NEEDS FOR AND ALTERNATIVES TO (NFAT)

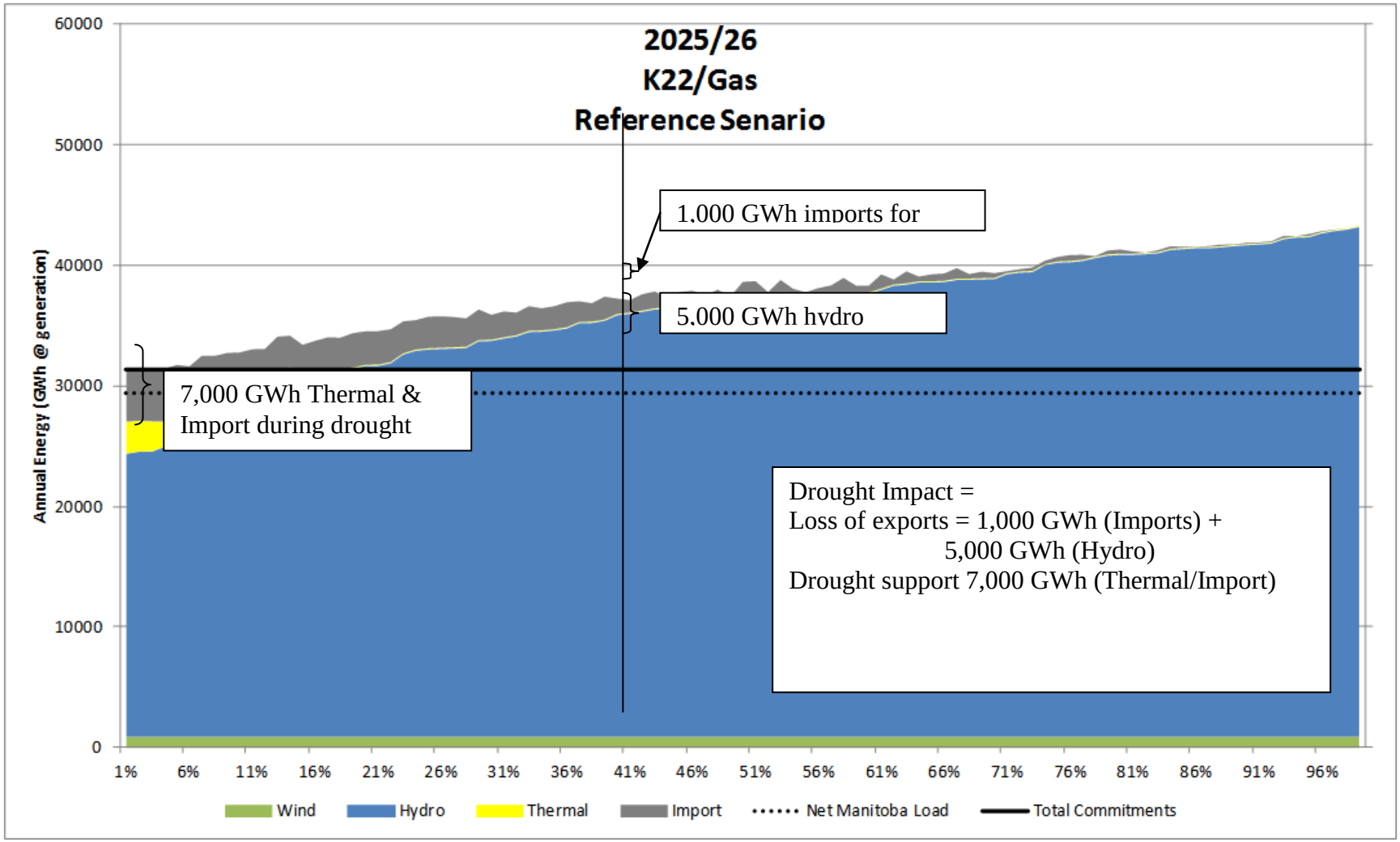
Manitoba Hydro Undertaking #46

Manitoba Hydro to provide an explanation (both written and graphical) of why, when adding gas generation, there is still a major exposure to drought cost (2025/26 timeframe).

Response:

Please see the attached information.

