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## **MINETTE – KITIMAT (2L103) TRANSFER CAPABILITY**

The BC Hydro / Alcan tie is defined as the 287 kV circuit (2L103) between Kitimat and Minette Substations.

### **1. BC Hydro to Alcan Transfer Capability, Minette to Kitimat on 2L103**

<b>System Condition</b>	<b>Minette To Kitimat Transfer Limit</b>	<b>Comments</b>
System Normal (All lines in service)	See Attachment 1 (note 1)	<p><b>Only if all</b> of the following conditions are met:</p> <ul style="list-style-type: none"> <li>• At least 7 KMO units on line</li> <li>• All 500 kV transmission lines in-service between Williston and Skeena</li> <li>• All 287 kV transmission lines in-service between Skeena and Kemano.</li> <li>• All underfrequency relays west of Williston are in service</li> <li>• All shunt capacitors are available in the Alcan system</li> <li>• WSN 500 kV bus voltage less than or equal to 528 kV</li> <li>• WSN 5RX1, GLN 5RX5, TKW 5RX1, one of (TKW 12RX2 and TKW 12RX3), SKA 12 RX1 and SKA 12RX2 must be energized (See Note 2)</li> </ul>

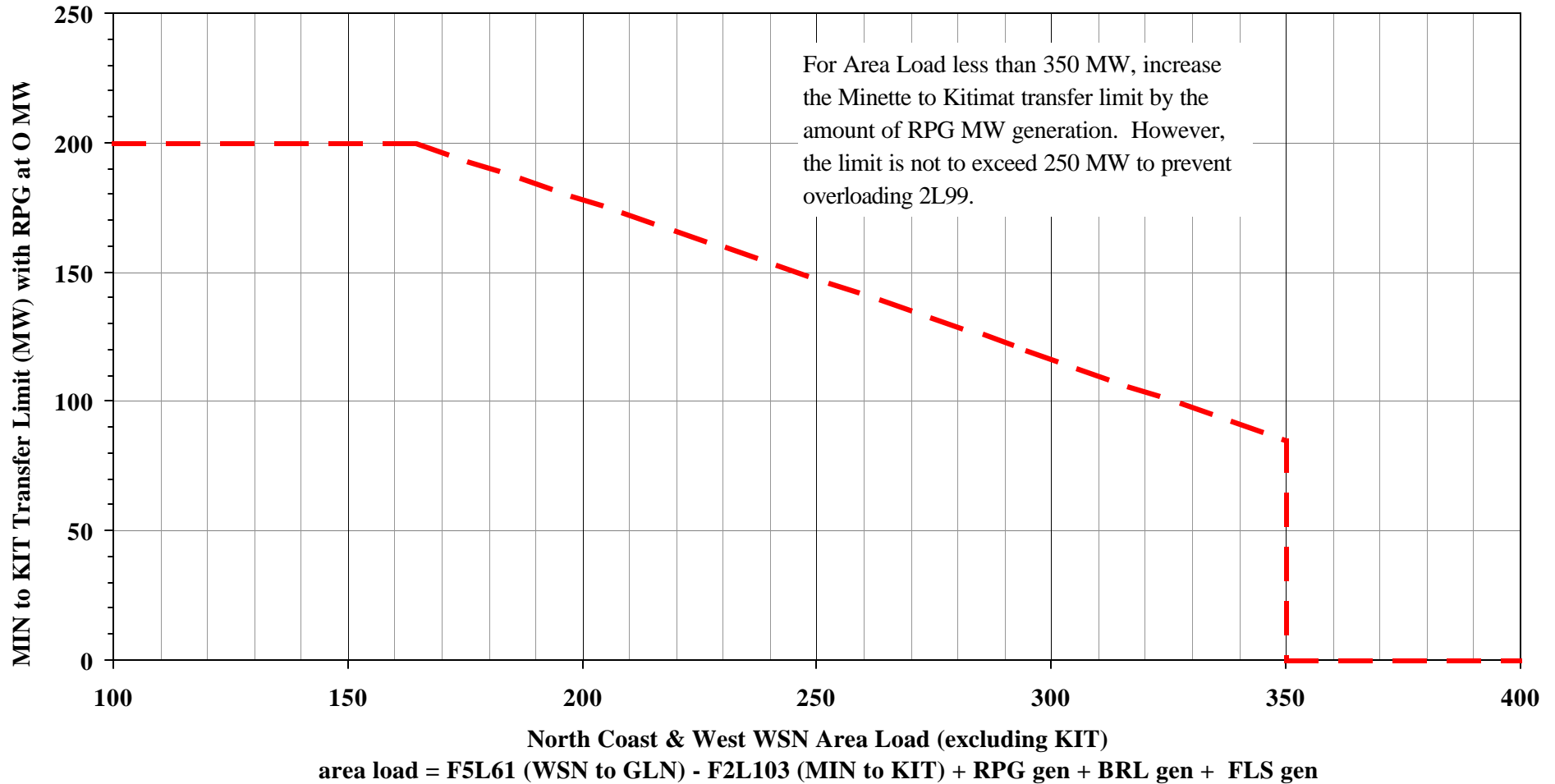
Note 1: The transfer limit as shown is a hard limit. Action is required if the actual flow exceeds this limit.

