



**British Columbia Transmission  
CORPORATION™**

## **BC Import Capability Study**

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BCTC has conducted import capability studies based on a certain set of scenarios as requested by BC Hydro Generation Line of Business. The results based on system light load conditions (40% peak load) are listed below:

1. The total import capability is 1680MW based on 17650MJ of rotational energy from the on line generators, excluding Fortis BC (FBC) area load and generators.
2. By including the FBC area load and assuming their under frequency load shedding disarmed, the total import capability is 1715MW based on the other conditions being the same.
3. By including the FBC area load and with their under frequency load shedding armed, the total import capability is 1795MW based on based on the other conditions being the same.
4. By including the FBC area load and with their under frequency load shedding armed and a certain number of their area generators on-line, which corresponds to 970MJ of rotational energy, the total import capability is 1835MW based on the other conditions being the same.
5. By including the FBC area load and with their under frequency load shedding armed and high number of their area generators on-line, which corresponds to 2600MJ of rotational energy, the total import capability is 1900MW based on the other conditions being the same.

Refer to Table 1 for detailed information on study conditions and results.

Note that the effect of FBC area on import capability would vary with the system load level. For example, if the system load is 70 percent peak load, the effect of FBC area under frequency load shedding could increase due to more loads being available for load shedding. Similarly the additional generators needed to serve the area loads will also provide incremental import capability, but the capability improvement by adding rotational energy at 70 percent system load level is not as effective as at 40 percent system load level.

**Table 1. The Net Import Capability into BCTC System (40% peak load)**

Case	FBC Area Bus Load (MW)	FBC u/f load shedding And 2L263/2L264 u/f tripping	FBC Online Rotational Energy (MJ)	BCTC & FBC Area Total Online Rotational Energy (MJ)	BC Import Capability (MW)	Increase in BC Import Capability (MW)	Comment
1 Benchmark	0	N/A	0	17650	1680	0	System normal with minimum online rotational energy with MCA shut down
2 a (case 1 + FBC load)	449.7	N/A	0	17650	1715	35 Compared to Case 1	Increase due to FBC load inertia and load characteristic on frequency dependence
2 b (Case 2a + FBC u/f load shedding)	449.7	Yes	0	17650	1795	115 Compared to Case 1	Increase due to mainly FBC U/F load shedding
3 (Case 2b + low FBC rotational energy)	449.7	Yes	930	18580	1835	40 Compared to Case 2b	Increase due to FBC area generator rotational energy
4 (Case 2b + high FBC rotational energy)	449.7	Yes	2600	20250	1900	65 Compared to Case 3	Increase due to high FBC area on line rotational energy

BCTC control area import

- = - (5L51+ 5L52) (from Ingledow to Custer)
- 2L112 (from Nelway to Boundary)
- 5L94 (from Cranbrook to Langdon)
- 1L274 (from Britt Creek to Pocaterra)
- 1L275 (from Natal to Coleman)
- 2L103 (from Minette to Kitmat)

System Study Conditions:

1. BC system 40% peak load
  - BCH busload: 3819 MW including 351 MW self-generation and 503 MW synchronous motor load and other 3666.6 MW load (static and induction motor).
  - FBC busload: 450 MW including 45.4 MW synchronous motor load and other 3666.6 MW load (static and induction motor)
2. BCH Minimum online generators (17650 MJ)
3. Updated BC Hydro and FBC U/F Load Shedding settings

BCTC system transient minimum frequency: 58.0 Hz.