357	104.4468096	103.0829947	101.7436329	100.4281221	99.1358798	97.86634198	96.61896241	95.39321201
ADV1007063	6/14/2024	4.804	6/15/2026		108.07668	106.1650344	104.2970487	102.4714713	100.6870903	98.94273679	97.23728208	95.56963661	93.93874813
ADV1007066	6/14/2024	4.562	6/14/2027		112.36464	109.388694	106.5084704	103.7203742	101.0209664	98.40695518	95.87518924	93.42265051	91.04644801
ADV1007068	6/18/2024	4.512	11/1/2027		114.01229	110.6208902	107.3502629	104.1953642	101.1513925	98.2137778	95.37816968	92.64042461	89.9965947
ADV1007070	6/14/2024	5.406	12/16/2024		101.58132	101.1930653	100.8077652	100.4253823	100.0458835	99.66923615	99.29540808	98.9243676	98.55608352
ADV1007075	6/14/2024	4.422	6/14/2027		112.35523	109.3704921	106.4819475	103.6859774	100.9791201	98.35806238	95.81963234	93.36079273	90.97863437
ADV1007076	6/14/2024	4.562	6/14/2027		112.36464	109.388694	106.5084704	103.7203742	101.0209664	98.40695518	95.87518924	93.42265051	91.04644801
ADV1007096	6/17/2024	4.852	6/17/2026		108.19399	106.2756156	104.4011733	102.5693921	100.7790502	99.02896847	97.31800898	95.64507317	94.00910021
ADV1007098	6/17/2024	4.614	6/17/2027		112.55327	109.5661012	106.6752468	103.8770806	101.1681342	98.54508781	96.0047637	93.54411895	91.16023907
ADV1007099	6/17/2024	4.522	6/20/2028		117.07456	112.9723451	109.0401303	105.2699664	101.6543163	98.18603235	94.85833509	91.66479166	88.59929657
ADV1007100	6/17/2024	4.415	6/18/2029		121.06269	115.8399557	110.8800451	106.1683138	101.6910086	97.43520858	93.38877037	89.54027728	85.87899239
ADV1007107	6/17/2024	4.278	6/18/2029		121.13958	115.8917214	110.9085898	106.175402	101.678279	97.40418322	93.34086323	89.47680217	85.80117019
ADV1007113	6/17/2024	5.501	8/19/2024		100.22186	100.1688054	100.1158218	100.0629106	100.0100716	99.9573047	99.9046097	99.85198647	99.79943486
ADV1007114	6/17/2024	4.74	6/18/2029	6/17/2027	117.68032	113.6455128	109.7977295	106.1269215	102.6236456	99.27902054	96.08469049	93.03279085	90.1159166
ADV1007116	6/17/2024	5.494	9/17/2024		100.54793	100.4136469	100.2797364	100.1461952	100.0130218	99.88021445	99.74777176	99.61569216	99.48397411
ADV1007137	6/18/2024	5.491	9/30/2024		100.69495	100.5241785	100.3539781	100.1843471	100.0152826	99.84678188	99.67884208	99.51146044	99.34463423
ADV1007138	6/18/2024	5.439	12/12/2024		101.54468	101.1679497	100.7939961	100.4227928	100.0543095	99.68851627	99.32538361	98.96488246	98.60698421
ADV1007139	6/18/2024	5.505	8/19/2024		100.22184	100.168793	100.1158171	100.0629135	100.0100822	99.95732286	99.90463548	99.85201986	99.79947584
ADV1007145	6/18/2024	5.495	9/18/2024		100.55922	100.4221501	100.2854686	100.1491708	100.013255	99.87771966	99.74256309	99.60778367	99.47337979
ADV1007146	6/18/2024	4.482	6/20/2028		116.91803	112.8188599	108.8895975	105.1222964	101.5094229	98.04383287	94.71874977	91.52774382	88.46471239
ADV1007153	6/20/2024	4.502	2/25/2028		115.48836	111.7437646	108.1437299	104.6818603	101.3520784	98.1486099	95.06596596	92.09892784	89.24253182
ADV1007155	6/18/2024	5.495	9/18/2024		100.55922	100.4221501	100.2854686	100.1491708	100.013255	99.87771966	99.74256309	99.60778367	99.47337979
ADV1007156	6/18/2024	5.495	9/18/2024		100.55922	100.4221501	100.2854686	100.1491708	100.013255	99.87771966	99.74256309	99.60778367	99.47337979
ADV1007157	6/18/2024	4.969	12/18/2025		105.88734	104.4900308	103.1180753	101.7708428	100.4477216	99.14812014	97.87146557	96.61720327	95.38479612
ADV1007158	6/18/2024	5.434	12/18/2024		101.61543	101.2216724	100.830953	100.4432333	100.0584786	99.67665498	99.29772894	98.92166747	98.54843809
ADV1007159	6/18/2024	5.336	3/18/2025		102.66131	102.0239617	101.394561	100.772959	100.1590111	99.55257602	98.95351619	98.36169727	97.7769882
ADV1007160	6/18/2024	4.638	1/19/2027		110.63045	108.0905418	105.6231133	103.2256775	100.8958475	98.63133272	96.42993407	94.28953992	92.20812197
ADV1007161	6/18/2024	5.495	9/18/2024		100.55922	100.4221501	100.2854686	100.1491708	100.013255	99.87771966	99.74256309	99.60778367	99.47337979

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007162	6/18/2024	5.159	6/18/2025		103.67122	102.778881	101.9019741	101.0401039	100.1928849	99.35994514	98.54092494	97.73547669	96.94326427
ADV1007163	6/18/2024	5.032	6/18/2025		103.67377	102.7798255	101.9013683	101.0379973	100.1893254	99.35497869	98.53459584	97.72782764	96.93433645
ADV1007164	6/18/2024	5.032	6/18/2025		103.67377	102.7798255	101.9013683	101.0379973	100.1893254	99.35497869	98.53459584	97.72782764	96.93433645
ADV1007166	6/18/2024	4.965	12/18/2025		105.88177	104.484499	103.1125834	101.7653901	100.4423075	99.14274398	97.86612671	96.61190112	95.37953008
ADV1007167	6/18/2024	4.805	6/18/2026		108.11894	106.1985063	104.322105	102.488468	100.696369	98.94462453	97.23209254	95.55767053	93.92029396
ADV1007168	6/18/2024	4.556	6/18/2027		112.39834	109.4105978	106.5192913	103.7207858	101.0116052	98.3884229	95.8480544	93.38745064	91.00369131
ADV1007170	6/18/2024	5.434	12/18/2024		101.61543	101.2216724	100.830953	100.4432333	100.0584786	99.67665498	99.29772894	98.92166747	98.54843809
ADV1007171	6/18/2024	5.265	4/18/2025		102.98047	102.2575669	101.5448567	100.8421235	100.1491585	99.46575832	98.79172562	98.12686826	97.47099936
ADV1007173	6/18/2024	4.389	6/20/2034		122.40946	116.554019	111.0949186	106.0007283	101.2427818	96.79491586	92.63323375	88.73589202	85.08290903
ADV1007175	6/18/2024	5.506	8/23/2024		100.26629	100.2020495	100.1379031	100.0738514	100.0098942	99.94603123	99.88226237	99.81858737	99.75500604
ADV1007194	6/20/2024	5.425	12/20/2024		101.63562	101.2363194	100.8401407	100.4470449	100.056996	99.66995867	99.285898	98.90477967	98.52656989
ADV1007195	6/20/2024	5.331	3/20/2025		102.68237	102.0394877	101.4046865	100.7778164	100.1587288	99.54727931	98.94332669	98.34673335	97.75736504
ADV1007196	6/20/2024	5.165	6/20/2025		103.7015	102.8035542	101.9212358	101.0541361	100.2018628	99.36403727	98.54029353	97.73027793	96.93364857
ADV1007208	6/20/2024	5.519	8/20/2024		100.23326	100.1774347	100.1216824	100.0660077	100.0104105	99.95489076	99.89944818	99.84408264	99.78879397
ADV1007211	6/20/2024	4.562	9/27/2027		113.72222	110.4325439	107.2572331	104.1916227	101.2312712	98.37194602	95.60961192	92.94042066	90.36070092
ADV1007218	6/20/2024	4.777	8/20/2026		108.91444	106.814006	104.7653002	102.7667088	100.8166783	98.91371522	97.05638268	95.24329815	93.47313089
ADV1007219	6/20/2024	4.682	12/21/2026		110.36051	107.9027393	105.5130458	103.1891585	100.9289008	98.73018052	96.59098686	94.50938623	92.48351906
ADV1007220	6/20/2024	4.59	6/21/2027		112.536	109.5377744	106.6365588	103.8286898	101.1106622	98.47912183	95.93085816	93.46279756	91.07199655
ADV1007227	6/20/2024	4.835	6/22/2026		108.23115	106.2984605	104.4103172	102.5654252	100.7625379	99.00045231	97.27800814	95.59408526	93.94760237
ADV1007228	6/20/2024	4.588	6/21/2027		112.53019	109.5320462	106.6309134	103.8231253	101.1051767	98.47371329	95.92552483	93.45753767	91.06680838
ADV1007229	6/20/2024	5.328	3/20/2025		102.68045	102.0375686	101.4027744	100.775911	100.1568303	99.54538744	98.94144146	98.34485472	97.75549295
ADV1007230	6/20/2024	4.494	6/20/2028		116.96479	112.864699	108.9345473	105.1663842	101.5526747	98.08627384	94.76040409	91.56863474	88.50486228
ADV1007240	6/20/2024	5.424	12/20/2024		101.63522	101.2359276	100.8397509	100.446657	100.05661	99.66957462	99.28551586	98.90439942	98.5261915
ADV1007256	6/21/2024	5.508	8/21/2024		100.2435	100.184886	100.1263519	100.0679011	100.0095332	99.95124821	99.89304584	99.83492593	99.77688833
ADV1007258	6/21/2024	5.154	6/23/2025		103.72909	102.8228486	101.9325171	101.0576767	100.1979249	99.35287283	98.52214516	97.70537913	96.90222416
ADV1007260	6/21/2024	5.495	9/23/2024		100.61542	100.4643892	100.3138156	100.1637	100.0140406	99.86483503	99.71608137	99.56777751	99.4199214
ADV1007262	6/21/2024	5.495	9/23/2024		100.61542	100.4643892	100.3138156	100.1637	100.0140406	99.86483503	99.71608137	99.56777751	99.4199214
ADV1007264	6/21/2024	5.495	9/23/2024		100.61542	100.4643892	100.3138156	100.1637	100.0140406	99.86483503	99.71608137	99.56777751	99.4199214
ADV1007267	6/21/2024	4.49	6/21/2028		116.96192	112.8590269	108.9262945	105.1557634	101.5398839	98.07149714	94.7438129	91.55038853	88.48510944
ADV1007269	6/21/2024	5.496	9/23/2024		100.61557	100.4645401	100.313966	100.1638501	100.0141903	99.86498436	99.71623032	99.56792608	99.42006958
ADV1007272	6/21/2024	5.405	12/23/2024		101.66345	101.2557308	100.8512616	100.4500023	100.0519145	99.65696069	99.26510399	98.876308	98.49053689
ADV1007273	6/21/2024	5.309	3/21/2025		102.68019	102.0345885	101.3971359	100.7676801	100.146071	99.53216211	98.92581074	98.32687756	97.7352267
ADV1007274	6/21/2024	5.144	6/23/2025		103.72005	102.8138572	101.9235694	101.0487721	100.1890629	99.34405295	98.51336688	97.69664195	96.8935276

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007286	6/24/2024	5.488	9/24/2024		100.62507	100.4712968	100.3180031	100.1651827	100.0128335	99.86095312	99.70953953	99.55859052	99.40810395
ADV1007291	6/24/2024	5.505	8/26/2024		100.2981	100.2255208	100.1530586	100.0807093	100.0084728	99.93634871	99.86433684	99.79243692	99.72064869
ADV1007296	6/24/2024	5.488	9/24/2024		100.62507	100.4712968	100.3180031	100.1651827	100.0128335	99.86095312	99.70953953	99.55859052	99.40810395
ADV1007298	6/24/2024	5.409	12/23/2024		101.66455	101.257	100.8527001	100.4516087	100.0536875	99.65889909	99.26720641	98.87857315	98.49296351
ADV1007299	6/24/2024	5.141	6/24/2025		103.7287	102.8197467	101.9267965	101.0494279	100.1872347	99.339825	98.50682014	97.68785436	96.8825742
ADV1007300	6/24/2024	5.141	6/24/2025		103.7287	102.8197467	101.9267965	101.0494279	100.1872347	99.339825	98.50682014	97.68785436	96.8825742
ADV1007301	6/24/2024	5.488	9/24/2024		100.62507	100.4712968	100.3180031	100.1651827	100.0128335	99.86095312	99.70953953	99.55859052	99.40810395
ADV1007302	6/24/2024	5.252	4/24/2025		103.04283	102.3033406	101.5745093	100.8561024	100.1478972	99.44967689	98.76123113	98.08235529	97.41285044
ADV1007304	6/24/2024	5.409	12/24/2024		101.67652	101.2661306	100.8590352	100.4551911	100.0545592	99.65710148	99.26278014	98.87155816	98.48339906
ADV1007305	6/24/2024	5.316	3/24/2025		102.72013	102.0662132	101.4206564	100.783296	100.1539764	99.53254573	98.91885605	98.31276306	97.71412604
ADV1007306	6/24/2024	5.14	6/24/2025		103.72779	102.8188451	101.9258993	101.048535	100.1863461	99.33894059	98.50593992	97.68697827	96.88170219
ADV1007307	6/24/2024	5.51	8/1/2024		100.0204	100.0176168	100.0148348	100.0120552	100.0092779	100.0065031	100.0037307	100.0009607	99.99819307
ADV1007310	6/24/2024	5.207	5/27/2025		103.43228	102.6010212	101.7831799	100.9784305	100.1864598	99.40696478	98.63965173	97.88423622	97.14044256
ADV1007317	6/25/2024	4.989	12/26/2025		106.01784	104.5981358	103.2045341	101.8363803	100.4930372	99.17388816	97.8783368	96.60580579	95.35573624
ADV1007323	6/25/2024	5.489	9/25/2024		100.63636	100.4798058	100.3237441	100.1681713	100.0130849	99.85848268	99.7043624	99.55072178	99.39755858
ADV1007324	6/25/2024	5.399	12/26/2024		101.69618	101.2801998	100.867593	100.4583227	100.0523488	99.64963145	99.25013158	98.85381074	98.46063109
ADV1007325	6/25/2024	5.406	12/18/2024		101.60335	101.2100533	100.8197877	100.4325182	100.0482104	99.66683027	99.28834432	98.91271962	98.53992372
ADV1007326	6/25/2024	5.271	4/15/2025		102.9605	102.2457229	101.5409087	100.8458536	100.1603554	99.4842176	98.81724885	98.15926312	97.51007935
ADV1007329	6/25/2024	4.377	6/25/2029		120.9551	115.7147913	110.7391923	106.0135011	101.5238183	97.25708819	93.20104383	89.34415505	85.67558059
ADV1007332	6/25/2024	5.15	6/25/2025		103.74939	102.8376105	101.9419247	101.0619125	100.1971646	99.34728537	98.51189312	97.69061898	96.88310654
ADV1007335	6/25/2024	5.154	6/25/2025		103.75303	102.841228	101.9455245	101.0654949	100.2007297	99.35083347	98.51542441	97.69413365	96.88660479
ADV1007336	6/25/2024	5.155	6/25/2025		103.75394	102.8421324	101.9464244	101.0663905	100.201621	99.35172049	98.51630723	97.69501232	96.88747935
ADV1007342	6/25/2024	4.995	12/26/2025		106.02633	104.6065616	103.2128983	101.8446839	100.5012812	99.18207353	97.88646453	96.61387681	95.36375147
ADV1007349	6/25/2024	5.141	6/25/2025		103.74122	102.8294713	101.9338251	101.0538522	100.189143	99.33930214	98.50394774	97.68271099	96.87523549
ADV1007351	6/25/2024	4.983	12/26/2025		106.00936	104.5897099	103.1961699	101.8280768	100.4847932	99.16570279	97.87020907	96.59773476	95.347721
ADV1007352	6/25/2024	4.827	6/25/2026		108.25624	106.3149347	104.4185427	102.5657582	100.7553197	98.98600996	97.25665493	95.56612153	93.91331603
ADV1007353	6/25/2024	4.575	6/25/2027		112.54343	109.5337832	106.6218603	103.8039528	101.0765183	98.43616744	95.8796568	93.40388154	91.00586882
ADV1007354	6/25/2024	5.395	12/26/2024		101.69454	101.2785677	100.865969	100.456707	100.0507411	99.64803176	99.24853983	98.85222687	98.45905505
ADV1007355	6/25/2024	5.31	3/25/2025		102.72839	102.0717156	101.4234646	100.7834768	100.1515949	99.52766509	98.91153775	98.30306688	97.70211012
ADV1007356	6/25/2024	5.141	6/25/2025		103.74122	102.8294713	101.9338251	101.0538522	100.189143	99.33930214	98.50394774	97.68271099	96.87523549
ADV1007378	6/26/2024	4.529	6/26/2030		125.7284	119.3105857	113.2729473	107.5908373	102.2413322	97.20310305	92.45629667	87.98242609	83.76427
ADV1007379	6/26/2024	4.573	6/26/2031		129.62929	122.0413872	114.9678622	108.3708552	102.2154838	96.469597	91.10354809	86.08998738	81.40367323
ADV1007380	6/26/2024	4.622	6/28/2032		133.63275	124.8470525	116.7307504	109.2287527	102.2907874	95.87095627	89.9273334	84.42160236	79.31872804



