December 2019 Interest Rates

Issue Date	Amount of Debentures ($0)	Debenture Rate (%)	Note Rate (%)	Comparable Treasury Market Rate (%)	Spread Over Treasury Rate (%)	CDC Fee / Borrower Fee / CSA Fee	0.625 / 0.9375 / 0.100	1.000 / 0.9375 / 0.100	0.625 / 0.914 / 0.100	1.000 / 0.914 / 0.100	0.625 / 0.697 / 0.100	1.000 / 0.697 / 0.100	0.625 / 0.642 / 0.100	1.000 / 0.642 / 0.100	0.625 / 0.368 / 0.100	1.000 / 0.368 / 0.100	0.625 / 0.3205 / 0.100	1.000 / 0.3205 / 0.100	0.625 / 0.958 / 0.100	1.000 / 0.958 / 0.100	0.625 / 0.731 / 0.100	1.000 / 0.731 / 0.100	0.625 / 0.682 / 0.100	1.000 / 0.682 / 0.100	0.625 / 0.395 / 0.100	1.000 / 0.395 / 0.100	0.625 / 0.322 / 0.100	1.000 / 0.322 / 0.100
10-Year Debentures																			**Refinance**									
Jan 17	7,325	2.42	2.51256	1.88	0.54		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	N/A	N/A	N/A	N/A
Mar 17	14,862	2.63	2.73012	2.11	0.52		5.170	5.720	5.135	5.685	4.817	N/A	N/A	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	N/A	N/A
May 17	17,713	2.33	2.41974	1.92	0.41		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	N/A	N/A	N/A	N/A
July 17	13,552	2.32	2.40909	1.95	0.37		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	N/A	N/A	N/A	N/A
Sept 17	11,457	1.98	2.05698	1.63	0.35		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	N/A	N/A	N/A	N/A
Nov 17	22,237	2.29	2.37819	2.02	0.27		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	N/A	N/A	N/A	N/A
Jan 18	12,628	2.55	2.64746	2.33	0.22		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	N/A	N/A	N/A	N/A
Mar 18	15,380	3.00	3.11270	2.63	0.37		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	N/A	N/A	N/A	N/A
May 18	22,720	3.18	3.29883	2.81	0.37		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	N/A	N/A	N/A	N/A
July 18	9,642	3.19	3.30867	2.73	0.46		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	N/A	N/A	N/A	N/A
Sept 18	14,550	3.14	3.25713	2.76	0.38		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	N/A	N/A	N/A	N/A
Nov 18	7,101	3.47	3.59817	3.07	0.40		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	N/A	N/A	N/A	N/A
Jan 19	11,713	2.95	3.06111	2.54	0.41		5.496	N/A	N/A	N/A	5.144	5.693	5.064	5.613	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 19	11,198	2.92	3.02985	2.45	0.47		N/A	N/A	N/A	N/A	5.110	5.658	5.029	5.578	4.628	5.177	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 19	10,911	2.66	2.76116	2.22	0.44		N/A	N/A	5.166	N/A	4.848	5.398	4.767	5.317	4.365	4.915	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.955	N/A	N/A
July 19	11,268	2.24	2.32656	1.84	0.40		N/A	N/A	4.742	5.295	4.422	4.975	4.341	4.894	3.937	4.490	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.977	N/A	N/A	N/A
Sept 19	15,751	1.88	1.95324	1.45	0.43		N/A	N/A	N/A	N/A	4.048	4.600	3.967	4.519	3.563	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.603	N/A	N/A	N/A
Nov 19	9,452	2.24	2.32630	1.71	0.53		N/A	N/A	N/A	N/A	N/A	N/A	4.336	4.888	3.933	4.485	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20-Year Debentures																			**Refinance**									
Jan 17	276,384	2.80	2.84789	2.40	0.40		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	N/A	N/A	N/A	N/A
Feb 17	360,199	2.82	2.86826	2.38	0.44		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	N/A	N/A	N/A	N/A
Mar 17	333,267	3.04	3.09120	2.58	0.46		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	N/A	N/A	N/A	N/A
