BC HYDRO

T&D SYSTEM OPERATIONS

ATTACHMENT 2 OF
SYSTEM OPERATING ORDER 7T-34

SEL 230 kV / 500 kV OPERATION (2L277 CONNECTED TO NLY)
Supersedes SOO 7T-34 Attachment 2 dated 12 January 2023

Effective Date: 16 August 2023

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7T-34 Original signed by
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- Dated and published simultaneously with SOO 7T-34 main body
- Requires same day posting on bchydro.com and on BCRC Extranet upon release.
- Requires same day MRS conveyance notification upon posting
- Refer to SOO 7T-34 Section 11.0 for Revision History

<mark>Highlight Denotes Revision</mark>

1.0 General System Information and Requirements

1.1 Line Ratings

- Continuous Ratings

230 kV Lines				
Circuit	Variable Name Used in Generation Shedding Tables	Conductor Continuous Rating (Amp)		Corresponding Continuous MW Rating (MW = 1.732 * Rating in KA * 235 kV * 0.95 pf)	
		Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)	Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)
2L277	2L277_Norm_Rating	1106		428	454 (Note 1)
2L288	2L288_Norm_Rating			320 (Note 1)	452 (Note 1)
2L289	2L289_Norm_Rating		1373	428 (Note 1)	531
2L294	2L294_Norm_Rating	1053	1277	407	494
2L295	2L295_Norm_Rating	1073	1289	415	498
2L299	2L299_Norm_Rating	1073	1289	415	498

60 kV Lines				
Circuit	Variable Name Used in Generation Shedding Tables	Conductor Continuous Rating (Amp)		Corresponding Continuous MW Rating (Note 2)	
		Summer	Winter	Summer	Winter
34L	34L_Norm_Rating			243	248
62L	62L_Norm_Rating			243	310

- Overload-Ratings

230 kV Lines				
Circuit	Variable Name Used in Generation Shedding Tables	Conductor Over-Rating (Amp)		Corresponding MW Over-Rating (MW = 1.732 * Rating in KA * 230 kV * 0.95 pf)	
		Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)	Summer (Based on 30º C ambient)	Winter (Based on 10º C ambient)
2L277 (WAN-NLY)	2L277_Over_Rating	1200	1200	454	454
2L288	2L288_Over_Rating	1120	1263	424	478
2L289	2L289_Over_Rating	1249	1457	473	551
2L294	2L294_Over_Rating	Refer to 7T-34 ATT1.			
2L295	2L295_Over_Rating	1157	1354	438	512
2L299	2L299_Over_Rating	1157	1354	438	512

60 kV Lines				
Circuit	Variable Name Used in Generation Shedding Tables	Conductor Continuous Rating (Amp)		Corresponding Continuous MW Rating (Note 2)	
		Summer	Winter	Summer	Winter
34L	34L_Over_Rating			248	248
62L	62L_Over_Rating			270	310

Note 1: Limited by FBC MW rating (PF=0.95). Refer to FortisBC OO 7TR - 101.
Note 2: Refer to FortisBC OO 7TR - 101.

1.2 Temperature Dependent Continuous Ratings for (T1, T2, T3, T4)

The ambient temperature dependent continuous ratings of SEL (T1, T2, T3, T4) are used to determine pre-contingency SEL 230 kV to 500 kV transfer limits which are shown in Section 5 of SOO 7T-34 Main Body.   The following diagrams are found in Section 4 of Attachment 2:

Refer to Diagram 1 of Attachment 2 for "SELT1MVA_Norm_Rating" or "SELT4MVA_Norm_Rating"
Refer to Diagram 2 of Attachment 2 for "SELT2MVA_Norm_Rating" or "SELT3MVA_Norm_Rating"
Refer to Diagram 3 of Attachment 2 for "SELT1&T2&T3MVA_Norm_Rating" or "SELT2&T3&T4MVA_Norm_Rating"
Refer to Diagram 4 of Attachment 2 for "SELT1&T2&T4MVA_Norm_Rating" or "SELT1&T3&T4MVA_Norm_Rating"
Refer to Diagram 5 of Attachment 2 for "SELT1&T4MVA_Norm_Rating"
Refer to Diagram 6 of Attachment 2 for "SELT1&T2MVA_Norm_Rating" or "SELT2&T4MVA_Norm_Rating" or "SELT1&T3MVA_Norm_Rating" or "SELT3&T4MVA_Norm_Rating"
Refer to Diagram 7 of Attachment 2 for "SELT2&T3MVA_Rating"

In all the tables of Attachment 2, half-an-hour ratings (0.5hr-ratings) shown in the following table are used for post-contingency SEL T1/T2/T3/T4. The 0.5hr-rating for each of SEL T1/T2/T3/T4 is provided by SOO 5T-14 dated at 22 February 2021.

SEL T1/T2/T3/T4 0.5hr-Ratings		
Selkirk Transformer	Variable Name Used in Generation Shedding Tables	0.5-hr Rating (MVA) at 30ºC DAAT
SEL T1	SELT1MVA_0.5hr_Rating	1593 (DS Limit)
SEL T2	SELT2MVA_0.5hr_Rating	884
SEL T3	SELT3MVA_0.5hr_Rating	1009
SEL T4	SELT4MVA_0.5hr_Rating	1593 (DS Limit)
SEL T1 & T2	SELT1&T2MVA_0.5hr_Rating	2061 (884/0.4288)
SEL T1 & T3	SELT1&T3MVA_0.5hr_Rating	2353 (1009/0.4288)
SEL T1 & T4	SELT1&T4MVA_0.5hr_Rating	3187 (1593/0.5)
SEL T2 & T3	SELT2&T3MVA_0.5hr_Rating	1768 (884/0.5)
SEL T2 & T4	SELT2&T4MVA_0.5hr_Rating	2061 (884/0.4288)
SEL T3 & T4	SELT3&T4MVA_0.5hr_Rating	2353 (1009/0.4288)
SEL T1 & T2 & T3	SELT1&T2&T3MVA_0.5hr_Rating	2966 (884/0.298)
SEL T2 & T3 & T4	SELT2&T3&T4MVA_0.5hr_Rating	2966 (884/0.298)

The 0.5hr Rating of SEL T1 or T4 is limited by its 230 kV disconnect, which is calculated by:
1.732 * 4000 A * 230 kV = 1593 MVA
The 0.5hr Rating of SEL T2 is limited by its 0.5hr LV-side ampere rating, which is calculated by:
1.732 * 2219 A * 230 kV = 884 MVA
The 0.5hr Rating of SEL T3 is limited by its 0.5hr LV-side ampere rating, which is calculated by:
1.732 * 2534 A * 230 kV = 1009 MVA
The post-contingency continuous MVA rating for all SEL 230 kV bus sections can be calculated by:
1.732 * 3000 A * 230 kV = 1195 MVA

The allocation factors among SEL (T1, T2, T3, T4) are listed in the table below.

Selkirk Transformer	Allocation Factors					
	SEL T1 & T2 & T3 & T4 I/S	SEL T1 OOS	SEL T2 OOS	SEL T3 OOS	SEL T2 & T3 OOS	SEL T4 OOS
T1	0.289	0.000	0.367	0.367	0.500	0.407
T2	0.212	0.298	0.000	0.266	0.000	0.298
T3	0.210	0.295	0.266	0.000	0.000	0.295
T4	0.290	0.407	0.367	0.367	0.500	0.000

Refer to Section 5 in the text file for SEL 230 kV to 500 kV transfer limits with status of SEL transformers and SEL CBs.

1.3 VAS-VNT loop

The status of FBC's VAS-VNT loop (closed or open) has been removed from Attachment 2 because it would not affect SEL 230/500 kV Operation.

Please refer to FortisBC's system one-line diagram 4-000-8011, the VAS-WTS path is defined as the connection of VAS230-BEN230-BEN63-BEN161-KET161-GFT161-ASM63-WTS63. The path consists of three sections connected in series:

- Section 1 is the connection of VAS230-BEN230-BEN63 which consists of 40L in series with BEN T1. There are parallel lower voltage connections which link this section, therefore, this section of the path shall be treated as closed regardless of its status. Only when 40L/BEN T1 AND the lower voltage parallel connections are open, this section of the path shall be treated as open.
- Section 2 is the connection of BEN63--BEN161-KET161-GFT161. There is no parallel low voltage connection to link this section.
- Section 3 is the connection of GFT161-ASM161-ASM63-WTS63. There are parallel low voltage connections to link this section. When this section is open, the corresponding parallel connections which link this section must be open.

1.4 General Pre-outage Restrictions applicable to all SEL 230 kV / 500 kV operations

Limit 2L112 NLY <= 400 MW
Limit 2L112 BDY <= 400 MW

From 1 April to 31 October, limit:
    2L293 NLY <= 400 MW
    2L293 SEL <= 400 MW
From 1 November to 31 March, limit:
    2L293 NLY <= 450 MW
    2L293 SEL <= 450 MW

Limit 2L289 BTS <= 2L289_Norm_Rating

2.0 General Post-Contingency Requirements

Note 1: **Minimum Units On-line Post-shedding at KCL, SEV, WAN, ALH, BRX, WAX and the Equivalent SEV Units**
Unless it specified that KCL plant can be shed down to 0 MW in this attachment or the whole KCL plant is shut down in pre-contingency condition, always keep a minimum of one KCL unit on-line post-shedding, with both 230 kV breakers closed, in order to maintain continuity between KCL 230 kV main buses.

In order to shed down to a single unit on line, there are detailed KCL 230KV CB status requirements to determine which units' breakers maintain continuity between the 230 kV busses. These are as follows:

- if KCL G1 is to be selected to be the remaining unit online in post shedding; then all of 2CB13, 2CB14, 2CB15 and 2CB16 must remain closed post-contingency.
- if KCL G2 is to be selected to be the remaining unit online in post shedding, then all of 2CB9, 2CB10, and 2CB11 must remain closed post contingency.
- if KCL G3 is to be selected to be the remaining unit online in post shedding, then all of 2CB5, 2CB6, and 2CB7 must remain closed post contingency.
- if KCL G4 is selected to be the remaining unit online in post shedding, then all of 2CB2, 2CB3, and 2CB4 must remain closed post-contingency.
- If KCL has units out of service but the associated CBs of those units are closed, and the continuity between the 230 kV buses is maintained by these topologies in post-contingency; there is no need to check the CB statuses for the unit selected to remain on line.

If generation shedding is armed for contingencies SEL T1, SEL (T2 & T3), and SEL T4, then
- keep a minimum of 1 SEV, 1 KCL (with the 230 kV CBs closed) and 1 equivalent SEV units on line post-shedding, unless specifically specified in the tables, or
- keep a minimum of 1 SEV and 1 & 2/3 equivalent SEV units on line post-shedding if the whole KCL plant is shut down in pre-contingency condition.
(1 KCL unit = 2/3 equiv. SEV unit, 1 ALH unit = 1/3 equiv. SEV unit, 1 WAX unit = 1 equiv. SEV unit, 1 BRX unit = 1/3 equiv. SEV unit)

WAN G4 shall not participate in any generation shedding requirement, this is a generic rule in TSA implementation.
If WAN generation shedding is armed for any contingency, then keep a minimum of 1 WAN unit on-line post-shedding, this is a generic rule also.

If gen shedding is armed at ALH, BRX or WAX for any contingencies, these generation plants may be shed down to 0 MW.
If TSA alarms "SELT1MVA_NORM_RATING VIOLATION" or "SELT2MVA_NORM_RATING VIOLATION" or "SELT3MVA_NORM_RATING VIOLATION" or "SELT4MVA_NORM_RATING VIOLATION", the BC Hydro Control Centre staff shall take the following actions to bring the transformer loading within its continuous rating within 30 minutes:
- Reduce 2L112 BDY to NLY flow by adjusting NLY PST, or
- Reduce KCL/SEV generation output, or
- Request FBC to reduce their controlled generation such as ALH / BRX / BRD / WAN / WAX / COR / LBO / UBO / SLC.

Note 2: **2L295 OR (2L289 AND 2L295) Contingencies**
If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding.
If KCL 2CB13 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L288 simultaneously.
If KCL 2CB16 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L299 simultaneously.

Note 3: **2L299 OR (2L289 AND 2L299) Contingencies**
If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding.
If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously.
If KCL 2CB13 is OOS, KCL G1 must be armed for shedding in order to trip 2L288 on loss of 2L299; further, for the double contingency, FBC's 2L288 & 2L289 RAS will also assert. Both actions prevent transient instability in FBC System.

Note 4: **(2L288 AND 2L295) Contingency**
If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding.
If KCL 2CB15 is OOS, then KCL G1 must be armed for shedding.
If KCL 2CB16 is OOS, then KCL G1 must be armed for shedding in order to trip 2L299, which will further initiate 2L288 & 2L295 & 2L299 RAS and FBC's Kootenay RAS at SLC in order to trip 60L225 & 60L227 preventing overload on 25L (if 25L is closed) and preventing transient instability in FBC System.

Note 5: **(2L288 AND 2L299) Contingency**
KCL G1 must be armed for shedding.
If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously.

Note 6: **(2L295 AND 2L299), OR (2L289 AND 2L295 AND 2L299) Contingencies**
If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding.
If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding.
If KCL 2CB13 is OOS, then KCL G1 must be armed for shedding in order to trip 2L288, which will further initiate 2L288 & 2L295 & 2L299 RAS or FBC's 2L288 & 2L289 RAS preventing overload on 25L (if 25L is closed) and preventing transient instability in FBC System.

Note 7: **2L289, 2L293, 62L, 77L, or any of SEL (T1, T2, T3, T4) Contingencies**
If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously, except for contingency SEL T4 with SEL 2CB9 OOS or 2CB11 OOS in Table 2.26 (SEL T2 OOS and SEL 2CB OOS) and Table 2.36 (SEL T3 OOS and SEL 2CB OOS).
If KCL 2CB13 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L288 simultaneously.
If KCL 2CB16 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L299 simultaneously.

Note 8: **Arming Order**
Arm G1 first if KCL gen-shedding is required for the contingencies of 2L288, or 2L299, or (2L288 & 2L299), or (2L289 & 2L299).
Arm G3 first if KCL gen-shedding is required for contingencies of loss of 2L295, or (2L289 & 2L295).
Keep at least one of (G2 or G4) post-shed if KCL gen-shedding is armed for loss of (2L288 & 2L295), or (2L295 & 2L299) unless it specifies that KCL plant can be shed down to 0 MW.

In addition, KCL G1 and G3 share breakers with line positions. This requires special considerations for a number of contingencies and breaker topologies; a summary table of the G1 and G3 arming and blocking described in Notes 2 to 7 is attached below.

Summary of KCL G1 or G3 arming selection requirements unless specifically specified in the gen-shedding tables:

KCL 2CB Status	Contingencies								
	2L295	2L299	2L288 & 2L295	2L288 & 2L299	2L289 & 2L295	2L289 & 2L299	2L295 & 2L299	2L289 & 2L295 & 2L299	2L289, 2L293, 62L, 77L, SEL (T1, T2, T3, T4)
2CB5 OOS		NOT G3		NOT G3		NOT G3			NOT G3
2CB7 OOS	G3		G3	G1	G3		G3	G3	
2CB13 OOS	NOT G1	G1		G1	NOT G1	G1	G1	G1	NOT G1
2CB14 OOS		G1		G1		G1	G1	G1	
2CB15 OOS			G1	G1					
2CB16 OOS	NOT G1		G1	G1	NOT G1				NOT G1

3.0   List of Tables in Attachment 2:

Table No.	Page No.	Table Name	Applicable Reference Tables	VAS-WTS Closed	VAS-WTS Open
A.1	8	Reference Table - All SEL Area 230 kV Circuits I/S and VAS-WTS Loop Closed		Y	
A.2	9	Reference Table - 2L112 O.O.S and VAS-WTS Loop Closed		Y	
A.3	10	Reference Table - 2L288 O.O.S and VAS-WTS Loop Closed		Y	
A.4	12	Reference Table - 2L289 O.O.S and VAS-WTS Loop Closed		Y	
A.5	14	Reference Table - 2L293 O.O.S and VAS-WTS Loop Closed		Y	
A.6	15	Reference Table - 2L294 O.O.S and VAS-WTS Loop Closed		Y	
A.7	16	Reference Table 2L295 or 2L299 O.O.S and VAS-WTS Loop Closed		Y	
A.8	17	Reference Table - 2L277 O.O.S and VAS-WTS Loop Closed		Y	
A.9	19	Reference Table - 62L O.O.S and VAS-WTS Loop Closed		Y	
A.10	20	Reference Table - 77L O.O.S and VAS-WTS Loop Closed		Y	
A.11	21	Reference Table - 2L221 O.O.S and VAS-WTS Loop Closed		Y	
A.12	21	Reference Table - 2L222 O.O.S and VAS-WTS Loop Closed		Y	
A.13	21	Reference Table - 2L286 O.O.S and VAS-WTS Loop Closed		Y	
B.1	22	Reference Table - All SEL Area 230 kV Circuits I/S and VAS-WTS Loop Open			Y
B.2	23	Reference Table - 2L112 O.O.S and VAS-WTS Loop Open			Y
B.3	24	Reference Table - 2L288 O.O.S and VAS-WTS Loop Open			Y
B.4	26	Reference Table - 2L289 O.O.S and VAS-WTS Loop Open			Y
B.5	28	Reference table - 2L293 O.O.S and VAS-WTS Loop Open			Y
B.6	29	Reference table - 2L294 O.O.S and VAS-WTS Loop Open			Y
B.7	29	Reference Table - 2L295 or 2L299 O.O.S and VAS-WTS Loop Open			Y
B.8	30	Reference Table - 2L277 O.O.S and VAS-WTS Loop Open			Y
B.9	31	Reference Table - 62L O.O.S and VAS-WTS Loop Open			Y
B.10	32	Reference Table - 77L O.O.S and VAS-WTS Loop Open			Y
B.11	33	Reference Table - 2L221 O.O.S and VAS-WTS Loop Open			Y
B.12	33	Reference Table - 2L222 O.O.S and VAS-WTS Loop Open			Y
B.13	33	Reference Table - 2L286 O.O.S and VAS-WTS Loop Open			Y
2.1	34	All SEL (T1 & T2 & T3 & T4) and All SEL CBs I/S	A.1 ~ A. 13 and B.1 ~ B.13	Y	Y
2.2	35	All SEL (T1 & T2 & T3 & T4) I/S and SEL 5CB O.O.S	A.1 ~ A.13 and B.1 ~ B.13	Y	Y
2.3	36	All SEL (T1 & T2 & T3 & T4) I/S and SEL 2CB O.O.S	As indicated in Table 2.3	Y	Y
2.11	41	SEL T1 O.O.S and All SEL CBs I/S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.12	41	SEL T1 and 2L112 O.O.S and All SEL CBs I/S	A.2 and B.2	Y	Y
2.13	42	SEL T1 and 2L293 O.O.S and All SEL CBs I/S	A.5 and B.5	Y	Y
2.14	42	SEL T1 and 2L294 O.O.S and All SEL CBs I/S	A.6 and B.6	Y	Y
2.15	43	SEL T1 and SEL 5CB O.O.S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.16	44	SEL T1 and SEL 2CB O.O.S	As indicated in Table 2.16	Y	Y
2.21	45	SEL T2 O.O.S and All SEL CBs I/S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.22	45	SEL T2 and 2L112 O.O.S and All SEL CBs I/S	A.2 and B.2	Y	Y
2.23	46	SEL T2 and 2L293 O.O.S and All SEL CBs I/S	A.5 and B.5	Y	Y
2.24	46	SEL T2 and 2L294 O.O.S and All SEL CBs I/S	A.6 and B.6	Y	Y
2.25	47	SEL T2 and SEL 5CB O.O.S.	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.26	48	SEL T2 and SEL 2CB O.O.S	As indicated in Table 2.26	Y	Y
2.31	50	SEL T3 O.O.S and All SEL CBs I/S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.32	50	SEL T3 and 2L112 O.O.S and All SEL CBs I/S	A.2 and B.2	Y	Y
2.33	51	SEL T3 and 2L293 O.O.S and All SEL CBs I/S	A.5 and B.5	Y	
2.34	51	SEL T3 and 2L294 O.O.S and All SEL CBs I/S	A.6 and B.6	Y	Y
2.35	52	SEL T3 and SEL 5CB O.O.S.	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.36	53	SEL T3 and SEL 2CB O.O.S	As indicated in Table 2.36	Y	Y
2.41	55	SEL (T2 & T3) O.O.S and All SEL CBs I/S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.42	55	SEL (T2 & T3) and 2L112 O.O.S and All SEL CBs I/S	A.2 and B.2	Y	Y
2.43	56	SEL (T2 & T3) and 2L293 O.O.S and All SEL CBs I/S	A.5 and B.5	Y	Y
2.44	56	SEL (T2 & T3) and 2L294 O.O.S and All SEL CBs I/S	A.6 and B.6	Y	Y
2.45	57	SEL (T2 & T3) and SEL 5CB O.O.S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.46	58	SEL (T2 & T3) and SEL 2CB O.O.S	As indicated in Table 2.46	Y	Y
2.51	58	SEL T4 O.O.S and All SEL CBs I/S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.52	59	SEL T4 and 2L112 O.O.S and All SEL CBs I/S	A.2 and B.2	Y	Y
2.53	59	SEL T4 and 2L293 O.O.S and All SEL CBs I/S	A.5 and B.5	Y	Y
2.54	60	SEL T4 and 2L294 O.O.S and All SEL CBs I/S	A.6 and B.6	Y	Y
2.55	60	SEL T4 and SEL 5CB O.O.S	A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13	Y	Y
2.56	61	SEL T4 and SEL 2CB O.O.S	As indicated in Table 2.56	Y	Y

Note: "Y" - The condition is operable and covered by the table.