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007385	6/26/2024	4.302	6/26/2029		121.35069	116.0744205	111.0653517	106.3085096	101.7898329	97.49611612	93.41495328	89.53468526	85.84435117
ADV1007395	6/27/2024	5.498	9/27/2024		100.66009	100.497973	100.3363738	100.1752949	100.0147336	99.85468747	99.69515405	99.53613088	99.37761551
ADV1007398	6/27/2024	5.498	9/27/2024		100.66009	100.497973	100.3363738	100.1752949	100.0147336	99.85468747	99.69515405	99.53613088	99.37761551
ADV1007401	6/27/2024	5.164	6/27/2025		103.78705	102.8696243	101.9684922	101.0832183	100.2133859	99.3585929	98.51845093	97.69258501	96.88063286
ADV1007406	6/27/2024	4.515	6/27/2028		117.13697	113.0134695	109.0616234	105.2733679	101.6410603	98.1574549	94.81568044	91.6092189	88.53188534
ADV1007408	6/27/2024	5.516	8/27/2024		100.30933	100.233988	100.1587664	100.0836642	100.008681	99.93381665	99.85907082	99.78444326	99.70993367
ADV1007409	6/27/2024	5.168	6/27/2025		103.7907	102.8732634	101.9721134	101.0868219	100.2169721	99.36216182	98.52200284	97.69612012	96.88415137
ADV1007410	6/27/2024	4.998	12/29/2025		106.06951	104.6413903	103.2396599	101.8636516	100.5127182	99.18623373	97.88359283	96.60420953	95.34751668
ADV1007413	6/27/2024	4.827	6/29/2026		108.31156	106.3585448	104.4509517	102.587447	100.7667487	98.98762023	97.24886919	95.54934489	93.88793687
ADV1007414	6/27/2024	4.997	12/29/2025		106.06809	104.6399779	103.2382579	101.8622598	100.5113364	99.18486185	97.88223067	96.60285692	95.34617346
ADV1007421	7/1/2024	4.411	6/18/2029		121.04662	115.8244441	110.8650655	106.1538467	101.6770356	97.42171213	93.3757338	89.52768477	85.8668289
ADV1007424	6/27/2024	5.497	9/27/2024		100.65993	100.4978113	100.3362126	100.175134	100.0145731	99.85452743	99.69499441	99.53597164	99.37745667
ADV1007425	6/27/2024	4.798	7/31/2026		108.68384	106.6406221	104.6469479	102.7012997	100.8022201	98.94830639	97.13820771	95.37062289	93.64429821
ADV1007426	6/27/2024	4.473	6/28/2027		112.68487	109.6555457	106.7250089	103.8895033	101.1454326	98.48935723	95.91798592	93.42816891	91.01689082
ADV1007429	6/27/2024	4.826	6/29/2026		108.30963	106.3566404	104.4490659	102.5855794	100.764899	98.98578811	97.24705432	95.54754696	93.88615558
ADV1007430	6/27/2024	5.403	12/27/2024		101.70944	101.2907296	100.8754396	100.4635286	100.0549555	99.64967988	99.24766187	98.84886236	98.45324282
ADV1007432	6/27/2024	5.316	3/27/2025		102.75649	102.0942487	101.4405744	100.7952978	100.1582576	99.52929659	98.90826157	98.29500314	97.68937564
ADV1007433	6/27/2024	5.178	6/27/2025		103.79985	102.8823611	101.9811665	101.0958308	100.2259374	99.37108413	98.53088263	97.70495791	96.89294764
ADV1007447	6/28/2024	4.576	6/28/2027		112.58514	109.566403	106.6459323	103.819993	101.085014	98.43757924	95.87441988	93.39240729	90.9885461
ADV1007449	6/28/2024	4.391	6/28/2029		121.05841	115.8069373	110.8211181	106.0860776	101.5878475	97.3133086	93.2501356	89.38674448	85.71224445
ADV1007450	6/28/2024	5.396	12/30/2024		101.74218	101.3150235	100.8914214	100.4713283	100.0547009	99.64149653	99.23167311	98.82518939	98.42200472
ADV1007452	6/28/2024	4.403	6/28/2029		121.11772	115.8647944	110.8775833	106.1412019	101.6416793	97.36589461	93.30152015	89.43697003	85.76135158
ADV1007454	6/28/2024	5.506	10/4/2024		100.74223	100.5604951	100.379419	100.1989963	100.0192235	99.84009702	99.66161341	99.48376916	99.30656083
ADV1007460	6/28/2024	5.027	6/30/2025		103.8182	102.8907891	101.9800149	101.0854274	100.2065973	99.3431104	98.49456687	97.66058068	96.84077901
ADV1007467	6/28/2024	5.534	8/28/2024		100.32164	100.2435146	100.1655112	100.0876336	100.0098817	99.93225513	99.85475359	99.7773768	99.70012447
ADV1007484	6/28/2024	5.035	6/30/2025		103.82558	102.898137	101.9873264	101.0927029	100.2138373	99.35031538	98.50173722	97.66771682	96.84788134
ADV1007487	6/28/2024	5.085	9/30/2025		104.95828	103.774851	102.6182538	101.4875855	100.3819796	99.30060805	98.24267876	97.20743395	96.19414819
ADV1007489	6/28/2024	4.799	8/14/2026		108.87639	106.7928489	104.7603755	102.777389	100.8423651	98.95383748	97.11039544	95.310681	93.55338666
ADV1007492	6/28/2024	5.473	10/28/2024		101.01486	100.7657027	100.5177683	100.2710483	100.0255338	99.78121604	99.5380862	99.29613568	99.05535591
ADV1007493	6/28/2024	5.371	1/28/2025		102.08039	101.5708193	101.0662892	100.5667252	100.0720544	99.58220515	99.09710739	98.61669225	98.14089222
ADV1007494	6/28/2024	5.514	9/30/2024		100.69674	100.5262112	100.3562564	100.18687	100.0180494	99.84979169	99.68209412	99.51495391	99.34836831
ADV1007511	7/1/2024	5.51	10/1/2024		100.70714	100.5338943	100.3612388	100.1891724	100.0176924	99.84679564	99.67647921	99.50674016	99.33757558
ADV1007515	7/1/2024	5.041	1/2/2026		106.18972	104.7500396	103.3371473	101.9503616	100.5890213	99.25248687	97.94014	96.65138237	95.38563501

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007516	7/1/2024	5.543	8/1/2024		100.01879	100.0160044	100.0132253	100.0104485	100.0076742	100.0049022	100.0021327	99.99936556	99.99660082
ADV1007518	7/1/2024	5.194	7/1/2025		103.87165	102.9429584	102.0309452	101.1351642	100.2551842	99.39058913	98.54097745	97.70596147	96.88516679
ADV1007520	7/1/2024	5.064	7/1/2025		103.8716	102.9412332	102.0275991	101.1302507	100.2487547	99.38269305	98.53166238	97.69527323	96.8731495
ADV1007522	7/1/2024	4.894	7/1/2026		108.4739	106.5138666	104.5995282	102.7295455	100.9026251	99.11752009	97.37302774	95.66798777	94.00128048
ADV1007523	7/1/2024	5.543	8/1/2024		100.01879	100.0160044	100.0132253	100.0104485	100.0076742	100.0049022	100.0021327	99.99936556	99.99660082
ADV1007524	7/1/2024	5.544	8/1/2024		100.01879	100.0160086	100.0132294	100.0104527	100.0076783	100.0049064	100.0021368	99.99936969	99.99660494
ADV1007527	7/1/2024	5.544	8/1/2024		100.01879	100.0160086	100.0132294	100.0104527	100.0076783	100.0049064	100.0021368	99.99936969	99.99660494
ADV1007529	7/1/2024	5.509	10/1/2024		100.70697	100.5337218	100.3610667	100.1890008	100.0175212	99.84662485	99.67630885	99.50657023	99.33740607
ADV1007536	7/1/2024	5.393	1/2/2025		101.77655	101.3410719	100.9092936	100.4811635	100.0566356	99.63566472	99.2182062	98.80421632	98.39365201
ADV1007539	7/1/2024	5.39	1/2/2025		101.77526	101.3397909	100.9080191	100.4798955	100.055374	99.63440936	99.21695711	98.80297344	98.39241528
ADV1007540	7/1/2024	5.318	4/1/2025		102.82543	102.149332	101.4821518	100.8237114	100.1738397	99.5323701	98.89914019	98.27399178	97.65677073
ADV1007541	7/1/2024	5.18	7/1/2025		103.85868	102.9300524	102.0181031	101.1223852	100.2424675	99.37793398	98.52838311	97.6934272	96.87269186
ADV1007543	7/1/2024	5.329	3/14/2025		102.61234	101.9861723	101.3676845	100.756731	100.1531744	99.5568804	98.96771829	98.38556026	97.8102816
ADV1007544	7/1/2024	5.286	4/18/2025		103.00003	102.2771495	101.5644581	100.8617428	100.1687946	99.48541042	98.81139286	98.14654982	97.49069444
ADV1007554	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007559	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007560	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007561	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007562	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007565	7/2/2024	5.557	8/9/2024		100.10858	100.083526	100.058503	100.0335072	100.0085386	99.98359719	99.95868288	99.93379563	99.90893538
ADV1007574	7/2/2024	5.56	8/2/2024		100.02986	100.0243012	100.0187433	100.0131903	100.0076423	100.0020993	99.99656119	99.99102806	99.98549986
ADV1007580	7/2/2024	5.558	8/5/2024		100.06361	100.0496966	100.0357988	100.0219147	100.008044	99.99418699	99.98034347	99.96651347	99.95269695
ADV1007585	7/2/2024	4.518	7/2/2029		121.73783	116.4585794	111.4467289	106.6872733	102.1661311	97.87007875	93.78669409	89.90430356	86.21193338
ADV1007586	7/2/2024	4.518	7/2/2029		121.73783	116.4585794	111.4467289	106.6872733	102.1661311	97.87007875	93.78669409	89.90430356	86.21193338
ADV1007589	7/2/2024	5.561	8/2/2024		100.02987	100.0243081	100.0187501	100.0131972	100.0076492	100.0021061	99.99656803	99.99103489	99.98550669
ADV1007591	7/2/2024	5.557	8/9/2024		100.10858	100.083526	100.058503	100.0335072	100.0085386	99.98359719	99.95868288	99.93379563	99.90893538
ADV1007592	7/2/2024	5.552	8/23/2024		100.26598	100.2018687	100.137854	100.0739338	100.010108	99.94637622	99.88273834	99.81919414	99.75574341
ADV1007607	7/3/2024	5.557	8/5/2024		100.06334	100.0494337	100.0355381	100.0216561	100.0077876	99.99393269	99.98009131	99.96626344	99.95244905
ADV1007610	7/3/2024	4.582	7/6/2027		112.70969	109.66715	106.7243377	103.8774347	101.1227921	98.45692053	95.87648231	93.37828382	90.95926856
ADV1007622	7/3/2024	4.58	7/6/2027		112.70379	109.6613401	106.7186129	103.871793	101.1172315	98.45143907	95.87107806	93.37295495	90.95401329
ADV1007623	7/8/2024	4.946	1/8/2026		106.13036	104.6750079	103.2470383	101.8457397	100.4704294	99.12044742	97.79515585	96.49393758	95.2161957
ADV1007625	7/3/2024	5.559	8/5/2024		100.06337	100.049464	100.0355683	100.0216863	100.0078178	99.99396285	99.98012145	99.96629355	99.95247914
ADV1007626	7/3/2024	5.559	8/5/2024		100.06337	100.049464	100.0355683	100.0216863	100.0078178	99.99396285	99.98012145	99.96629355	99.95247914