Note 2: If the reactor requirement is not met, special studies are required to assess the reduced (new) limit.

Note 3: A Transmission Reliability Margin (TRM) OF 20 MW should be used when scheduling exports to Alcan  
 BC Hydro to Alcan Schedule Limit = Transfer Limit - 20 MW

### Attachment 1 - MIN to KIT Transfer Limits (MW)

- Notes:
1. WSN500 must be below 528kV.
  2. The following shunt reactors must be energized: WSN 5RX1 (125 mvar), GLN 5RX1 (125 mvar), TKW 5RX1(125 mvar), one of (TKW 12RX2 & 12RX3 (75 mvar each)), SKA 12RX1 & 12RX2 (37.5 mvar each)
  3. Minette to Kitimat transfer limit is zero when the area load is greater than 350MW, because the loss of 5L61 will result in unacceptable low dynamic voltage before the underfrequency load shedding takes place.



2. Alcan to BC Hydro Transfer Capability, Kitimat to Minette on 2L103

System Condition	Number of Kitimat capacitor Banks In-Service	Number of Kemano Units On line	Maximum Kitimat Load (MW)	Kitimat to Minette Transfer Limit (MW)	Comments
System Normal (See note 3)	$\geq 4$	$< 6$	N/A	0	
	$\geq 4$	6	N/A	270	Note 1
	$\geq 4$	7	N/A	Winter rating = 350	Note 1
				Summer rating = 300	Note 2
				Winter rating = 380	Note 1
	8	N/A	Summer rating = 300	Note 2	
One Kemano –Kitimat Line O.O.S. (See note 3)	6	7	380 – 630	See Attachment 2.	Note 1,4,6
	5	7	380 – 630	See Attachment 3.	Note 1,4,6
	4	$\geq 7$	390	160	Note 1,4
	$\geq 5$	6	390	230	Note 1,4
5L61 O.O.S. (See note 3)	Each potline capacitor must be in service when the respective potline load is greater than 40% of its maximum load.	7	380 - 610	Lesser of: <ul style="list-style-type: none"> <li>800 – 5% of Kemano generation (spinning reserve) – Kitimat load – 15 MW (losses on Alcan system).</li> <li>320 MW</li> </ul>	
		8	380 - 610	Lesser of: <ul style="list-style-type: none"> <li>850 – 5% of Kemano generation (spinning reserve) – Kitimat load– 15 MW (losses on Alcan system).</li> <li>360 MW</li> </ul>	
5L62 O.O.S. (See note 3)	Each potline capacitor must be in service when the respective potline load is greater than 40% of its maximum load.	7	380 – 610	Lesser of: <ul style="list-style-type: none"> <li>800 – 5% of Kemano generation (spinning reserve) – Kitimat load– 15 MW (losses on Alcan system).</li> <li>285 MW</li> </ul>	
		8	380 - 610	Lesser of: <ul style="list-style-type: none"> <li>850 – 5% of Kemano generation (spinning reserve) – Kitimat load– 15 MW (losses on Alcan system).</li> <li>330 MW</li> </ul>	

5L63 OOS (See Note 3)	Each potline capacitor must be in service when the respective potline load is greater than 40% of its maximum load.	7	380 - 610	800 – 5% of Kemano generation (spinning reserve) – Kitimat load– 15 MW (losses on Alcan system).	Note 5
		8	380 - 610	850 – 5% of Kemano generation (spinning reserve) – Kitimat load– 15 MW (losses on Alcan system).	Note 5
SKA T1 or T2 OOS (See Note 3)	$\geq 5$	7	N/A	Winter/Summer rating = 300	Note 1
	$\geq 5$	8	N/A	Winter Rating = 330 Summer rating = 300	Note 1 Note 2

Note 1: Limit is determined by stability.