Table A.1 – Reference Table, All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed

Table A.1 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

Table A.1 (b) - Generation Shedding Requirements
(All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Shedding requirements for all KCL 2CB status except for KCL 2CB16 OOS: Shed at ALH/BRX: • 1.25 * (2L289 BTS + 0. 85 * 2L288 BTS - 2L289_Over_Rating)
	Shedding requirements for KCL 2CB16 OOS: Shed at KCL G2/G3/G4: • 2L295 KCL + 2L299 KCL + 2L288 KCL – KCL G1 - 2L295_Over_Rating
2L289	Shed at ALH /BRX/KCL the greatest of: • 2.63 * (2L299 KCL + 0. 40 * 2L289 BTS - 2L299_Over_Rating), or • 2.63 * (2L295 KCL + 0. 40 * 2L289 BTS - 2L295_Over_Rating), or • 1.28 * (2L288 BTS + 0. 81 * 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX for shedding first Note 7 in Section 2.0
2L295	Shed at KCL/ALH/BRX the greater of: • 1.94 * (2L299 KCL + 0. 53 * 2L295 KCL - 2L299_Over_Rating), or • 2.69 * (2L289 BTS + 0. 40 * 2L295 KCL - 2L289_Over_Rating) Select KCL for shedding first. Note 2 in Section 2.0 Note 8 in Section 2.0
2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS: Shed at KCL/ALH/BRX the greater of: • 1.94 * (2L295 KCL + 0. 53 * 2L299 KCL - 2L295_Over_Rating), or • 2.69 * (2L289 BTS + 0. 40 * 2L299 KCL - 2L289_Over_Rating) Select KCL for shedding first. Note 8 in Section 2.0 If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding. If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously.
	Shedding requirements for KCL 2CB13 OOS: • Shed at KCL G2/G3/G4: 2L295 KCL + 2L299 KCL + 2L288 KCL – KCL G1 - 2L295_Over_Rating • Shed at KCL G1/ ALH/BRX: 1.25 *[2L289 BTS + 0. 85 * (KCL G1 - 2L288 KCL) - 2L289_Over_Rating]
2L288 & 2L295	Shedding requirements for all KCL 2CB status except for KCL 2CB16 OOS: • Shed at KCL: 2L288 KCL + 2L295 KCL + 2L299 KCL – 2L299_Over_Rating Note 8 in Section 2.0 If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding. If KCL 2CB15 is OOS, then KCL G1 must be armed for shedding.
	Shedding requirements for KCL 2CB16 OOS: • Shed KCL down to 0 MW Note: 60L225 (13L) and 60L227(12L) will be tripped, which will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].
2L288 & 2L299	• Shed at KCL: 2L288 KCL + 2L295 KCL + 2L299 KCL – 2L295_Over_Rating Note 5 in Section 2.0 Note 8 in Section 2.0.
2L295 & 2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS: • Shed at KCL: 1.01 * (2L288 KCL + 2L295 KCL + 2L299 KCL - 2L288_Over_Rating) Note 8 in Section 2.0 If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding. If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding. • Shed at ALH/BRX: 1.3 *(2L289 BTS + 0.82 * (2L295 KCL + 2L299 KCL) - 2L289_Over_Rating) - armed KCL shedding for this contingency.
	Shedding requirements for KCL 2CB13 OOS: • Shed KCL down to 0 MW Note: The purpose of shedding KCL down to 0 MW is to initiate FBC' RAS at SLC to DTT 60L225 (13L) and 60L227(12L), which will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].
2L293	• Shed at WAN: 1.90 * (0.29 * 2L293 SEL + 2L277 WAN – 2L277_Over_Rating) • Shed at ALH/BRX: 2.27 * (0.16 * 2L293 NLY + 2L289 BTS – 2L289_Over_Rating)
2L294	No generation shedding
2L277	• Shed at WAN/ALH/BRX the greatest of: ➢ 62L ESS + 2L277 WAN – 62L_Over_Rating, or ➢ 2.2 * (2L289 BTS + 0.44 * 2L277 WAN – 2L289_OverRating), or ➢ WAN Gen MW – 440 MW Select WAN for shedding first, then ALH/BRX.
2L289 & 2L295	• Shed at KCL/ALH/BRX: 1.34 * [2L299 KCL + 0.76 * (2L295 KCL + 2L289 BTS) – 2L299_Over_Rating] Note 2 in Section 2.0 Note 8 in Section 2.0

2L289 & 2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS: • Shed at KCL/ALH/BRX: 1.34 * [2L295 KCL +0.76*(2L289 BTS+ 2L299 KCL) – 2L295_Over_Rating] Note 8 in Section 2.0. If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding. If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously.
	Shedding requirements for KCL 2CB13 OOS: • Shed KCL G1 • Shed at KCL G2/G3/G4: 2L295 KCL + 2L299 KCL + 2L288 KCL- KCL G1 - 2L295_Over_Rating • Shed at ALH/BRX: 2L289 BTS + 77L BTS – 2L288 KCL - 235 MW • Shed at WAN: 1.13* [2L277 WAN + 0.86 * (2L289 BTS - 2L288 KCL – Gen Shed Amount at ALH/BRX) - 2L277_Over_Rating] Note: KCL can be shed down to 0 MW, which will initiate FBC's RAS at SLC to DTT 60L225 (13L) and 60L227(12L). This will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].
2L289 & 2L295 & 2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS: • Shed at KCL/ALH/BRX: 2L289 BTS + 2L295 KCL + 2L299 KCL + 77L BTS -180 MW, KCL can be shed down to 0 MW If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding. If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding. DO NOT alarm if insufficient shedding at KCL/ALH/BRX occurs (Note: FBC will shed their generation at BRD and River Plants to balance their load. ESS/WTS transient voltage may dip below 0.7 p.u. and BRD units may experience loss of synchronism. It is suggested that, in the worst case, shed all BRD units during the triple contingencies. It will also help ESS/WTS voltage recovery. Otherwise, each BRD unit may have to limit its output to 80% of its maximum output pre fault).
	Shedding requirements for KCL 2CB13 OOS: • Shed KCL down to 0 MW • Shed at ALH/BRX: 2L289 BTS + 77L BTS – 2L288 KCL - 235 MW • Shed at WAN: 1.13* [2L277 WAN + 0.86 * (2L289 BTS - 2L288 KCL – Gen Shed Amount at ALH/BRX) - 2L277_Over_Rating] Note: 60L225 (13L) and 60L227(12L) will be tripped, which will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].
2L288 & 2L295 & 2L299	• Shed KCL down to 0 MW. Notes: • FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants. • When 25L is in service, FBC will shed generation as required on the Kootenay River Plants to avoid overloading on 25L.

62L	• Shed at WAN the greater of:
	  ➢ 2 * (2L293 NLY + 0.85 * 62L ESS – 400) MW, or
	  ➢ 2L277 WAN + 62L ESS – 2L277_Over_Rating
	• Shed at KCL/ALH/BRX/WAX: 3.9 * (2L293 SEL + 0.85 * 62L WTS – 400) MW
	Note 7 in Section 2.0

77L	Shed at WAN: 2.05 * (2L293 NLY + 0.86 * 77L WTS – 400) MW Shed at KCL/ALH/BRX/WAX: 3.8 * (2L293 SEL + 0.73 * 77L BTS – 400) MW Note 7 in Section 2.0
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.2 – Reference Table, 2L112 O.O.S. and VAS-WTS Loop Closed

Table A.2 (a) Pre-Outage Restrictions

Refer to Section 1.4.

Table A.2 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Same as Table A.1.
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1.
2L288 & 2L299	Same as Table A.1.
2L295 & 2L299	Same as Table A.1.
2L293	No generation shedding.
2L294	No generation shedding.
2L277	Same as Table A.1.
2L289 & 2L295	Same as Table A.1.
2L289 & 2L299	Same as Table A.1.

2L289 & 2L295 & 2L299	• Shed WAN down to 230 MW
	• Shed at KCL/ALH/BRX: 2L289 BTS + 2L295 KCL + 2L299 KCL + 77L BTS – 200 MW
	  ➢ Note 6 in Section 2.0
	  ➢ KCL can be shed down to 0 MW
	  ➢ DO NOT alarm if insufficient shedding at KCL/ALH/BRX occurs
	(Note: FBC will shed their generation at BRD and River Plants to balance their load. ESS/WTS transient voltage may dip below 0.7 p.u. and BRD units may experience loss of synchronism. It is suggested that, in the worst case, shed all BRD units during the triple contingencies. It will also help ESS/WTS voltage recovery. Otherwise, each BRD unit may have to limit its output to 80% of its maximum output pre fault).

2L288 & 2L295 & 2L299	● Shed KCL down to 0 MW. **Notes:** • **FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.** • **When 25L is in service, FBC will shed generation as required on the Kootenay River Plants to avoid overloading on 25L.**
62L	Shed at WAN: 2L277 WAN + 62L ESS – 2L277_Over_Rating
77L	No generation shedding.
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.3 – Reference Table, 2L288 O.O.S. and VAS-WTS Loop Closed

Table A.3 (a) Pre-Outage Restrictions

- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Contingency 2L289, or 2L289 & 2L295, or 2L289 & 2L299, or 2L289 & 2L295 & 2L299:
  - If FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**, AND
  - If on-line BRD units >= 3, then limit: (-7L BTS – 8L BTS) < on-line BRD units * 15 + 30 MW

Table A.3 (b) Generation Shedding Requirements (2L288 O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L289	For the following shedding requirements: • Select ALH/BRX for shedding first. FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**: • Shed at ALH/BRX/WAN: 2L289 BTS + 7L BTS + 8L BTS FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**: • Shed at ALH/BRX/WAN: 2L289 BTS If TSA alarms "insufficient gen shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation of the WAN unit not armed for shedding.
2L295	Shed at KCL: 2L295 KCL + 2L299 KCL - 2L299_Over_Rating • If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding. • If KCL 2CB16 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L299 simultaneously. • Note 8 in Section 2.0.
2L299	Shed at KCL: 2L295 KCL + 2L299 KCL - 2L295_Over_Rating • Note 3 in Section 2.0. • Note 8 in Section 2.0.
2L295 & 2L299	• Shed KCL down to 0 MW. **Note: FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.**
2L293	Same as Table A.1
2L294	Same as Table A.1

2L277	• Shed at WAN/ALH/BRX the greatest of:
	  ➢ 62L ESS + 2L277 WAN – 62L_Over_Rating, or
	  ➢ 1.31 * (2L289 BTS + 0.76 * 2L277 WAN – 2L289_Over_Rating), or
	  ➢ WAN Gen MW – 410 MW
	Select WAN for shedding first, then ALH/BRX.

2L289 & 2L295	• Shed at KCL: 2L295 KCL + 2L299 KCL - 2L299_Over Rating MW Note 8 in Section 2.0 If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding. If KCL 2CB16 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L299 simultaneously. For the following shedding requirements: • Select ALH/BRX for shedding first. FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**: • Shed at ALH/BRX/WAN: 2L289 BTS + 7L BTS + 8L BTS FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**: • Shed at ALH/BRX/WAN: 2L289 BTS MW.
2L289 & 2L299	• Shed at KCL: 2L295 KCL + 2L299 KCL – 2L295_Over_Rating Note 3 in Section 2.0 Note 8 in Section 2.0 and • Same ALH/BRX/WAN gen shedding as 2L289 & 2L295 contingency in this Table A.3

CONTINGENCY	SHEDDING REQUIREMENTS

2L289 & 2L295 & 2L299	• If 2L295 KCL + 2L299 KCL >= KCL Gen MW, shed all KCL units.
	    (Note: FBC will shed certain generation at River Plants to resolve post-contingency over frequency problems in River Plants islanding area.)
	• If 2L295 KCL + 2L299 KCL < KCL Gen MW, then shed at KCL: 2L295 KCL + 2L299 KCL
	    KCL may be shed down to 0 MW.
	    If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding.
	    If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding.
	
	For the following shedding requirements:
	• Select ALH/BRX for shedding first.
	
	FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**:
	• Shed at ALH/BRX/WAN: 2L289 BTS + 7L BTS + 8L BTS
	
	FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**:
	• Shed at ALH/BRX/WAN: 2L289 BTS
	
	If TSA alarms "insufficient gen shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation of the WAN unit not armed for shedding.

62L	Same as Table A.1
77L	Same as Table A.1
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.4 – Reference Table, 2L289 O.O.S. and VAS-WTS Loop Closed

Table A.4 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit:
  - 2L295 KCL < 2L295_Norm_Rating
  - 2L299 KCL < 2L299_Norm_Rating
  - 2L277 WAN < 2L277_Norm_Rating
- Contingency 2L288:
If FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**, AND
If on-line BRD units >= 3, then limit: (- 7L BTS – 8L BTS) < on-line BRD units * 15 + 30 MW

Table A.4 (b) Generation Shedding Requirements (2L289 O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	For the following shedding requirements: - Select ALH/BRX for shedding first. FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**: - Shed at ALH/BRX/WAN: 2L288 BTS + 7L BTS + 8L BTS FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**: - Shed at ALH/BRX/WAN: 2L288 BTS If TSA alarms "insufficient gen shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation of the WAN unit not armed for shedding.
2L295	- If 2L288 KCL <= 0 MW, then shed at KCL/ALH/BRX: 1.24 * (2L299 KCL + 0. 83 * 2L295 KCL - 2L299_Over_Rating) Select KCL for shedding first, ALH and BRX second. - If 2L288 KCL > 0 MW, then shed at KCL: 1.24 * (2L299 KCL + 0. 83 * 2L295 KCL - 2L299_Over_Rating) - Note 2 in Section 2.0. - Note 8 in Section 2.0.
2L299	- If 2L288 KCL <= 0 MW, then shed at KCL/ALH/BRX: 1.24 * (2L295 KCL + 0. 83 * 2L299 KCL - 2L295_Over_Rating) Select KCL for shedding first, ALH and BRX second. - If 2L288 KCL > 0 MW, then shed at KCL: 1.24 * (2L295 KCL + 0. 83 * 2L299 KCL - 2L295_Over_Rating) - Note 3 in Section 2.0. - Note 8 in Section 2.0.
2L288 & 2L295	Shed at KCL: 2L288 KCL + 2L295 KCL + 2L299 KCL – 2L299_Over_Rating - Note 4 in Section 2.0 - Note 8 in Section 2.0. For the following shedding requirements: - Select ALH/BRX for shedding first. FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**: - Shed at ALH/BRX/WAN: 2L288 BTS + 7L BTS + 8L BTS FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**: - Shed at ALH/BRX/WAN: 2L288 BTS - If TSA alarms "insufficient gen shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation of the WAN unit not armed for shedding.
2L288 & 2L299	- Shed at KCL: 2L288 KCL + 2L295 KCL + 2L299 KCL – 2L295_Over_Rating Note 5 in Section 2.0 Note 8 in Section 2.0 and - Same ALH/BRX/WAN shedding as 2L288 & 2L295 contingency in this Table A.4.

2L295 & 2L299	- If 2L295 KCL + 2L299 KCL + 77L BTS >= KCL + ALH gen MW + BRX gen MW, then
	  ➢ shed all KCL and ALH and BRX units,
	  ➢ and
	  ➢ DO NOT alarm if insufficient shedding at KCL/ALH/BRX occurs
	(Note: FBC will shed their generation at BRD and River Plants to balance their load. ESS/WTS transient voltage may dip below .7p.u. and BRD units may experience loss of synchronism. It is suggested that, in the worst case, shed all BRD units during the triple contingencies. It will also help ESS/WTS voltage recovery. Otherwise, each BRD unit may have to limit its output to 80% of its maximum output pre fault)
	- If 2L295 KCL + 2L299 KCL + 77L BTS < KCL + ALH MW + BRX MW, then
	Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 77L BTS – 180 MW
	Note 6 in Section 2.0
	KCL can be shed down to 0 MW

CONTINGENCY	SHEDDING REQUIREMENTS
2L288 & 2L295 & 2L299	● Shed KCL down to 0 MW. **Note: FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.** For the following shedding requirements: • Select ALH/BRX for shedding first. FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **available**: • Shed at ALH/BRX/WAN: 2L288 BTS + 7L BTS + 8L BTS FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**: • Shed at ALH/BRX/WAN: 2L288 BTS • If TSA alarms "insufficient gen shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation of the WAN unit not armed for shedding.

2L293	• Shed at ALH/BRX/KCL the greatest of:
	  ➢ $2.77 * (2L295\ KCL + 0.12 * 2L293\ NLY - 2L295\_Over\_Rating)$, or
	  ➢ $2.77 * (2L299\ KCL + 0.12 * 2L293\ NLY - 2L299\_Over\_Rating)$, or
	  ➢ $1.35 * (2L288\ BTS + 0.26 * 2L293\ NLY - 2L288\_Over\_Rating)$
	Shed ALH/BRX first.
	Note 7 in Section 2.0
	• Shed at WAN: $1.74 * (0.28 * 2L293\ SEL + 2L277\ WAN - 2L277\_Over\_Rating)$

2L294	Same as Table A.1

2L277	• Shed at WAN/ALH/BRX the greatest of:
	  ➢ $62L\ ESS + 2L277\ WAN - 62L\_Over\_Rating$, or
	  ➢ $2.76 * (2L295\ KCL + 0.38 * 2L277\ WAN - 2L295\_Over\_Rating)$
	  ➢ $2.76 * (2L299\ KCL + 0.38 * 2L277\ WAN - 2L299\_Over\_Rating)$, or
	  ➢ WAN Gen MW – 400 MW
	Select WAN for shedding first, then ALH/BRX.

62L	• Shed at WAN the greater of:
	  ➢ $1.95 * (2L293\ NLY + 0.85 * 62L\ ESS - 400)$ MW, or
	  ➢ $2L277\ WAN + 62L\ ESS - 2L277\_Over\_Rating$
	• Shed at ALH/KCL/BRX/WAX the greater of:
	  ➢ $GS1 = 2.2 * (0.38 * 62L\ WTS + 2L295\ KCL - 2L295\_Over\_Rating)$, or
	  ➢ $GS2 = 4.0 * (2L293\ SEL + 0.84 * 62L\ WTS - 400)$ MW
	Don't select WAX for shedding if GS1 >= GS2
	Note 7 in Section 2.0

77L	• Shed at WAN: $2.35 * (2L293\ NLY + 0.7 * 77L\ WTS - 400)$ MW
	• Shed at KCL/ALH/BRX/WAX the greater of:
	  ➢ $GS1 = 2.0 * (0.5 * 77L\ BTS + 2L295\ KCL - 2L295\_Over\_Rating)$
	  ➢ $GS2 = 3.8 * (2L293\ SEL + 0.71 * 77L\ BTS - 400)$ MW
	Don't select WAX for shedding if GS1 >= GS2
	Note 7 in Section 2.0

2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.5 – Reference Table, 2L293 O.O.S. and VAS-WTS Loop Closed

Table A.5 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- Limit:
  - 2L277 WAN < 2L277_Norm_Rating
  - 62L ESS < 62L_Norm_Rating

Table A.5 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Shed at ALH/BRX/KCL the greatest of: • 2.86 * (2L299 KCL + 0. 42 * 2L289 BTS - 2L299_Over_Rating), or • 2.86 * (2L295 KCL + 0. 42 * 2L289 BTS - 2L295_Over_Rating), or • 1.33 * (2L288 BTS + 0. 85 * 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as 2L112 OOS Table A.2
2L288 & 2L299	Same as 2L112 OOS Table A.2

2L295 & 2L299	• Shed at KCL: 1.01 * (2L288 KCL + 2L295 KCL + 2L299 KCL - 2L288_Over_Rating)
	  Note 6 in Section 2.0
	  Note 8 in Section 2.0
	
	• Shed at ALH/BRX: 1.4 * (2L289 BTS + 0.85 * (2L295 KCL + 2L299 KCL) – 2L289_Over_Rating) - armed KCL shedding for this contingency
	• Shed at WAN: 62L ESS + 0.2 * (armed KCL + ALH + BRX shedding for the contingency) - 62L_Over_Rating

2L294	• Shed at ALH/BRX: 2.23 * (2L289 BTS + 0.20 * 2L294 NLY – 2L289_Over_Rating) • Shed at WAN: 2.07 * (62L ESS + 0.45 * 2L294 NLY + 0.15 * (armed ALH/BRX shedding for this contingency) – 62L_Over_Rating)
2L277	Same as 2L112 OOS Table A.2

2L289 & 2L295	• Shed at KCL first: 1.35 * (2L299 KCL + 0.78 * 2L289 BTS + 0.86 * 2L295 KCL - 2L299_Over_Rating)
	• Then at ALH/BRX: 1.55 * (2L299 KCL + 0.78 * 2L289 BTS + 0.86 * 2L295 KCL - 2L299_Over_Rating - 0.74 * armed KCL shedding)
	
	If insufficient shedding is alarmed at KCL/ALH/BRX, reduce the generation at the unarmed units at KCL/ALH/BRX and BRD and River Plants in FBC System or increase the transfer from NLY to BDY on 2L112.
	
	Note 2 in Section 2.0
	Note 8 in Section 2.0
	
	• Shed at WAN the greater of:
	  ➢ 1.7 * (2L277 WAN + 0.18* 2L289 BTS + 0.13 * 2L295 KCL - 2L277_Over_Rating - 0.2 * armed KCL shedding - 0.25 * armed ALH/BRX shedding)
	  ➢ 2.65 * (62L ESS - 0.17 * 2L289 BTS - 0.12 * 2L295 KCL - 62L_Over_Rating + 0.21 * armed KCL shedding + 0.28 * armed ALH/BRX shedding)

2L289 & 2L299	• Shed at KCL first: 1.35 * (2L295 KCL + 0.78 * 2L289 BTS + 0.86 * 2L299 KCL - 2L295_Over_Rating)
	• Then at ALH/BRX: 1.55 * (2L295 KCL + 0.78 * 2L289 BTS + 0.86 * 2L299 KCL - 2L295_Over_Rating - 0.74 * armed KCL shedding)
	
	If insufficient shedding is alarmed at KCL/ALH/BRX, reduce the generation at the unarmed units at KCL/ALH/BRX and at BRD and River Plants in FBC System or increase the transfer from NLY to BDY on 2L112.
	
	Note 3 in Section 2.0
	Note 8 in Section 2.0
	
	• Shed at WAN the greater of:
	  ➢ 1.7 * (2L277 WAN + 0.18* 2L289 BTS + 0.13 * 2L299 KCL - 2L277_Over_Rating - 0.2 * armed KCL shedding - 0.25 * armed ALH/BRX shedding)
	  ➢ 2.65 * (62L ESS - 0.17 * 2L289 BTS - 0.12 * 2L299 KCL - 62L_Over_Rating + 0.21 * armed KCL shedding + 0.28 * armed ALH/BRX shedding)

2L289 & 2L295 & 2L299	• Shed at KCL/ALH/BRX: 2L289 BTS + 2L295 KCL + 2L299 KCL + 77L BTS – 200 MW
	  ➢ Note 6 in Section 2.0
	  ➢ KCL can be shed down to 0 MW
	  ➢ DO NOT alarm if insufficient shedding at KCL/ALH/BRX occurs
	(Note: FBC will shed their generation at BRD and River Plants to balance their load. ASM transformers may be overloaded by the power flow from both 77L and 62L. FBC have to either limit the power flow on 77L after shedding the river plant units or shed WAN unit(s) to avoid the overloading on ASM transformers.)

2L288 & 2L295 & 2L299	Same as 2L112 OOS Table A.2

62L	• Shed at WAN the greater of:
	  ➢ 4.5 * (2L294 NLY + 0.4 * 62L ESS – 400) MW, or
	  ➢ 2L277 WAN + 62L ESS – 2L277_Over_Rating

77L	Shed at WAN: 4.5 * (2L294 NLY + 0.4 * 77L WTS – 2L294_Over_Rating)
2L221	Shed at WAN: 62L ESS + 0.13 * SEV (G1 & G2) MW – 62L_Over_Rating
2L222	Shed at WAN: 62L ESS + 0.13 * SEV (G3 & G4) MW – 62L_Over_Rating
2L286	Shed at WAN: 62L ESS + 0.13 * WAX MW – 62L_Over_Rating

Table A.6 – Reference Table, 2L294 O.O.S. and VAS-WTS Loop Closed

Table A.6 (a) Pre-Outage Restrictions
Refer to Section 1.4.