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007628	7/3/2024	5.518	10/4/2024		100.74334	100.5617428	100.3807976	100.2005054	100.0208625	99.84186557	99.66351098	99.4857953	99.30871506
ADV1007639	7/5/2024	5.549	8/2/2024		100.02903	100.0234741	100.0179187	100.0123684	100.006823	100.0012826	99.99574706	99.99021653	99.98469093
ADV1007640	7/5/2024	5.39	12/26/2024		101.69081	101.2754546	100.8634674	100.4548119	100.0494476	99.64733504	99.24843513	98.85270947	98.46012029
ADV1007641	7/5/2024	5.542	9/5/2024		100.41184	100.3114555	100.2112772	100.1113059	100.011541	99.91198193	99.81262793	99.71347837	99.6145326
ADV1007642	7/5/2024	5.34	2/5/2025		102.15961	101.6278628	101.1016084	100.5807605	100.065236	99.55495378	99.04983412	98.54979902	98.05477203
ADV1007648	7/5/2024	4.367	7/5/2029		120.08088	115.0425431	110.2592125	105.7164678	101.4007818	97.29946178	93.40059341	89.69298891	86.16613884
ADV1007649	7/5/2024	5.545	8/5/2024		100.06266	100.0487578	100.0348666	100.020989	100.0071249	99.99327439	99.9794374	99.96561392	99.95180392
ADV1007651	7/5/2024	4.224	7/5/2029		121.06944	115.7745055	110.7490831	105.977988	101.4469729	97.1426619	93.0524926	89.16466277	85.46808033
ADV1007654	7/5/2024	5.541	9/5/2024		100.41174	100.3113548	100.2111766	100.1112055	100.0114408	99.91188185	99.81252802	99.71337863	99.61443303
ADV1007655	7/5/2024	5.505	10/7/2024		100.7757	100.5857535	100.3965297	100.208024	100.020232	99.83314977	99.64677322	99.4610983	99.27612101
ADV1007656	7/5/2024	5.374	1/6/2025		101.81593	101.3694119	100.9267835	100.4879966	100.0530011	99.62174815	99.19418949	98.77027777	98.34996644
ADV1007657	7/5/2024	5.262	4/7/2025		102.86054	102.1679402	101.4847056	100.8106439	100.1455707	99.48930688	98.84167782	98.20251355	97.57164857
ADV1007658	7/5/2024	5.098	7/7/2025		103.85828	102.9132818	101.9855673	101.0746601	100.1801056	99.30146545	98.43831674	97.59025154	96.75687612
ADV1007660	7/5/2024	4.343	7/6/2029		120.91375	115.643479	110.6409801	105.8911912	101.3799762	97.09406211	93.02098262	89.14902442	85.46717813
ADV1007670	7/5/2024	5.552	8/1/2024		100.01781	100.0150347	100.0122572	100.0094821	100.0067095	100.0039392	100.0011713	99.99840587	99.99564281
ADV1007671	7/5/2024	5.552	8/1/2024		100.01781	100.0150347	100.0122572	100.0094821	100.0067095	100.0039392	100.0011713	99.99840587	99.99564281
ADV1007672	7/5/2024	5.503	10/7/2024		100.77532	100.5853757	100.3961529	100.2076481	100.0198571	99.83277587	99.64640028	99.46072632	99.27574998
ADV1007673	7/5/2024	4.194	7/5/2029		120.92005	115.6287821	110.6068865	105.8391885	101.3114466	97.01029038	92.92316287	89.03826681	85.34451488
ADV1007684	7/8/2024	5.545	9/9/2024		100.45756	100.3460554	100.2348078	100.1238184	100.0130864	99.90261069	99.79239043	99.68242469	99.57271256
ADV1007687	7/8/2024	5.55	8/6/2024		100.07322	100.0565415	100.0398785	100.0232322	100.0066027	99.98998983	99.97339368	99.95681419	99.94025132
ADV1007692	7/8/2024	5.55	8/7/2024		100.08445	100.0649905	100.0455489	100.0261274	100.006726	99.98734462	99.96798323	99.9486418	99.9293203
ADV1007693	7/8/2024	4.357	4/9/2029		119.98585	114.9879643	110.2330512	105.7079151	101.400154	97.29810616	93.39080104	89.66791472	86.11972776
ADV1007695	7/8/2024	4.378	1/10/2029		119.01177	114.2940872	109.7956541	105.5050952	101.4116844	97.50530511	93.77641232	90.21599735	86.81555496
ADV1007696	7/8/2024	4.411	9/13/2028		117.70699	113.3530135	109.1885522	105.2042866	101.391411	97.74160061	94.24698223	90.900107	87.69392514
ADV1007701	7/8/2024	5.549	8/8/2024		100.09566	100.0734146	100.0511941	100.0289972	100.0068238	99.98467398	99.96254759	99.94044461	99.91836501
ADV1007702	7/8/2024	4.744	1/8/2026		106.02797	104.570311	103.1401176	101.7366828	100.3593205	99.00736789	97.68018398	96.37714897	95.09766331
ADV1007703	7/8/2024	4.366	7/8/2027		112.50059	109.4464039	106.4927271	103.6356953	100.871618	98.1969667	95.60836696	93.10259045	90.67654799
ADV1007706	7/8/2024	4.973	7/8/2025		103.87501	102.9254597	101.9933484	101.0781982	100.1795484	99.29695459	98.42998845	97.57823667	96.74130044
ADV1007707	7/8/2024	4.973	7/8/2025		103.87501	102.9254597	101.9933484	101.0781982	100.1795484	99.29695459	98.42998845	97.57823667	96.74130044
ADV1007708	7/8/2024	5.549	8/8/2024		100.09566	100.0734146	100.0511941	100.0289972	100.0068238	99.98467398	99.96254759	99.94044461	99.91836501
ADV1007720	7/9/2024	4.76	1/9/2026		106.06395	104.6033287	103.1702794	101.7640894	100.3840688	99.0295512	97.69989207	96.39446835	95.11267731
ADV1007722	7/9/2024	4.984	7/9/2025		103.89799	102.9455816	102.0107196	101.0929172	100.1917096	99.30664863	98.43730231	97.58325384	96.74410114
ADV1007723	7/9/2024	4.593	7/9/2026		108.25457	106.2702533	104.3327913	102.4407903	100.592908	98.78785071	97.02437135	95.3012674	93.61737903

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007728	7/9/2024	5.472	10/30/2024		101.03564	100.7812671	100.5281663	100.2763286	100.0257445	99.77640484	99.52830028	99.28142174	99.03576015
ADV1007732	7/9/2024	4.894	1/9/2026		106.06761	104.6100598	103.1799756	101.7766503	100.3993976	99.04755426	97.72047921	96.41755238	95.138174
ADV1007736	7/9/2024	4.517	7/9/2027		112.5547	109.5062338	106.5579735	103.7060698	100.9468465	98.27678868	95.69253456	93.19086799	90.76871125
ADV1007749	7/10/2024	5.556	8/12/2024		100.14031	100.1069361	100.073606	100.040315	100.0070629	99.97384978	99.9406755	99.90753998	99.87444315
ADV1007750	7/10/2024	5.273	4/10/2025		102.90351	102.2025398	101.5111622	100.829177	100.1563933	99.49262544	98.83769254	98.19141866	97.55363249
ADV1007751	7/10/2024	5.555	8/12/2024		100.14027	100.1069019	100.0735718	100.0402808	100.0070288	99.97381569	99.94064144	99.90750594	99.87440915
ADV1007756	7/10/2024	5.563	8/1/2024		100.01659	100.0138169	100.0110416	100.0082686	100.005498	100.0027299	99.99996414	99.99720079	99.99443982
ADV1007757	7/10/2024	4.96	7/10/2025		103.88727	102.932189	101.9947508	101.0744683	100.1708728	99.28351229	98.41195119	97.55576932	96.71456131
ADV1007760	7/10/2024	5.365	1/14/2025		101.90734	101.4384707	100.9738971	100.5135601	100.057402	99.60536595	99.1573961	98.7134377	98.27343693
ADV1007761	7/10/2024	4.57	7/10/2026		108.22211	106.2354133	104.2956872	102.4015364	100.5516133	98.74461932	96.97930268	95.2544564	93.56891638
ADV1007763	7/10/2024	5.37	1/10/2025		101.86151	101.4039803	100.9505417	100.5011397	100.0557202	99.61423057	99.17661875	98.74283378	98.31282553
ADV1007764	7/10/2024	5.327	2/12/2025		102.2358	101.6845433	101.1391936	100.599655	100.065835	99.53764287	99.01499003	98.4977896	97.98595658
ADV1007765	7/10/2024	5.275	4/9/2025		102.89255	102.1943621	101.5056823	100.8263217	100.1560917	99.49480851	98.84229358	98.1983729	97.56287711
ADV1007766	7/10/2024	5.108	7/9/2025		103.89162	102.9409822	102.0078271	101.0916748	100.1920627	99.30854483	98.44069107	97.5880866	96.75033114
ADV1007768	7/10/2024	5.511	10/10/2024		100.81097	100.6127578	100.4153371	100.2187005	100.0228431	99.8277602	99.63344726	99.43989963	99.24711271
ADV1007770	7/10/2024	4.353	7/12/2027		112.51108	109.4457486	106.4816457	103.6148657	100.841679	98.15852032	95.56198028	93.04879803	90.6158537
ADV1007771	7/10/2024	4.96	7/10/2025		103.88727	102.932189	101.9947508	101.0744683	100.1708728	99.28351229	98.41195119	97.55576932	96.71456131
ADV1007777	7/11/2024	5.559	8/12/2024		100.14016	100.1067984	100.0734734	100.0401874	100.0069403	99.97373221	99.94056292	99.9074324	99.87434057
ADV1007782	7/11/2024	5.492	10/16/2024		100.87703	100.6620455	100.4479833	100.2348422	100.0226161	99.81129918	99.6008854	99.39136896	99.18274405
ADV1007783	7/11/2024	5.432	11/13/2024		101.19002	100.89641	100.6045026	100.3142874	100.0257497	99.73887495	99.45364869	99.17005667	98.88808477
ADV1007784	7/11/2024	5.301	1/15/2025		101.88947	101.4179803	100.9508387	100.4879822	100.0293521	99.5748904	99.1245405	98.67824664	98.23595411
ADV1007786	7/11/2024	4.084	7/11/2029		120.4346	115.1384167	110.1128612	105.3426347	100.813383	96.51163268	92.42473285	88.54080064	84.84867071
ADV1007787	7/11/2024	4.357	7/12/2027		112.1172	109.0670448	106.1174679	103.2645938	100.5047225	97.83431641	95.24999279	92.74851577	90.32678918
ADV1007788	7/11/2024	4.292	7/11/2028		116.4326	112.2840152	108.3098761	104.5019038	100.8522597	97.3535165	93.99863457	90.78093964	87.69410188
ADV1007789	7/11/2024	4.221	7/11/2029		120.35935	115.0887247	110.0867746	105.3383378	100.8291909	96.54598174	92.47617181	88.60798219	84.93034391
ADV1007791	7/11/2024	4.996	7/11/2025		103.81038	102.8546969	101.9166955	100.9958854	100.0917963	99.20397458	98.33198316	97.4754004	96.63381955
ADV1007793	7/11/2024	4.233	5/9/2029		119.73621	114.6584731	109.8314784	105.2414304	100.8753746	96.72113715	92.76727333	89.0030194	85.41824842
ADV1007797	7/11/2024	4.612	6/30/2026		107.91446	105.9626175	104.0562417	102.1939985	100.3746031	98.59681605	96.85944228	95.16132858	93.5013621
ADV1007801	7/11/2024	4.829	11/28/2025		105.43982	104.0989264	102.7821811	101.4889782	100.2187279	98.97085999	97.74482279	96.54008262	95.35612298
ADV1007810	7/12/2024	4.851	7/14/2025		103.83329	102.8675641	101.9198817	100.9897408	100.0766566	99.18016207	98.29980706	97.43515762	96.58579524
ADV1007813	7/12/2024	5.588	8/2/2024		100.02752	100.0219703	100.0164208	100.0108763	100.0053367	99.99980213	99.99427247	99.98874775	99.98322796
ADV1007814	7/12/2024	4.764	1/12/2026		105.91571	104.4512805	103.0145948	101.6049363	100.2216083	98.86393769	97.53127372	96.22298726	94.93846982
ADV1007816	7/12/2024	5.587	8/2/2024		100.02752	100.0219639	100.0164144	100.0108699	100.0053303	99.99979573	99.99426607	99.98874136	99.98322157

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007817	7/12/2024	4.381	7/9/2027		112.15199	109.1095054	106.1670747	103.3208565	100.5671794	97.90253293	95.32355969	92.82704772	90.40992329
ADV1007818	7/12/2024	5.52	10/11/2024		100.82408	100.6231225	100.422978	100.2236398	100.0251029	99.82736246	99.63041357	99.43425144	99.23887129
ADV1007820	7/12/2024	5.519	10/11/2024		100.82388	100.6229228	100.4227789	100.2234411	100.0249048	99.82716479	99.63021639	99.43405475	99.23867508
ADV1007822	7/12/2024	4.567	7/13/2026		107.99321	106.0055532	104.0650065	102.1701637	100.3196701	98.51222027	96.74655607	95.02146439	93.33577535
ADV1007824	7/12/2024	5.576	8/12/2024		100.1405	100.1071383	100.0738178	100.0405365	100.0072941	99.97409057	99.9409259	99.90779999	99.87471276
ADV1007825	7/12/2024	5.512	10/15/2024		100.86938	100.6572209	100.4459607	100.2355981	100.0261275	99.81754307	99.60983913	99.40301006	99.19705026
ADV1007826	7/12/2024	5.512	10/15/2024		100.86938	100.6572209	100.4459607	100.2355981	100.0261275	99.81754307	99.60983913	99.40301006	99.19705026
ADV1007827	7/12/2024	4.093	7/12/2029		120.49019	115.1898345	110.1604464	105.3866955	100.8542032	96.54947382	92.45983581	88.57338739	84.87894579
ADV1007828	7/12/2024	4.233	7/12/2029		120.42965	115.1545267	110.1484187	105.3961423	100.8834496	96.59696579	92.52413128	88.65314799	84.97292922
ADV1007829	7/12/2024	4.234	7/12/2029		120.43463	115.1593856	110.1531598	105.4007701	100.8879681	96.60137893	92.52844287	88.65736166	84.9770484
ADV1007830	7/12/2024	4.234	7/12/2029		120.43463	115.1593856	110.1531598	105.4007701	100.8879681	96.60137893	92.52844287	88.65736166	84.9770484
ADV1007832	7/12/2024	5.388	12/12/2024		101.52155	101.1462236	100.7736696	100.4038556	100.0367515	99.67232728	99.3105537	98.95140179	98.59484302
ADV1007834	7/12/2024	4.965	7/14/2025		103.81797	102.8540839	101.9081804	100.9797598	100.0683397	99.17345506	98.29465786	97.43151612	96.58361324
ADV1007836	7/12/2024	5.592	8/2/2024		100.02755	100.021996	100.0164465	100.0109019	100.0053624	99.99982773	99.99429806	99.98877333	99.98325353
ADV1007837	7/12/2024	5.512	10/15/2024		100.86938	100.6572209	100.4459607	100.2355981	100.0261275	99.81754307	99.60983913	99.40301006	99.19705026
ADV1007838	7/12/2024	5.308	1/13/2025		101.86883	101.4030716	100.9415507	100.4842137	100.031004	99.58186556	99.13674376	98.69558476	98.25833571
ADV1007848	7/15/2024	5.557	8/13/2024		100.15036	100.1142351	100.0781527	100.0421135	100.0061176	99.97016471	99.9342549	99.89838804	99.86256405
ADV1007849	7/15/2024	5.557	8/13/2024		100.15036	100.1142351	100.0781527	100.0421135	100.0061176	99.97016471	99.9342549	99.89838804	99.86256405
ADV1007851	7/15/2024	5.555	8/15/2024		100.17277	100.1310774	100.089438	100.0478509	100.0063159	99.96483293	99.92340191	99.88202273	99.84069529
ADV1007852	7/15/2024	5.555	8/15/2024		100.17277	100.1310774	100.089438	100.0478509	100.0063159	99.96483293	99.92340191	99.88202273	99.84069529
ADV1007854	7/15/2024	5.556	8/15/2024		100.17281	100.1311197	100.0894803	100.0478931	100.0063581	99.96487509	99.92344404	99.88206482	99.84073734
ADV1007855	7/15/2024	5.555	8/15/2024		100.17277	100.1310774	100.089438	100.0478509	100.0063159	99.96483293	99.92340191	99.88202273	99.84069529
ADV1007857	7/15/2024	4.945	7/15/2025		103.81038	102.8437931	101.8952901	100.9643674	100.0505383	99.15333403	98.27230301	97.40700973	96.55703425
ADV1007860	7/15/2024	5.552	8/15/2024		100.17264	100.1309505	100.0893112	100.0477242	100.0061893	99.96470644	99.92327553	99.88189645	99.84056911
ADV1007863	7/15/2024	5.479	10/15/2024		100.8618	100.6497511	100.4386041	100.2283543	100.0189959	99.81052324	99.60293061	99.39621238	99.19036294
ADV1007865	7/15/2024	4.703	1/15/2026		105.86315	104.3910951	102.9470779	101.5303699	100.1402636	98.77607535	97.43714464	96.12283279	94.83252226
ADV1007870	7/15/2024	5.552	8/15/2024		100.17264	100.1309505	100.0893112	100.0477242	100.0061893	99.96470644	99.92327553	99.88189645	99.84056911
ADV1007872	7/15/2024	5.554	8/13/2024		100.15025	100.1141248	100.0780425	100.0420034	100.0060075	99.97005476	99.93414503	99.89827826	99.86245435
ADV1007874	7/15/2024	4.332	7/15/2027		112.07844	109.0206884	106.0640273	103.2045583	100.4385524	97.76244528	95.17282861	92.66644266	90.24016879
ADV1007880	7/15/2024	5.558	8/15/2024		100.1729	100.1312043	100.0895648	100.0479776	100.0064425	99.96495942	99.92352829	99.88214901	99.84082146
ADV1007889	7/15/2024	4.252	3/12/2027		110.68628	107.987459	105.369237	102.8286995	100.3630613	97.96965689	95.64593366	93.38944665	91.19785304
ADV1007906	7/16/2024	4.081	7/16/2029		120.47182	115.1607219	110.1217007	105.3393391	100.7991705	96.4876189	92.3919389	88.50016114	84.80104078
ADV1007910	7/16/2024	5.536	8/14/2024		100.16053	100.121632	100.0827778	100.0439714	100.0052125	99.96650114	99.92783717	99.88922051	99.85065107



