November 2018 Interest Rates

Issue Date	Amount of Debentures ($0)	Debenture Rate (%)	Note Rate (%)	Comparable Treasury Market Rate (%)	Spread Over Treasury Rate (%)	CDC Fee	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000	0.625	1.000
						Borrower Fee	0.021	0.021	0.000	0.000	0.389	0.389	0.749	0.749	0.9375	0.9375	0.914	0.914	0.697	0.697	0.642	0.642	1.043	1.043	1.103	1.103	0.958	0.958	0.731	0.731	0.682	0.682
						CSA Fee	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
10-Year Debentures																													**Refinance**			
Jan 16	21,441	1.80	1.87054	1.64	0.16		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.323	4.876	4.288	4.842	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 16	22,005	1.84	1.91202	1.43	0.41		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.368	4.922	4.333	4.887	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 16	14,308	1.71	1.77701	1.25	0.46		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.229	4.782	4.194	4.747	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
July 16	18,677	1.63	1.69415	0.99	0.64		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.150	4.704	4.115	4.669	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sept 16	15,168	1.80	1.87052	1.14	0.66		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.325	4.878	4.290	4.844	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.355	N/A	N/A	N/A	N/A	N/A
Nov 16	8,870	2.17	2.25397	1.49	0.68		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.704	5.256	4.669	5.222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.734	N/A	N/A	N/A	N/A	N/A
Jan 17	7,325	2.42	2.51256	1.88	0.54		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.950	5.500	4.916	N/A	4.598	5.148	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 17	14,862	2.63	2.73012	2.11	0.52		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.170	5.720	5.135	5.685	4.817	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.867	N/A	N/A	N/A	N/A	N/A
May 17	17,713	2.33	2.41974	1.92	0.41		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.868	5.420	4.833	5.385	4.514	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
July 17	13,552	2.32	2.40909	1.95	0.37		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.850	5.401	4.816	5.366	4.497	5.048	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.431	4.547	N/A	N/A	N/A
Sept 17	11,457	1.98	2.05698	1.63	0.35		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.506	5.059	4.471	5.024	4.152	4.704	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.202	N/A	N/A	N/A
Nov 17	22,237	2.29	2.37819	2.02	0.27		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.376	4.790	5.341	4.470	5.022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.520	5.072	N/A	N/A
Jan 18	12,628	2.55	2.64746	2.33	0.22		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.091	5.643	5.057	5.608	4.738	5.289	4.657	5.208	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 18	15,380	3.00	3.11270	2.63	0.37		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.510	N/A	5.192	5.741	5.112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.242	N/A	5.171	N/A
May 18	22,720	3.18	3.29883	2.81	0.37		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.730	6.278	5.695	6.244	5.378	5.927	5.298	5.847	N/A	N/A	N/A	N/A	N/A	N/A	5.428	N/A	5.356	5.905
July 18	9,642	3.19	3.30867	2.73	0.46		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.732	N/A	5.698	6.245	5.382	5.929	5.302	5.848	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.360	5.907
Sept 18	14,550	3.14	3.25713	2.76	0.38		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.230	5.649	6.196	5.332	5.879	5.252	5.799	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nov 18	7,101	3.47	3.59817	3.07	0.40		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.987	N/A	5.670	N/A	5.590	6.137	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.649	N/A
20-Year Debentures																													**Refinance**			
Jan 16	217,157	2.78	2.82769	2.18	0.60		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.860	5.318	4.831	5.290	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Feb 16	318,257	2.27	2.31051	1.61	0.66		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.352	4.813	4.324	4.784	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mar 16	295,011	2.50	2.54381	1.91	0.59		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.582	5.042	4.553	5.013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
April 16	266,931	2.26	2.30022	1.71	0.55		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.340	4.800	4.311	4.771	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
May 16	273,418	2.27	2.31036	1.79	0.48		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.349	4.809	4.320	4.780	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
June 16	349,640	2.18	2.21908	1.66	0.52		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.261	4.722	4.232	4.693	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
July 16	260,748	2.04	2.07704	1.42	0.62		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.120	4.581	4.091	4.552	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aug 16	288,027	2.04	2.07699	1.53	0.51		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.122	4.584	4.093	4.555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sept 16	317,920	2.03	2.06674	1.56	0.47		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.110	4.572	4.082	4.543	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.136	4.597	N/A	N/A	N/A	N/A
Oct 16	298,584	2.21	2.24946	1.74	0.47		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.289	4.750	4.261	4.721	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.315	N/A	N/A	N/A	N/A	N/A