Table A.6 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Same as Table A.1
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	Same as Table A.1

2L293	If 2L293 NLY > 0:
	    GS1 = 2L289 BTS + 0.22 * 2L293 NLY – 2L289_Over_Rating
	    GS2 = 62L ESS + 0.41 * 2L293 NLY – 62L_Over_Rating
	    GS = Max (4.31 * GS1, 2.0 * GS2)
	
	If available generation for shed at WAN >= GS
	    • Shed at WAN: GS
	Otherwise,
	    • Shed at ALH/BRX: 2.23 * GS1
	    • Shed at WAN: 2.0 * (GS2 + 0.16 * (armed ALH/BRX shedding for this contingency))
	
	If 2L293 SEL > 0:
	    GS3 = 62L WTS + 0.41 * 2L293 SEL – 62L_Over_Rating
	
	If (available generation for shed at ALH/BRX)/7.26 + (available generation for shed at KCL)/8.11 >= GS3
	    • Shed at ALH/BRX first: 7.26 * GS3
	    • Then shed at KCL: 8.11 * (GS3 – (armed ALH/BRX shedding)/7.26)
	Otherwise,
	    • If BDY Gen <= 650
	        ➢ Arm DTT 2L277
	    • Else if BDY Gen > 650
	        ➢ Shed at ALH/BRX/KCL: all available generation
	        ➢ BCHCC Operators shall reduce 2L112 export flow by this amount:
	            ■ 62L WTS + 0.41 * 2L293 SEL – 62L_Over_Rating – (GS amount armed at ALH/BRX)/7.26 – (GS amount armed at KCL)/8.11

2L277	Same as Table A.1
2L289 & 2L295	Same as Table A.1
2L289 & 2L299	Same as Table A.1
2L289 & 2L295 & 2L299	Same as Table A.1
2L288 & 2L295 & 2L299	Same as Table A.1

62L	• Shed at WAN the greater of:
	    ➢ 1.8 * (2L293 NLY + 0.92 * 62L ESS – 400) MW, or
	    ➢ 2L277 WAN + 62L ESS – 2L277_Over_Rating
	• Shed at KCL/ALH/BRX/WAX: 4.0 * (2L293 SEL + 0.92 * 62L WTS – 400) MW
	    Note 7 in Section 2.0

77L	• Shed at WAN: 1.8 * (2L293 NLY + 0.92 * 77L WTS – 400) MW • Shed at KCL/ALH/BRX/WAX: 3.9 * (2L293 SEL + 0.77 * 77L BTS – 400) MW Note 7 in Section 2.0
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.7 – Reference Table, 2L295 or 2L299 O.O.S. and VAS-WTS Loop Closed

Table A.7 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- Limit:
  - 2L295 KCL < 2L295_Norm_Rating
  - 2L299 KCL < 2L299_Norm_Rating

Table A.7 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	**2L295 OOS:** Shed at KCL: 2L299 KCL + 2L288 KCL – 2L299_Over_Rating • If KCL 2CB15 is OOS, KCL G1 must be armed for shedding and counted in the genshedding amount. • If KCL 2CB16 is OOS, KCL G1 must be armed for shedding regardless of genshedding required or not so that 2L288 & 2L295 & 2L299 RAS will be initiated to prevent overloading on 25L or transient instability in FBC System. **2L299 OOS:** Shed at KCL: 2L295 KCL + 2L288 KCL – 2L295_Over_Rating • If KCL 2CB15 or 2CB16 or 2CB15 & 2CB16 is OOS, KCL G1 must be armed for shedding and counted in the genshedding amount. • If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously. Note 8 in Section 2.0.
2L289	**2L295 OOS:** Shed at ALH/KCL/BRX: 1.44 * (2L299 KCL + 0.74 * 2L289 BTS – 2L299_Over_Rating) **2L299 OOS:** Shed at ALH /BRX/ KCL: 1.44 * (2L295 KCL + 0.74 * 2L289 BTS – 2L295_Over_Rating) Note 7 in Section 2.0 If TSA alarms "insufficient shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation on the KCL unit not armed for shedding.
2L295 (with 2L299 O.O.S.)	• Shed at KCL first: (2L288 KCL + 2L295 KCL - 2L288_Over_Rating) • Then at ALH/BRX/WAN: 1.25 * (2L289 BTS + 0.84 * 2L295 KCL - 0.8 * armed KCL shedding - 2L289_Over_Rating) • If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding and counted in the genshedding amount. • If KCL 2CB13 is OOS, DO NOT select KCL G1 for shedding to avoid loss of 2L288 simultaneously. • Note 8 in Section 2.0.
2L299 (with 2L295 O.O.S.)	• Shed at KCL first: (2L288 KCL + 2L299 KCL - 2L288_Over_Rating) • Then at ALH/BRX/WAN: 1.25 * (2L289 BTS + 0.84 * 2L299 KCL - 0.8 * armed KCL shedding - 2L289_Over_Rating) • Note 8 in Section 2.0 • If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding and counted in the genshedding amount. • If KCL 2CB13 is OOS, KCL G1 must be armed for shedding regardless of genshedding required or not so that 2L288 & 2L295 & 2L299 RAS will be initiated to prevent overloading on 25L or transient instability in FBC System.
2L288 & 2L295 (with 2L299 O.O.S.)	• Shed KCL down to 0 MW. **Note:** • **FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.** • **When 25L is in service, FortisBC will shed generation as required on the Kootenay River Plants to avoid overloading on 25L.**
2L288 & 2L299 (with 2L295 O.O.S.)	Same as 2L288 & 2L295 (with 2L299 O.O.S.) in this Table A.7
2L289 & 2L295 (with 2L299 O.O.S)	• Shed at KCL/ ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS + 77L BTS – 180 MW ➢ If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding and counted in the genshedding amount. ➢ KCL can be shed down to 0 MW ➢ DO NOT alarm if insufficient shedding at KCL/ALH/BRX occurs **(Note: FBC will shed their generation at BRD and River Plants to balance their load. ESS/WTS transient voltage may dip below 0.7 p.u. and BRD units may be loss of synchronism. It is suggested that, in the worst case, shed all BRD units during the triple contingencies. It will also help ESS/WTS voltage recovery. Otherwise, each BRD unit may have to limit its output to 80% of its maximum output pre fault)**
2L289 & 2L299 (with 2L295 O.O.S.)	Same as 2L289 & 2L295 contingency (with 2L299 O.O.S.) in this Table A.7 except that the two requirements associated with KCL 2CB7 or 2CB13 OOS are changed as follows: ➢ If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding and counted in the genshedding amount. ➢ If KCL 2CB13 is OOS, KCL G1 must be armed for shedding regardless of genshedding required or not so that 2L288 & 2L295 & 2L299 RAS will be initiated to prevent overloading on 25L or transient instability in FBC System.
2L293	• Shed at WAN the greater of: ➢ 2.27 * (0.30 * 2L293 NLY + 62L ESS + 0.14 * A – 62L_Over_Rating), or ➢ 1.9 * (0.33 * 2L293 SEL + 2L277 WAN 2L277_Over_Rating) Where: A1 = 4.03 * (2L299 KCL +2L295 KCL + 0.1 * 2L293 NLY – 2L295_Over_Rating) A2 = 3.00 * (2L289 BTS + 0.17 * 2L293 NLY – 2L289_Over_Rating) A = max (0, A1, A2) • Shed at KCL/ALH/BRX: A – 0.12 * (armed WAN shed amount for the contingency) Note 7 in Section 2.0
2L294	Same as Table A.1

2L277	• Shed at WAN/ALH/BRX the greatest of:
	  ➢ 62L ESS + 2L277 WAN − 62L_Over_Rating, or
	  ➢ 2.0 * (2L289 BTS + 0.52 * 2L277 WAN − 2L289_Over_Rating), or
	  ➢ 4.0 * (2L295 KCL +2L299 KCL + 0.27 * 2L277 WAN − 2L295_Over_Rating), or
	  ➢ WAN Gen MW − 410 MW
	Select WAN for shedding first, then ALH/BRX.

62L	• Shed at WAN the greater of:
	  ➢ 2 * (2L293 NLY +0.85 * 62L ESS − 400) MW, or
	  ➢ 2L277 WAN + 62L ESS − 2L277_Over_Rating
	• Shed at KCL/ALH/BRX/WAX the greater of:
	  ➢ GS1 = A * (0.30 * 62L WTS + 2L295 KCL +2L299 KCL − 2L295_Over_Rating), or
	Select KCL for shed first with A =1.9
	Select ALH/BRX for shed second with A = 1.67 * 1.9 = 3.173
	  ➢ GS2 = 4.0 * (2L293 SEL + 0.85 * 62L WTS − 400) MW
	Don't select WAX for shed if GS1 >= GS2
	Select KCL for shed first, then ALH/BRX/WAX
	Note 7 in Section 2.0

77L	Shed at WAN: 1.8 * (2L293 NLY + 0.86 * 77L WTS − 400) MW
	• Shed at KCL/ALH/BRX/WAX the greater of:
	  ➢ GS1 = A * (0.35 * 77L BTS + 2L295 KCL +2L299 KCL − 2L295_Over_Rating) MW, or
	Select KCL for shed first with A =1.9
	Select ALH/BRX for shed second with A = 1.67 * 1.9 = 3.173
	  ➢ GS2 = 3.8 * (2L293 SEL + 0.73 * 77L BTS − 400) MW
	Don't select WAX for shed if GS1 >= GS2
	Select KCL for shed first, then select ALH/BRX/WAX.
	Note 7 in Section 2.0

2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.8 – Reference Table, 2L277 (71L) O.O.S. and VAS-WTS Loop Closed

Table A.8 (a) Pre-Outage Restrictions

- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit:
  - 62L ESS < 62L_Norm_Rating
  - 34L WTS < 34L_Norm_Rating

- Contingency 2L289 & 2L295 & 2L299:

  - WAN Generation Restrictions:
    P_{load-1} = MW output from WAN - 62L ESS
    P_{load-2} = 62L ESS + 77L BTS – MW from WTS to ASM
    - WAN minimum generation is (P_{load-1} + P_{load-2} - 10 MW).
    - If WAN Gen MW <= (P_{load-1} + P_{load-2} + 10 MW) and is greater than the minimum generation, WAN generation is tracking the load. The preferred order of WAN generators to track load is G4, G3, G1 and G2. If more than one generator is required to track load, the generators should be loaded as evenly as possible.

  - Limit 2L293 NLY to SEL flow to: 400 – 0.26 * 77L WTS – 50 MW

  - Limit 2L112 BDY to NLY flow to: 400 – 0.23 * 77L WTS – 50 MW

Table A.8 (b) Generation Shedding Requirements
(2L277 (71L) O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Shed at ALH/BRX: 1.07 * (2L289 BTS + 0. 96 * 2L288 BTS - 2L289_Over_Rating)
2L289	Shed at ALH/BRX/WAN/KCL the greatest of: • 2.59 * (2L299 KCL + 0. 47 * 2L289 BTS - 2L299_Over_Rating), or • 2.59 * (2L295 KCL + 0. 47 * 2L289 BTS - 2L295_Over_Rating), or • 1.26 * (2L288 BTS + 0. 94 * 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX/WAN for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	• Shed at KCL: 1.01 * (2L288 KCL + 2L295 KCL + 2L299 KCL - 2L288_Over_Rating) Note 6 in Section 2.0 Note 8 in Section 2.0 • Shed at ALH/BRX: 1.1 * (2L289 BTS + 0.92 * (2L295 KCL + 2L299 KCL) – 2L289_Over_Rating) – armed KCL shed amount for the contingency
2L293	No generation shedding.
2L294	No generation shedding.
2L289 & 2L295	• Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS +77L BTS – 340 MW Note 2 in Section 2.0 Note 8 in Section 2.0
2L289 & 2L299	Same as 2L289 & 2L295 contingency in this Table A.8 except that the "Note 2 in Section 2.0" is changed to "Note 3 in Section 2.0".

2L289 & 2L295 & 2L299	P_{load-1} = MW output from WAN - 62L ESS
	P_{load-2} = 62L ESS + 77L BTS – MW from WTS to ASM
	
	• If WAN Gen MW > (P_{load-1} + P_{load-2} + 10 MW), then
	  • FBC arms DTT 11L (FBC RAS. This RAS will open the WTS-VAS loop at ASM161)
	  • Shed at WAN: 62L ESS - 90
	DO Not select WAN G4 for shedding.
	• Shed at KCL/ALH/BRX:
	  • Shed down all KCL and ALH and BRX units if 2L295 KCL + 2L299 KCL + 2L289 BTS >= (KCL Gen MW + ALH Gen MW + BRX Gen MW), or
	  • Shed 2L295 KCL + 2L299 KCL + 2L289 BTS if 2L295 KCL + 2L299 KCL + 2L289 BTS < (KCL Gen MW + ALH Gen MW + BRX Gen MW)
	  Note 6 in Section 2.0
	  KCL can be shed down to 0 MW
	
	Note: **In all the conditions, FBC will shed their generation at BRD and River Plants to balance the local load. FBC's remaining power injecting into BTS from BRD and River Plants will be up to 20 MW post-shedding.**

2L288 & 2L295 & 2L299	• Shed KCL down to 0 MW. Note: FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.
62L	WAN will be islanding upon loss of 62L. • Shed at WAN: 62L ESS • Keep 2 WAN units on-line post-shedding • Shed WAN G3 and/or G4 first if required No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the Teck Area Load (= WAN Generation – 62L ESS) within the 30 MW tolerance, otherwise an alarm will be generated.
77L	Shed at KCL/ALH/BRX/WAX: • 3.84 * (0.12 * 77L BTS + 2L293 SEL – 400) MW Note 7 in Section 2.0 FBC arms DTT 62L (FBC RAS) • Shed at WAN: 62L ESS • Keep 2 WAN units on-line post-shedding • Shed WAN G3 and/or G4 first if required No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the Teck Area Load (= WAN Generation – 62L ESS) within the 30 MW tolerance, otherwise an alarm will be generated. **(Note: FBC confirmed that there are no post-contingency voltage problems feeding the FBC WTS load from 11L line.)**
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.9 – Reference Table, 62L O.O.S. and VAS-WTS Loop Closed

Table A.9 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit: 2L277 WAN < WHS T1 or T2 rating
  - This limit restricts WAN Gen MW < Teck Area load + WHS T1 or T2 rating
  - This is to avoid thermal overloading of WHS T1 or T2 under the loss of another transformer

Table A.9 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Shed at ALH/BRX: 2L289 BTS + 2L288 BTS - 2L289_Over_Rating
2L289	Shed at ALH/BRX/KCL the greatest of: • $2.12 * (2L299\ KCL + 0.47 * 2L289\ BTS - 2L299\_Over\_Rating)$, or • $2.12 * (2L295\ KCL + 0.47 * 2L289\ BTS - 2L295\_Over\_Rating)$, or • $1.08 * (2L288\ BTS + 0.94 * 2L289\ BTS - 2L288\_Over\_Rating)$ Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	• Shed at KCL: $1.01 * (2L288\ KCL + 2L295\ KCL + 2L299\ KCL - 2L288\_Over\_Rating)$ • Shed at ALH/BRX: $1.35 * (0.81 * (2L295\ KCL + 2L299\ KCL) + 2L289\ BTS - 2L289\_Over\_Rating)$ - armed KCL shed amount for the contingency Note 6 in Section 2.0 Note 8 of Section 2.0
2L293	No generation shedding.
2L294	No generation shedding.
2L277	• Shed at WAN: 2L277 WAN • Keep 2 WAN units on-line post-shedding. • Shed WAN G3 and G4 first. No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the Teck Area Load (= WAN Generation – 2L277 WAN) within the 30 MW tolerance, otherwise an alarm will be generated.
2L289 & 2L295	• Shed at KCL/ALH/BRX: $1.1 * (2L299\ KCL + 0.93 * (2L289\ BTS + 2L295\ KCL) - 2L299\_Over\_Rating)$ MW Note 2 in Section 2.0 Note 8 in Section 2.0
2L289 & 2L299	• Shed at KCL/ALH/BRX: $1.1 * (2L295\ KCL + 0.93 * (2L289\ BTS + 2L299\ KCL) - 2L295\_Over\_Rating)$ MW Note 3 in Section 2.0 Note 8 in Section 2.0
2L289 & 2L295 & 2L299	• If 2L295 KCL + 2L299 KCL + 2L289 BTS +77L BTS >= (KCL + ALH + BRX) Gen MW, then shed all KCL and ALH and BRX units. (Note: FBC will shed their generation at BRD and River Plants (Except BRD) to one unit each plant to balance their load. Power flow on 77L has to be limited less than 20MW for the river plant system stability concerns. WTS transient voltage may dip below .7p.u. - 38% voltage dip may happen at WTS bus and the voltage dip below 20% is about 35 cycles in the worst case and BRD units may be loss of synchronism. It is suggested that, in the worst case, shed all BRD units during the triple contingencies. It will also help WTS voltage recovery. Otherwise, each BRD unit may have to limit its output to 80% of its maximum output pre fault) • If 2L295 KCL + 2L299 KCL + 2L289 BTS +77L BTS < (KCL + ALH + BRX) Gen MW, then shed at KCL/ALH/BRX: ➤ 2L295 KCL + 2L299 KCL + 2L289 BTS +77L BTS ➤ Note 6 in Section 2.0 ➤ KCL may be shed down to 0MW
2L288 & 2L295 & 2L299	Same as 2L277 OOS Table A.8
77L	Shed at ALH/KCL/BRX/WAX: $3.75 * (0.13 * 77L\ BTS + 2L293\ SEL – 400)$ MW Note 7 in Section 2.0
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.10 – Reference Table, 77L O.O.S. and VAS-WTS Loop Closed

Table A.10 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table A.10 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.9
2L289	Shed at ALH/BRX/KCL the greatest of: • 2.03 * (2L299 KCL + 0. 49 * 2L289 BTS - 2L299_Over_Rating), or • 2.03 * (2L295 KCL + 0. 49 * 2L289 BTS - 2L295_Over_Rating), or • 1.02 * (2L288 BTS + 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	Same as 62L OOS Table A.9
2L293	No generation shedding
2L294	Same as 62L OOS Table A.9
2L277	• FBC arms DTT 62L (FBC RAS) • Shed at WAN: 2L277 WAN + 62L ESS • Keep 2 WAN units on-line post-shedding. • Shed WAN G3 and G4 first. No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the Teck Area Load (= WAN Generation – 62L ESS – 2L277 WAN) within the 30 MW tolerance, otherwise an alarm will be generated.
2L289 & 2L295	• Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS - 2L299_Over_Rating Note 2 in Section 2.0 Note 8 in Section 2.0
2L289 & 2L299	• Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS - 2L295_Over_Rating Note 3 in Section 2.0 Note 8 in Section 2.0

2L289 & 2L295 & 2L299	• If 2L295 KCL + 2L299 KCL + 2L289 BTS >= (KCL + ALH + BRX) gen MW, then shed all KCL and ALH and BRX units
	(Note: FBC will shed certain generation at BRD and River Plants to resolve post-contingency over frequency problems in FBC islanding area.)
	• If 2L295 KCL + 2L299 KCL + 2L289 BTS < (KCL + ALH + BRX) gen MW, then shed at KCL/ALH/BRX:
	  ➢ 2L295 KCL + 2L299 KCL + 2L289 BTS
	  ➢ Note 6 in Section 2.0
	  ➢ KCL may be shed down to 0 MW

2L288 & 2L295 & 2L299	Same as 62L OOS Table A.9
62L	Shed at WAN the greater of: ➢ 2 * (2L293 NLY + 0.57 * 62L ESS – 400) MW, or ➢ 2L277 WAN + 62L ESS – 2L277_Over_Rating
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table A.11 – Reference Table, 2L221 O.O.S. and VAS-WTS Loop Closed

Table A.11 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

Table A.11 (b) - Generation Shedding Requirements
(2L221 O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L293	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L294	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L277	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
62L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
77L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L222	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L286	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.

Table A.12 – Reference Table, 2L222 O.O.S. and VAS-WTS Loop Closed

Table A.12 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

Table A.12 (b) - Generation Shedding Requirements
(2L222 O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L293	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L294	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L277	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
62L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
77L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L221	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L286	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.

Table A.13 – Reference Table, 2L286 O.O.S. and VAS-WTS Loop Closed

Table A.13 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

Table A.13 (b) - Generation Shedding Requirements
(2L286 O.O.S. and VAS-WTS Loop Closed)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L293	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L294	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L277	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L289 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L288 & 2L295 & 2L299	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
62L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
77L	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L221	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.
2L222	Same as Table A.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Closed.

Table B.1 – Reference Table, All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open

Table B.1 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table B.1 (b) Generation Shedding Requirements
(All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Same as Table A.1
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	• Shed at KCL: 1.01 * (2L288 KCL + 2L295 KCL + 2L299 KCL - 2L288_Over_Rating) • Shed at ALH/BRX: 1.3 * (2L289 BTS + 0.83 * (2L295 KCL + 2L299 KCL) – 2L289_Over_Rating) - armed KCL shedding for this contingency Note 6 in Section 2.0 Note 8 in Section 2.0
2L293	• Shed at WAN: 1.73 * (0.30 * 2L293 SEL + 2L277 WAN – 2L277_Over_Rating) • Shed at ALH/BRX: 2.17 * (0.17 * 2L293 NLY + 2L289 BTS – 2L289_Over_Rating MW)
2L294	Same as Table A.1

2L277	• Shed at WAN/ALH/BRX the greatest of:
	   • 62L ESS + 2L277 WAN – 62L_Over_Rating, or
	   • 1.94 * (2L289 BTS + 0.54 * 2L277 WAN – 2L289_Over_Rating), or
	   • WAN Gen MW – 400 MW
	Select WAN for shedding first, then ALH/BRX.

2L289 & 2L295	• Shed at KCL/ALH/BRX: 2L295KCL + 2L299 KCL + 2L289 BTS – 360 MW Note 2 in Section 2.0 Note 8 in Section 2.0

2L289 & 2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS:
	• Shed at KCL/ALH/BRX: 2L295KCL + 2L299 KCL + 2L289 BTS – 360 MW
	Note 8 in Section 2.0
	If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding.
	If KCL 2CB5 is OOS, DO NOT select KCL G3 for shedding to avoid loss of 2L295 simultaneously.
	
	Shedding requirements for KCL 2CB13 OOS:
	• Shed KCL G1
	• Shed at KCL G2/G3/G4:
	  2L295 KCL + 2L299 KCL + 2L288 KCL – KCL G1 - 2L295_Over_Rating
	
	• Shed at ALH/BRX:
	  2L289 BTS + 77L BTS – 2L288 KCL -235 MW
	
	• Shed at WAN:
	  2L277 WAN + (2L289 BTS - 2L288 KCL – Gen Shed Amount at ALH/BRX) - 2L277_Over_Rating
	
	Note:
	KCL can be shed down to 0 MW, which will initiate FBC' RAS at SLC to DTT 60L225 (13L) and 60L227(12L). This will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].

2L289 & 2L295 & 2L299	Shedding requirements for all KCL 2CB status except for KCL 2CB13 OOS:
	• If 2L295 KCL + 2L299 KCL + 2L289 BTS >= (KCL gen MW + ALH gen MW + BRX gen MW), then
	  ➢ Shed down all KCL and ALH and BRX units, and
	  ➢ Shed at WAN down to 360 MW
	 (Note: FBC will shed certain generation at BRD and River Plants to balance their load)
	• If 2L295 KCL + 2L299 KCL + 2L289 BTS < (KCL gen MW + ALH gen MW + BRX gen MW), then
	  ➢ Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS
	
	KCL can be shed down to 0 MW
	If KCL 2CB7 is OOS, then KCL G3 must be armed for shedding.
	If KCL 2CB14 is OOS, then KCL G1 must be armed for shedding.
	
	Shedding requirements for KCL 2CB13 OOS:
	• Shed KCL down to 0 MW
	• Shed at ALH/BRX:
	  2L289 BTS + 77L BTS – 2L288 KCL - 235 MW,
	
	• Shed at WAN:
	  2L277 WAN + 2L289 BTS - 2L288 KCL – Gen Shed Amount at ALH/BRX - 2L277_Over_Rating
	
	Note:
	60L225 (13L) and 60L227(12L) will be tripped, which will island the upriver generating plants. FBC will shed their generation at BRD and River plants to balance their loads [Refer to FBC's O.O. 2P-20].