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007913	7/16/2024	4.594	1/16/2026		105.90834	104.43011	102.9801342	101.5576737	100.1620134	98.79246251	97.44835347	96.12904107	94.83390149
ADV1007922	7/16/2024	5.536	8/16/2024		100.1832	100.1387329	100.0943189	100.0499618	100.0056616	99.96141818	99.9172314	99.87310115	99.82902732
ADV1007923	7/16/2024	4.075	7/16/2029		120.44177	115.1314057	110.0930983	105.3114241	100.7719177	96.46100423	92.3659394	88.47475484	84.7762067
ADV1007924	7/16/2024	4.075	7/16/2029		120.44177	115.1314057	110.0930983	105.3114241	100.7719177	96.46100423	92.3659394	88.47475484	84.7762067
ADV1007925	7/16/2024	4.545	7/16/2026		107.98721	105.9915189	104.0433176	102.1411813	100.283739	98.4696699	96.69770119	94.96660586	93.27520081
ADV1007926	7/16/2024	4.942	7/16/2025		103.81958	102.850221	101.8990476	100.9655524	100.0492449	99.14965243	98.26631969	97.39880771	96.54669322
ADV1007927	7/16/2024	4.54	7/16/2026		107.97736	105.9817649	104.0336611	102.1316204	100.2742718	98.46029476	96.68841635	94.95740966	93.26609162
ADV1007928	7/16/2024	4.295	1/18/2028		114.25988	110.6470494	107.170493	103.8243236	100.6029447	97.50103072	94.51351262	91.63556399	88.86258805
ADV1007930	7/16/2024	5.529	9/3/2024		100.38503	100.2903855	100.1959249	100.1016464	100.0075494	99.91363341	99.81989786	99.72634224	99.63296603
ADV1007933	7/16/2024	4.933	7/16/2025		103.81088	102.8415628	101.890434	100.956983	100.040719	99.14116957	98.25787929	97.39040921	96.53833611
ADV1007936	7/16/2024	5.46	10/16/2024		100.86917	100.6543595	100.4404755	100.2275118	100.0154623	99.80432124	99.59408258	99.3847405	99.17628922
ADV1007937	7/16/2024	5.265	1/16/2025		101.88371	101.409809	100.9403021	100.4751271	100.0142242	99.55753456	99.10500051	98.65656543	98.21217371
ADV1007938	7/16/2024	4.927	7/16/2025		103.80508	102.8357907	101.8846917	100.9512701	100.0350351	99.13551434	98.25225235	97.38481022	96.53276471
ADV1007939	7/16/2024	4.527	7/16/2026		107.95174	105.9564045	104.0085541	102.1067619	100.2496572	98.4359194	96.66427577	94.93349952	93.24240771
ADV1007941	7/16/2024	4.12	7/17/2028		116.37426	112.1951085	108.1927661	104.3587949	100.6852054	97.16443026	93.78929948	90.55301726	87.44914059
ADV1007944	7/16/2024	4.512	7/16/2026		107.92218	105.9271426	103.9795845	102.0780791	100.2212558	98.40779397	96.63642125	94.9059109	93.21508012
ADV1007956	7/17/2024	5.476	10/16/2024		100.87239	100.6576	100.4437395	100.2307991	100.0187729	99.80765501	99.5974394	99.38812029	99.17969187
ADV1007957	7/17/2024	4.221	7/19/2027		112.20213	109.1222243	106.1446852	103.2655414	100.4809978	97.78742791	95.1813648	92.65949356	90.21864354
ADV1007959	7/17/2024	5.551	8/19/2024		100.21737	100.1645569	100.1118115	100.0591382	100.0065367	99.95400695	99.90154882	99.84916213	99.79684674
ADV1007960	7/17/2024	5.478	10/17/2024		100.88445	100.6668565	100.450216	100.2345191	100.0197595	99.80593116	99.59302785	99.38104355	99.16997224
ADV1007964	7/17/2024	5.55	8/19/2024		100.21732	100.1645036	100.1117583	100.059085	100.0064835	99.95395385	99.90149577	99.84910913	99.79679378
ADV1007966	7/17/2024	5.55	8/19/2024		100.21732	100.1645036	100.1117583	100.059085	100.0064835	99.95395385	99.90149577	99.84910913	99.79679378
ADV1007967	7/17/2024	5.556	8/5/2024		100.05983	100.0459514	100.0320857	100.0182335	100.0043948	99.99056972	99.97675811	99.96295998	99.9491753
ADV1007969	7/17/2024	5.551	8/19/2024		100.21737	100.1645569	100.1118115	100.0591382	100.0065367	99.95400695	99.90154882	99.84916213	99.79684674
ADV1007971	7/17/2024	4.949	7/17/2025		103.83802	102.8658462	101.9119641	100.9758586	100.0570353	99.15501758	98.26934643	97.3995794	96.54528989
ADV1007972	7/17/2024	5.47	10/21/2024		100.92915	100.7003456	100.4725904	100.2458738	100.0201887	99.79552801	99.57188471	99.34925185	99.12762255
ADV1007973	7/17/2024	5.491	10/10/2024		100.80556	100.6075728	100.41037	100.2139502	100.0183089	99.82344128	99.62934273	99.43600862	99.2434344
ADV1007974	7/17/2024	5.488	10/11/2024		100.81664	100.6158491	100.415871	100.2166986	100.0183268	99.82075073	99.62396561	99.42796659	99.2327489
ADV1007976	7/17/2024	5.555	8/15/2024		100.17228	100.1306036	100.088977	100.0474026	100.0058804	99.96441014	99.92299185	99.88162538	99.84031063
ADV1007977	7/17/2024	5.551	8/19/2024		100.21737	100.1645569	100.1118115	100.0591382	100.0065367	99.95400695	99.90154882	99.84916213	99.79684674
ADV1007978	7/17/2024	5.557	8/6/2024		100.0711	100.0544456	100.0378055	100.0211822	100.0045755	99.98798558	99.97141229	99.95485564	99.93831559
ADV1007989	7/18/2024	5.545	8/19/2024		100.21681	100.1640049	100.1112678	100.0586028	100.0060097	99.95348832	99.90103851	99.84866014	99.79635305
ADV1007990	7/18/2024	5.545	8/19/2024		100.21681	100.1640049	100.1112678	100.0586028	100.0060097	99.95348832	99.90103851	99.84866014	99.79635305

Parallel-Shift Sensitivity Analysis													
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1007991	7/18/2024	5.545	8/19/2024		100.21681	100.1640049	100.1112678	100.0586028	100.0060097	99.95348832	99.90103851	99.84866014	99.79635305
ADV1007992	7/18/2024	5.545	8/19/2024		100.21681	100.1640049	100.1112678	100.0586028	100.0060097	99.95348832	99.90103851	99.84866014	99.79635305
ADV1007993	7/18/2024	5.471	10/18/2024		100.89434	100.6739841	100.4546011	100.2361851	100.0187296	99.80222822	99.5866746	99.37206248	99.15838563
ADV1007994	7/18/2024	5.471	10/18/2024		100.89434	100.6739841	100.4546011	100.2361851	100.0187296	99.80222822	99.5866746	99.37206248	99.15838563
ADV1007997	7/18/2024	5.335	12/18/2024		101.57189	101.1800353	100.7911976	100.4053451	100.0224435	99.64245875	99.26535764	98.8911073	98.51967541
ADV1008000	7/23/2024	4.195	7/2/2029		120.13369	114.8935084	109.9192756	105.1960546	100.7098268	96.44742784	92.39649197	88.54539896	84.88322568
ADV1008001	7/18/2024	4.526	7/20/2026		107.99961	105.9930243	104.0344385	102.1224041	100.2555282	98.43246933	96.65193493	94.91267926	93.21350138
ADV1008003	7/18/2024	5.471	10/18/2024		100.89434	100.6739841	100.4546011	100.2361851	100.0187296	99.80222822	99.5866746	99.37206248	99.15838563
ADV1008005	7/18/2024	5.26	1/21/2025		101.93972	101.4517871	100.9685087	100.4898157	100.0156432	99.54592729	99.08060522	98.61961552	98.16289782
ADV1008006	7/18/2024	4.957	7/18/2025		103.85813	102.8831275	101.9265149	100.9877784	100.0664191	99.16195665	98.27392833	97.40188815	96.54540615
ADV1008007	7/18/2024	5.526	9/24/2024		100.62568	100.4724585	100.319707	100.1674272	100.0156168	99.86427372	99.71339572	99.56298066	99.41302641
ADV1008008	7/18/2024	5.337	12/18/2024		101.57267	101.1808068	100.7919659	100.4061102	100.0232054	99.64321747	99.26611322	98.89185978	98.5204248
ADV1008009	7/18/2024	4.713	1/20/2026		105.93926	104.4532477	102.9957947	101.5661443	100.1635703	98.78737089	97.43686835	96.11140759	94.8103553
ADV1008010	7/18/2024	5.545	8/19/2024		100.21681	100.1640049	100.1112678	100.0586028	100.0060097	99.95348832	99.90103851	99.84866014	99.79635305
ADV1008011	7/18/2024	4.532	7/20/2026		108.0115	106.004793	104.046089	102.1339386	100.266949	98.44377855	96.66313464	94.92377149	93.22448811
ADV1008012	7/18/2024	5.261	1/21/2025		101.9402	101.4522655	100.9689846	100.4902893	100.0161144	99.54639605	99.08107163	98.62007959	98.16335959
ADV1008014	7/18/2024	5.544	8/1/2024		100.01451	100.0117349	100.008963	100.0061935	100.0034264	100.0006616	99.99789932	99.99513938	99.99238184
ADV1008015	7/18/2024	5.531	9/18/2024		100.55752	100.4210637	100.2849911	100.1493004	100.0139901	99.87905852	99.74450402	99.61032499	99.47651983
ADV1008021	7/18/2024	5.546	8/1/2024		100.01452	100.0117417	100.0089697	100.0062002	100.0034331	100.0006684	99.99790604	99.99514611	99.99238856
ADV1008029	7/19/2024	5.485	10/7/2024		100.76898	100.5794475	100.3906314	100.2025317	100.0151443	99.82846512	99.64249008	99.45721516	99.27263637
ADV1008030	7/19/2024	5.261	1/21/2025		101.94004	101.4521815	100.9689694	100.4903421	100.0162347	99.54658317	99.08132494	98.62039848	98.16374344
ADV1008031	7/19/2024	4.252	7/19/2027		112.29481	109.2135131	106.2346171	103.35415	100.5683157	97.87348653	95.26619463	92.74312408	90.3011033
ADV1008032	7/19/2024	4.839	7/21/2025		103.90697	102.9217357	101.955264	101.0070253	100.0765062	99.16321224	98.26666743	97.3864131	96.52200725
ADV1008033	7/19/2024	5.525	9/20/2024		100.57943	100.4374075	100.2957994	100.1546025	100.013815	99.87343502	99.73346081	99.59389059	99.45472257
ADV1008035	7/19/2024	5.54	8/19/2024		100.21631	100.1635065	100.1107778	100.0581211	100.0055363	99.95302315	99.9005816	99.84821149	99.79591264
ADV1008037	7/19/2024	5.459	10/21/2024		100.92624	100.6975159	100.4698353	100.243193	100.0175819	99.79299489	99.56942492	99.34686504	99.12530839
ADV1008039	7/19/2024	5.463	10/18/2024		100.89238	100.672065	100.4527193	100.2343404	100.0169218	99.80045717	99.58494016	99.37036448	99.15672392
ADV1008040	7/19/2024	5.463	10/18/2024		100.89238	100.672065	100.4527193	100.2343404	100.0169218	99.80045717	99.58494016	99.37036448	99.15672392
ADV1008041	7/19/2024	4.968	7/21/2025		103.906	102.9225779	101.9578565	101.0113081	100.0824216	99.17070506	98.27568447	97.39690329	96.53392145
ADV1008042	7/19/2024	4.77	1/20/2026		106.02383	104.5371708	103.079076	101.6487949	100.2456007	98.86879171	97.5176897	96.19163935	94.8900071
ADV1008048	7/19/2024	5.459	10/21/2024		100.92624	100.6975159	100.4698353	100.243193	100.0175819	99.79299489	99.56942492	99.34686504	99.12530839
ADV1008049	7/22/2024	5.551	8/23/2024		100.26115	100.1972382	100.1334194	100.0696949	100.0060644	99.94252772	99.87908463	99.81573492	99.7524784
ADV1008052	7/22/2024	5.552	8/22/2024		100.24997	100.188841	100.1278013	100.06685	100.0059869	99.94521185	99.88452467	99.82392516	99.76341311

