November 2019 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
						Borrower Fee	0.9375	0.9375	0.914	0.914	0.697	0.697	0.642	0.642	0.368	0.368	0.958	0.958	0.731	0.731	0.682	0.682	0.395	0.395
						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
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
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	4.867	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
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	5.431	4.547	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	4.202	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	4.520	5.072	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
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	5.242	N/A	5.171	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	5.428	N/A	5.356	5.905	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	5.360	5.907	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
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	5.649	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
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
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	4.955
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	3.977	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	3.603	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
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	4.904	5.362	4.626	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	4.926	5.385	4.649	5.107	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	5.146	N/A	4.869	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	4.944	N/A	4.667	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	5.446	4.710	5.168	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	4.916	N/A	4.638	5.097	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	4.807	5.265	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	4.579	5.038	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	4.417	4.876	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	4.954	N/A	4.676	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	4.618	5.077	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	4.607	5.066	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	4.750	N/A	4.690	5.148	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	5.048	5.506	4.989	5.446	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	5.029	N/A	4.969	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	5.137	N/A	5.078	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	5.330	5.787	5.270	5.727	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	5.369	5.825	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	5.643	N/A	N/A	N/A	5.308	5.764	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	5.410	N/A	5.350	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	5.298	5.754	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	5.541	5.997	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	5.640	6.095	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	5.308	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	5.140	N/A	4.791	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	5.029	N/A	4.679	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	5.028	N/A	4.969	N/A	4.619	5.076
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	4.750	5.209	4.400	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	4.649	N/A	4.298	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	4.367	N/A	4.016	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	3.948	4.407
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	3.565	4.025
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	3.392	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	3.495	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	3.775	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
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	5.398	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	5.337	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	5.578	6.016	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	5.687	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	5.357	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	5.249	5.687	4.913	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	5.138	N/A	4.802	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	5.108	5.547	4.772	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	5.339	4.563	5.003
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	4.423	4.863
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	4.121	4.562
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	4.381	N/A	4.043	4.484
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	4.000	N/A	3.661	4.103
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	3.490	3.932
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	3.572	4.014
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	3.831	4.273