2L288 & 2L295 & 2L299	Same as Table A.1
62L	Same as Table A.1
77L	Same as Table A.1
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.2 – Reference Table, 2L112 O.O.S. AND VAS-WTS Loop Open

Table B.2 (a) Pre-Outage Restrictions
- Refer to Section 1.4

Table B.2 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Shed at ALH/BRX/KCL the greatest of: • $2.5 * (2L299\ KCL + 0.41 * 2L289\ BTS - 2L299\_Over\_Rating)$, or • $2.5 * (2L295\ KCL + 0.41 * 2L289\ BTS - 2L295\_Over\_Rating)$, or • $1.21 * (2L288\ BTS + 0.83 * 2L289\ BTS - 2L288\_Over\_Rating)$ Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as 2L112 OOS Table A.2
2L288 & 2L299	Same as 2L112 OOS Table A.2
2L295 & 2L299	• Shed at KCL: $1.01 * (2L288\ KCL + 2L295\ KCL + 2L299\ KCL - 2L288\_Over\_Rating)$ • Shed at ALH/BRX: $1.4 * (2L289\ BTS + 0.81 * (2L295\ KCL + 2L299\ KCL) - 2L289\_Over\_Rating)$ - armed KCL shedding for this contingency. Note 6 in Section 2.0 Note 8 in Section 2.0
2L293	No generation shedding.
2L294	No generation shedding.
2L277	Same as 2L112 OOS Table A.2
2L289 & 2L295	Same as Table B.1
2L289 & 2L299	Same as Table B.1
2L289 & 2L295 & 2L299	• If $2L295\ KCL + 2L299\ KCL + 2L289\ BTS >= (KCL + ALH + BRX)$ gen MW, then ➤ Shed down to 0 MW all KCL and ALH and BRX units, and ➤ Shed at WAN down to 200 MW (Note: FBC will shed certain generation at BRD and River Plants to balance their load) • If $2L295\ KCL + 2L299\ KCL + 2L289\ BTS < (KCL + ALH + BRX)$ gen MW, then ➤ Shed at KCL/ALH/BRX: $2L295\ KCL + 2L299\ KCL + 2L289\ BTS$ KCL may be shed down to 0 MW.
2L288 & 2L295 & 2L299	Same as 2L112 OOS Table A.2
62L	Same as 2L112 OOS Table A.2
77L	No generation shedding.
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.3 – Reference Table, 2L288 O.O.S. AND VAS-WTS Loop Open

Table B.3 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Contingency 2L289, or 2L289 & 2L295, or 2L289 & 2L299, or 2L289 & 2L295 7 2L299:
  If FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**, AND
  If on-line BRD units >= 3, then limit: (- 7L BTS - 8L BTS) < on-line BRD units * 15 + 30 MW

Table B.3 (b) Generation Shedding Requirements (2L288 O.O.S. AND VAS-WTS Loop Open)

CONTINGENCY	SHEDDING REQUIREMENTS
2L289	Same as 2L288 OOS Table A.3
2L295	Same as 2L288 OOS Table A.3
2L299	Same as 2L288 OOS Table A.3
2L295 & 2L299	Same as 2L288 OOS Table A.3
2L293	Same as Table B.1
2L294	Same as Table B.1
2L277	• Shed at WAN/ALH/BRX the greatest of: ➤ 62L ESS + 2L277 WAN – 62L_Over_Rating, or ➤ 1.11 * (2L289 BTS + 2L277 WAN – 2L289_Over_Rating), or ➤ WAN Gen MW – 380 MW Select WAN for shedding first, then ALH/BRX.
2L289 & 2L295	Same as 2L288 OOS Table A.3
2L289 & 2L299	Same as 2L288 OOS Table A.3
2L289 & 2L295 & 2L299	Same as 2L288 OOS Table A.3
62L	Same as Table A.1
77L	Same as Table A.1
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.4 – Reference Table, 2L289 O.O.S. AND VAS-WTS Loop Open

Table B.4 (a) Pre-Outage Restrictions

- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit:
    - 2L295 KCL < 2L295_Norm_Rating
    - 2L299 KCL < 2L299_Norm_Rating
    - 2L277 WAN < 2L277_Norm_Rating
- Contingency 2L288:
  If FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 is **unavailable**, AND
  If on-line BRD units >= 3, then limit: (- 7L BTS – 8L BTS) < on-line BRD units * 15 + 30 MW

Table B.4 (b) Generation Shedding Requirements (2L289 O.O.S. AND VAS-WTS Loop Open)

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as 2L289 OOS Table A.4
2L295	Same as 2L289 OOS Table A.4
2L299	Same as 2L289 OOS Table A.4
2L288 & 2L295	Same as 2L289 OOS Table A.4
2L288 & 2L299	Same as 2L289 OOS Table A.4
2L295 & 2L299	- If 2L295 KCL + 2L299 KCL >= (KCL + ALH + BRX) gen MW, then - Shed all KCL and ALH and BRX units down to 0 MW, and - Shed at WAN down to 360 MW **(Note: FBC will shed certain generation at BRD and River Plants to balance their load.)** - If 2L295 KCL + 2L299 KCL < (KCL + ALH + BRX) gen MW, then - Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL KCL may be shed down to 0 MW. Note 6 in Section 2.0

CONTINGENCY	SHEDDING REQUIREMENTS
2L288 & 2L295 & 2L299	Same as 2L289 OOS Table A.4
2L293	Same as 2L289 OOS Table A.4
2L294	Same as Table A.1
2L277	• Shed at WAN/ALH/BRX the greatest of: ➢ 62L ESS + 2L277 WAN – 62L_Over_Rating, or ➢ 2.34 * (2L295 KCL + 0.44 * 2L277 WAN – 2L295_Over_Rating), or ➢ 2.34 * (2L299 KCL + 0.44 * 2L277 WAN – 2L299_Over_Rating), or ➢ WAN Gen MW – 370 MW Select WAN for shedding first, then ALH/BRX.
62L	Same as 2L289 OOS Table A.4
77L	Same as 2L289 OOS Table A.4
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.5 – Reference Table, 2L293 O.O.S. AND VAS-WTS Loop Open

Table B.5 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- Limit: 2L277 WAN < 2L277_Norm_Rating

Table B.5 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Shed at ALH/BRX/KCL the greatest of: • 2.64 * (2L299 KCL + 0. 43 * 2L289 BTS - 2L299_Over_Rating), or • 2.64 * (2L295 KCL + 0. 43 * 2L289 BTS - 2L295_Over_Rating), or • 1.28 * (2L288 BTS + 0. 87 * 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as 2L293 OOS Table A.5
2L288 & 2L299	Same as 2L293 OOS Table A.5
2L295 & 2L299	Same as 2L293 OOS Table A.5
2L294	Same as 2L293 OOS Table A.5
2L277	Same as 2L293 OOS Table A.5
2L289 & 2L295	• Shed at KCL first: 1.35 * (2L299 KCL + 0. 8 * 2L289 BTS + 0.9 * 2L295 KCL - 2L299_Over_Rating) • Then at ALH/BRX: 1.55 * (2L299 KCL + 0.8 * 2L289 BTS + 0.9 * 2L295 KCL - 2L299_Over_Rating - 0.75 * armed KCL shedding) If insufficient shedding is alarmed at KCL/ALH/BRX, reduce the generation at the unarmed units at KCL/ALH/BRX and at BRD and River Plants in FBC System or increase the transfer from NLY to BDY on 2L112. Note 2 in Section 2.0 Note 8 in Section 2.0 • Shed at WAN the greater of: ➢ 1.6 * (2L277 WAN + 0.2 * 2L289 BTS + 0.15 * 2L295 KCL - 2L277_Over_Rating - 0.2 * armed KCL shedding - 0.27 * armed ALH/BRX shedding) ➢ 2.85 * (62L ESS - 0.18 * 2L289 BTS - 0.14 * 2L295 KCL - 62L_Over_Rating + 0.22 * armed KCL shedding + 0.3 * armed ALH/BRX shedding)
2L289 & 2L299	• Shed at KCL first: 1.35 * (2L295 KCL + 0. 8 * 2L289 BTS + 0.9 * 2L299 KCL - 2L295_Over_Rating) • Then at ALH/BRX: 1.55 * (2L295 KCL + 0.8 * 2L289 BTS + 0.9 * 2L299 KCL - 2L295_Over_Rating - 0.75 * armed KCL shedding) If insufficient shedding is alarmed at KCL/ALH/BRX, reduce the generation at the unarmed units at KCL/ALH/BRX and at BRD and River Plants in FBC System or increase the transfer from NLY to BDY on 2L112. Note 3 in Section 2.0 Note 8 in Section 2.0 • Shed at WAN the greater of: ➢ 1.6 * (2L277 WAN + 0.2 * 2L289 BTS + 0.15 * 2L299 KCL - 2L277_Over_Rating - 0.2 * armed KCL shedding - 0.27 * armed ALH/BRX shedding) ➢ 2.85 * (62L ESS - 0.18 * 2L289 BTS - 0.14 * 2L299 KCL - 62L_Over_Rating + 0.22 * armed KCL shedding + 0.3 * armed ALH/BRX shedding)
2L289 & 2L295 & 2L299	Same as Table B.1
2L288 & 2L295 & 2L299	Same as 2L293 OOS Table A.5
62L	Same as 2L293 OOS Table A.5
77L	Same as 2L293 OOS Table A.5
2L221	Same as 2L293 OOS Table A.5
2L222	Same as 2L293 OOS Table A.5
2L286	Same as 2L293 OOS Table A.5

Table B.6 – Reference Table, 2L294 O.O.S. AND VAS-WTS Loop Open

Table B.6 (a) Pre-Outage Restrictions
Refer to Section 1.4.

Table B.6 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.1
2L289	Same as 2L294 OOS Table A.6
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2l288 & 2L299	Same as Table A.1
2L295 & 2L299	Same as Table B.1
2L293	Same as 2L294 OOS Table A.6
2L277	Same as Table A.1
2L289 & 2L295	Same as Table B.1
2L289 & 2L299	Same as Table B.1
2L289 & 2L295 & 2L299	Same as Table B.1
2L288 & 2L295 & 2L299	Same as Table A.1
62L	Same as 2L294 OOS Table A.6
77L	Same as 2L294 OOS Table A.6
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.7 – Reference Table, (2L295 or 2L299) O.O.S. AND VAS-WTS Loop Open

Table B.7 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- Limit:
  - 2L295 KCL < 2L295_Norm_Rating
  - 2L299 KCL < 2L299_Norm_Rating

Table B.7 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as (2L295 or 2L299) OOS Table A.7
2L289	2L295 OOS: • Shed at ALH/KCL/BRX: 1.37 * (2L299 KCL + 0.76 * 2L289 BTS - 2L299_Over_Rating) 2L299 OOS: • Shed at ALH/BRX/KCL: 1.37 * (2L295 KCL + 0.76 * 2L289 BTS - 2L295_Over_Rating) Note 7 in Section 2.0 If TSA alarms "insufficient shedding", the BC Hydro Control Centre staff must reduce BRD generation or reduce generation on the KCL unit not armed for shedding.
2L295 (with 2L299 O.O.S.)	Same as (2L295 or 2L299) OOS Table A.7
2L299 (with 2L295 O.O.S.)	Same as (2L295 or 2L299) OOS Table A.7
2L288 & 2L295 (with 2L299 O.O.S.)	Same as (2L295 or 2L299) OOS Table A.7
2L288 & 2L299 (with 2L295 O.O.S.)	Same as (2L295 or 2L299) OOS Table A.7
2l289 & 2L295 (with 2L299 O.O.S)	Same as 2L289 & 2L295 & 2L299 contingency in Table B.1
2L289 & 2L299 (with 2L295 O.O.S.)	Same as 2L289 & 2L295 & 2L299 contingency in Table B.1
2L293	Shed at KCL/ALH/BRX the greater of: • 3.79 * (2L299 KCL or 2L295 KCL + 0.09 * 2L293 NLY – 2L295_Over_Rating), or • 2.92 * (2L289 BTS + 0.19 * 2L293 NLY – 2L289_Over_Rating) Note 7 in Section 2.0 • Shed at WAN: 1.71 * (0.29 * 2L293 SEL + 2L277 WAN – 2L277_Over_Rating)
2L294	Same as Table A.1
2L277	Same as (2L295 or 2L299) OOS Table A.7
62L	Same as (2L295 or 2L299) OOS Table A.7
77L	Same as (2L295 or 2L299) OOS Table A.7
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.8 – Reference Table, 2L277 (71L) O.O.S. AND VAS-WTS Loop Open

Table B.8 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit: 62L ESS < 62L_Norm_Rating

Table B.8 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Shed at ALH/BRX/WAN: 2L289 BTS + 2L288 BTS - 2L289_Over_Rating Select ALH/BRX for shedding first.
2L289	Shed at ALH/BRX/WAN/KCL the greatest of: • 2.16 * (2L299 KCL + 0.50 * 2L289 BTS - 2L299_Over_Rating), or • 2.16 * (2L295 KCL + 0.50 * 2L289 BTS - 2L295_Over_Rating), or • 1.05 * (2L288 BTS + 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX/WAN for shedding first. Note 7 in Section 2.0
2L295	Shed at KCL/ALH/BRX the greater of: • 1.83 * (2L299 KCL + 0.55 * 2L295 KCL - 2L299_Over_Rating), or • 2.25 * (2L289 BTS + 0.44 * 2L295 KCL - 2L289_Over_Rating) Select KCL for shedding first. Note 2 in Section 2.0 Note 8 in Section 2.0
2L299	Shed at KCL/ALH/BRX the greater of: • 1.83 * (2L295 KCL + 0.55 * 2L299 KCL - 2L295_Over_Rating), or • 2.25 * (2L289 BTS + 0.44 * 2L299 KCL - 2L289_Over_Rating) Select KCL for shedding first. Note 3 in Section 2.0 Note 8 in Section 2.0
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1

2L295 & 2L299	• Shed at KCL: 1.01 * (2L288 KCL + 2L295 KCL + 2L299 KCL - 2L288_Over_Rating)
	• Shed at ALH/BRX:
	2L295 KCL + 2L299 KCL + 2L289 BTS – 2L289_Over_Rating – (armed KCL shed amount for the contingency) MW
	   Note 6 in Section 2.0
	   Note 8 in Section 2.0

2L293	No generation shedding.
2L294	No generation shedding.
2L289 & 2L295	Same as 2L277 OOS Table A.10
2L289 & 2L299	Same as 2L277 OOS Table A.10
2L289 & 2L295 & 2L299	If 2L295 KCL + 2L299 KCL + 2L289 BTS >= (KCL + ALH + BRX) MW, then ➢ Shed down all KCL and ALH and BRX units to 0 MW, and ➢ Shed at WAN: 77L WTS – 90 MW **(Note: FBC will shed certain generation at BRD and River Plants to resolve post-contingency over frequency problems in FBC islanding area.)** • If 2L295 KCL + 2L299 KCL + 2L289 BTS < (KCL + ALH + BRX) MW, then ➢ Shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS KCL may be shed down to 0 MW
2L288 & 2L295 & 2L299	Same as 2L277 OOS Table A.8
62L	Same as 2L277 OOS Table A.8
77L	WAN-WTS area will be islanding upon loss of 77L. • Shed at WAN: 77 BTS • Keep 2 WAN units on-line post-shedding. • Shed WAN G3 and G4 first. No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the WAN-WTS Area Load (= WAN Generation WAN Generation – 77 BTS) within the 30 MW tolerance, otherwise an alarm will be generated.
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.9 – Reference Table, 62L O.O.S. AND VAS-WTS Loop Open

Table B.9 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- 25L (SLC-BSS) must be open.
- Limit: 2L277 WAN < WHS T1 or T2 rating
  - This limit restricts WAN Gen MW < Teck Area load + WHS T1 or T2 rating
  - This is to avoid thermal overloading of WHS T1 or T2 under the loss of another transformer

Table B.9 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.9
2L289	Shed at ALH/KCL/BRX the greatest of: • $2.07 * (2L299\ KCL + 0.50 * 2L289\ BTS - 2L299\_Over\_Rating)$, or • $2.07 * (2L295\ KCL + 0.50 * 2L289\ BTS - 2L295\_Over\_Rating)$, or • $1.01 * (2L288\ BTS + 2L289\ BTS - 2L288\_Over\_Rating)$ Select ALH/BRX for shedding first. Note 7 in Section 2.0
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	Same as 62L OOS Table A.9
2L293	No generation shedding.
2L294	Same as 62L OOS Table A.9
2L277	Same as 62L OOS Table A.9
2L289 & 2L295	Same as 77L OOS Table A.10
2L289 & 2L299	Same as 77L OOS Table A.10
2L289 & 2L295 & 2L299	• If 2L295 KCL + 2L299 KCL + 2L289 BTS >= (KCL + ALH + BRX) gen MW, then shed all KCL and ALH and BRX units down to 0 MW. **(Note: FBC will shed certain generation at BRD and River Plants to resolve post-contingency over frequency problems in FBC islanding area.)** • If 2L295 KCL + 2L299 KCL + 2L289 BTS < (KCL + ALH + BRX) gen MW, then shed at KCL/ALH/BRX: 2L295 KCL + 2L299 KCL + 2L289 BTS KCL may be shed down to 0 MW.
2L288 & 2L295 & 2L299	Same as 62L OOS Table A.9
77L	Same as 62L OOS Table A.9
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.10 – Reference Table, 77L O.O.S. AND VAS-WTS Loop Open

Table B.10 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table B.10 (b) Generation Shedding Requirements

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table A.9
2L289	Same as 77L OOS Table A.10
2L295	Same as Table A.1
2L299	Same as Table A.1
2L288 & 2L295	Same as Table A.1
2L288 & 2L299	Same as Table A.1
2L295 & 2L299	Same as 62L OOS Table A.9
2L293	Same as 77L OOS Table A.10
2L294	Same as 77L OOS Table A.10
2L277	WAN-WTS area will be islanding upon loss of 2L277. • Shed at WAN: 2L277 WAN • Keep 2 WAN units on-line post-shedding. • Shed WAN G3 and G4 first. No over-shedding is allowed and the maximum under-shedding amount is 30 MW. Operator has to adjust the output of the two unarmed units to match the WAN-WTS Area Load (= WAN Generation WAN Generation – 2L277 WAN) within the 30 MW tolerance, otherwise an alarm will be generated.
2L289 & 2L295	Same as 77L OOS Table A.10
2L289 & 2L299	Same as 77L OOS Table A.10
2L289 & 2L295 & 2L299	Same as 77L OOS Table A.10
2L288 & 2L295 & 2L299	Same as 62L OOS Table A.9
62L	Same as 77L OOS Table A.10
2L221	No generation shedding.
2L222	No generation shedding.
2L286	No generation shedding.

Table B.11 – Reference Table, 2L221 O.O.S. and VAS-WTS Loop Open

Table B.11 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

**Table B.11 (b) - Generation Shedding Requirements
(2L221 O.O.S. and VAS-WTS Loop Open)**

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop open.
2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L293	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L294	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L277	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
62L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
77L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L222	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L286	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.

Table B.12 – Reference Table, 2L222 O.O.S. and VAS-WTS Loop Open

Table B.12 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

**Table B.12 (b) - Generation Shedding Requirements
(2L222 O.O.S. and VAS-WTS Loop Open)**

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L293	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L294	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L277	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
62L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
77L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L221	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L286	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.

Table B.13 – Reference Table, 2L286 O.O.S. and VAS-WTS Loop Open

Table A.13 (a) - Pre-Outage Restrictions

Refer to Section 1.4.

**Table B.13 (b) - Generation Shedding Requirements
(2L286 O.O.S. and VAS-WTS Loop Open)**

CONTINGENCY	SHEDDING REQUIREMENTS
2L288	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L293	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L294	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L277	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L289 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L288 & 2L295 & 2L299	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
62L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
77L	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L221	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.
2L222	Same as Table B.1 (b) – All SEL Area 230 kV Circuits In Service and VAS-WTS Loop Open.

Table 2.1 – SEL T1&T2&T3&T4 and All SEL CBs I/S

Table 2.1 (a) Pre-Outage Restrictions
Pre-outage restrictions in reference Tables A.1 ~ A.13 and B.1 ~ B.13 are applicable to this Table 2.1.

Table 2.1 (b) Generation Shedding Requirements

Note: Generation shedding requirements in reference Tables A.1 ~ A.13 and B.1 ~ B.13 are applicable to this Table 2.1.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	No generation shedding.
SEL T2 & SEL T3	No generation shedding.
SEL T4	No generation shedding.

Table 2.2 – SEL T1&T2&T3&T4 I/S and SEL 5CBx O.O.S.

Note: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL – 2L286 SEL
AAL/CBK/NTL load (MW) = + 2L294 NLY + CBK 500 kV to 230 kV MW + 1L274 POC – 1L275 NTL
FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Table 2.2 (a) Pre-Outage Restrictions
Pre-outage restrictions in reference tables A.1 ~ A.13 and B.1 ~ B.13 are applicable to this Table 2.2.

- SEL 5CB1 or/and SEL 5CB2 OOS, SEL T4 contingency:
  Limit:
  (FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount + WAX MW
  + ALH MW + BRX MW + 0.98 * SELT1MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

- SEL 5CB4 OOS, SEL T1 contingency:
  Limit:
  (FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount + ALH MW + BRX MW + WAX MW
  + 0.98 * SELT4MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

Table 2.2 (b) Generation Shedding Requirements (SEL T1&T2&T3&T4 I/S and SEL 5CBx O.O.S)

Note: Generation shedding requirements in reference tables A.1 ~ A.13 and B.1 ~ B.13 are applicable to this Table 2.2.

CONDITION "5CBx"	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 5CB1 or/and SEL 5CB2 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	If (5L91 SEL + 5L96 SEL) MW > SELT1MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.12 * (SEL 230/500 kV MVA + 0.85 * 2L112 NLY – SELT1MVA_0.5hr_Rating – 5L92 SEL) Note 7 in Section 2.0
SEL 5CB3 OOS	SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating + 110, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.1 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT4MVA_0.5hr_Rating) Note 7 in Section 2.0
	SEL T2 & SEL T3	No generation shedding
	SEL T4	No generation shedding
SEL 5CB4 OOS	SEL T1	If (5L91 SEL + 5L96 SEL) MW > SELT4MVA_0.5hr_Rating, Then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.12 * (SEL 230/500 kV MVA + 0.85 * 2L112 NLY – SELT4MVA_0.5hr_Rating) – 5L92 SEL MW Note 7 in Section 2.0
	SEL T2 & SEL T3	No generation shedding
	SEL T4	No generation shedding.
SEL 5CB5 AND SEL 5CB11 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	If 0.96 * SEL230/500kV MVA - 0.48 * (5L91 + 5L96) SEL > SELT4MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 2.22 * (0.96 * SEL230/500kV MVA - 0.48 * (5L91 + 5L96) SEL + 0.43 * 2L112 NLY – SELT4MVA_0.5hr_Rating) Note 7 in Section 2.0
	SEL T4	No generation shedding.
SEL 5CB8 AND SEL 5CB9 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	If 0.954 * SEL230/500kV MVA – 0.63 * (5L91 + 5L96) SEL > SELT4MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 2.29 * (0.954 * SEL230/500kV MVA – 0.63 * (5L91 + 5L96) SEL + 0.42 * 2L112 NLY – SELT4MVA_0.5hr_Rating) Note 7 in Section 2.0
	SEL T4	No generation shedding
SEL (5CB3 & 5CB4) OOS (Note: 5L92 OOS)	SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX: 1.17 * (0.95 * (SEL 230/500 kV MVA + 2L112 NLY MW) – SELT4MVA_0.5hr_Rating) MW Note 7 in Section 2.0
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
SEL (5CB5 & 5CB8) OOS (Note: 5L96 OOS)	SEL T1	No generation shedding. (Note: SEL 5CB9 BF will cause loss of 5L91 with 5L96 already OOS)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding. (Note: SEL 5CB11 BF will cause loss of 5L91 with 5L96 already OOS)
SEL (5CB9 & 5CB11) OOS (Note: 5L91 OOS)	SEL T1	No generation shedding. (Note: SEL 5CB5 BF will cause loss of 5L96 with 5L91 already OOS)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding. (Note: SEL 5CB8 BF will cause loss of 5L96 with 5L91 already OOS)

Table 2.3 – SEL T1&T2&T3&T4 I/S and SEL 2CBx O.O.S.