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1008054	7/22/2024	5.552	8/22/2024		100.24997	100.188841	100.1278013	100.06685	100.0059869	99.94521185	99.88452467	99.82392516	99.76341311
ADV1008056	7/22/2024	5.547	8/5/2024		100.05845	100.0445846	100.0307295	100.016888	100.0030601	99.98924567	99.97544474	99.96165727	99.94788325
ADV1008058	7/22/2024	5.545	8/2/2024		100.02474	100.0191909	100.01365	100.0081142	100.0025833	99.99705728	99.99153625	99.98602015	99.98050898
ADV1008059	7/22/2024	5.552	8/22/2024		100.24997	100.188841	100.1278013	100.06685	100.0059869	99.94521185	99.88452467	99.82392516	99.76341311
ADV1008064	7/22/2024	5.554	8/22/2024		100.25009	100.1889638	100.127924	100.0669725	100.0061094	99.94533422	99.88464693	99.82404731	99.76353516
ADV1008082	7/22/2024	5.349	12/20/2024		101.60028	101.2029763	100.8087797	100.4176506	100.0295531	99.64445213	99.26231293	98.88310135	98.50678376
ADV1008085	7/22/2024	5.552	8/5/2024		100.05852	100.044656	100.0308009	100.0169594	100.0031315	99.98931699	99.97551603	99.96172854	99.94795449
ADV1008086	7/22/2024	5.551	8/5/2024		100.05851	100.0446417	100.0307866	100.0169451	100.0031172	99.98930273	99.97550177	99.96171428	99.94794024
ADV1008087	7/22/2024	5.552	8/6/2024		100.06977	100.0531271	100.0364999	100.0198894	100.0032955	99.9867184	99.9701579	99.95361402	99.93708673
ADV1008092	7/23/2024	5.529	8/23/2024		100.2595	100.1955993	100.1317916	100.0680781	100.0044585	99.94093277	99.87750061	99.81416181	99.75091619
ADV1008093	7/23/2024	5.523	8/5/2024		100.05786	100.0439955	100.0301427	100.0163035	100.0024778	99.98866563	99.97486693	99.96108171	99.94730992
ADV1008095	7/23/2024	5.524	8/6/2024		100.06905	100.0524043	100.0357798	100.019172	100.0025809	99.98600651	99.96944874	99.95290759	99.93638302
ADV1008098	7/23/2024	5.524	8/6/2024		100.06905	100.0524043	100.0357798	100.019172	100.0025809	99.98600651	99.96944874	99.95290759	99.93638302
ADV1008099	7/23/2024	4.563	7/23/2026		108.11025	106.0944533	104.1270628	102.2066095	100.3316836	98.50092731	96.71303279	94.96673961	93.26083288
ADV1008100	7/23/2024	4.955	7/23/2025		103.91706	102.9281177	101.9580881	101.0064293	100.0726218	99.15616586	98.25658001	97.37340058	96.50618078
ADV1008102	7/23/2024	4.373	7/23/2027		112.29554	109.2127203	106.2325065	103.3509106	100.5641225	97.86850129	95.26056706	92.73699249	90.29459539
ADV1008103	7/23/2024	4.746	1/23/2026		106.02498	104.5302854	103.0644591	101.6267386	100.216386	98.83268856	97.47495797	96.14252901	94.83475875
ADV1008104	7/23/2024	4.563	7/23/2026		108.11025	106.0944533	104.1270628	102.2066095	100.3316836	98.50092731	96.71303279	94.96673961	93.26083288
ADV1008109	7/23/2024	4.252	7/23/2029		119.16004	114.2235164	109.5366185	105.0851926	100.8559632	96.83647776	93.01505112	89.38071398	85.92316511
ADV1008120	7/23/2024	5.523	8/6/2024		100.06903	100.0523873	100.0357628	100.019155	100.0025639	99.98598952	99.96943176	99.95289061	99.93636605
ADV1008130	7/24/2024	5.533	8/26/2024		100.2931	100.2208508	100.148716	100.0766936	100.0047835	99.93298527	99.86129877	99.78972372	99.71825985
ADV1008131	7/24/2024	5.505	9/24/2024		100.62117	100.4680889	100.3154821	100.1633466	100.01168	99.86048027	99.70974519	99.55947262	99.40966041
ADV1008134	7/24/2024	4.357	7/24/2026		107.97793	105.9558311	103.9824449	102.0562895	100.1759421	98.34003251	96.54724116	94.79629646	93.08597294
ADV1008141	7/24/2024	5.438	10/23/2024		100.94351	100.7093583	100.4763042	100.244336	100.013446	99.78362679	99.55487078	99.3271706	99.10051891
ADV1008142	7/24/2024	5.379	11/20/2024		101.2565	100.9437879	100.6330154	100.3241602	100.0172045	99.71213068	99.40892144	99.10755966	98.80802843
ADV1008143	7/24/2024	5.531	8/7/2024		100.08011	100.0606913	100.0412976	100.0219239	100.0025703	99.98323665	99.96392294	99.94462914	99.92535522
ADV1008144	7/24/2024	5.322	12/18/2024		101.56584	101.1743452	100.7858658	100.4003688	100.0178199	99.6381853	99.26143163	98.88752612	98.51643645
ADV1008145	7/24/2024	4.328	7/26/2027		112.19612	109.1066201	106.1202301	103.232929	100.440878	97.74040968	95.12801882	92.60035458	90.15421258
ADV1008146	7/24/2024	4.302	11/29/2027		113.67398	110.2084355	106.8689692	103.6503288	100.5475098	97.55574145	94.67047459	91.88737015	89.20228828
ADV1008147	7/24/2024	5.533	8/7/2024		100.08014	100.0607308	100.0413371	100.0219634	100.0026098	99.98327608	99.96396235	99.94466854	99.9253946
ADV1008148	7/24/2024	5.545	8/14/2024		100.15894	100.1200869	100.0812802	100.042521	100.0038094	99.96514527	99.92652845	99.88795889	99.84943648
ADV1008149	7/24/2024	5.535	8/26/2024		100.29324	100.2209956	100.1488606	100.0768381	100.0049278	99.9331295	99.86144287	99.78986768	99.71840369
ADV1008151	7/24/2024	5.533	8/8/2024		100.09134	100.0691481	100.0469823	100.02484	100.0027212	99.98062585	99.95855391	99.93650533	99.91448007

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1008156	7/24/2024	5.531	8/7/2024		100.08011	100.0606913	100.0412976	100.0219239	100.0025703	99.98323665	99.96392294	99.94462914	99.92535522
ADV1008164	7/25/2024	4.773	10/24/2025		104.89423	103.6456048	102.4268632	101.2369407	100.0748218	98.9395382	97.83016633	96.74582445	95.68567054
ADV1008165	7/25/2024	5.548	8/26/2024		100.29395	100.2217115	100.1495867	100.0775744	100.0056743	99.93388615	99.86220967	99.79064461	99.71919072
ADV1008166	7/25/2024	4.782	7/25/2025		103.89847	102.9023588	101.9254246	100.9671179	100.0269087	99.10428689	98.19876146	97.30985953	96.43712554
ADV1008167	7/25/2024	5.546	8/26/2024		100.2938	100.2215668	100.1494422	100.07743	100.00553	99.93374199	99.86206563	99.7905007	99.71904694
ADV1008168	7/25/2024	5.546	8/26/2024		100.2938	100.2215668	100.1494422	100.07743	100.00553	99.93374199	99.86206563	99.7905007	99.71904694
ADV1008171	7/25/2024	5.543	8/7/2024		100.08009	100.0606833	100.0412925	100.0219217	100.002571	99.98324018	99.96392935	99.94463842	99.92536737
ADV1008172	7/25/2024	5.544	8/8/2024		100.09134	100.0691518	100.0469893	100.0248504	100.0027349	99.98064282	99.95857417	99.93652888	99.9145069
ADV1008174	7/25/2024	5.444	10/25/2024		100.96778	100.7280535	100.4894744	100.25203	100.0157122	99.7805131	99.54642462	99.31343891	99.08154818
ADV1008176	7/25/2024	5.539	8/1/2024		100.01273	100.0099599	100.007191	100.0044245	100.0016603	99.99889857	99.99613922	99.99338226	99.99062769
ADV1008177	7/25/2024	5.547	8/26/2024		100.29388	100.2216392	100.1495145	100.0775022	100.0056022	99.93381407	99.86213765	99.79057266	99.71911883
ADV1008178	7/25/2024	5.547	8/26/2024		100.29388	100.2216392	100.1495145	100.0775022	100.0056022	99.93381407	99.86213765	99.79057266	99.71911883
ADV1008179	7/25/2024	5.445	10/25/2024		100.96801	100.7282912	100.4897115	100.2522665	100.0159482	99.78074843	99.54665936	99.31367306	99.08178175
ADV1008180	7/25/2024	5.445	10/25/2024		100.96801	100.7282912	100.4897115	100.2522665	100.0159482	99.78074843	99.54665936	99.31367306	99.08178175
ADV1008181	7/25/2024	4.945	6/26/2025		103.57506	102.6614054	101.7639335	100.882216	100.0158399	99.1644068	98.32753183	97.50484327	96.695982
ADV1008182	7/25/2024	4.912	7/25/2025		103.89847	102.9041879	101.9290245	100.9724273	100.0338687	99.11284116	98.20885574	97.32144174	96.4501456
ADV1008183	7/25/2024	4.912	7/25/2025		103.89847	102.9041879	101.9290245	100.9724273	100.0338687	99.11284116	98.20885574	97.32144174	96.4501456
ADV1008184	7/25/2024	4.912	7/25/2025		103.89847	102.9041879	101.9290245	100.9724273	100.0338687	99.11284116	98.20885574	97.32144174	96.4501456
ADV1008185	7/25/2024	4.918	7/25/2025		103.90441	102.9101044	101.9349097	100.9782817	100.0396927	99.11863515	98.21462011	97.32717686	96.45585186
ADV1008186	7/25/2024	4.918	7/25/2025		103.90441	102.9101044	101.9349097	100.9782817	100.0396927	99.11863515	98.21462011	97.32717686	96.45585186
ADV1008189	7/25/2024	5.54	8/1/2024		100.01273	100.009963	100.007194	100.0044275	100.0016634	99.99890162	99.99614227	99.99338531	99.99063074
ADV1008192	7/25/2024	4.92	7/25/2025		103.9064	102.9120766	101.9368715	100.9802332	100.0416341	99.12056648	98.21654157	97.32908857	96.45775394
ADV1008194	7/25/2024	5.524	9/12/2024		100.48579	100.3662131	100.2469388	100.1279619	100.0092814	99.89089605	99.77280477	99.6550064	99.53749983
ADV1008195	7/25/2024	4.41	7/26/2027		112.44235	109.3491341	106.3591237	103.4682923	100.6727981	97.9689707	95.35330233	92.82243945	90.3731752
ADV1008196	7/25/2024	4.232	7/26/2027		112.31841	109.2175737	106.2204155	103.3228843	100.5211138	97.81141081	95.19024568	92.65424448	90.20018104
ADV1008198	7/25/2024	4.133	7/25/2029		120.82707	115.4819803	110.4118621	105.6010604	101.034894	96.69958955	92.58222051	88.67065095	84.95348295
ADV1008199	7/25/2024	4.931	7/25/2025		103.9173	102.9229235	101.9476611	100.9909663	100.0523114	99.1311888	98.22710958	97.33960297	96.46821541
ADV1008201	7/25/2024	5.545	8/8/2024		100.09136	100.0691743	100.0470118	100.0248728	100.0027573	99.98066526	99.9585966	99.9365513	99.91452932
ADV1008203	7/25/2024	5.54	8/1/2024		100.01273	100.009963	100.007194	100.0044275	100.0016634	99.99890162	99.99614227	99.99338531	99.99063074
ADV1008205	7/25/2024	5.54	8/1/2024		100.01273	100.009963	100.007194	100.0044275	100.0016634	99.99890162	99.99614227	99.99338531	99.99063074
ADV1008207	7/26/2024	5.541	8/26/2024		100.29321	100.2209805	100.1488672	100.0768664	100.0049777	99.93320099	99.86153593	99.78998227	99.71853977
ADV1008208	7/26/2024	4.678	1/26/2026		105.95996	104.4577558	102.9847154	101.5400652	100.1230562	98.73296491	97.36909297	96.03076547	94.71733023
ADV1008213	7/26/2024	5.436	10/28/2024		101.00021	100.7521143	100.5052396	100.2595741	100.015109	99.77183541	99.52974474	99.28882834	99.04907769