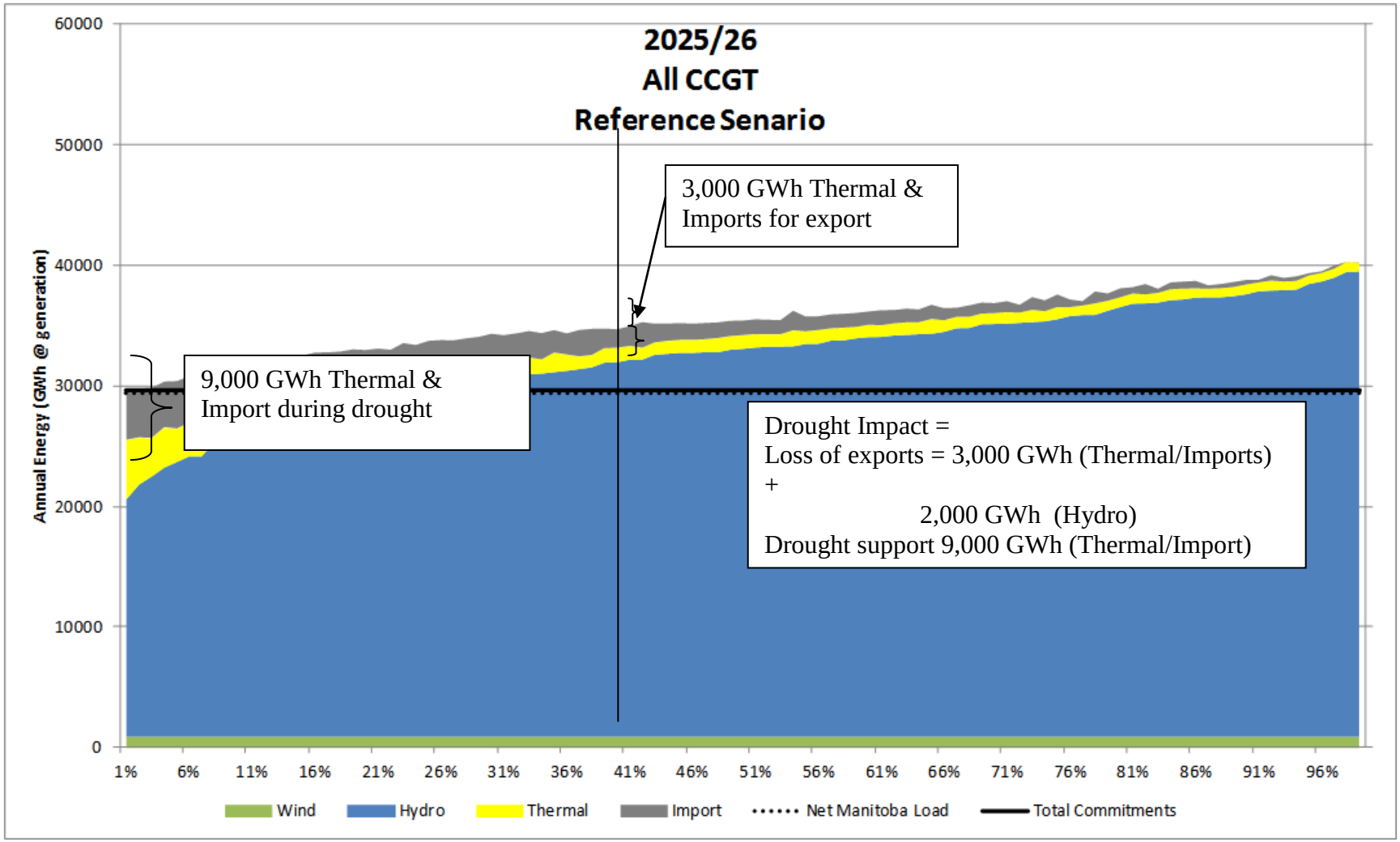
Figure 1.0: Depiction of Drought Conditions using Flow Duration vs. Energy Supply



New Resources:

- Keeyask G.S. (630 MW, 3003 GWh @ Generation)

Figure 2.0: Depiction of Drought Conditions using Flow Duration vs. Energy Supply



New Resources:

- 1X CCGT (357MW, 2706 GWh @ Generation)

Table 1.0: Update to Table 10.8 from NFAT submission

Sensitivity Analysis – 5-year Drought
Incremental Impact on Reference Scenario NPV
Low, Reference and High Energy Prices

		Impact on Reference Scenario NPV Millions of 2014$ @ 5.05 discount rate				
Start year	Prices	All Gas	K22/Gas	K19/Gas24/250MW	K19/C25/750MW (WPS Sale & Inv)	All CCGT
2014/15	Low	-893	-892	-891	-849	-893
	Ref	-997	-997	-1003	-999	-997
	High	-1194	-1196	-1209	-1239	-1194
2021/22	Low	-789	-932	-949	-1035	-762
	Ref	-1086	-1104	-1063	-1105	-977
	High	-1422	-1320	-1223	-1257	-1230
2027/28	Low	-558	-787	-762	-1089	-513
	Ref	-844	-898	-926	-1004	-715
	High	-1174	-1034	-1123	-979	-959
2032/33	Low	-386	-613	-589	-866	-337
	Ref	-718	-798	-774	-902	-580
	High	-1100	-1013	-996	-981	-881

Figure 3.0: Update to Figure 10.23 from NFAT submission

Sensitivity Analysis – 5-year Drought
Incremental Impact on Reference Scenario NPV
Low, Reference and High Energy Prices