Table 2.3 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- SEL 2CB11 OOS: 25L (SLC-BSS) must be open.

Table 2.3 (b) Generation Shedding Requirements (SEL T1&T2&T3&T4 I/S and SEL 2CBx O.O.S)

CONDITION "2CBx"	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB3 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	Shed at SEV G3&G4/WAN: • $1.23 *$ ((SEV G3&G4 – 2L289 SEL – 2L299 SEL – $0.79 *$ 2L293 SEL) - 1195) MW Select SEV G3&G4 for shed first with the shedding efficiency at 1.0 Select WAN for shed second with the shedding efficiency at 0.72
	SEL T4	Shed at SEV G3&G4/WAN: • $1.18 *$ ((SEV G3&G4 – 2L289 SEL – 2L299 SEL – $0.88 *$ 2L293 SEL) - 1195) MW Select SEV G3&G4 for shed first with the shedding efficiency at 1.0 Select WAN for shed second with the shedding efficiency at 0.71
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB4 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB5 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB6 OOS	SEL T1	Same as SEL T4 contingency with SEL 2CB3 OOS in this Table 2.3 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T4 contingency with SEL 2CB3 OOS in this Table 2.3 (b)
	All 230 kV contingencies except 2L293 contingency	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	Shed at WAN the greater of: • $2.8 *$ (62L ESS + $0.35 *$ 2L293 NLY + $0.14 *$ SEV G3 & G4 – 62L_Over_Rating) • $1.9 *$ ($0.35*$2L293 SEL + 2L277 WAN – $0.1 *$ SEV G3 & G4 – 2L277_Over_Rating)
SEL 2CB7 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB8 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB9 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	Shed at ALH/BRX/KCL the greatest of: • $2.94 *$ ($0.77 *$ 2L295 KCL + $0.23 *$ SEL T4 230 kV to 500 kV MW + $0.32 *$ 2L289 BTS - 2L295_Over_Rating), or • $2.40 *$ ($1.19 *$ 2L299 KCL - $0.19 *$ SEL T4 230 kV to 500 kV MW + $0.49 *$ 2L289 BTS - 2L299_Over_Rating), or • $1.28 *$ (2L288 BTS + $0.81 *$ 2L289 BTS - 2L288_Over_Rating) Select ALH/BRX for shedding first. Note 7 in Section 2.0
	2L293	If 2L293 NLY >= 0 GS1 = 2L289 BTS – $0.06 *$ (SEL T4_230_to_500 – 2L289 BTS – 2L295 KCL – 2L299 KCL) + $0.14 *$ 2L293 NLY – 2L289_Over_Rating A1 = $2.23 *$ GS1 A2 = $5.41 *$ GS1 Shed at WAN: ➤ $2.26 *$ ($0.25 *$ 2L293 NLY + 62L ESS – 62L_Over_Rating + $0.15 *$ A2) If available generation for shed at ALH/BRX >= $2.23 *$ (GS1 – $0.20 *$ (armed WAN shed amount for this contingency)) • Shed at ALH/BRX: ➤ $2.23 *$ (GS1 – $0.20 *$ (armed WAN shed amount)) Else • Shed at ALH/BRX: ➤ All available generation • Shed at KCL: ➤ $5.41 *$ (GS1 – (armed ALH/BRX shed amount)/2.23 – $0.20 *$ (armed WAN shed amount)) If 2L293 SEL > 0 Shed at WAN: ➤ $1.8 *$ ($0.38 *$ 2L293 SEL + 2L277 WAN – 2L277_Over_Rating) Note 7 in Section 2.0

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB10 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 (SEL T4 will be tripped also)	Same as Table A.1.
	2L293	If 2L293 NLY >= 0 $\quad$ GS1 = 2L295 KCL + 0.16 * 2L293 NLY – 0.24 * (SEL T4 230 to 500 kV – 2L299 KCL – 2L289 BTS) – 2L295_Over_Rating $\quad$ GS2 = 2L289 BTS + 0.10 * 2L293 NLY + 0.12 * (SEL T4 230 to 500 kV – 2L299 KCL – 2L289 BTS) – 2L289_Over_Rating $\quad$ If 2.5 * GS1 >= 5.92 * GS2 $\qquad$ • If KCL available generation for shed >= 2.5 * GS1 $\qquad\qquad$ ➢ Shed at KCL: 2.5 * GS1 $\qquad$ • Else $\qquad\qquad$ ➢ Shed at KCL: all available generation $\qquad\qquad$ ➢ Shed at ALH/BRX: 3.53 * (GS1 – (Armed GS at KCL)/2.5) $\qquad$ • Else $\qquad$ • If ALH/BRX available generation for shed >= 2.35 * GS2 $\qquad\qquad$ ➢ Shed at ALH/BRX: 2.35 * GS2 $\qquad$ • Else $\qquad\qquad$ ➢ Shed at ALH/BRX: all available generation $\qquad\qquad$ ➢ Shed at KCL: 5.92 * (GS2 – (Armed GS at ALH/BRX)/2.35) $\quad$ Note 7 in Section 2.0 If 2L293 SEL > 0 $\quad$ • Shed at WAN: 1.82 * (0.3 * 2L293 SEL + 2L277 WAN – 2L277_Over_Rating)
SEL 2CB11 OOS	SEL T1	Same as SEL T4 contingency with SEL 2CB3 OOS in this Table 2.3 (b)
	SEL T2 & SEL T3	Same as SEL T2&T3 contingency with SEL 2CB3 OOS in this Table 2.3 (b)
	SEL T4	No generation shedding.
	2L289	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L299	VAS-WTS loop is closed: Same as Table A.1 for contingency 2L299 AND 2L289 VAS-WTS loop is open: Same as Table B.1 for contingency 2L299 AND 2L289
	2L288 & 2L295	Same as Table A.1.
	2L288 & 2L299	This is to cover loss of 2L288 & 2L289 & 2L299. • FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 must be **available.** • Shed at KCL: 2L288 KCL + 2L295 KCL + 2L299 KCL – 2L295_Over_Rating $\quad$ Note 5 in Section 2.0 • Shed at ALH/WAN/BRX: 2L288 BTS + 2L289 BTS + 7L BTS + 8L BTS $\quad$ Select ALH/BRX for shed first.
	2L295 & 2L299	Same as contingency 2L289 & 2L295 & 2L299 in this SEL 2CB11 OOS Table 2.3.

SEL 2CB11 OOS Continued on next page	2L293	**VAS-WTS Loop Closed:** Same as contingency 2L293 for VAS-WTS Loop Open in this SEL 2CB11 OOS Table 2.3.

| SEL 2CB11 OOS (Continued) | 2L293 | **VAS-WTS Loop Open:**

GS = 1.38 * (2L295 KCL + *B* * (2L289 BTS + 2L299 KCL) - 2L295_Over_Rating)
B = (80 - 0.03 * 2L112 NLY – 0.003 * (BC to AB) + 0.02 * WAN Gen – 0.014 * (ESS_WTS Load)) / 100
C = (14 + 0.03 * 2L112 NLY + 0.003 * (BC to AB) - 0.02 * WAN Gen + 0.014 * (ESS_WTS Load)) / 100
Where: (ESS_WTS load) = WAN Gen – 2L277 WAN – 77L WTS

If (KCL+ALH+BRX) MW >= GS, then
• Shed at KCL/ALH/BRX: GS
  Note 7 in Section 2.0
and
• Shed at WAN the greater of:
 ➢ 1.82 * (2L277 WAN + *C* * (2L289 BTS + 2L299 KCL) – 0.22 * (armed KCL+ALH+BRX shed amount for this contingency) – 2L277_Over_Rating)
 ➢ 2.35 * (62L ESS – *C* * (2L289 BTS + 2L299 KCL) + 0.22 * (armed KCL+ALH+BRX shed amount for this contingency) – 62L_Over_Rating)

If (KCL+ALH+BRX) MW < GS, then
• Shed KCL, ALH and BRX down to 0 MW, and
• Shed at WAN the greatest of:
 ➢ 1.82 * (2L277 WAN + *C* * (2L289 BTS + 2L299 KCL) – 0.22 * (KCL+ALH+BRX) – 2L277_Over_Rating)
 ➢ 2.35 * (62L ESS – *C* * (2L289 BTS + 2L299 KCL) + 0.22 * (KCL+ALH+BRX) – 62L_Over_Rating)
 ➢ 3.20* (2L295 KCL + *B*(2L289 BTS+2L299 KCL) - (KCL+ALH+BRX) / 1.38 – 2L295_Over_Rating)

If TSA alarms "Insufficient shedding at KCL/ALH/BRX/WAN", the BC Hydro Control Centre staff shall reduce 2L112 flow from BDY to NLY, and request FBC to take the following actions:
• Reduce River Plants output, and/or
• Reduce BRD output, and/or
• Reduce the unarmed WAN unit output. |

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB11 OOS (Continued)	2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L295 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L288 & 2L295 & 2L299	This is to cover loss of 2L288 & 2L289 & 2L295 & 2L299. • FBC's BRD Gen Shedding RAS for loss of both 2L288 AND 2L289 must be **available.** • Shed KCL down to 0 MW. **Note: FortisBC will arm DTT 60L225 (13L) & 60L227 (12L) at the South Slocan Terminal and shed generation as required on the Kootenay River Plants.** • Shed at ALH/WAN/BRX: 2L288 BTS + 2L289 BTS + 7L BTS + 8L BTS Select ALH/BRX for shed first.
	2L277	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	62L	Same as Table A.1
	77L	Same as Table A.1
	2L288	Same as Table A.1
	2L294	Same as Table A.1
	2L221	Same as Table A.1
	2L222	Same as Table A.1
	2L286	Shed at ALH/BRX/WAN: • $5.05 * (0.10 * (2L299\ KCL - 2L289\ SEL) + 0.024 * 2L286\ WAX + 2L295\ KCL - 2L295\_Over\_Rating)$ Select ALH/BRX for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.45.
SEL 2CB12 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies except contingency 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	• Shed at KCL: $0.3 * 2L293\ NLY$ – over shedding amount for 2L299 contingency with all KCL 2CBs in service Do not select KCL units armed for 2L299 contingency Note 7 in Section 2.0 • Shed at WAN: ➤ $1.8 * (0.4 * 2L293\ SEL + 2L277\ WAN - 2L277\_Over\_Rating - 0.16 * A)$ if 2L293 SEL > 0, or ➤ $2.4 * (0.3 * 2L293\ NLY + 62L\ ESS - 62L\_Over\_Rating + 0.19 * A)$ if 2L293 NLY > 0 Where, A = total armed KCL shed amount for 2L299 contingency and for 2L293 contingency
SEL 2CB13 OOS	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	VAS-WTS loop closed: Same as gen shedding for 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as gen shedding for 2L289 & 2L299 contingency in Table B.1
	All 230 kV contingencies except contingencies 2L289, 2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	VAS-WTS loop closed: Same as 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L299 contingency in Table B.1
	2L289 & 2L295	VAS-WTS loop closed: Same as 2L289 & 2L295 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L295 & 2L299 contingency in Table B.1

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB5 & 2CB6 OOS (Note: 2L222 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.12 if VAS-WTS loop is closed, or • Same as Table B.12 if VAS-WTS loop is open
SEL 2CB7 & 2CB8 OOS (Note: 2L221 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.11 if VAS-WTS loop is closed, or • Same as Table B.11 if VAS-WTS loop is open
SEL 2CB3 & 2CB5 & 2CB13 OOS (Note: 2L293 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	VAS-WTS loop closed Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table A.5 VAS-WTS loop open Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table B.5
	All 230 kV contingencies	• Same as 2L293 OOS Table A.5 if VAS-WTS loop is closed, or • Same as 2L293 OOS Table B.5 if VAS-WTS loop is open
SEL 2CB9 & 2CB10 OOS (Note: 2L295 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies except contingency 2L293	• Same as 2L295 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L295 OOS Table B.7 if VAS-WTS loop is open
	2L293	Same as SEL 2CB9 OOS in this Table 2.3
SEL 2CB11 & 2CB12 OOS (Note: 2L289 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies except contingency 2L293	• Same as 2L289 OOS Table A.4 if VAS-WTS loop is closed, or • Same as 2L289 OOS Table B.4 if VAS-WTS loop is open
	2L293	• Shed at KCL/ALH/BRX: $0.29 * 2L293$ NLY – over shedding amount for 2L299 contingency with all KCL 2CBs in service Do not select KCL/ALH/BRX units armed for 2L299 contingency Note 7 in section 2.0 • If 2L293 NLY > 0, then shed at WAN the greater of: ➤ $3.2 * (2L295\ KCL + 0.82 * 2L299\ KCL + 0.29 * 2L293\ NLY - 0.76 * A - 2L295\_Over\_Rating)$, or ➤ $2.5 * (0.18 * 2L293\ NLY + 62L\ ESS - 62L\_Over\_Rating + 0.20 * A)$ Where, A = total armed KCL/ALH/BRX shed amount for 2L299 contingency and for 2L293 contingency
SEL 2CB12 & 2CB13 OOS (Note: 2L299 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4 (2L289 will be tripped also)	No generation shedding.
	All 230 kV contingencies	• Same as 2L299 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L299 OOS Table B.7 if VAS-WTS loop is open
SEL 2CB4 & 2CB8 & 2CB9 OOS (Note: 2L286 OOS)	SEL T1	No generation shedding.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	No generation shedding.
	All 230 kV contingencies	• Same as Table A.13 if VAS-WTS loop is closed, or • Same as Table B.13 if VAS-WTS loop is open

End of Table 2.3

Table 2.11 – SEL T1 O.O.S. and All SEL CBs I/S

Table 2.11 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.11.

Table 2.11 (b) Generation Shedding Requirements (SEL T1 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.11.
- Note 7 in Section 2.0 is applicable to this table

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.083 * SEL (T2 & T3) 230 kV MW > 400 MW, or 2L293 SEL + 0.139 * SEL (T2 & T3) 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.27 * (0.91 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.87 * (0.91 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
SEL T4	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.059 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.100 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.96 * SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW

Table 2.12 – SEL T1 and 2L112 O.O.S. and All SEL CBs I/S

Table 2.12 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.12 (b) Generation Shedding Requirements (SEL T1 and 2L112 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.2 and B.2 are applicable to this Table 2.12.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T2 & SEL T3	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
SEL T4	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW

Table 2.13 – SEL T1 and 2L293 O.O.S. and All SEL CBs I/S

Table 2.13 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.5 and B.5 are applicable to this Table 2.13.

Table 2.13 (b) Generation Shedding Requirements (SEL T1 and 2L293 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.5 and B.5 are applicable to this Table 2.13.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS

SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or 2L112 NLY + 0.022 * SEL (T2 & T3) 230 kV MW > 400 MW), then
	   • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.12 * (0.97 * SEL 230/500 kV MVA + 0.414 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW
	   Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0.
	   Shed WAN second with the shedding efficiency at 0.7
	Otherwise,
	   • Shed at KCL/SEV/ALH/WAN/BRX: 1.20 * (0.97 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
	   Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0.
	   Shed WAN second with the shedding efficiency at 0.4

SEL T4	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or 2L112 NLY + 0.018 * SEL T4 230 kV MW > 400 MW), then
	   • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.10 * (0.99 * SEL 230/500 kV MVA + 0.414 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) MW
	   Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0.
	   Shed WAN second with the shedding efficiency at 0.7
	Otherwise,
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW
	   Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0.
	   Shed WAN second with the shedding efficiency at 0.4

Table 2.14 – SEL T1 and 2L294 O.O.S. and All SEL CBs I/S

Table 2.14 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.14 (b) Generation Shedding Requirements (SEL T1 and 2L294 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.6 and B.6 are applicable to this Table 2.14.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS

SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.092 * SEL (T2 & T3) 230 kV MW > 400 MW, or
	2L293 SEL + 0.096 * SEL (T2 & T3) 230 kV MW > 400 MW), then
	   • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.13 * (0.93 * SEL 230/500 kV MVA + 0.97 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW
	Otherwise,
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.48 * (0.93 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW

SEL T4	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.065 * SEL T4 230 kV MW > 400 MW, or
	2L293 SEL + 0.068 * SEL T4 230 kV MW > 400 MW), then
	   • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.11 * (0.97 * SEL 230/500 kV MVA + 0.97 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) MW
	Otherwise,
	   • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.47 * (0.97 * SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW

Table 2.15 – SEL T1 AND SEL 5CBx O.O.S.

Table 2.15 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.15.

Table 2.15 (b) Generation Shedding Requirements
(SEL T1 AND SEL 5CBx O.O.S)

Notes:
- Generation shedding requirements in reference Tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.15.
- Note 7 in Section 2.0 is applicable to this table.

CONDITION "5CBx"	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL T1 AND SEL 5CB3 OOS	SEL T2 & SEL T3	Same as SEL T1 O.O.S. and All SEL CBs I/S Table 2.11

	SEL T4	If (0 <= AB to BC <= 100 MW, or 0 < BC to AB <= 100 MW) and (5L91 + 5L96) SEL MW > SELT2&T3MVA_0.5hr_Rating, then,
		 • Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT2&T3MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		 If (AB to BC > 100 MW, or BC to AB > 100 MW) and (5L91 + 5L96 + 5L92) SEL MW > SELT2&T3MVA_0.5hr_Rating + 60, then
		 • Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT2&T3MVA_0.5hr_Rating) – 1.1 * (5L92 SEL - BC to AB)
		
		 The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

SEL T1 AND SEL 5CB4 OOS	SEL T2 & SEL T3	If (AB to BC >= 0, or 0 < BC to AB < 100 MW) and (5L91 + 5L96) SEL MW > SELT4MVA_0.5hr_Rating, Then,
		 • Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 • 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT4MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		 If BC to AB >= 100 MW and (5L91 + 5L96 + 5L92) SEL MW > SELT4MVA_0.5hr_Rating + 60, then
		 Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT4MVA_0.5hr_Rating) – 1.1 * (5L92 SEL - BC to AB)
		
		 The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

	SEL T4	Same as SEL T1 O.O.S. and All SEL CBs I/S Table 2.11
SEL T1 AND SEL (5CB1 or/and 5CB2) AND SEL 5CB5 AND SEL 5CB9 OOS	SEL T2 & SEL T3	Same as SEL T1 O.O.S. and All SEL CBs I/S Table 2.11
	SEL T4	(SEL T4 contingency will trip open 5L91 & 5L96. Generation shedding requirement will be covered by 5L91 & 5L96 contingency in Attachment 1 of SOO 7T-34) No generation shedding.
SEL T1 AND SEL 5CB (3 & 4) OOS (Note: 5L92 OOS)	SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.18 * (SEL 230/500 kV MVA + 2L112 NLY MW – SELT4MVA_0.5hr_Rating) MW
	SEL T4	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.18 * (SEL 230/500 kV MVA + 2L112 NLY MW – SELT2&T3MVA_0.5hr_Rating) MW

Table 2.16 – SEL T1 and SEL 2CBx O.O.S.

Table 2.16 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.16 (b) Generation Shedding Requirements (SEL T1 and SEL 2CBx O.O.S)

Note 7 in Section 2.0 is applicable to this table.

CONDITION "2CBx"	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING

SEL T1 & SEL 2CB3 & SEL 2CB4 OOS	SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.09 * SEL (T2 & T3) 230 kV MW > 400, or 2L293 SEL + 0.15 * SEL (T2 & T3) 230 kV MW > 400 MW), then
		• Arm DTT 2L112 RAS
		
		If DTT 2L112 RAS is armed, then
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.23 * (0.90 * SEL 230/500 kV MVA + 0.55 * 2L112 NLY − SELT4MVA_0.5hr_Rating) MW
		Otherwise,
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.79 * (0.90 * SEL 230/500 kV MVA − SELT4MVA_0.5hr_Rating) MW

	SEL T4	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, or If SEL 230/500 kV MVA − SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		• Arm DTT 2L112 RAS
		• Shed at KCL/SEV (G3 & G4)/ALH/WAN/BRX/WAX the greater of:
		  • 1.21 * (0.95 * SEL 230/500 kV MVA + 0.67 * 2L112 NLY − SELT2&T3MVA_0.5hr_Rating), or
		  • 1.12 * (0.95 * SEL 230/500 kV MVA − SEV (G1 & G2) + 2L295 SEL + 0.67 * 2L112 NLY − 1195) MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.79

	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open

Table 2.21 – SEL T2 O.O.S. and All SEL CBs I/S

Table 2.21 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.21.

Table 2.21 (b) Generation Shedding Requirements (SEL T2 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13 are applicable to this Table 2.21.
- Note 7 in Section 2.0 is applicable to this Table.

CONTINGENCY	SHEDDING REQUIREMENTS

SEL T1	If SEL 230/500 kV MVA > SELT3&T4MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.051 * SEL T1 230 kV MW > 400 MW, or
	2L293 SEL + 0.086 * SEL T1 230 kV MW > 400 MW), then
	• Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.23 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT3&T4MVA_0.5hr_Rating) MW
	Otherwise,
	• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.62 * (0.96 * SEL 230/500 kV MVA – SELT3&T4MVA_0.5hr_Rating) MW

SEL T2 & SEL T3	No generation shedding.
SEL T4	If SEL 230/500 kV MVA > SELT1&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.051 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.086 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.23 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT1&T3MVA_0.5hr_Rating) MW Otherwise, Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.62 * (0.96 * SEL 230/500 kV MVA – SELT1&T3MVA_0.5hr_Rating) MW

Table 2.22 – SEL T2 O.O.S. and 2L112 O.O.S. and All SEL CBs I/S

Table 2.22 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.22 (b) Generation Shedding Requirements (SEL T2 O.O.S. and 2L112 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.2 and B.2 are applicable to this Table 2.22.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SEL T3&T4MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	No generation shedding.
SEL T4	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SEL T1&T3MVA_0.5hr_Rating) MW

Table 2.23 – SEL T2 O.O.S. and 2L293 O.O.S. and All SEL CBs I/S

Table 2.23 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.5 and B.5 are applicable to this Table 2.23.