Parallel-Shift Sensitivity Analysis													
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1008214	7/26/2024	4.775	7/28/2025		103.92819	102.9237278	101.9387604	100.9727201	100.0250643	99.09527092	98.18283767	97.28728082	96.40813451
ADV1008215	7/26/2024	5.54	8/26/2024		100.29313	100.2209082	100.148795	100.0767942	100.0049056	99.93312894	99.86146394	99.78991035	99.71846791
ADV1008216	7/26/2024	4.284	7/26/2029		119.66352	114.5407177	109.6782957	105.0614534	100.6763142	96.50986301	92.5498881	88.784927	85.20421645
ADV1008218	7/26/2024	4.53	7/26/2033		136.59	126.5626726	117.3888533	108.9903832	101.2966747	94.2439411	87.7745077	81.83619667	76.38177636
ADV1008219	7/26/2024	4.588	7/26/2035		143.76175	131.3195005	120.1336321	110.0682229	101.0028072	92.83054156	85.45659684	78.79674852	72.77613833
ADV1008220	7/26/2024	4.464	7/26/2032		132.63208	123.8072873	115.6616562	108.1387528	101.1871299	94.7598587	88.81410996	83.3107758	78.21412834
ADV1008221	7/26/2024	4.2	7/26/2029		120.40468	115.0914433	110.0511274	105.2682188	100.7281633	96.41730567	92.32282904	88.43269946	84.7356139
ADV1008222	7/26/2024	4.478	7/27/2026		107.99045	105.9651172	103.9886737	102.0596318	100.1765603	98.33808114	96.54286703	94.78963925	93.07716548
ADV1008223	7/26/2024	4.252	7/26/2028		116.44975	112.2594163	108.2470026	104.4039799	100.722278	97.1942553	93.81267281	90.57067121	87.46174866
ADV1008224	7/26/2024	4.252	7/26/2028		116.44975	112.2594163	108.2470026	104.4039799	100.722278	97.1942553	93.81267281	90.57067121	87.46174866
ADV1008225	7/26/2024	4.588	7/26/2035		143.76175	131.3195005	120.1336321	110.0682229	101.0028072	92.83054156	85.45659684	78.79674852	72.77613833
ADV1008226	7/26/2024	4.2	7/26/2029		120.40468	115.0914433	110.0511274	105.2682188	100.7281633	96.41730567	92.32282904	88.43269946	84.7356139
ADV1008227	7/26/2024	5.552	8/9/2024		100.10252	100.0775578	100.052627	100.0277233	100.0028468	99.97799726	99.95317475	99.92837921	99.90361057
ADV1008228	7/26/2024	4.498	7/26/2034		129.65802	121.5317525	114.0787911	107.2362897	100.9477401	95.16229185	89.83415046	84.92204298	80.38874327
ADV1008229	7/26/2024	4.903	7/28/2025		103.92618	102.923584	101.9404174	100.9761155	100.0301382	99.10196585	98.1910984	97.2970543	96.41936978
ADV1008230	7/26/2024	5.439	10/25/2024		100.96639	100.7267028	100.4881622	100.2507562	100.0144766	99.7793155	99.54526485	99.3123168	99.08046355
ADV1008231	7/26/2024	4.099	11/26/2029		121.9666	116.236326	110.8175815	105.69174	100.841384	96.25022018	91.90300134	87.78545387	83.88421082
ADV1008232	7/26/2024	4.673	1/26/2026		105.95246	104.4503145	102.9773316	101.5327379	100.1157844	98.72574774	97.36192949	96.0236548	94.71027149
ADV1008233	7/26/2024	4.475	7/27/2026		107.98445	105.9591771	103.9827939	102.053811	100.1707975	98.33237512	96.53721677	94.78404371	93.07162364
ADV1008234	7/26/2024	5.556	8/2/2024		100.0238	100.018253	100.0127156	100.0071831	100.0016555	99.99613296	99.99061531	99.98510259	99.9795948
ADV1008236	7/29/2024	5.554	8/29/2024		100.32719	100.2466427	100.1662278	100.0859449	100.0057938	99.92577408	99.84588545	99.76612761	99.68650025
ADV1008237	7/29/2024	5.555	8/27/2024		100.30476	100.2297873	100.1549288	100.080189	100.0055678	99.93106473	99.85667967	99.7824123	99.70826234
ADV1008239	7/29/2024	5.553	8/29/2024		100.32711	100.2465622	100.1661474	100.0858646	100.0057135	99.92569388	99.84580532	99.76604755	99.68642026
ADV1008240	7/29/2024	5.517	9/19/2024		100.56464	100.4256232	100.2870067	100.1487861	100.0109597	99.87352563	99.73648232	99.59982804	99.4635611
ADV1008242	7/29/2024	5.444	10/28/2024		101.00159	100.7536032	100.5068339	100.2612732	100.0169124	99.77374266	99.53175529	99.29094169	99.05129335
ADV1008243	7/29/2024	5.554	8/29/2024		100.32719	100.2466427	100.1662278	100.0859449	100.0057938	99.92577408	99.84588545	99.76612761	99.68650025
ADV1008244	7/29/2024	5.558	8/22/2024		100.24866	100.187602	100.1266276	100.0657415	100.0049436	99.94423357	99.88361136	99.82307671	99.76262944
ADV1008245	7/29/2024	4.292	7/29/2027		112.12305	109.0264965	106.0335581	103.1401898	100.3425239	97.63686571	95.01968468	92.48760596	90.03740267
ADV1008246	7/29/2024	5.553	8/29/2024		100.32711	100.2465622	100.1661474	100.0858646	100.0057135	99.92569388	99.84580532	99.76604755	99.68642026
ADV1008247	7/29/2024	4.465	7/29/2026		107.98873	105.9580319	103.9764823	102.0425786	100.1548786	98.31199359	96.51258637	94.75536869	93.03909917
ADV1008249	7/29/2024	4.664	1/29/2026		105.97528	104.4649407	102.984078	101.5319015	100.1076508	98.71059141	97.34001445	95.99523503	94.67559143
ADV1008250	7/29/2024	4.466	7/29/2026		107.99073	105.9600171	103.9784474	102.0445239	100.1568045	98.31390045	96.51447455	94.75723853	93.04095102
ADV1008251	7/29/2024	4.752	7/29/2026		104.15365	103.1017515	102.0702783	101.0586496	100.0663087	99.09271944	98.13736546	97.19974932	96.27939157



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1008253	7/29/2024	5.555	8/27/2024		100.30476	100.2297873	100.1549288	100.080189	100.0055678	99.93106473	99.85667967	99.7824123	99.70826234
ADV1008254	7/29/2024	5.554	8/28/2024		100.31594	100.2381784	100.1605419	100.0830307	100.0056446	99.9283832	99.85124627	99.77423351	99.69734462
ADV1008256	7/29/2024	5.555	8/27/2024		100.30476	100.2297873	100.1549288	100.080189	100.0055678	99.93106473	99.85667967	99.7824123	99.70826234
ADV1008257	7/29/2024	4.184	7/30/2029		120.36551	115.0421605	109.9928293	105.2019045	100.6547447	96.33761514	92.23762593	88.34267627	84.64140187
ADV1008260	7/29/2024	4.444	7/29/2032		132.49812	123.6702537	115.5225301	107.9983801	101.0462337	94.61905459	88.6739194	83.1716382	78.07641143
ADV1008261	7/29/2024	5.504	9/30/2024		100.68841	100.5186882	100.3495318	100.1809412	100.0129137	99.84544651	99.67853678	99.5121818	99.34637883
ADV1008262	7/29/2024	5.552	8/2/2024		100.02302	100.0174778	100.0119429	100.006413	100.0008881	99.99536802	99.98985293	99.98434276	99.97883751
ADV1008263	7/31/2024	4.308	5/25/2027		111.38272	108.4768346	105.6629069	102.9375197	100.2974	97.73941479	95.2605646	92.85797652	90.52889835
ADV1008265	7/29/2024	5.444	10/29/2024		101.01312	100.7623332	100.5127855	100.2644718	100.0173828	99.77150947	99.52684298	99.28337444	99.04109507
ADV1008266	7/29/2024	5.553	8/29/2024		100.32711	100.2465622	100.1661474	100.0858646	100.0057135	99.92569388	99.84580532	99.76604755	99.68642026
ADV1008267	7/29/2024	5.553	8/29/2024		100.32711	100.2465622	100.1661474	100.0858646	100.0057135	99.92569388	99.84580532	99.76604755	99.68642026
ADV1008268	7/29/2024	5.558	8/5/2024		100.05686	100.0430075	100.0291673	100.0153407	100.0015276	99.98772803	99.97394192	99.96016926	99.94641003
ADV1008272	7/30/2024	5.538	8/13/2024		100.146	100.1099616	100.0739626	100.0380068	100.0020941	99.96622437	99.93039759	99.89461367	99.85887252
ADV1008273	7/30/2024	5.531	8/6/2024		100.06743	100.0508051	100.0341983	100.0176083	100.001035	99.98447834	99.9679383	99.95141485	99.93490797
ADV1008274	7/30/2024	5.442	10/17/2024		100.87402	100.6568741	100.4406731	100.2254138	100.0110899	99.79769537	99.58522399	99.37366976	99.16302666
ADV1008275	7/30/2024	4.123	7/31/2028		116.55117	112.3296392	108.2882904	104.4184486	100.7119016	97.16087537	93.75800785	90.49632489	87.36921772
ADV1008277	7/30/2024	5.533	8/6/2024		100.06746	100.0508385	100.0342317	100.0176417	100.0010684	99.98451173	99.96797168	99.95144822	99.93494133
ADV1008278	7/30/2024	5.539	8/15/2024		100.16845	100.1268569	100.0853137	100.0438227	100.0023837	99.96099656	99.91966128	99.87837771	99.83714576
ADV1008280	7/30/2024	5.421	10/31/2024		101.03014	100.7737891	100.5187366	100.2649686	100.0124753	99.76124729	99.51127508	99.26254933	99.01506075
ADV1008281	7/30/2024	5.355	11/29/2024		101.35242	101.0147001	100.6792251	100.3459693	100.0149108	99.68602794	99.35929943	99.03470419	98.71222139
ADV1008282	7/30/2024	5.22	1/31/2025		102.03486	101.5195183	101.0093495	100.5042779	100.0042276	99.50912411	99.0188945	98.53346718	98.05277199
ADV1008284	7/30/2024	5.177	2/14/2025		102.18204	101.6336912	101.0912529	100.5546252	100.0237147	99.49843038	98.97868279	98.46438453	97.95545001
ADV1008285	7/30/2024	5.532	8/6/2024		100.06745	100.0508218	100.034215	100.017625	100.0010517	99.98449504	99.96795499	99.95143153	99.93492465
ADV1008286	7/30/2024	5.541	8/19/2024		100.21372	100.1610065	100.1083666	100.0557985	100.0033023	99.95087758	99.89852436	99.84624244	99.79403168
ADV1008287	7/30/2024	5.062	3/31/2025		102.63393	101.9612584	101.2974222	100.6422477	99.99556607	99.35721281	98.72702768	98.10485453	97.49054116
ADV1008289	7/30/2024	5.536	8/29/2024		100.32551	100.2449729	100.1645715	100.0843022	100.0041646	99.92415831	99.84428314	99.76453874	99.68492479
ADV1008290	7/30/2024	5.535	8/30/2024		100.33662	100.2533037	100.1701241	100.0870834	100.0041812	99.92141728	99.8387912	99.75630267	99.67395135
ADV1008291	7/30/2024	5.352	11/29/2024		101.35141	101.0136995	100.6782278	100.3449753	100.0139201	99.68504058	99.35831534	99.03372333	98.71124376
ADV1008292	7/30/2024	5.485	9/30/2024		100.68499	100.5152935	100.3461681	100.1776086	100.009612	99.84217552	99.67529648	99.50897208	99.34319959
ADV1008293	7/30/2024	5.539	8/13/2024		100.14604	100.1099978	100.0739987	100.0380429	100.0021302	99.96626043	99.93043364	99.89464971	99.85890855
ADV1008295	7/30/2024	5.534	8/6/2024		100.06748	100.0508552	100.0342485	100.0176584	100.0010851	99.98452842	99.96798836	99.9514649	99.93495802
ADV1008306	7/31/2024	5.534	8/30/2024		100.33631	100.2530003	100.1698335	100.0868056	100.0039162	99.92116499	99.83855162	99.75607578	99.67373713
ADV1008307	7/31/2024	5.534	8/29/2024		100.32511	100.2445908	100.1642019	100.083945	100.0038197	99.92382585	99.84396304	99.76423097	99.68462934

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
ADV1008309	7/31/2024	5.536	8/13/2024		100.14569	100.1096511	100.0736577	100.0377074	100.0018002	99.96593605	99.9301148	99.8943364	99.85860076
ADV1008313	7/31/2024	5.535	8/30/2024		100.33639	100.2530835	100.1699166	100.0868886	100.0039992	99.92124787	99.83863444	99.75615853	99.67381981
ADV1008314	7/31/2024	5.523	9/6/2024		100.41545	100.3126871	100.2101396	100.1078109	100.0057003	99.90380696	99.80213027	99.70066949	99.59942391
ADV1008315	7/31/2024	5.531	8/7/2024		100.07837	100.0589804	100.0396075	100.0202547	100.0009218	99.98160888	99.9623159	99.9430428	99.92378956
ADV1008316	7/31/2024	5.508	9/13/2024		100.49396	100.3717156	100.2497816	100.1281584	100.0068448	99.88583952	99.76514144	99.6447493	99.52466192
ADV1008317	7/31/2024	5.535	8/30/2024		100.33639	100.2530835	100.1699166	100.0868886	100.0039992	99.92124787	99.83863444	99.75615853	99.67381981
ADV1008319	7/31/2024	5.535	8/30/2024		100.33639	100.2530835	100.1699166	100.0868886	100.0039992	99.92124787	99.83863444	99.75615853	99.67381981
ADV1008320	7/31/2024	4.126	7/30/2027		112.04579	108.9381499	105.9348074	103.0316732	100.2248447	97.51059382	94.88535878	92.3457353	89.88846879
ADV1008322	7/31/2024	5.536	8/30/2024		100.33647	100.2531666	100.1699997	100.0869717	100.0040821	99.92133076	99.83871726	99.75624128	99.67390249
ADV1008323	7/31/2024	4.191	7/31/2028		116.26277	112.0624107	108.0410126	104.1899692	100.5011372	96.96680703	93.57967676	90.33282878	87.21970722
ADV1008324	7/31/2024	5.541	8/14/2024		100.15708	100.1182686	100.0795036	100.0407862	100.0021162	99.96349368	99.92491842	99.88639037	99.84790943
ADV1008326	7/31/2024	5.542	8/7/2024		100.07859	100.0591942	100.0398213	100.0204684	100.0011355	99.9818225	99.96252947	99.94325634	99.92400306
ADV1008330	7/31/2024	5.539	8/30/2024		100.33672	100.2534161	100.170249	100.0872207	100.004331	99.92157941	99.83896571	99.75648952	99.67415053
ADV1008331	7/31/2024	5.541	8/8/2024		100.08979	100.0676217	100.0454796	100.0233611	100.001266	99.97919433	99.95714604	99.93512109	99.91311944
ADV1008332	7/31/2024	5.505	9/16/2024		100.52825	100.3976438	100.2673908	100.1374903	100.007941	99.87874143	99.74989006	99.62138548	99.49322625
ADV1008333	7/31/2024	5.54	8/7/2024		100.07855	100.0591553	100.0397824	100.0204295	100.0010966	99.98178366	99.96249064	99.94321751	99.92396424
130416A00025	4/16/2013	2.27	4/18/2028	8/1/2024	100.06393	99.85415165	99.17486305	97.95760474	96.37296934	94.67174899	92.9899944	91.35439869	89.76507963
141119A00005	11/19/2014	2.53	11/19/2024	8/1/2024	100.087	99.9948156	99.82961079	99.63024139	99.43064619	99.23198891	99.03426276	98.83746081	98.64157573
150202A00006	2/2/2015	1.92	2/3/2025	8/1/2024	100.04123	99.88917882	99.6025069	99.28382898	98.96632511	98.65128714	98.33868645	98.02849216	97.72067374
151223A00007	12/23/2015	3.76	12/23/2030	8/1/2024	100.18926	100.0947157	99.81242958	98.67897142	96.27435036	92.71161899	88.56089928	84.37244056	80.39506515
161012A00020	10/11/2016	2.96	10/14/2031	8/1/2024	100.11481	99.87944426	98.8879175	96.54674957	92.84627395	88.34556827	83.71612818	79.30074766	75.17032767
170515A00052	5/15/2017	3.78	5/15/2042	8/1/2024	100.00433	99.94720607	99.30637927	97.04558861	92.995009	87.69893079	82.00625791	76.5325621	71.53417199
170519A00006	5/19/2017	3	5/19/2032	8/1/2024	100.1367	100.0084355	99.46799355	98.01821597	95.5877092	92.54109545	89.35631968	86.27847773	83.35591272
170705A00037	7/5/2017	2.85	7/6/2032	7/6/2027	106.08078	103.5355925	100.9033268	98.08302653	95.01083843	91.76308607	88.52352441	85.42308764	82.48779743
170802A00074	8/2/2017	2.92	8/2/2027	8/1/2024	100.11786	99.99743461	99.53843181	98.43440635	96.70441173	94.62145832	92.47893503	90.38942487	88.36501553
170809A00042	8/9/2017	2.35	8/9/2027	8/1/2024	100.07619	99.90028971	99.32572529	98.29058576	96.95739315	95.53174938	94.12068792	92.74334555	91.39965282
171004A00022	10/4/2017	2.74	10/4/2027	8/1/2024	100.11506	99.989379	99.48124281	98.28755961	96.42979223	94.20241782	91.91558566	89.68779357	87.53204774
171005A00047	10/5/2017	3.29	10/5/2032	8/1/2024	100.16084	100.0224433	99.40850564	97.63830316	94.52804569	90.50182486	86.20123827	82.04214587	78.14556149
180105A00005	1/5/2018	3.07	1/5/2028	8/1/2024	100.14253	100.0478787	99.78831754	99.03850663	97.81098161	96.29409388	94.70628041	93.14561968	91.62635271
180105A00006	1/5/2018	3.07	1/5/2028	8/1/2024	100.14253	100.0478787	99.78831754	99.03850663	97.81098161	96.29409388	94.70628041	93.14561968	91.62635271
180130A00087	1/30/2018	2.92	1/31/2028	8/1/2024	100.13005	100.0275301	99.70691277	98.87450366	97.58463771	96.04101447	94.45077781	92.89294062	91.37670161
180302A00003	3/2/2018	3.89	3/2/2033	8/1/2024	100.21078	100.1162137	99.82402152	98.58692615	95.88921424	91.86386	87.14606633	82.36406628	77.85574211
180315A00030	3/15/2018	3.76	3/15/2033	3/17/2025	101.97225	101.1120514	99.98723634	98.13259351	95.00853734	90.67504468	85.78219896	80.9294147	76.38253539