Nov 16	342,876	2.57	2.61479	2.08	0.49		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.652	5.111	4.623	5.083	4.357	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.677	5.136	N/A	N/A	N/A	N/A
Dec 16	314,132	2.81	2.85811	2.40	0.41		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.890	5.349	4.862	5.320	4.596	5.005	N/A	N/A	N/A	N/A	N/A	N/A	4.916	5.374	4.638	N/A	N/A	N/A
Jan 17	276,384	2.80	2.84789	2.40	0.40		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.879	5.337	4.850	5.308	4.585	5.043	N/A	N/A	N/A	N/A	N/A	N/A	4.904	5.362	4.626	N/A	N/A	N/A
Feb 17	360,199	2.82	2.86826	2.38	0.44		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.901	5.360	4.872	5.331	4.607	5.066	N/A	N/A	N/A	N/A	N/A	N/A	4.926	5.385	4.649	5.107	N/A	N/A
Mar 17	333,267	3.04	3.09120	2.58	0.46		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.121	5.579	5.092	5.550	4.827	5.285	N/A	N/A	N/A	N/A	N/A	N/A	5.146	N/A	4.869	N/A	N/A	N/A
April 17	310,817	2.84	2.88846	2.35	0.49		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.919	5.377	4.891	5.349	4.625	5.084	N/A	N/A	N/A	N/A	N/A	N/A	4.944	N/A	4.667	N/A	N/A	N/A
May 17	361,901	2.88	2.92925	2.39	0.49		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.962	5.421	4.934	5.392	4.668	5.127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.446	4.710	5.168	N/A	N/A
June 17	338,673	2.81	2.85812	2.20	0.61		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.891	5.349	4.862	5.320	4.596	5.055	N/A	N/A	N/A	N/A	N/A	N/A	4.916	N/A	4.638	5.097	N/A	N/A
July 17	305,239	2.98	3.03041	2.38	0.60		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.059	5.517	5.031	5.488	4.766	5.223	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.807	5.265	N/A	N/A
Aug 17	356,964	2.75	2.79734	2.22	0.53		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.832	5.291	4.803	5.262	4.537	4.996	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.579	5.038	N/A	N/A
Sept 17	333,569	2.59	2.63502	2.05	0.54		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.670	5.129	4.641	5.100	4.376	4.835	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.417	4.876	N/A	N/A
Oct 17	262,864	2.85	2.89859	2.34	0.51		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.929	5.387	4.900	5.358	4.635	5.093	N/A	N/A	N/A	N/A	N/A	N/A	4.954	N/A	4.676	N/A	N/A	N/A
Nov 17	351,575	2.79	2.83785	2.34	0.45		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.871	5.330	4.842	5.301	4.577	5.036	4.510	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.618	5.077	N/A	N/A
Dec 17	275,056	2.78	2.82766	2.33	0.45		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.860	N/A	4.831	5.290	4.566	5.024	4.499	4.957	N/A	N/A	N/A	N/A	N/A	N/A	4.607	5.066	N/A	N/A
Jan 18	265,812	2.92	2.96978	2.56	0.36		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.002	5.461	4.974	5.432	4.708	5.167	4.641	5.100	N/A	N/A	N/A	N/A	N/A	N/A	4.750	N/A	4.690	5.148
Feb 18	324,595	3.22	3.27350	2.87	0.35		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.300	5.757	5.272	5.729	5.007	5.464	4.940	5.397	N/A	N/A	N/A	N/A	N/A	N/A	5.048	5.506	4.989	5.446
Mar 18	282,611	3.20	3.25328	2.85	0.35		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.281	5.738	5.252	5.709	4.987	5.445	4.920	5.378	N/A	N/A	N/A	N/A	N/A	N/A	5.029	N/A	4.969	N/A
April 18	329,067	3.31	3.36454	2.82	0.49		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.389	5.845	5.360	5.817	5.096	5.552	5.029	5.486	N/A	N/A	N/A	N/A	N/A	N/A	5.137	N/A	5.078	N/A
May 18	375,113	3.50	3.55703	2.96	0.54		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.582	6.038	5.553	6.010	5.289	5.745	5.222	5.678	N/A	N/A	N/A	N/A	N/A	N/A	5.330	5.787	5.270	5.727
June 18	307,029	3.60	3.65812	2.97	0.63		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.680	6.136	5.651	6.107	5.387	5.843	5.320	5.776	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.369	5.825
July 18	263,122	3.54	3.59736	2.83	0.71		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.618	6.074	5.590	6.046	5.326	5.782	5.259	5.715	N/A	N/A	N/A	N/A	5.643	N/A	N/A	N/A	5.308	5.764
Aug 18	344,334	3.58	3.63801	2.94	0.64		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.661	N/A	5.632	6.089	5.368	5.824	5.301	5.758	N/A	N/A	N/A	N/A	N/A	N/A	5.410	N/A	5.350	N/A
Sept 18	278,852	3.53	3.58727	2.89	0.64		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.609	6.065	5.580	6.037	5.317	5.773	5.250	5.706	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.298	5.754
Oct 18	259,791	3.77	3.83031	3.18	0.59		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.852	6.308	5.823	6.279	5.559	6.015	5.492	5.948	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.541	5.997
Nov 18	248,506	3.87	3.93129	3.22	0.65		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.950	6.405	5.921	6.376	5.658	6.113	5.591	6.046	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.640	6.095
25-Year Debentures																													**Refinance**			
July 18	27,536	3.68	3.72405	2.83	0.85		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.320	5.758	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aug 18	29,238	3.71	3.75439	2.94	0.77		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.351	5.789	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.398	N/A
Sept 18	58,273	3.65	3.69390	2.89	0.76		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.290	5.728	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.337	N/A
Oct 18	79,913	3.89	3.93581	3.18	0.71		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.532	5.969	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.578	6.016
Nov 18	67,600	4.00	4.04654	3.22	0.78		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.640	6.077	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.687	N/A