Table 2.23 (b) Generation Shedding Requirements (SEL T2 O.O.S. and 2L293 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.5 and B.5 are applicable to this Table 2.23.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT3&T4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.015 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.11 * (0.99 * SEL 230/500 kV MVA + 0.411 * 2L112 NLY – SELT3&T4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.6 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT3&T4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.45
SEL T2 & SEL T3	No generation shedding.
SEL T4	If SEL 230/500 kV MVA > SELT1&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.015 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.11 * (0.99 * SEL 230/500 kV MVA + 0.411 * 2L112 NLY – SELT1&T3MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.6 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT1&T3MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.45

Table 2.24 – SEL T2 O.O.S. and 2L294 O.O.S. and All SEL CBs I/S

Table 2.24 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.24 (b) Generation Shedding Requirements (SEL T2 O.O.S. and 2L294 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.6 and B.6 are applicable to this Table 2.24.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT3&T4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.053 * SEL T1 230 kV MW > 400 MW, or 2L293 SEL + 0.055 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.97 * SEL 230/500 kV MVA + 0.93 * 2L112 NLY – SELT3&T4MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.97 * SEL 230/500 kV MVA – SELT3&T4MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	No gen shedding
SEL T4	If SEL 230/500 kV MVA > SELT1&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.053 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.055 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.97 * SEL 230/500 kV MVA + 0.93 * 2L112 NLY – SELT1&T3MVA_0.5hr_Rating) MW Otherwise, Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.97 * SEL 230/500 kV MVA – SELT1&T3MVA_0.5hr_Rating) MW

Table 2.25 – SEL T2 O.O.S. and SEL 5CB O.O.S

Note: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL – 2L286 SEL
AAL/CBK/NTL load (MW) = + 2L294 NLY +CBK 500 kV to 230 kV MW + 1L274 POC – 1L275 NTL
FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Table 2.25 (a) Pre-Outage Restrictions

- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.25.

- SEL 5CB1 or/and SEL 5CB2 OOS, SEL T4 contingency:
(Same as Table 2.2)
Limit:
(FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount
+ ALH MW + BRX MW + WAX MW + 0.98 * SELT1MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

- SEL 5CB4 OOS, SEL T1 contingency:
(Same as Table 2.2)
Limit:
(FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount + ALH MW + BRX MW + WAX MW
+ 0.98 * SELT4MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

Table 2.25 (b) Generation Shedding Requirements (SEL T2 O.O.S. and SEL 5CB O.O.S)

Note: Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.25.

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 5CB1 or/and SEL 5CB2 OOS	SEL T1	Same as SEL T2 OOS and All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	Same as SEL T2 OOS and All SEL CBs I/S Table 2.21
	SEL T4	Same as Table 2.2 with SEL (5CB1 or/and 5CB2) OOS
SEL 5CB3 OOS	SEL T1	Same as Table 2.2 with SEL 5CB3 OOS
	SEL T2 & SEL T3	No generation shedding.

	SEL T4	If (0 < AB to BC <= 100 MW, or 0 < BC to AB <= 100 MW) and (5L91 + 5L96) SEL MW > SELT1&T3MVA_0.5hr_Rating, then,
		 • Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1&T3MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		 If (AB to BC > 100 MW, or BC to AB > 100 MW) and (5L91 + 5L96 + 5L92) SEL MW > SELT1&T3MVA_0.5hr_Rating) + 60, then
		 • Arm DTT 2L112 RAS.
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1&T3MVA_0.5hr_Rating) – 1.1 * (5L92 SEL - BC to AB)
		
		 Note 7 in Section 2.0
		 The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

SEL 5CB4 OOS	SEL T1	Same as Table 2.2 with SEL 5CB4 OOS
	SEL T2 & SEL T3	Same as Table 2.2 with SEL 5CB4 OOS
	SEL T4	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
SEL 5CB5 AND SEL 5CB11 OOS	SEL T1	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
	SEL T2 & SEL T3	Same as Table 2.2 with SEL (5CB5 & 5CB11) OOS
	SEL T4	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
SEL 5CB8 AND SEL 5CB9 OOS	SEL T1	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
	SEL T2 & SEL T3	Same as Table 2.2 with SEL (5CB8 & 5CB9) OOS
	SEL T4	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
SEL (5CB3 & 5CB4) OOS (note: 5L92 OOS)	SEL T1	Same as Table 2.2 with SEL (5CB3 & 5CB4) OOS
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	If SEL 230/500 kV MVA > SELT1&T3MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.18 * (SEL 230/500 kV MVA + 2L112 NLY MW – SELT1&T3MVA_0.5hr_Rating) MW Note 7 in Section 2.0

Table 2.26 – SEL T2 O.O.S. and SEL 2CBx O.O.S

Table 2.26 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- SEL 2CB11 OOS: 25L (SLC-BSS) must be open.

Table 2.26 (b) Generation Shedding Requirements (SEL T2 O.O.S. and SEL 2CBx O.O.S)

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB3 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	Shed at SEV G3&G4/WAN: • $1.24 * ((\text{SEV G3\&G4} - \text{2L289 SEL} - \text{2L299 SEL} - 0.87 * \text{2L293 SEL}) - 1195)$ MW Select SEV G3&G4 for shed first with the shedding efficiency at 1.0 Select WAN for shed second with the shedding efficiency at 0.71

	SEL T4	If SEL 230/500 kV MVA > SEL T1&T3MVA_0.5hr_Rating, or
		 If SEL 230/500 kV MVA – SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		 • Arm DTT 2L112 RAS
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		   • $1.13 * (0.96 * \text{SEL 230/500 kV MVA} + 0.66 * \text{2L112 NLY} - \text{SELT1\&T3MVA\_0.5hr\_Rating})$, or
		   • $1.07 * (0.96 * \text{SEL 230/500 kV MVA} - \text{SEV (G1 \& G2)} + \text{2L295 SEL} + 0.66 * \text{2L112 NLY} - 1195)$ MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.80
		
		 Note 7 in Section 2.0

	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB4 OOS	SEL T1	• Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	• Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB5 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open

SEL 2CB6 OOS	SEL T1	If SEL 230/500 kV MVA > SEL T3&T4MVA_0.5hr_Rating, or
		 If SEL 230/500 kV MVA – SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		 • Arm DTT 2L112 RAS
		 • Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		   • $1.13 * (0.96 * \text{SEL 230/500 kV MVA} + 0.66 * \text{2L112 NLY} - \text{SELT3\&T4MVA\_0.5hr\_Rating})$, or
		   • $1.07 * (0.96 * \text{SEL 230/500 kV MVA} - \text{SEV (G1 \& G2)} + \text{2L295 SEL} + 0.66 * \text{2L112 NLY} - 1195)$ MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.80
		
		 Note 7 in Section 2.0

	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T4 contingency with SEL 2CB3 OOS in this Table 2.26 (b)
	All 230 kV contingencies except 2L293 contingency	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	Same as Table 2.3 with SEL 2CB6 OOS
SEL 2CB7 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB8 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB9 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Use the same gen shedding rule in Table 2.21, plus an additional requirement that the KCL units selected for 2L295 contingency must be included.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	Same as Table 2.3 with SEL 2CB9 OOS
	2L293	Same as Table 2.3 with SEL 2CB9 OOS
SEL 2CB10 OOS	SEL T1	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Use the same gen shedding rule in the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the KCL + ALH + BRX units armed for 2L289 contingency must be included.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 (SEL T4 will be tripped also)	Same as Table 2.3 with SEL 2CB10 OOS
	2L293	Same as Table 2.3 with SEL 2CB10 OOS

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB11 OOS	SEL T1	Same as SEL 2CB6 OOS in this Table 2.26 (b)
	SEL T2 & SEL T3	Same as SEL T2&T3 contingency with SEL 2CB3 OOS in this Table 2.26 (b)
	SEL T4	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21, plus an additional requirement that the KCL units armed for 2L295 contingency must be included.
	2L289	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L295	Same as Table 2.3 with SEL 2CB11 OOS
	2L299	VAS-WTS loop is closed: Same as contingency 2L299 AND 2L289 in Table A.1 VAS-WTS loop is open: Same as contingency 2L299 AND 2L289 in Table B.1
	2L288 & 2L295	Same as Table 2.3 with SEL 2CB11 OOS
	2L288 & 2L299	Same as Table 2.3 with SEL 2CB11 OOS
	2L295 & 2L299	VAS-WTS loop closed: Same as contingency 2L289 & 2L295 & 2L299 in Table A.1 VAS-WTS loop open: Same as contingency 2L289 & 2L295 & 2L299 in Table B.1
	2L293	Same as Table 2.3 with SEL 2CB11 OOS
	2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L295 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L288 & 2L295 & 2L299	Same as Table 2.3 with SEL 2CB11 OOS
	2L277	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	62L	Same as Table A.1
	77L	Same as Table A.1
	2L288	Same as Table A.1
	2L294	Same as Table A.1
	2L221	Same as Table A.1
	2L222	Same as Table A.1

	2L286	If $0.17 * (2L299\ KCL - 2L289\ SEL) + 0.038 * 2L286\ WAX + 2L295\ KCL > 2L295\_Over\_Rating$, then
		    If $2L112\ NLY < 0$,
		    • Arm DTT 2L112 RAS
		    • Shed at ALH/BRX/WAN:
		      $4.23 * (0.17 * (2L299\ KCL - 2L289\ SEL) + 0.09 * 2L112\ NLY + 2L295\ KCL - 2L295\_Over\_Rating)$
		    Select ALH/BRX for shedding first with the shedding efficiency at 1.0, select WAN for shedding second with the shedding efficiency at 0.55.
		
		    OR
		    If $2L112\ NLY >= 0$,
		    • Shed at ALH/BRX/WAN:
		      $4.77 * (0.17 * (2L299\ KCL - 2L289\ SEL) + 0.038 * 2L286\ WAX + 2L295\ KCL - 2L295\_Over\_Rating$
		    Select ALH/BRX for shedding first with the shedding efficiency at 1.0, select WAN for shedding second with the shedding efficiency at 0.47.

SEL 2CB12 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21.
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Use the same gen shedding rule in Table 2.21, plus an additional requirement that the KCL + ALH + BRX units armed by 2L289 contingency must be selected first.
	All 230 kV contingencies except contingency 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	Same as Table 2.3 with SEL 2CB12 OOS
SEL 2CB13 OOS	SEL T1	Same as the SEL T2 OOS & All SEL CBs I/S Table 2.21
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	VAS-WTS loop closed: Same as gen shedding for 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as gen shedding for 2L289 & 2L299 contingency in Table B.1
	All 230 kV contingencies except contingencies 2L289, 2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	VAS-WTS loop closed: Same as 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L299 contingency in Table B.1
	2L289 & 2L295	VAS-WTS loop closed: Same as 2L289 & 2L295 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L295 & 2L299 contingency in Table B.1
SEL 2CB5 & 2CB6 OOS (Note: 2L222 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T2 OOS Table 2.21 (b)
	All 230 kV contingencies	• Same as Table A.12 if VAS-WTS loop is closed, or • Same as Table B.12 if VAS-WTS loop is open

SEL 2CB7 & 2CB8 OOS (Note: 2L221 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T2 OOS Table 2.21 (b)
	All 230 kV contingencies	• Same as Table A.11 if VAS-WTS loop is closed, or • Same as Table B.11 if VAS-WTS loop is open

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB3 & 2CB5 & 2CB13 OOS (Note: 2L293 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	VAS-WTS loop closed Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table A.5 VAS-WTS loop open Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table B.5
	All 230 kV contingencies	• Same as 2L293 OOS Table A.5 if VAS-WTS loop is closed, or • Same as 2L293 OOS Table B.5 if VAS-WTS loop is open
SEL 2CB9 & 2CB10 OOS (Note: 2L295 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T2 OOS Table 2.21 (b)
	All 230 kV contingencies except contingency 2L293	• Same as 2L295 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L295 OOS Table B.7 if VAS-WTS loop is open
	2L293	Same as SEL 2CB9 OOS in Table 2.3
SEL 2CB11 & 2CB12 OOS (Note: 2L289 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T2 OOS Table 2.21 (b)
	All 230 kV contingencies except contingency 2L293	• Same as 2L289 OOS Table A.4 if VAS-WTS loop is closed, or • Same as 2L289 OOS Table B.4 if VAS-WTS loop is open
	2L293	Same as SEL CB11 & SEL 2CB12 OOS (2L289 OOS) in Table 2.3
SEL 2CB12 & 2CB13 OOS (Note: 2L299 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4 (2L289 will be tripped also)	Same as SEL T2 OOS Table 2.21 (b), with the additional requirement that the armed KCL/ALH/BRX units for 2L289 contingency must be selected first.
	All 230 kV contingencies	• Same as 2L299 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L299 OOS Table B.7 if VAS-WTS loop is open
SEL 2CB4 & 2CB8 & 2CB9 OOS (Note: 2L286 OOS)	SEL T1	Same as SEL T2 OOS Table 2.21 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4 (2L295 will be tripped also)	Same as SEL T2 OOS Table 2.21 (b), with the additional requirement that the armed KCL/ALH/BRX units for 2L295 contingency must be selected first.
	All 230 kV contingencies	• Same as Table A.13 if VAS-WTS loop is closed, or • Same as Table B.13 if VAS-WTS loop is open

End of Table 2.26

Table 2.31 – SEL T3 O.O.S. and All SEL CBs I/S

Table 2.31 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.31.

Table 2.31 (b) Generation Shedding Requirements (SEL T3 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4, B.7 ~ B.13 are applicable to this Table 2.31.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS

SEL T1	If SEL 230/500 kV MVA > SELT2&T4MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.051 * SEL T1 230 kV MW > 400 MW, or
	2L293 SEL + 0.086 * SEL T1 230 kV MW > 400 MW), then
	• Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.23 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT2&T4MVA_0.5hr_Rating) MW
	Otherwise,
	• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
	    1.62 * (0.96 * SEL 230/500 kV MVA – SELT2&T4MVA_0.5hr_Rating) MW

SEL T2 & SEL T3	No generation shedding
SEL T4	If SEL 230/500 kV MVA > SELT1&T2MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.051 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.086 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.23 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT1&T2MVA_0.5hr_Rating) MW Otherwise, Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.62 * (0.96 * SEL 230/500 kV MVA – SELT1&T2MVA_0.5hr_Rating) MW

Table 2.32 – SEL T3 O.O.S. and 2L112 O.O.S. and All SEL CBs I/S

Table 2.32 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.32 (b) Generation Shedding Requirements (SEL T3 O.O.S. and 2L112 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.2 and B.2 are applicable to this Table 2.32.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT2&T4MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	No generation shedding
SEL T4	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT1&T2MVA_0.5hr_Rating) MW

Table 2.33 – SEL T3 O.O.S. and 2L293 O.O.S. and All SEL CBs I/S

Table 2.33 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.5 and B.5 are applicable to this Table 2.33.

Table 2.33 (b) Generation Shedding Requirements (SEL T3 O.O.S. and 2L293 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.5 and B.5 are applicable to this Table 2.33.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT2&T4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.015 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.11 * (0.99 * SEL 230/500 kV MVA + 0.411 * 2L112 NLY – SELT2&T4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.6 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT2&T4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.45
SEL T2 & SEL T3	No generation shedding
SEL T4	If SEL 230/500 kV MVA > SELT1&T2MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.015 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.11 * (0.99 * SEL 230/500 kV MVA + 0.411 * 2L112 NLY – SELT1&T2MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.6 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT1&T2MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.45

Table 2.34 – SEL T3 O.O.S. and 2L294 O.O.S. and All SEL CBs I/S

Table 2.34 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.34 (b) Generation Shedding Requirements (SEL T3 O.O.S. and 2L294 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.6 and B.6 are applicable to this Table 2.34.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT2&T4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.053 * SEL T1 230 kV MW > 400 MW, or 2L293 SEL + 0.055 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.97 * SEL 230/500 kV MVA + 0.93 * 2L112 NLY – SELT2&T4MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.97 * SEL 230/500 kV MVA – SELT2&T4MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	No generation shedding
SEL T4	If SEL 230/500 kV MVA > SELT1&T2MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.053 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.055 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.97 * SEL 230/500 kV MVA + 0.93 * 2L112 NLY – SELT1&T2MVA_0.5hr_Rating) MW Otherwise, Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.97 * SEL 230/500 kV MVA – SELT1&T2MVA_0.5hr_Rating) MW

Table 2.35 – SEL T3 O.O.S. and SEL 5CB O.O.S

Note: FBC injection into SEL area = 2L288 BTS + 2L289 BTS + FBC AAL Tie MW + 2L277 WAN - 60L225 KCL - 60L227 KCL – 2L286 SEL MW
AAL/CBK/NTL load (MW) = + 2L294 NLY +CBK 500 kV to 230 kV MW + 1L274 POC – 1L275 NTL
FBC AAL Tie MW = (2L294 AAL-NLY) AAL + (2L294 AAL-CBK) AAL MW

Table 2.35 (a) Pre-Outage Restrictions

- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.35.

- SEL 5CB1 or/and SEL 5CB2 OOS, SEL T4 contingency:
(Same as Table 2.2)
Limit:
(FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount
+ ALH MW + BRX MW + WAX MW + 0.98 * SELT1MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

- SEL 5CB4 OOS, SEL T1 contingency:
(Same as Table 2.2)
Limit:
(FBC injection into SEL area) + (AB to BC) < (WAN shedable generation amount + ALH MW + BRX MW +WAX MW
+ 0.98 * SELT4MVA_0.5hr_Rating + AAL/CBK/NTL load – 660 MW)

Table 2.35 (b) Generation Shedding Requirements (SEL T3 O.O.S. and SEL 5CB O.O.S)

Note: Generation shedding requirements in reference tables A.1, A.3, A 4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.35.

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 5CB1 or/and SEL 5CB2 OOS	SEL T1	Same as SEL T3 OOS and All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	Same as SEL T3 OOS and All SEL CBs I/S Table 2.31
	SEL T4	Same as Table 2.2 with SEL (5CB1 or/and 5CB2) OOS
SEL 5CB3 OOS	SEL T1	Same as Table 2.2 with SEL 5CB3 OOS
	SEL T2 & SEL T3	No generation shedding

	SEL T4	If (0 < AB to BC <= 100 MW, or 0 < BC to AB <= 100 MW) and (5L91 + 5L96) SEL MW > SELT1&T2MVA_0.5hr_Rating, then,
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1&T2MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		If (AB to BC > 100 MW, or BC to AB > 100 MW) and (5L91 + 5L96 + 5L92) SEL MW > SELT1&T2MVA_0.5hr_Rating + 60, then
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1&T2MVA_0.5hr_Rating) – 1.1 * (5L92 SEL - BC to AB)
		
		Note 7 in Section 2.0
		The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

SEL 5CB4 OOS	SEL T1	Same as Table 2.2 with SEL 5CB4 OOS
	SEL T2 & SEL T3	Same as Table 2.2 with SEL 5CB4 OOS
	SEL T4	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
SEL 5CB5 AND SEL 5CB11 OOS	SEL T1	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
	SEL T2 & SEL T3	Same as Table 2.2 with SEL (5CB5 & 5CB11) OOS
	SEL T4	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
SEL 5CB8 AND SEL 5CB9 OOS	SEL T1	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
	SEL T2 & SEL T3	Same as Table 2.2 with SEL (5CB8 & 5CB9) OOS
	SEL T4	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
SEL (5CB3 & 5CB4) OOS (note: 5L92 OOS)	SEL T1	Same as Table 2.2 with SEL (5CB3 & 5CB4) OOS
	SEL T2 & SEL T3	No gen shedding
	SEL T4	If SEL 230/500 kV MVA > SELT1&T2MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.18 * (SEL 230/500 kV MVA + 2L112 NLY MW – SELT1&T2MVA_0.5hr_Rating) MW Note 7 in Section 2.0

Table 2.36 – SEL T3 O.O.S. and SEL 2CBx O.O.S

Table 2.36 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- SEL 2CB11 OOS: 25L (SLC-BSS) must be open.

Table 2.36 (b) Generation Shedding Requirements (SEL T3 O.O.S. and SEL 2CBx O.O.S)

CONDITION "2CBx"	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB3 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	Shed at SEV G3&G4/WAN: • $1.24 * (($ SEV G3&G4 - 2L289 SEL – 2L299 SEL – $0.87 * $ 2L293 SEL $) - 1195)$ MW Select SEV G3&G4 for shed first with the shedding efficiency at 1.0 Select WAN for shed second with the shedding efficiency at 0.71

	SEL T4	If SEL 230/500 kV MVA > (SELT1&T2MVA_0.5hr_Rating, or
		If SEL 230/500 kV MVA – SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		• Arm DTT 2L112 RAS
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		  • $1.13 * (0.96 * $ SEL 230/500 kV MVA + $0.66 * $ 2L112 NLY – SELT1&T2MVA_0.5hr_Rating), or
		  • $1.07 * (0.96 * $ SEL 230/500 kV MVA – SEV (G1 & G2) + 2L295 SEL + $0.66 * $ 2L112 NLY – 1195) MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.80
		
		Note 7 in Section 2.0.