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
180504A00024	5/4/2018	3.62	5/4/2028	8/1/2024	100.00386	100.0010989	99.90947895	99.2035114	97.59539018	95.14715885	92.24387881	89.27968716	86.41322182
180627A00005	6/27/2018	3.63	6/30/2033	8/1/2024	100.18914	100.1038954	99.86653841	98.90481987	96.84388895	93.82565031	90.36465861	86.90094139	83.61079977
180703A00033	7/3/2018	3.4	7/3/2028	8/1/2024	100.15931	100.0739164	99.86863969	99.18742708	97.9491204	96.31226839	94.53605987	92.77601474	91.06621266
190111A00040	1/11/2019	3.74	1/11/2034	8/1/2024	100.00412	99.98654721	99.6493137	98.11156523	95.10685739	90.92994165	86.26552428	81.66353438	77.35948854
190116A00015	1/16/2019	3.61	1/17/2034	8/1/2024	100.17678	100.0767785	99.74702835	98.53400789	96.15569731	92.85726544	89.19315203	85.58640463	82.17867676
190204A00054	2/4/2019	3.98	2/6/2034	8/1/2024	100.20757	100.1016174	99.72750914	98.24057487	95.20233553	90.8346473	85.81580782	80.79422536	76.09207116
190222A00023	2/22/2019	3.66	2/22/2034	2/22/2026	104.70168	102.8146699	100.5493901	97.5862637	93.54291414	88.51970954	83.07335774	77.76752562	72.84695078
190301A00015	3/1/2019	3.86	3/1/2034	3/2/2026	104.8132	103.0354033	100.9162155	98.12118188	94.29447977	89.4438602	84.09364826	78.81495684	73.90239312
190409A00016	4/9/2019	2.91	4/9/2029	8/1/2024	100.12921	100.0048343	99.49857082	98.16532713	95.92450442	93.08340122	90.07950769	87.14940283	84.34429919
190409A00017	4/9/2019	3.01	4/9/2029	8/1/2024	100.13754	100.0178397	99.54559137	98.21053305	95.87047773	92.81164522	89.520556	86.29562501	83.21257209
190430A00020	4/30/2019	3.41	4/28/2034	4/28/2026	104.48905	102.4235577	99.89667095	96.52343684	92.04006803	86.66500852	81.04460904	75.67185665	70.71832316
190520A00018	5/20/2019	3.7	5/20/2044	8/1/2024	99.993335	99.85880577	98.68514093	95.67275299	90.85976587	84.99528767	78.9467314	73.25811767	68.1234477
190530A00044	5/30/2019	2.85	5/30/2034	8/1/2024	100.11187	99.89756418	98.99994033	96.91942306	93.72599162	89.96229827	86.15860899	82.54253973	79.14880661
190807A00041	8/7/2019	2.27	8/7/2034	8/1/2024	100.00565	99.44040131	97.81213672	94.91982568	91.18090883	87.22590214	83.41512779	79.8364858	76.48544544
190807A00044	8/7/2019	2.27	8/7/2034	8/7/2024	100.00565	99.44040131	97.81213672	94.91982568	91.18090883	87.22590214	83.41512779	79.8364858	76.48544544
190827A00044	8/27/2019	1.9	8/27/2029	8/27/2024	100.00202	99.58597533	98.51065184	96.75734218	94.60165718	92.36422416	90.18238505	88.07837932	86.05027671
190930A00079	9/30/2019	2.04	10/1/2029	9/30/2024	100.07708	99.68006609	98.69419277	97.00861544	94.86363823	92.59749384	90.37782325	88.23733633	86.17508501
190930A00083	9/30/2019	2.04	10/1/2029	9/30/2024	100.07708	99.68006609	98.69419277	97.00861544	94.86363823	92.59749384	90.37782325	88.23733633	86.17508501
191007A00012	10/7/2019	2	10/5/2029	10/7/2024	100.1444	99.57014337	98.43914816	96.62783476	94.40991172	92.11359941	89.87718161	87.72258848	85.64760857
191007A00013	10/7/2019	2	10/5/2029	10/7/2024	100.1444	99.57014337	98.43914816	96.62783476	94.40991172	92.11359941	89.87718161	87.72258848	85.64760857
191028A00015	10/28/2019	2.49	10/27/2034	10/28/2024	100.31776	99.68317611	98.2518077	95.5930074	91.9516634	87.96996915	84.08263605	80.42517415	77.00290343
191031A00036	10/31/2019	2.9	10/31/2039	10/31/2024	100.21354	99.46712614	97.55307941	93.97229932	89.13389521	83.85619396	78.74613368	74.03194783	69.73328667
191031A00037	10/31/2019	2.59	10/30/2034	10/31/2024	100.20546	99.62955483	98.18220101	95.47795161	91.80218393	87.8040433	83.90893643	80.24664974	76.82093512
191220A00029	12/20/2019	2.57	12/19/2031	12/20/2024	100.59018	99.94439408	98.85410521	96.91490866	94.18468629	91.13521563	88.11346352	85.22703358	82.48225359
200108A00009	1/8/2020	2.4	1/8/2035	1/8/2025	100.54644	99.57519846	97.78901731	94.77135773	90.83542203	86.64171788	82.59642487	78.80974852	75.27964554
200108A00040	1/8/2020	2.52	1/8/2030	1/8/2025	100.66435	99.89503265	98.60449559	96.31643353	93.07279616	89.41342087	85.77346093	82.30011575	79.00526154
200110A00012	1/10/2020	2.57	1/10/2035	1/10/2025	100.61171	99.72002505	98.10245861	95.31504983	91.57082758	87.51965826	83.58239358	79.88487789	76.42947093
200115A00023	1/15/2020	2.16	1/15/2030	1/15/2025	100.47087	99.7533444	98.62993558	96.85206016	94.59206047	92.20428092	89.8683982	87.62001765	85.45794575
200115A00025	1/15/2020	2.1	1/15/2025	8/1/2024	99.979878	99.82800276	99.39526142	98.87543973	98.35372895	97.83739173	97.32641432	96.82071489	96.32021085
200306A00021	3/6/2020	1.16	3/6/2030	3/6/2025	99.787251	98.58004844	96.70428873	94.3270502	91.83584471	89.41013393	87.07927156	84.84095418	82.69071363
200309A00013	3/9/2020	1.1	3/8/2030	3/9/2025	99.727244	98.48653286	96.56799665	94.17005335	91.67751897	89.25539832	86.92850025	84.69400713	82.54744501
200316A00030	3/16/2020	1.35	3/15/2030	3/16/2025	100.08718	99.02906023	97.3779449	95.12907811	92.65239879	90.20383729	87.8464789	85.58274376	83.40827043
200316A00032	3/16/2020	1.35	3/15/2030	3/16/2025	100.08718	99.02906023	97.3779449	95.12907811	92.65239879	90.20383729	87.8464789	85.58274376	83.40827043

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
200318A00015	3/18/2020	1.69	3/18/2030	8/1/2024	99.927141	99.34886003	97.99675788	95.91807048	93.47105925	90.98902847	88.59018662	86.28852945	84.08009562
200326A00035	3/26/2020	1.68	3/26/2030	3/26/2025	100.26767	99.28887347	97.78306115	95.64640917	93.20292365	90.75170766	88.38566527	86.11312415	83.930041
200423A00008	4/23/2020	1.59	4/23/2030	4/23/2025	100.16964	98.72929934	96.2995385	92.74575264	88.63658193	84.5258052	80.61060495	76.91125971	73.41610404
200423A00009	4/23/2020	1.59	4/23/2030	4/23/2025	100.16964	98.72929934	96.2995385	92.74575264	88.63658193	84.5258052	80.61060495	76.91125971	73.41610404
200423A00010	4/23/2020	1.59	4/23/2030	4/23/2025	100.16964	98.72929934	96.2995385	92.74575264	88.63658193	84.5258052	80.61060495	76.91125971	73.41610404
200430A00021	4/30/2020	1.2	4/30/2030	4/30/2025	99.820393	98.62280507	96.75225886	94.35803902	91.83520496	89.37605919	87.0138994	84.74669826	82.56982775
200505A00010	5/5/2020	0.89	5/6/2030	5/5/2025	99.708833	98.3209078	96.27666872	93.78370213	91.22034951	88.73796525	86.35628532	84.0716617	81.87927568
200512A00023	5/12/2020	1.78	5/11/2035	5/12/2025	99.83296	97.73842574	94.26467852	89.4908797	84.20683859	79.05221224	74.26700354	69.87569124	65.8475314
200609A00003	6/9/2020	1.66	6/8/2035	6/9/2025	99.391917	96.84550013	92.7430907	87.35281074	81.53622721	75.94134578	70.79013134	66.0953795	61.8176562
200612A00001	6/12/2020	0.75	6/12/2030	6/12/2025	99.574177	98.05560242	95.88305031	93.31964415	90.72564235	88.22312822	85.82403692	83.52390102	81.31774274
201022A00008	10/22/2020	1.02	10/22/2035	10/22/2025	99.267109	96.65597741	92.94481976	88.57406742	84.17772883	80.03275547	76.17824818	72.59633954	69.26442814
201029A00008	10/29/2020	0.92	10/29/2030	10/29/2025	99.813532	98.09094714	95.79442029	93.11591066	90.40044729	87.7831802	85.27881335	82.88239309	80.58826277
201030A00025	10/30/2020	2.02	10/28/2050	10/30/2025	99.059177	95.45911586	89.88352726	82.80087469	75.30598126	68.26285949	62.02888186	56.62668349	51.94828123
201116A00019	11/16/2020	1.32	11/15/2030	11/16/2025	100.09395	97.91195664	94.78503169	90.8333151	86.64526754	82.59990668	78.78283668	75.18897888	71.80401694
201118A00015	11/18/2020	1.66	11/18/2036	11/18/2027	101.43862	96.75288058	91.13224447	84.78060675	78.25601426	72.0796799	66.46318778	61.41034136	56.86573608
201118A00017	11/18/2020	1.66	11/18/2036	11/18/2027	101.43862	96.75288058	91.13224447	84.78060675	78.25601426	72.0796799	66.46318778	61.41034136	56.86573608
201118A00018	11/18/2020	1.85	11/18/2036	11/18/2027	101.74016	97.12701374	91.59427605	85.31317582	78.82389807	72.65186173	67.02829812	61.96563869	57.41033057
201202A00016	12/2/2020	1.32	12/3/2035	12/2/2025	99.746135	97.18265112	93.59591827	89.26746479	84.82893942	80.61869363	76.70180193	73.06434431	69.68320068
201202A00017	12/2/2020	1.32	12/3/2035	12/2/2025	99.746135	97.18265112	93.59591827	89.26746479	84.82893942	80.61869363	76.70180193	73.06434431	69.68320068
201229A00003	12/29/2020	1.28	12/30/2030	12/30/2025	99.977531	97.72889293	94.50503198	90.4681859	86.22369022	82.13861776	78.28911995	74.66836192	71.26137802
201230A00018	12/30/2020	1.52	12/28/2035	12/28/2027	101.27637	96.56497499	90.98573976	84.75538393	78.41352972	72.43062499	66.97718575	62.0462967	57.58733561
210108A00007	1/8/2021	1.65	1/8/2036	1/8/2026	99.781098	96.68914209	92.22238067	86.59904966	80.60991899	74.87863427	69.62393107	64.85396369	60.52461016
210225A00010	2/25/2021	2.02	2/25/2041	2/25/2026	100.6357	97.75895062	93.65711238	88.42261558	82.71980155	77.20557728	72.14241262	67.55801782	63.40945311
210405A00013	4/5/2021	1.82	4/7/2036	4/5/2026	101.2094	98.7276835	95.44345271	91.32645106	86.83622801	82.45090398	78.3491684	74.54422805	71.01377538
210622A00004	6/22/2021	2.42	6/20/2036	6/22/2026	102.11404	99.21009838	95.3016172	90.22859305	84.37997434	78.45878234	72.91072063	67.85898094	63.28228173
210623A00024	6/23/2021	1.56	6/23/2026	12/23/2024	99.871885	99.28046994	98.08447015	96.48142039	94.75540922	93.0481509	91.378961	89.74738331	88.15236056
210910A00009	9/10/2021	1.77	9/10/2036	9/10/2026	101.90617	99.08931613	95.56702395	91.30655934	86.68783005	82.16916636	77.94540434	74.03603701	70.41759561
210924A00016	9/24/2021	1.91	9/24/2036	9/24/2026	102.28496	99.54607957	96.13281382	91.97488438	87.39160678	82.85497771	78.59814664	74.65588206	71.00691695
211019A00005	10/19/2021	2.49	10/20/2036	10/19/2026	103.22324	100.1359016	96.14057839	91.0744074	85.21370882	79.18394625	73.48566367	68.29206315	63.59611763
211110A00017	11/10/2021	2.01	11/10/2036	11/10/2026	102.79302	99.95169108	96.49407488	92.32384912	87.71748612	83.12740551	78.81023397	74.81341391	71.11716504
211116A00012	11/16/2021	2.22	12/18/2034	11/16/2026	103.27254	100.6981681	97.69566743	94.12838604	90.13579713	86.08599787	82.22578262	78.61203492	75.23410592
211124A00008	11/24/2021	2.62	11/22/2041	11/24/2026	103.87935	100.8096598	96.95807485	92.14316893	86.55931136	80.78685371	75.31800762	70.33670407	65.84270376
211215A00020	12/15/2021	1.85	12/15/2031	12/15/2026	102.73272	100.4019357	97.83285193	94.94353748	91.84634524	88.76054341	85.80421696	82.99347995	80.32106548