April 17	310,817	2.84	2.88846	2.35	0.49		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	N/A	N/A	N/A	N/A
May 17	361,901	2.88	2.92925	2.39	0.49		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	N/A	N/A	N/A	N/A
June 17	338,673	2.81	2.85812	2.20	0.61		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	N/A	N/A	N/A	N/A
July 17	305,239	2.98	3.03041	2.38	0.60		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	N/A	N/A	N/A	N/A
Aug 17	356,964	2.75	2.79734	2.22	0.53		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	N/A	N/A	N/A	N/A
Sept 17	333,569	2.59	2.63502	2.05	0.54		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	N/A	N/A	N/A	N/A
Oct 17	262,864	2.85	2.89859	2.34	0.51		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	N/A	N/A	N/A	N/A
Nov 17	351,575	2.79	2.83785	2.34	0.45		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	N/A	N/A	N/A	N/A
Dec 17	275,056	2.78	2.82766	2.33	0.45		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	N/A	N/A	N/A	N/A
Jan 18	265,812	2.92	2.96978	2.56	0.36		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	N/A	N/A	N/A	N/A
Feb 18	324,595	3.22	3.27350	2.87	0.35		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	N/A	N/A	N/A	N/A
Mar 18	282,611	3.20	3.25328	2.85	0.35		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	N/A	N/A	N/A	N/A
April 18	329,067	3.31	3.36454	2.82	0.49		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	N/A	N/A	N/A	N/A
May 18	375,113	3.50	3.55703	2.96	0.54		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	N/A	N/A	N/A	N/A
June 18	307,029	3.60	3.65812	2.97	0.63		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	N/A	N/A	N/A	N/A
July 18	263,122	3.54	3.59736	2.83	0.71		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	N/A	N/A	N/A	N/A
Aug 18	344,334	3.58	3.63801	2.94	0.64		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	N/A	N/A	N/A	N/A
Sept 18	278,852	3.53	3.58727	2.89	0.64		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	N/A	N/A	N/A	N/A
Oct 18	259,791	3.77	3.83031	3.18	0.59		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	N/A	N/A	N/A	N/A
Nov 18	248,506	3.87	3.93129	3.22	0.65		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	N/A	N/A	N/A	N/A
Dec 18	244,169	3.54	3.59738	2.84	0.70		5.619	N/A	5.590	6.046	5.327	5.783	5.260	5.716	4.926	5.382	N/A	N/A	N/A	N/A	N/A	N/A	5.308	N/A	N/A	N/A	N/A	N/A
Jan 19	231,767	3.37	3.42549	2.71	0.66		5.452	5.909	5.423	N/A	5.159	5.616	5.092	5.549	4.758	5.215	N/A	N/A	N/A	N/A	N/A	N/A	5.140	N/A	4.791	N/A	N/A	N/A
Feb 19	129,980	3.26	3.31400	2.67	0.59		5.340	5.797	5.311	5.768	5.047	5.504	4.980	5.437	4.646	5.103	N/A	N/A	N/A	N/A	N/A	N/A	5.029	N/A	4.679	N/A	N/A	N/A
Mar 19	177,872	3.20	3.25325	2.65	0.55		5.280	5.737	5.251	N/A	4.987	5.444	4.920	5.377	4.586	5.043	N/A	N/A	N/A	N/A	5.028	N/A	4.969	N/A	4.619	5.076	N/A	N/A
April 19	199,341	2.98	3.03050	2.49	0.49		5.063	N/A	5.034	5.492	4.769	5.227	4.701	5.160	4.367	4.825	N/A	N/A	N/A	N/A	N/A	N/A	4.750	5.209	4.400	N/A	N/A	N/A
May 19	196,908	2.88	2.92913	2.43	0.45		4.962	5.420	4.933	5.391	4.668	5.126	4.600	5.059	4.265	4.724	N/A	N/A	N/A	N/A	N/A	N/A	4.649	N/A	4.298	N/A	N/A	N/A
June 19	166,575	2.60	2.64515	2.10	0.50		4.680	5.139	4.651	5.110	4.385	4.844	4.318	4.777	3.983	4.442	N/A	N/A	N/A	N/A	N/A	N/A	4.367	N/A	4.016	N/A	N/A	N/A
July 19	170,991	2.53	2.57428	2.08	0.45		4.613	N/A	4.584	5.044	4.318	4.778	4.251	4.710	3.914	4.374	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.948	4.407	N/A	N/A