	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB4 OOS	SEL T1	• Same as the SEL T OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	• No gen shedding
	SEL T4	• Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB5 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No generation shedding
	SEL T4	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31.
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open

SEL 2CB6 OOS	SEL T1	If SEL 230/500 kV MVA > SELT2&T4MVA_0.5hr_Rating, or
		If SEL 230/500 kV MVA – SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		• Arm DTT 2L112 RAS
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		  • $1.13 * (0.96 * $ SEL 230/500 kV MVA + $0.66 * $ 2L112 NLY – SELT2&T4MVA_0.5hr_Rating), or
		  • $1.07 * (0.96 * $ SEL 230/500 kV MVA – SEV (G1 & G2) + 2L295 SEL + $0.66 * $ 2L112 NLY – 1195) MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.80
		
		Note 7 in Section 2.0

	SEL T2 & SEL T3	No generation shedding
	SEL T4	Same as SEL T4 contingency with SEL 2CB3 OOS in this Table 2.36 (b)
	All 230 kV contingencies except 2L293 contingency	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	Same as Table 2.3 with SEL 2CB6 OOS
SEL 2CB7 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No generation shedding
	SEL T4	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB8 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No generation shedding
	SEL T4	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	All 230 kV contingencies	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
SEL 2CB9 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No generation shedding
	SEL T4	Use the same gen shedding rule in Table 2.31, plus an additional requirement that the KCL units selected for 2L295 contingency must be included.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	Same as Table 2.3 with SEL 2CB9 OOS
	2L293	Same as Table 2.3 with SEL 2CB9 OOS
SEL 2CB10 OOS	SEL T1	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31.
	SEL T2 & SEL T3	No generation shedding
	SEL T4	Use the same gen shedding rule in the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the KCL + ALH + BRX units armed for 2L289 contingency must be included.
	All 230 kV contingencies except contingencies 2L289, 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 (SEL T4 will be tripped also)	Same as Table 2.3 with SEL 2CB10 OOS
	2L293	Same as Table 2.3 with SEL 2CB10 OOS

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL 2CB11 OOS	SEL T1	Same as SEL 2CB6 OOS in this Table 2.36 (b)
	SEL T2 & SEL T3	Same as SEL T2&T3 contingency with SEL 2CB3 OOS in this Table 2.36 (b)
	SEL T4	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31, plus an additional requirement that the KCL units armed for 2L295 contingency must be included.
	2L289	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L295	Same as Table 2.3 with SEL 2CB11 OOS
	2L299	VAS-WTS loop is closed: Same as contingency 2L299 AND 2L289 in Table A.1 VAS-WTS loop is open: Same as contingency 2L299 AND 2L289 in Table B.1
	2L288 & 2L295	Same as Table 2.3 with SEL 2CB11 OOS
	2L288 & 2L299	Same as Table 2.3 with SEL 2CB11 OOS
	2L295 & 2L299	VAS-WTS loop closed: Same as contingency 2L289 & 2L295 & 2L299 in Table A.1 VAS-WTS loop open: Same as contingency 2L289 & 2L295 & 2L299 in Table B.1
	2L293	Same as Table 2.3 with SEL 2CB11 OOS
	2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289 & 2L295 & 2L299	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L288 & 2L295 & 2L299	Same as Table 2.3 with SEL 2CB11 OOS
	2L277	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	62L	Same as Table A.1
	77L	Same as Table A.1
	2L288	Same as Table A.1
	2L294	Same as Table A.1
	2L221	Same as Table A.1
	2L222	Same as Table A.1
	2L286	Same as SEL T2 AND SEL 2CB11 OOS in Table 2.26
SEL 2CB12 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No gen shedding
	SEL T4	Use the same gen shedding rule in Table 2.31, plus an additional requirement that the KCL + ALH + BRX units armed by 2L289 contingency must be selected first.
	All 230 kV contingencies except contingency 2L293	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L293	Same as Table 2.3 with SEL 2CB12 OOS
SEL 2CB13 OOS	SEL T1	Same as the SEL T3 OOS & All SEL CBs I/S Table 2.31
	SEL T2 & SEL T3	No generation shedding
	SEL T4	VAS-WTS loop closed: Same as gen shedding for 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as gen shedding for 2L289 & 2L299 contingency in Table B.1
	All 230 kV contingencies except contingencies 2L289, 2L289 & 2L295	• Same as Table A.1 if VAS-WTS loop is closed, or • Same as Table B.1 if VAS-WTS loop is open
	2L289	VAS-WTS loop closed: Same as 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L299 contingency in Table B.1
	2L289 & 2L295	VAS-WTS loop closed: Same as 2L289 & 2L295 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L295 & 2L299 contingency in Table B.1
SEL 2CB5 & 2CB6 OOS (Note: 2L222 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T3 OOS Table 2.31 (b)
	All 230 kV contingencies	• Same as Table A.12 if VAS-WTS loop is closed, or • Same as Table B.12 if VAS-WTS loop is open
SEL 2CB7 & 2CB8 OOS (Note: 2L221 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T3 OOS Table 2.31 (b)
	All 230 kV contingencies	• Same as Table A.11 if VAS-WTS loop is closed, or • Same as Table B.11 if VAS-WTS loop is open
SEL 2CB3 & 2CB5 & 2CB13 OOS (Note: 2L293 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	VAS-WTS loop closed Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table A.5 VAS-WTS loop open Same as gen shedding for 2L289 & 2L299 contingency in 2L293 OOS Table B.5
	All 230 kV contingencies	• Same as 2L293 OOS Table A.5 if VAS-WTS loop is closed, or • Same as 2L293 OOS Table B.5 if VAS-WTS loop is open

SEL 2CB9 & 2CB10 OOS (Note: 2L295 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T3 OOS Table 2.31 (b)
	All 230 kV contingencies except contingency 2L293	• Same as 2L295 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L295 OOS Table B.7 if VAS-WTS loop is open
	2L293	Same as SEL 2CB9 OOS in Table 2.3
SEL 2CB11 & 2CB12 OOS (Note: 2L289 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4	Same as SEL T3 OOS Table 2.31 (b)
	All 230 kV contingencies except contingency 2L293	• Same as 2L289 OOS Table A.4 if VAS-WTS loop is closed, or • Same as 2L289 OOS Table B.4 if VAS-WTS loop is open
	2L293	Same as SEL CB11 & SEL 2CB12 OOS (2L289 OOS) in Table 2.3
SEL 2CB12 & 2CB13 OOS (Note: 2L299 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4 (2L289 will be tripped also)	Same as SEL T3 OOS Table 2.31 (b), with the additional requirement that the armed KCL/ALH/BRX units for 2L289 contingency must be selected first.
	All 230 kV contingencies	• Same as 2L299 OOS Table A.7 if VAS-WTS loop is closed, or • Same as 2L299 OOS Table B.7 if VAS-WTS loop is open
SEL 2CB4 & 2CB8 & 2CB9 OOS (Note: 2L286 OOS)	SEL T1	Same as SEL T3 OOS Table 2.31 (b)
	SEL T2 & SEL T3	No generation shedding.
	SEL T4 (2L295 will be tripped also)	Same as SEL T3 OOS Table 2.31 (b), with the additional requirement that the armed KCL/ALH/BRX units for 2L295 contingency must be selected first.
	All 230 kV contingencies	• Same as Table A.13 if VAS-WTS loop is closed, or • Same as Table B.13 if VAS-WTS loop is open

End of Table 2.36

Table 2.41 – SEL (T2 & T3) O.O.S with all SEL CBs I/S

Table 2.41 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.41

Table 2.41 (b) Generation Shedding Requirements (SEL (T2 & T3) O.O.S with all SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.41.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	REQUIRED ACTIONS AND SHEDDING
SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.083 * SEL T1 230 kV MW > 400 MW, or 2L293 SEL + 0.140 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.92 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.74 * (0.92 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
SEL T4	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.083 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.140 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.92 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.74 * (0.92 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW

End of Table 2.41.

Table 2.42 – SEL (T2 & T3) O.O.S. AND 2L112 O.O.S. AND All SEL CBs I/S

Table 2.42 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.42 (b) Generation Shedding Requirements

Notes:
- Generation shedding requirements in reference tables A.2 and B.2 are applicable to this Table 2.42.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
SEL T4	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW

Table 2.43 – SEL (T2 & T3) O.O.S. AND 2L293 O.O.S. AND All SEL CBs I/S

Table 2.43 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.5 and B.5 are applicable to this table 2.43.

Table 2.43 (b) Generation Shedding Requirements

Notes:
- Generation shedding requirements in reference tables A.5 and B.5 are applicable to this Table 2.43.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.028 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.96 * SEL 230/500 kV MVA + 0.37 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.57 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.23 * (0.96 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.47
SEL T4	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.028 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX: 1.14 * (0.96 * SEL 230/500 kV MVA + 0.37 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.57 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.23 * (0.96 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.47

Table 2.44 – SEL (T2 & T3) O.O.S. AND 2L294 O.O.S. AND All SEL CBs I/S

Table 2.44 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.44 (b) Generation Shedding Requirements

Notes:
- Generation shedding requirements in reference tables A.6 and B.6 are applicable to this Table 2.44.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.091 * SEL T1 230 kV MW > 400 MW, or 2L293 SEL + 0.094 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.13 * (0.94 * SEL 230/500 kV MVA + 0.94 * 2L112 NLY – SELT4MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.54 * (0.94 * SEL 230/500 kV MVA – SELT4MVA_0.5hr_Rating) MW
SEL T4	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.091 * SEL T4 230 kV MW > 400 MW, or 2L293 SEL + 0.094 * SEL T4 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.13 * (0.94 * SEL 230/500 kV MVA + 0.94 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.54 * (0.94 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW

Table 2.45 – SEL (T2 & T3) O.O.S. AND SEL 5CB O.O.S.

Table 2.45 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference Tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.45.

Table 2.45 (b) Generation Shedding Requirements
(SEL (T2 & T3) O.O.S. AND SEL 5CB O.O.S)

Note: Pre-outage restrictions and generation shedding requirements in reference Tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.45.

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL (T2 & T3) & SEL 5CB (1 or/and 2) & SEL 5CB3 OOS	SEL T1	Same as the SEL (T2 & T3) OOS & All SEL CBs I/S Table 2.41

	SEL T4	If (0 <= AB to BC <= 100 MW, or 0 < BC to AB <= 100 MW) and (5L91 + 5L96) SEL MW > SELT1MVA_0.5hr_Rating, then,
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT1MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		If (AB to BC > 100 MW, or BC to AB > 100 MW) and (5L91 + 5L96 + 5L92) SEL MW > SELT1MVA_0.5hr_Rating + 60, then
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY – SELT1MVA_0.5hr_Rating) – 1.1 * (5L92 SEL – BC to AB)
		
		Note 7 in Section 2.0
		The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

SEL T2 & T3 AND SEL 5CB8 AND SEL 5CB9 OOS	SEL T1	Same as the SEL (T2 & T3) OOS & All SEL CBs I/S Table 2.41, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
	SEL T4	Same as the SEL (T2 & T3) OOS & All SEL CBs I/S Table 2.41, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
SEL T2 & T3 AND SEL (5CB5 & 5CB11) OOS	SEL T1	Same as the SEL (T2 & T3) OOS & All SEL CBs I/S Table 2.41, plus an additional requirement that the units selected for 5L91 contingency must be included. (This is not implemented in TSA)
	SEL T4	Same as the SEL (T2 & T3) OOS & All SEL CBs I/S Table 2.41, plus an additional requirement that the units selected for 5L96 contingency must be included. (This is not implemented in TSA)
SEL T2 & T3 AND SEL (5CB3 & 5CB4) OOS (Note: 5L92 OOS)	SEL T1	Same as Table 2.2 with SEL (5CB3 & 5CB4) OOS
	SEL T4	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, then • Arm DTT 2L112 RAS. • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.18 * (SEL 230/500 kV MVA + 2L112 NLY MW – SELT1MVA_0.5hr_Rating) MW Note 7 in Section 2.0

Table 2.46 – SEL (T2 & T3) O.O.S. AND SEL 2CB O.O.S.

Table 2.46 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.46 (b) Generation Shedding Requirements
(SEL (T2 & T3) O.O.S. AND SEL 2CB O.O.S)

Notes:
- Generation shedding requirements in reference Tables A.1 and B.1 are applicable to this Table 2.46.
- Note 7 in Section 2.0 is applicable to this table.

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING

SEL T2 & SEL T3 & SEL 2CB6 & SEL 2CB7 OOS	SEL T1	If SEL 230/500 kV MVA > SELT4MVA_0.5hr_Rating, or
		If SEL 230/500 kV MVA − SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		• Arm DTT 2L112 RAS
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		  • 1.18 * (0.91 * SEL 230/500 kV MVA + 0.45 * 2L112 NLY − SELT4MVA_0.5hr_Rating), or
		  • 1.35 * (0.91 * SEL 230/500 kV MVA − SEV (G1 & G2) + 2L295 SEL + 0.45 * 2L112 NLY − 1195) MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.89

	SEL T4	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, or
		If SEL 230/500 kV MVA − SEV (G1 & G2) MW + 2L295 SEL > 1195, then
		• Arm DTT 2L112 RAS
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX the greater of:
		  • 1.18 * (0.91 * SEL 230/500 kV MVA + 0.45 * 2L112 NLY − SELT1MVA_0.5hr_Rating), or
		  • 1.35 * (0.91 * SEL 230/500 kV MVA − SEV (G1 & G2) + 2L295 SEL + 0.45 * 2L112 NLY − 1195) MW, for this requirement, select SEV G3&G4 for shed first with the shedding efficiency at 1.0, select WAN for shed second with the shedding efficiency at 0.89

Table 2.51 – SEL T4 O.O.S. and All SEL CBs I/S

Table 2.51 (a) Pre-Outage Restrictions
- Pre-outage restrictions in in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.51.

Table 2.51 (b) Generation Shedding Requirements (SEL T4 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.51 except for 2L295 & 2L299 contingency.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS

SEL T1	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.059 * SEL T1 230 kV MW > 400 MW, or
	2L293 SEL + 0.100 * SEL T1 230 kV MW > 400 MW), then
	  • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	  • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.14 * (0.96 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY − SELT2&T3MVA_0.5hr_Rating) MW
	Otherwise,
	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.56 * (0.96 * SEL 230/500 kV MVA − SELT2&T3MVA_0.5hr_Rating) MW

SEL T2 & SEL	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND
	(If 2L112 NLY < 0, or
	2L112 NLY + 0.083 * SEL (T2 & T3) 230 kV MW > 400 MW, or
	2L293 SEL + 0.139 * SEL (T2 & T3) 230 kV MW > 400 MW), then
	  • Arm DTT 2L112 RAS
	
	If DTT 2L112 RAS is armed, then
	  • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.27 * (0.91 * SEL 230/500 kV MVA + 0.9 * 2L112 NLY − SELT1MVA_0.5hr_Rating) MW
	Otherwise,
	  • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.87 * (0.91 * SEL 230/500 kV MVA − SELT1MVA_0.5hr_Rating) MW

2L295 & 2L299	For all conditions in Table A.1, A.3, A. 8 ~ A.13, B.1, B.3 and B.8 ~ B.13 • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table A.1 if VAS-WTS loop is closed, • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table B.1 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output. 2L289 O.O.S: • Same as 2L295 & 2L299 contingency in Table A.4 if VAS-WTS loop is closed, or • Same as 2L295 & 2L299 contingency in Table B.4 if VAS-WTS loop is open
2L295 & 2L299	For all conditions in Table A.1, A.3, A. 8 ~ A.13, B.1, B.3 and B.8 ~ B.13 • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table A.1 if VAS-WTS loop is

	closed, or • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table B.1 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output. 2L289 O.O.S: • Same as 2L295 & 2L299 contingency in Table A.4 if VAS-WTS loop is closed, or • Same as 2L295 & 2L299 contingency in Table B.4 if VAS-WTS loop is open
2L295 (with 2L299 O.O.S)	• Same as 2L295 (with 2L299 O.O.S) contingency in Table A.7
2L299 (with 2L295 O.O.S)	• Same as 2L299 (with 2L295 O.O.S) contingency in Table A.7

Table 2.52 – SEL T4 and 2L112 O.O.S. and All SEL CBs I/S

Table 2.52 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.52 (b) Generation Shedding Requirements (SEL T4 and 2L293 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.2 and B.2 are applicable to this Table 2.52 except for 2L295 & 2L299 contingency.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.15 * (SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW
2L295 & 2L299	• Same as 2L289 & 2L295 & 2L299 contingency in Table A.2 if VAS-WTS loop is closed, or • Same as 2L289 & 2L295 & 2L299 contingency in Table B.2 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output.

Table 2.53 – SEL T4 and 2L293 O.O.S. and All SEL CBs I/S

Table 2.53 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference tables A.5 and B.5 are applicable to this Table 2.53.

Table 2.53 (b) Generation Shedding Requirements (SEL T4 and 2L293 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.5 and B.5 are applicable to this Table 2.53 except for 2L295 & 2L299 contingency.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.018 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.10 * (0.99 * SEL 230/500 kV MVA + 0.414 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.7 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.99 * SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.4
SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.022 * SEL (T2 & T3) 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.12 * (0.97 * SEL 230/500 kV MVA + 0.414 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.7 Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.20 * (0.97 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW Shed KCL/SEV/ALH/BRX/WAX first with the shedding efficiency at 1.0. Shed WAN second with the shedding efficiency at 0.4
2L295 & 2L299	• Same as 2L289 & 2L295 & 2L299 contingency in Table A.5 if VAS-WTS loop is closed, or • Same as 2L289 & 2L295 & 2L299 contingency in Table B.5 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output.

Table 2.54 – SEL T4 and 2L294 O.O.S. and All SEL CBs I/S

Table 2.54 (a) Pre-Outage Restrictions
- Refer to Section 1.4.

Table 2.54 (b) Generation Shedding Requirements (SEL T4 and 2L294 O.O.S and All SEL CBs I/S)

Notes:
- Generation shedding requirements in reference tables A.6 and B.6 are applicable to this Table 2.54 except for 2L295 & 2L299 contingency.
- Note 7 in Section 2.0 is applicable to this table.

CONTINGENCY	SHEDDING REQUIREMENTS
SEL T1	If SEL 230/500 kV MVA > SELT2&T3MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.065 * SEL T1 230 kV MW > 400 MW, or 2L293 SEL + 0.068 * SEL T1 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.11 * (0.97 * SEL 230/500 kV MVA + 0.97 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.47 * (0.97 * SEL 230/500 kV MVA – SELT2&T3MVA_0.5hr_Rating) MW
SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.092 * SEL (T2 & T3) 230 kV MW > 400 MW, or 2L293 SEL + 0.096 * SEL (T2 & T3) 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.13 * (0.93 * SEL 230/500 kV MVA + 0.97 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.48 * (0.93 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW
2L295 & 2L299	• Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table A.1 if VAS-WTS loop is closed, or • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table B.1 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output.

Table 2.55 – SEL T4 AND SEL 5CB O.O.S.

Table 2.55 (a) Pre-Outage Restrictions
- Pre-outage restrictions in reference Tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.55.

Table 2.55 (b) Generation Shedding Requirements
(SEL T4 AND SEL 5CB O.O.S)

Notes:
- Generation shedding requirements in reference Tables A.1, A.3, A.4, A.7 ~ A.13, B.1, B.3, B.4 and B.7 ~ B.13 are applicable to this Table 2.55 except for 2L295 & 2L299 contingency.
- Note 7 in Section 2.0 is applicable to this table.

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL T4 AND SEL (5CB1 or/and 5CB2) OOS	SEL T1	Same as the SEL T4 OOS & All SEL CBs I/S Table 2.51.
	SEL T2 & SEL T3	Same as the SEL T4 OOS & All SEL CBs I/S Table 2.51
	2L295 & 2L299	For all conditions in Table A.1, A.3, A. 8 ~ A.13, B.1, B.3 and B.8 ~ B.13 • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table A.1 if VAS-WTS loop is closed, or • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table B.1 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output. 2L289 O.O.S: • Same as 2L295 & 2L299 contingency in Table A.4 if VAS-WTS loop is closed, or • Same as 2L295 & 2L299 contingency in Table B.4 if VAS-WTS loop is open
	2L295 (with 2L299 O.O.S)	• Same as 2L295 (with 2L299 O.O.S) contingency in Table A.7
	2L299 (with 2L295 O.O.S)	• Same as 2L299 (with 2L295 O.O.S) contingency in Table A.7

SEL T4 AND SEL 5CB4 AND SEL 5CB8 AND SEL 5CB11 OOS	SEL T1	(SEL T1 contingency will trip open 5L91 & 5L96.) • Arm DTT 2L112 RAS • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.1 * (SEL 230 / 500 kV MVA + 0.9 * 2L112 NLY – SELT2&T3MVA_0.5hr_Rating) Select the units armed for 5L91 & 5L96 contingency first (This is not implemented in TSA). If generation shedding is armed, keep the same minimum units on-line post-shedding as that for 5L91 & 5L96 contingency.

	SEL T2 & SEL T3	If (AB to BC >= 0, or 0 < BC to AB < 100 MW) and (5L91 + 5L96) SEL MW > SELT1MVA_0.5hr_Rating, Then,
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		• 1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1MVA_0.5hr_Rating) – 1.1 * 5L92 SEL
		
		If BC to AB >= 100 MW and (5L91 + 5L96 + 5L92) SEL MW > SELT1MVA_0.5hr_Rating + 60, then
		• Arm DTT 2L112 RAS.
		• Shed at KCL/SEV/ALH/WAN/BRX/WAX:
		1.15 * (SEL 230/500 kV MVA + 0.9 * 2L112 NLY– SELT1MVA_0.5hr_Rating) – 1.1 * (5L92 SEL - BC to AB)
		
		The units selected for 5L92 contingency must be included. (This is not implemented in TSA)

	2L295 & 2L299	For all conditions in Table A.1, A.3, A.8 ~ A.13, B.1, B.3 and B.8 ~ B.13 • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table A.1 if VAS-WTS loop is closed, or • Same as 2L289 & 2L295 & 2L299 contingency with KCL 2CB13 OOS in Table B.1 if VAS-WTS loop is open Note: 2L295 & 2L299 contingency will result in 2L289 tripping open. However, the 2L289 & 2L295 & 2L299 contingency signal cannot be sent to FBC since SEL 2CB11 is still connected. The following pre-outage restrictions shall be applied. • Open KCL 2CB13, 25L at SLC and limit each BRD unit output to 80% of its maximum output. 2L289 O.O.S: • Same as 2L295 & 2L299 contingency in Table A.4 if VAS-WTS loop is closed, or • Same as 2L295 & 2L299 contingency in Table B.4 if VAS-WTS loop is open
	2L295 (with 2L299 O.O.S)	• Same as 2L295 (with 2L299 O.O.S) contingency in Table A.7
	2L299 (with 2L295 O.O.S)	• Same as 2L299 (with 2L295 O.O.S) contingency in Table A.7

Table 2.56 – SEL T4 AND SEL 2CB O.O.S

Table 2.56 (a) Pre-Outage Restrictions
- Refer to Section 1.4.
- SEL (2CB10 & 2CB11) OOS: 25L (SLC-BSS) must be open.

Table 2.56 (b) Generation Shedding Requirements
(SEL T4 AND SEL 2CB O.O.S)

CONDITION	CONTINGENCY	REQUIRED ACTIONS AND GENERATION SHEDDING
SEL T4 & SEL 2CB10 & SEL 2CB11 OOS	SEL T1	Same as SEL T4 contingency with SEL T1 & SEL 2CB3 & SEL 2CB4 OOS in Table 2.16 (b).
	SEL T2 & SEL T3	If SEL 230/500 kV MVA > SELT1MVA_0.5hr_Rating, AND (If 2L112 NLY < 0, or 2L112 NLY + 0.09 * SEL (T2 & T3) 230 kV MW > 400, or 2L293 SEL + 0.15 * SEL (T2 & T3) 230 kV MW > 400 MW), then • Arm DTT 2L112 RAS If DTT 2L112 RAS is armed, then • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.23 * (0.90 * SEL 230/500 kV MVA + 0.55 * 2L112 NLY – SELT1MVA_0.5hr_Rating) MW Otherwise, • Shed at KCL/SEV/ALH/WAN/BRX/WAX: 1.79 * (0.90 * SEL 230/500 kV MVA – SELT1MVA_0.5hr_Rating) MW Note 7 in Section 2.0
	All 230 kV contingencies except for contingencies 2L293, 2L299, 2L288 & 2L299, 2L295 & 2L299, 2L288 & 2L295 & 2L299	VAS-WTS loop closed: Same as Table A.1 VAS-WTS loop open: Same as Table B.1
	2L299	VAS-WTS loop closed: Same as 2L289 & 2L299 contingency in Table A.1 VAS-WTS loop open: Same as 2L289 & 2L299 contingency in Table B.1
	2L288 & 2L299	Same as 2L288 & 2L299 contingency with SEL 2CB11 OOS in Table 2.3
	2L295 & 2L299	VAS-WTS loop closed: Same as 2L289 & 2L295 & 2L299 contingency in Table A.1. VAS-WTS loop open: Same as 2L289 & 2L295 & 2L299 contingency in Table B.1 Note: 2L295 & 2L299 contingency will result in 2L289 tripping open.
	2L293	Same as 2L293 contingency with SEL 2CB11 OOS in Table 2.3.
	2L288 & 2L295 & 2L299	Same as 2L288 & 2L295 & 2L299 contingency with SEL 2CB11 OOS in Table 2.3

4.0   SEL Transformer DAAT Diagrams

The ambient temperature dependent continuous ratings of SEL (T1, T2, T3, T4) are used to determine pre-contingency SEL 230 kV to 500 kV transfer limits which are shown in Section 5 of SOO 7T-34 Main Body.