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
211227A00012	12/27/2021	2.39	12/29/2036	12/27/2028	106.6749	101.5737933	95.9082711	89.70840733	83.19259198	76.77252502	70.78947164	65.37292535	60.50222062
220217A00024	2/17/2022	2.43	2/17/2027	2/17/2025	100.7997	100.0625892	99.1087247	97.70023201	95.85678862	93.86218473	91.88891876	89.96866067	88.10112838
220617A00069	6/17/2022	4.06	6/17/2027	6/17/2025	102.93137	101.9742641	101.0165545	100.004335	98.7798494	97.13969972	95.13600475	93.03724759	90.984805
220831A00108	8/31/2022	4.07	8/31/2027	9/2/2025	103.61103	102.4571972	101.3078279	100.1082686	98.71206271	96.94186323	94.84215405	92.65693331	90.52538659
221212A00004	12/12/2022	4.36	12/10/2032	12/10/2027	112.0752	109.045633	106.0544289	103.0650367	100.0188125	96.85203753	93.55712389	90.20957347	86.96500786
221214A00057	12/14/2022	4.65	12/14/2027	12/12/2025	105.70075	104.2059438	102.7227546	101.2202778	99.60359624	97.68790761	95.33386856	92.68061558	90.02101977
221222A00137	12/22/2022	5.4	12/22/2037	12/22/2027	115.45042	112.07241	108.659922	105.1617447	101.469607	97.47570639	93.12610912	88.48797922	83.86660663
230804A00039	8/4/2023	5.02	8/4/2028	8/4/2026	108.97343	106.9636142	104.9835043	103.0241193	101.0440649	98.96023436	96.66987723	94.12759311	91.49175197
240403A00012	4/3/2024	4.82	4/3/2029	4/3/2027	111.78154	109.0723867	106.4199015	103.8058232	101.184342	98.48024115	95.61726995	92.57579249	89.50542874
ADV1007645	7/5/2024	4.781	7/5/2029	7/6/2027	111.45678	108.7927308	106.1823359	103.6064671	101.0187577	98.3478778	95.52776915	92.5460897	89.54765252
ADV1007841	7/12/2024	0	7/12/2029	7/14/2025	97.441841	94.19851324	90.07202649	85.84243583	81.79212633	77.94950551	74.30464381	70.84646833	67.56454688
ADV1007842	7/12/2024	0	7/12/2029	7/14/2025	97.441841	94.19851324	90.07202649	85.84243583	81.79212633	77.94950551	74.30464381	70.84646833	67.56454688
ADV1007970	7/17/2024	0	7/17/2029	7/17/2025	97.440233	94.1835841	90.0438904	85.80377742	81.74463433	77.89423454	74.24250194	70.77828259	67.49107115
ADV1008036	7/19/2024	0	7/19/2029	7/21/2025	97.440796	94.17763889	90.03263604	85.78832035	81.7256475	77.87213928	74.21766169	70.75102836	67.46170474
ADV1008090	7/23/2024	0	7/23/2029	7/23/2025	97.439266	94.16564364	90.01012784	85.75741739	81.6876909	77.82797125	74.16800945	70.69655426	67.40301283
ADV1008152	7/24/2024	0	7/24/2029	7/24/2025	97.439096	94.16264711	90.00450084	85.74969397	81.67820531	77.81693392	74.15560228	70.68294289	67.38834838
ADV1008200	7/25/2024	0	7/25/2029	7/25/2025	97.438925	94.15964896	89.99887383	85.74197147	81.66872113	77.80589847	74.14319745	70.66933438	67.37368732
ADV1008212	7/26/2024	0	7/26/2029	7/28/2025	97.439636	94.1566776	89.99324687	85.73424988	81.65923838	77.79486489	74.13079498	70.65572873	67.35902968
ADV1008308	7/31/2024	0	7/31/2029	7/31/2025	97.437119	94.14123987	89.96503168	85.69564986	81.61184585	77.73972505	74.0688179	70.58774335	67.28579248
211115A00014	11/15/2021	5.58	8/15/2024		100.01463	100.0114388	100.0082486	100.0050627	100.001881	99.99870362	99.99553054	99.99236172	99.98919717
211124A00005	11/26/2021	5.7	11/26/2025		100.00099	100.0085374	100.0126061	100.0100288	100.0011221	99.98618678	99.96550884	99.93936041	99.90800039
211124A00006	11/26/2021	5.75	11/25/2026		100.13999	100.0245549	100.0365047	100.0333399	100.0159907	99.98533351	99.94219414	99.88735095	99.82153773
220608A00012	6/8/2022	6.08	6/8/2029		101.17543	101.2069101	101.2117277	101.183648	101.1259117	101.0414768	100.933043	100.8030743	100.6538196
220913A00024	9/13/2022	5.78	5/12/2025		100.13515	100.1305037	100.1242761	100.1165208	100.1072928	100.0966453	100.084629	100.071293	100.0566842
220929A00039	9/29/2022	6.12	9/28/2029		101.30908	101.3514541	101.355329	101.3242104	101.2616353	101.1708267	101.0547214	100.9159949	100.7570846
221017A00025	10/17/2022	5.73	1/6/2025		100.11563	100.111126	100.1057053	100.0993876	100.0921918	100.0841364	100.0752393	100.0655181	100.05499
221025A00004	10/25/2022	5.78	10/25/2024		100.08403	100.0811645	100.0781165	100.0748897	100.0714862	100.067908	100.0641574	100.0602362	100.0561465
221026A00013	10/26/2022	5.76	8/26/2024		100.03171	100.0289084	100.0260738	100.0232022	100.0202937	100.0173485	100.0143666	100.0113483	100.0082938
221115A00039	11/15/2022	5.9	11/16/2026		100.38106	100.3689085	100.3765508	100.3691694	100.3476693	100.3129042	100.2656801	100.2067573	100.136854
221117A00015	11/17/2022	5.83	9/17/2024		100.05801	100.055147	100.0521944	100.0491527	100.0460225	100.0428047	100.0394999	100.0361087	100.0326321
221118A00020	11/18/2022	5.88	11/18/2024		100.13371	100.1307172	100.1274985	100.1240557	100.1203924	100.1165117	100.1124171	100.1081117	100.1035988
221216A00018	12/16/2022	5.9	12/16/2026		100.38917	100.3682251	100.3773182	100.3712437	100.350963	100.3173804	100.2713468	100.2136628	100.1450822
230215A00013	2/15/2023	5.78	8/21/2025		100.11866	100.1164679	100.1128855	100.107965	100.1017555	100.094304	100.0856552	100.0758523	100.0649361



	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
230215A00017	2/15/2023	5.76	3/27/2025		100.12943	100.1248786	100.1189666	100.11173	100.1032075	100.0934369	100.0824547	100.0702961	100.0569954
230307A00025	3/7/2023	5.9	3/7/2028		100.56334	100.3875912	100.4045872	100.397688	100.3687254	100.3194056	100.251318	100.1659435	100.0646617
230313A00111	3/13/2023	6.05	2/13/2026		100.48853	100.500212	100.5028403	100.4968507	100.4826561	100.46065	100.4312069	100.3946836	100.3514203
230313A00120	3/13/2023	6.05	4/13/2026		100.54747	100.5571502	100.5558399	100.5440373	100.522221	100.4908481	100.4503562	100.4011633	100.3436696
230313A00124	3/13/2023	6.05	5/13/2026		100.57509	100.5851034	100.5831508	100.5698402	100.5457516	100.5114368	100.4674203	100.4142013	100.3522548
230410A00022	4/10/2023	6.01	4/10/2028		100.81081	100.7950059	100.8048189	100.789878	100.7521274	100.6933763	100.6153075	100.5194871	100.407372
230511A00058	5/11/2023	5.97	5/11/2028		100.73755	100.663668	100.6756766	100.6619628	100.6246097	100.5655497	100.4865761	100.3893527	100.2754237
230815A00018	8/15/2023	5.38	8/15/2024		100.01368	100.0108178	100.0079573	100.0051013	100.0022499	99.999403	99.99656065	99.99372279	99.99088943
230816A00019	8/16/2023	5.95	8/16/2028		100.72448	100.6140717	100.6296241	100.6168437	100.5782106	100.5160103	100.4323485	100.3291665	100.208253
230821A00008	8/21/2023	5.66	8/21/2024		100.02106	100.017702	100.0143307	100.0109462	100.0075486	100.004138	100.0007145	99.99727795	99.99382858
230914A00009	9/14/2023	5.87	9/14/2028		100.57377	100.292018	100.3155593	100.3102358	100.2785411	100.2227769	100.1450673	100.0473733	99.9315047
230922A00036	9/22/2023	5.84	9/22/2028		100.5218	100.1695029	100.1957588	100.1929915	100.1637039	100.1102066	100.0346323	99.93894962	99.82497628
230928A00034	9/28/2023	5.6	10/15/2024		100.03624	100.0324058	100.0282872	100.0238862	100.0192056	100.0142478	100.0090155	100.003511	99.99773696
231013A00011	10/13/2023	5.66	9/4/2024		100.02736	100.0236925	100.0199397	100.0161005	100.0121752	100.0081644	100.0040685	99.99988795	99.99562326
231018A00011	10/18/2023	5.66	11/15/2024		100.06387	100.0597743	100.0552597	100.0503301	100.0449916	100.0392505	100.0331129	100.0265848	100.0196719
231025A00027	10/25/2023	5.87	10/25/2028		100.58531	100.2919164	100.3298562	100.3441674	100.3368716	100.3098375	100.2647929	100.203335	100.1269401
231106A00009	11/6/2023	5.84	10/15/2026		100.2538	100.2356149	100.2434221	100.236524	100.2157562	100.18191	100.1357344	100.0779389	100.0091953
231115A00005	11/15/2023	5.83	11/16/2026		100.24868	100.2095307	100.2191761	100.2137593	100.1941872	100.1613155	100.1159518	100.058858	99.99075366
231130A00028	11/30/2023	5.43	11/29/2024		100.04872	100.0439815	100.0386114	100.0326232	100.0260285	100.0188384	100.0110639	100.0027157	99.99380436
231215A00007	12/15/2023	5.82	12/1/2026		100.23982	100.1846908	100.1947899	100.1899136	100.1710112	100.1389755	100.0946462	100.0388136	99.97222118
240111A00009	1/11/2024	5.57	1/13/2025		100.04536	100.0426102	100.0395095	100.0360611	100.0322725	100.028151	100.023704	100.0189383	100.013861
240112A00007	1/12/2024	5.59	1/13/2025		100.05454	100.0517733	100.0486478	100.0451747	100.0413615	100.0372157	100.0327445	100.0279548	100.0228536
240112A00017	1/12/2024	5.89	1/12/2029		100.61953	100.3462893	100.3761792	100.375913	100.3481905	100.2954932	100.2201021	100.1241146	100.0094588
240116A00030	1/16/2024	5.77	1/15/2027		100.17391	100.0474878	100.0638852	100.0646562	100.0507987	100.0232503	99.98289278	99.93055508	99.86701705
240118A00010	1/18/2024	5.38	1/21/2025		100.032	100.0285904	100.0248202	100.0206993	100.0162355	100.0114366	100.0063103	100.0008639	99.99510451
240201A00010	2/1/2024	5.56	11/1/2024		100.02278	100.0120327	100.0006934	99.98876694	99.97626109	99.96318356	99.94954191	99.93534362	99.92059607
240206A00016	2/6/2024	5.35	2/6/2025		100.00999	100.0066809	100.0029894	99.99892736	99.99450373	99.98972704	99.98460562	99.97914761	99.97336092
240215A00011	2/15/2024	5.75	2/16/2027		100.17049	99.99654304	100.011456	100.0101346	99.99359906	99.9628097	99.91867086	99.86203425	99.79370221
240227A00010	2/27/2024	5.54	2/27/2025		100.00788	100.0055504	100.0027481	99.99948918	99.99578584	99.99164977	99.98709236	99.98212465	99.97675734
240301A00012	3/1/2024	5.37	3/3/2025		100.00272	99.99953223	99.99590491	99.99185289	99.98738752	99.98251979	99.97726038	99.97161964	99.96560763
240314A00006	3/14/2024	5.85	3/14/2029		100.55083	100.1620712	100.1918918	100.1903236	100.1601999	100.1041271	100.0245028	99.92353233	99.80324433
240315A00011	3/15/2024	5.73	3/15/2027		100.16513	99.9433101	99.95665271	99.95304998	99.93356287	99.89919161	99.85087927	99.78951523	99.71593833
240327A00032	3/27/2024	5.71	3/26/2027		100.14277	99.8860129	99.90066211	99.89795138	99.87897287	99.84475607	99.79627152	99.73443434	99.66010755

	Parallel-Shift Sensitivity Analysis												
7/31/2024					Price								
REFERENCE	SETTLEMENT	Rate	MATURITY	First/Next	-400	-300	-200	-100	Base	100	200	300	400
240328A00053	3/28/2024	5.84	3/28/2029		100.5285	100.1093113	100.1409801	100.1407497	100.1115174	100.0559469	99.97648712	99.87538955	99.7547241
240415A00006	4/15/2024	5.7	4/15/2027		100.13958	99.85282144	99.86779438	99.86474764	99.84482942	99.80912139	99.75864275	99.69435398	99.61716028
240417A00013	4/17/2024	6.03	4/17/2031		99.861965	99.92913277	99.98446649	99.9929033	99.95992607	99.89044737	99.78886798	99.6591293	99.50476033
240423A00053	4/23/2024	5.37	4/23/2025		99.960832	99.95817025	99.95494056	99.95116204	99.94685281	99.94203029	99.93671128	99.93091192	99.92464777
240515A00015	5/15/2024	5.69	5/17/2027		100.13727	99.81024281	99.82624512	99.82327403	99.8026151	99.76547413	99.71298234	99.64620113	99.56612654
ADV1006428	5/28/2024	5.702	5/28/2027		100.15218	99.83643662	99.85247342	99.84923102	99.82805326	99.7901981	99.73684338	99.66909202	99.58797699
ADV1006699	6/3/2024	5.721	6/3/2027		100.17739	99.88682908	99.90214481	99.89805029	99.87591929	99.83703661	99.78260409	99.71374612	99.63151479
ADV1006738	6/4/2024	5.398	6/4/2025		99.95046	99.9482846	99.94543347	99.94193244	99.9378058	99.93307685	99.92776783	99.92190007	99.91549398
ADV1006870	6/10/2024	5.737	6/10/2027		100.19993	99.92966358	99.94411669	99.93899994	99.91571193	99.87555991	99.81976594	99.74947265	99.66574855
ADV1007038	6/14/2024	5.744	6/14/2027		100.21017	99.94841318	99.96249726	99.95691859	99.93308891	99.89232734	99.83586672	99.76485941	99.68038272
ADV1007043	6/14/2024	5.804	6/14/2029		100.4319	99.88822147	99.92536163	99.92827046	99.90027033	99.84439449	99.76341208	99.65985121	99.53601985
ADV1007203	6/20/2024	5.743	6/21/2027		100.21134	99.94361586	99.95756691	99.95166817	99.92735706	99.88597598	99.82877875	99.7569367	99.67154422
ADV1007514	7/1/2024	5.755	7/1/2027		100.23031	99.97540885	99.98871997	99.98190603	99.95644215	99.91370469	99.85497809	99.78146126	99.69427336
ADV1007705	7/8/2024	5.445	7/8/2025		99.970484	99.96859282	99.96596567	99.96263241	99.95862197	99.95396192	99.94867856	99.94279695	99.93634102
ADV1007965	7/17/2024	5.752	7/19/2027		100.22569	99.95826453	99.97311488	99.96723937	99.94218448	99.89939111	99.84020207	99.76586895	99.67755853