Aug 19	143,948	2.15	2.18861	1.76	0.39		4.231	N/A	4.202	4.663	3.936	4.396	3.868	4.329	3.531	3.992	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.565	4.025	N/A	N/A
Sept 19	166,223	1.98	2.01594	1.58	0.40		4.059	N/A	4.030	4.491	3.764	4.224	3.696	4.157	3.359	3.820	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.392	N/A	N/A	N/A
Oct 19	175,585	2.08	2.11756	1.64	0.44		4.162	N/A	4.133	4.594	3.866	4.328	3.799	4.260	3.462	3.923	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.495	N/A	N/A	N/A
Nov 19	170,895	2.36	2.40171	1.90	0.46		4.440	N/A	4.412	4.872	4.146	4.605	4.078	4.538	3.742	4.202	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.775	N/A	N/A	N/A
Dec 19	146,641	2.26	2.30019	1.81	0.45		4.339	N/A	4.310	N/A	4.044	4.504	3.977	4.437	3.641	4.101	3.582	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.674	N/A	3.584	N/A
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	5.320	5.758	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 18	29,238	3.71	3.75439	2.94	0.77		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	N/A	N/A	N/A	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	5.290	5.728	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.337	N/A	N/A	N/A	N/A	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	5.532	5.969	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.578	6.016	N/A	N/A	N/A	N/A
Nov 18	67,600	4.00	4.04654	3.22	0.78		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	N/A	N/A	N/A	N/A
Dec 18	80,771	3.67	3.71400	2.84	0.83		N/A	N/A	N/A	N/A	N/A	N/A	5.310	5.748	4.990	5.428	N/A	N/A	N/A	N/A	N/A	N/A	5.357	N/A	N/A	N/A	N/A	N/A
Jan 19	110,764	3.56	3.60326	2.71	0.85		N/A	N/A	N/A	N/A	N/A	N/A	5.202	5.641	4.881	5.320	N/A	N/A	N/A	N/A	N/A	N/A	5.249	5.687	4.913	N/A	N/A	N/A
Feb 19	65,157	3.45	3.49226	2.67	0.78		N/A	N/A	N/A	N/A	N/A	N/A	5.091	5.530	4.771	5.209	N/A	N/A	N/A	N/A	N/A	N/A	5.138	N/A	4.802	N/A	N/A	N/A
Mar 19	97,699	3.42	3.46217	2.65	0.77		N/A	N/A	N/A	N/A	N/A	N/A	5.061	5.500	4.741	5.179	N/A	N/A	N/A	N/A	N/A	N/A	5.108	5.547	4.772	N/A	N/A	N/A
April 19	170,006	3.21	3.25030	2.49	0.72		N/A	N/A	N/A	N/A	N/A	N/A	4.853	5.293	4.532	4.971	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.339	4.563	5.003	N/A	N/A
May 19	106,904	3.07	3.10911	2.43	0.64		N/A	N/A	N/A	N/A	N/A	N/A	4.712	5.152	4.391	4.831	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.423	4.863	N/A	N/A
June 19	146,463	2.77	2.80620	2.10	0.67		N/A	N/A	N/A	N/A	N/A	N/A	4.412	4.852	4.090	4.530	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.121	4.562	N/A	N/A
July 19	151,285	2.69	2.72547	2.08	0.61		N/A	N/A	N/A	N/A	N/A	N/A	4.333	4.775	4.011	4.452	N/A	N/A	N/A	N/A	N/A	N/A	4.381	N/A	4.043	4.484	N/A	N/A
Aug 19	166,643	2.31	2.34147	1.76	0.55		N/A	N/A	N/A	N/A	N/A	N/A	3.953	4.395	3.630	4.072	N/A	N/A	N/A	N/A	N/A	N/A	4.000	N/A	3.661	4.103	N/A	N/A
Sept 19	203,390	2.14	2.16957	1.58	0.56		N/A	N/A	N/A	N/A	N/A	N/A	3.781	4.224	3.458	3.901	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.490	3.932	N/A	N/A
Oct 19	197,524	2.22	2.25050	1.64	0.58		N/A	N/A	N/A	N/A	N/A	N/A	3.863	4.306	3.540	3.982	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.572	4.014	N/A	N/A
Nov 19	193,350	2.48	2.51323	1.90	0.58		N/A	N/A	N/A	N/A	N/A	N/A	4.122	4.563	3.800	4.241	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.831	4.273	N/A	N/A
Dec 19	196,112	2.38	2.41219	1.81	0.57		N/A	N/A	N/A	N/A	N/A	N/A	4.021	4.463	3.699	4.140	3.643	4.084	N/A	N/A	N/A	N/A	4.069	N/A	3.731	4.172	N/A	N/A