Diagram 1: SEL T1 or SEL T4 Continuous Thermal Limit Versus DAAT (°C) at SEL
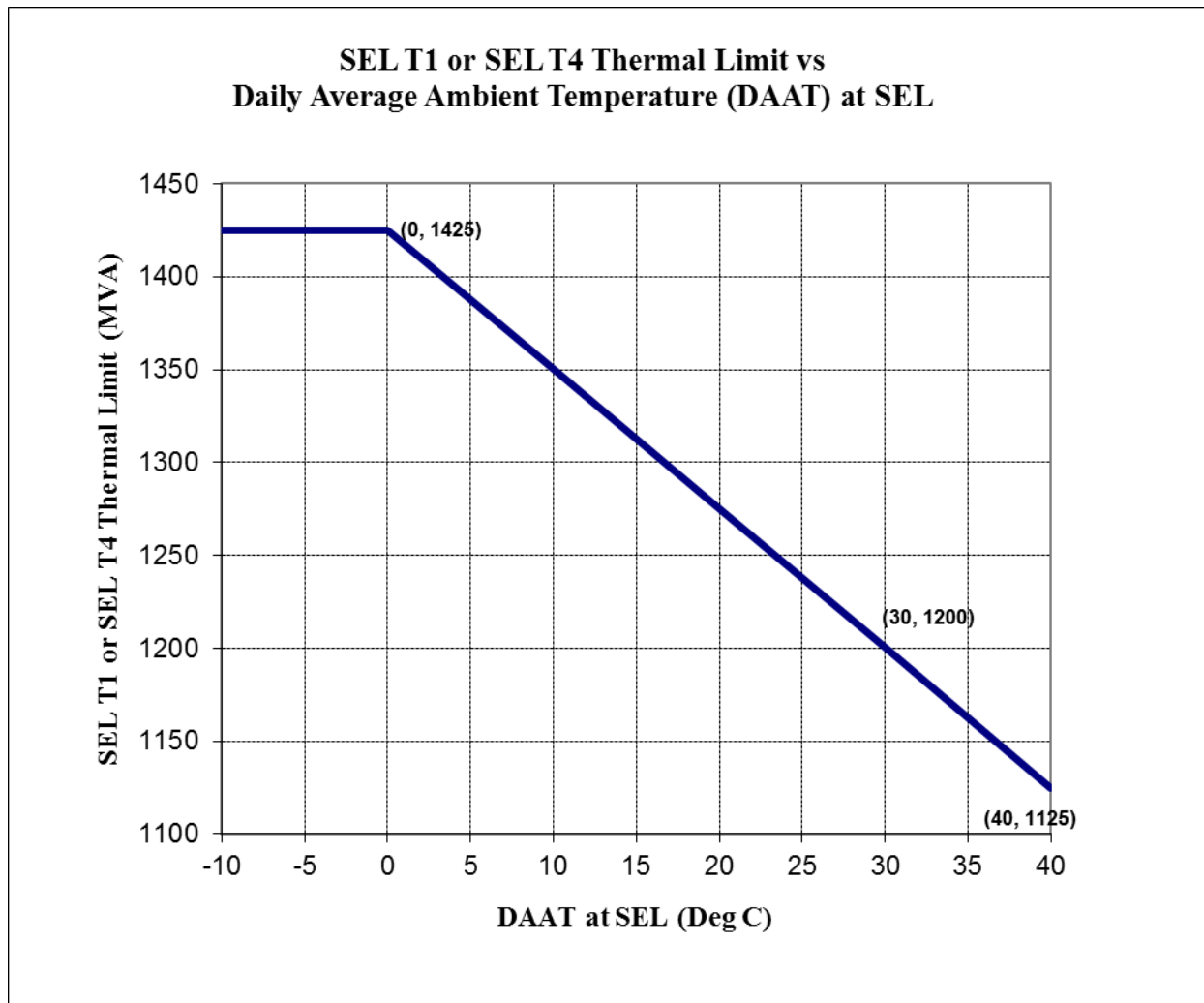

Diagram 2: SEL T2 or SEL T3 Continuous Thermal Limit versus DAAT (°C) at SEL
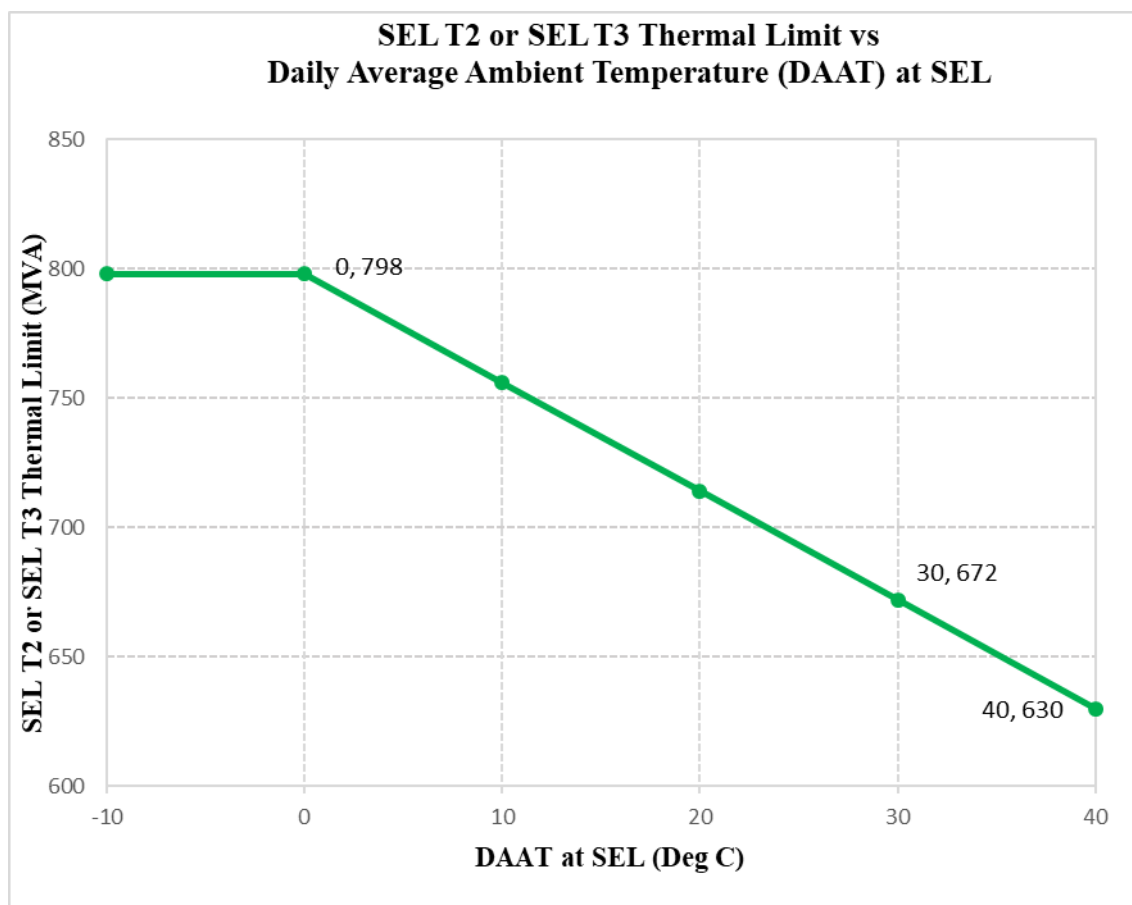
Diagram 3: SEL T1 & T2 & T3 or SEL T2 &T 3 & T4 Continuous Thermal Limit versus DAAT (°C) at SEL
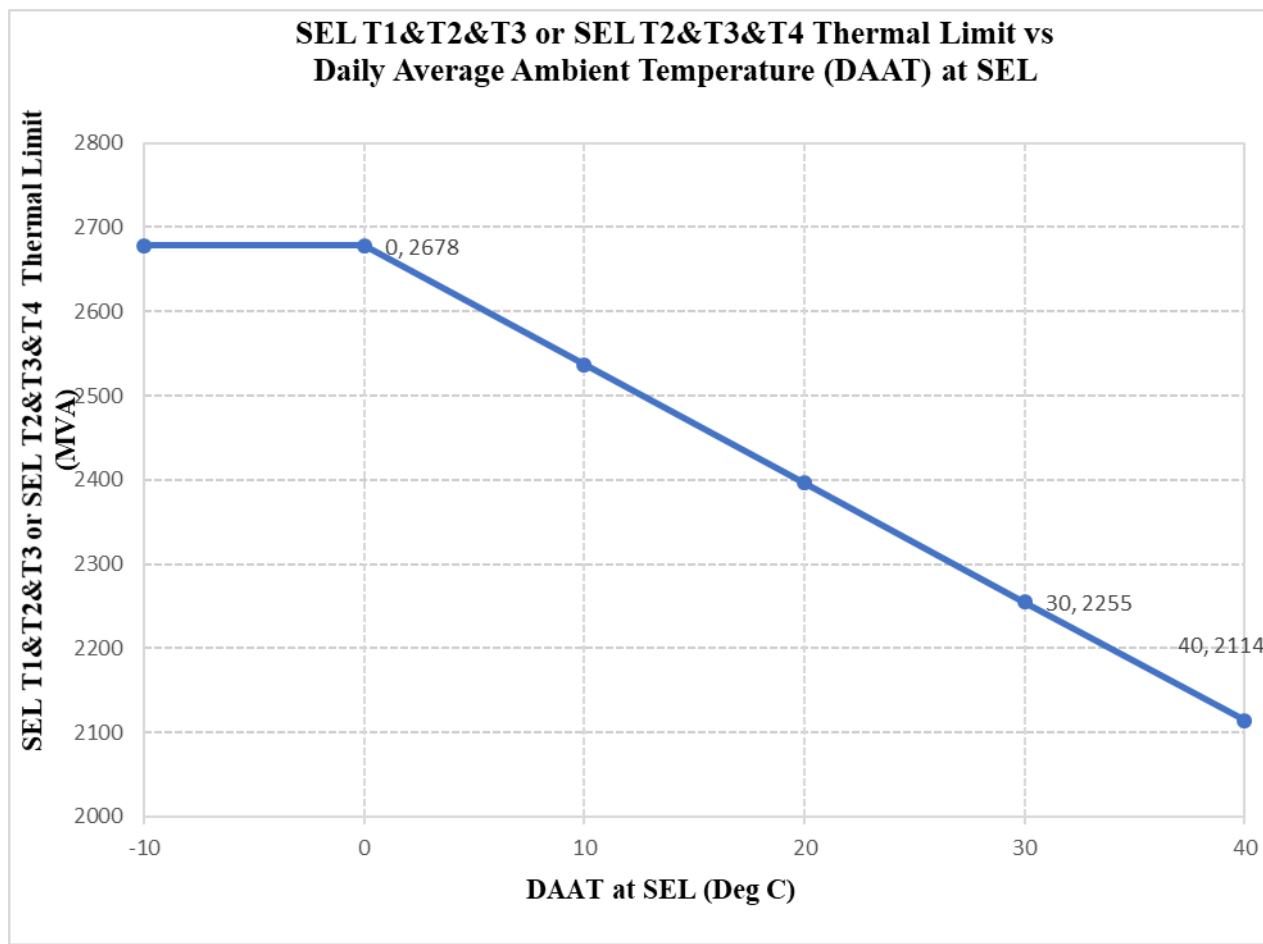

SEL T1&T2&T3 or SEL T2&T3&T4 Thermal Limit vs
Daily Average Ambient Temperature (DAAT) at SEL

Data points: 0, 2678; 30, 2255; 40, 2114

Y-axis: SEL T1&T2&T3 or SEL T2&T3&T4 Thermal Limit (MVA)
X-axis: DAAT at SEL (Deg C)

Diagram 4: SEL T1 & T2 &T4 or SEL T1 & T3 & T4 Continuous Thermal Limit versus DAAT (°C) at SEL
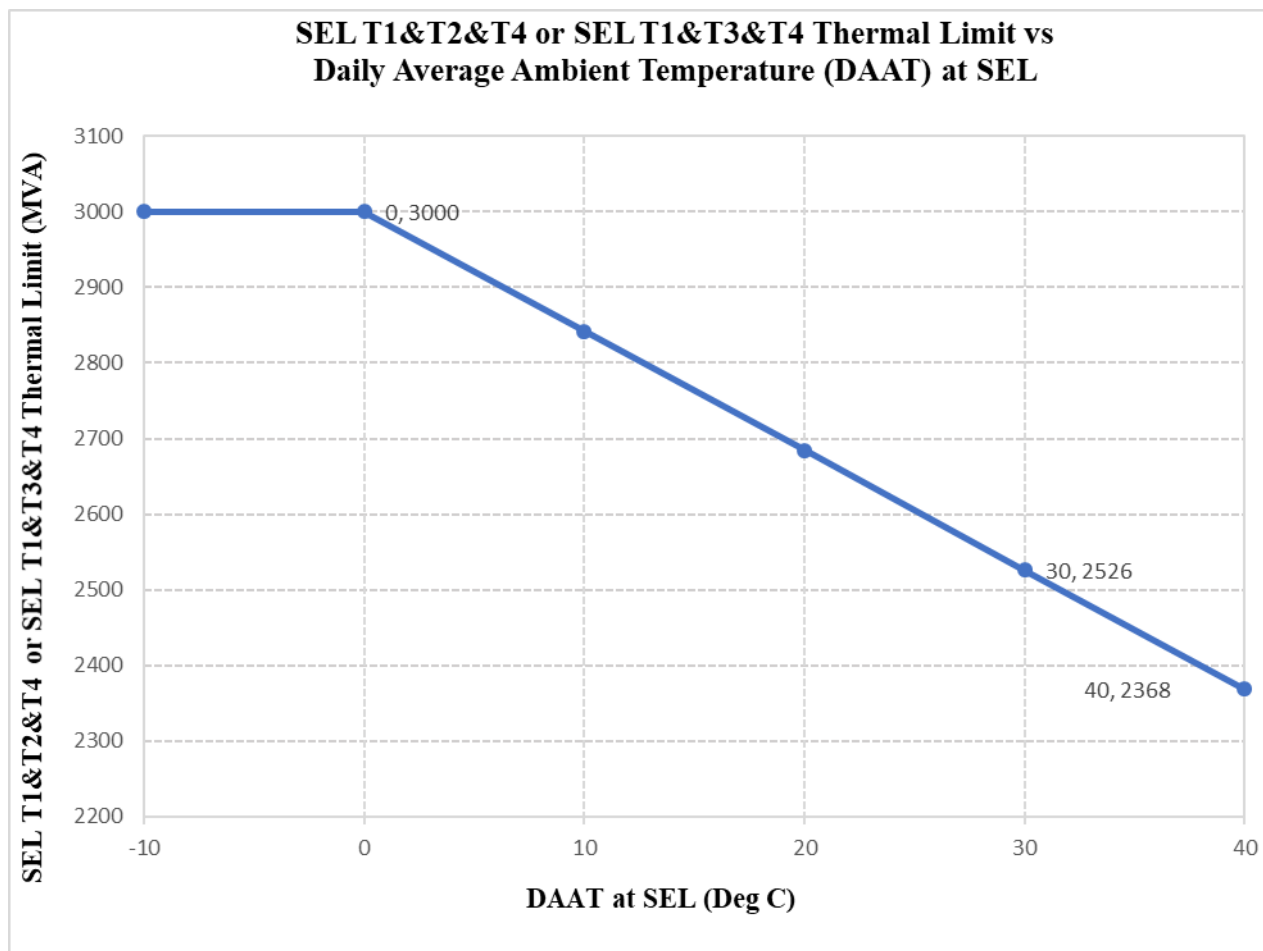

SEL T1&T2&T4 or SEL T1&T3&T4 Thermal Limit vs
Daily Average Ambient Temperature (DAAT) at SEL

Data points: 0, 3000; 30, 2526; 40, 2368

Y-axis: SEL T1&T2&T4 or SEL T1&T3&T4 Thermal Limit (MVA)
X-axis: DAAT at SEL (Deg C)

Diagram 5: SEL T1 & T4 Continuous Thermal Limit versus DAAT (°C) at SEL

SEL T1 & T4 Thermal Limit vs
Daily Average Ambient Temperature (DAAT) at SEL

(0, 2850)
(10, 2700)
(20, 2550)
(30, 2400)
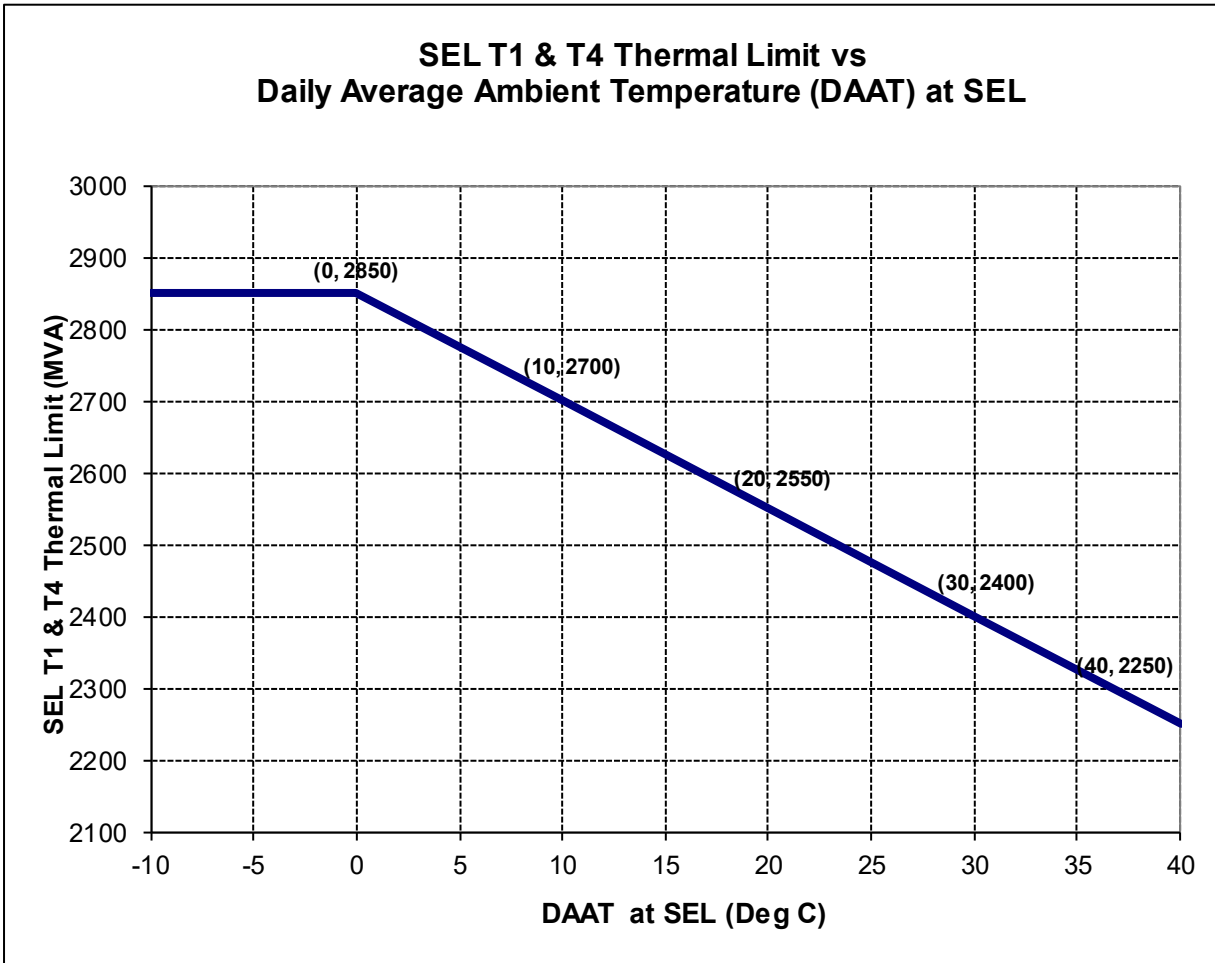(40, 2250)

y-axis: SEL T1 & T4 Thermal Limit (MVA)
x-axis: DAAT at SEL (Deg C)

Diagram 6: SEL T1 &T 2 or T2 & T4 or T1 & T3 or T3 & T4 Continuous Thermal Limit versus DAAT (°C) at SEL

SEL T1&T2 or SEL T2&T4 or SEL T1&T3 or SEL T3&T4 Thermal
Limit vs Daily Average Ambient Temperature (DAAT) at SEL

0, 1861
30, 1567
40, 1469

y-axis: SEL T1&T2 or SEL T2&T4 or SEL T1&T3 or SEL T3&T4 Thermal Limit (MVA)
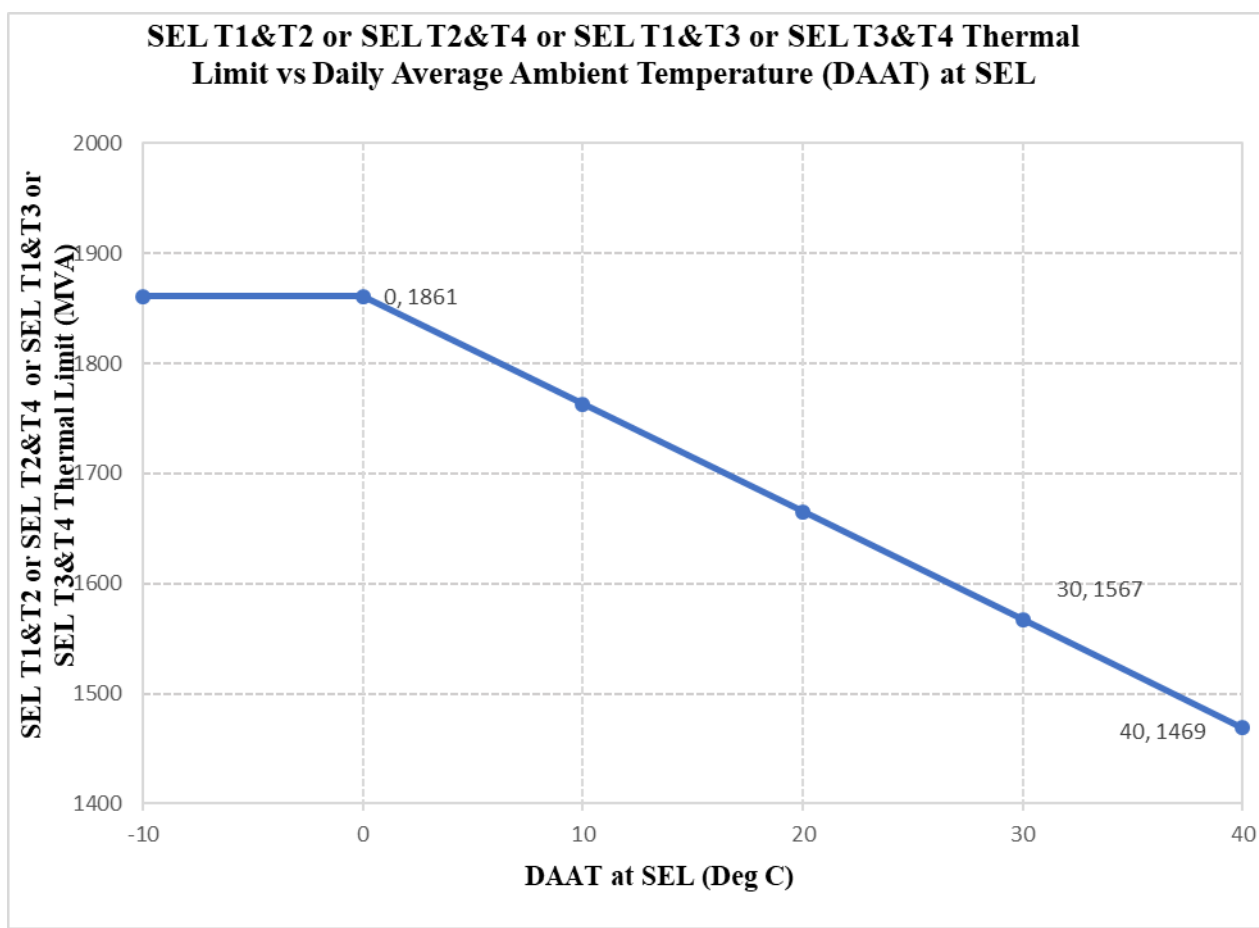x-axis: DAAT at SEL (Deg C)

Diagram 7: SEL T2 & T3 Continuous Thermal Limit versus DAAT (°C) at SEL

SEL T2&T3 Thermal Limit vs
Daily Average Ambient Temperature (DAAT) at SEL