Note 2: Summer limit is 300 MW, which is restricted by summer current rating of line 2L103. Summer limit can be raised if there is a real time procedure for monitoring ambient temperature and 2L103 loading to ensure that the circuit rating is not exceeded.

Note 3: All of the following circuits and transformers must be in-service except for the specific lines identified as being out of service:

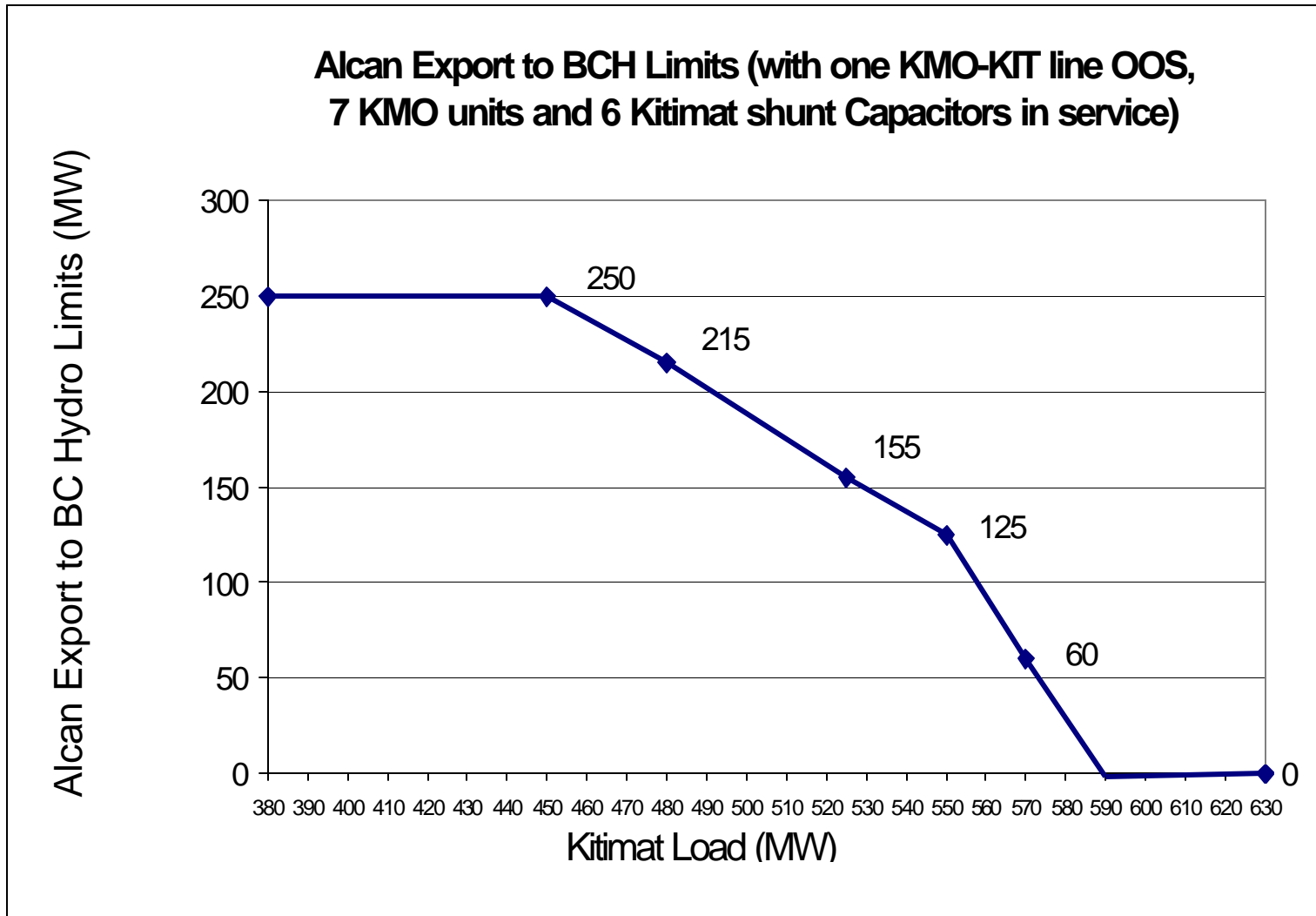
- 5L61
- 5L62
- 5L63
- SKA T1 and T2
- 2L99
- 2L103 and
- Two Kemano to Kitimat lines.

Note 4: Operate SKA 500 kV bus voltage above 524 kV, enable TKW and SKA auto-var.

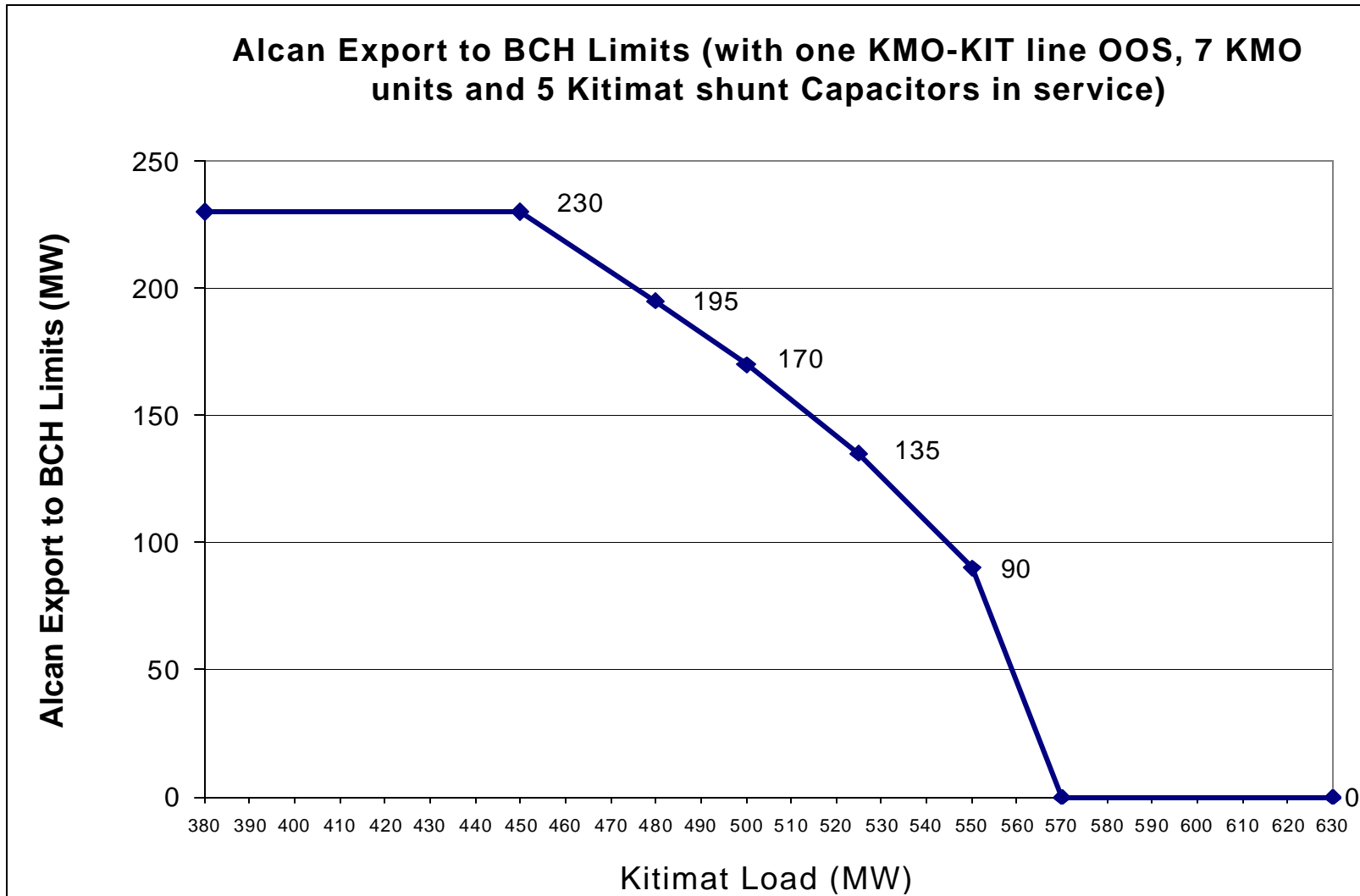
Note 5: Refer to Section 7.4, SKA 12RX1 and 12RX2 (37.5 Mvar each) must be out of service to prevent unacceptable low voltage.

Note 6: With one more KMO unit on line, increase Alcan export to BCH limit by 25 MW.

Attachment 2



Attachment 3



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