

APPENDIX F: Contingencies on the ISO System that may Impact Adjacent Systems

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2017-2018 ISO Transmission Planning Process
Contingencies on the ISO System which may impact Adjacent Systems

Study Area: PG&E Bulk

Contingency files: PGE Bulk Contingency Files.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)	Contingency Name
1	P1_2-21.swt	N-1	shunt capacitor insertion on Table Mtn and/or Malin if low voltages	Captain Jack- Olinda 500 kV, flow North to South
2	P1_2-21_off_pk.swt	N-1		Captain Jack- Olinda 500 kV, flow South to North
3	P_EXT-1.swt	G-2	FACRI if low voltages	2 Diablo Canyon units
4	P6_1_1-5.swt	N-2	NW generation drop, insertion of shunt capacitors, removal of reactors	Malin-Round Mtn 500 kV # 1 & 2, several RAS options, no RAS off-peak
5	P6_1_1-5_new.swt	N-2		
6	P6_1_1-5_off_pk.swt	N-2		
7	P1_2-19.swt	N-1	shunt capacitor insertion if low voltages	Malin-Round Mtn 500 kV # 1
8	P1_2-20.swt	N-1		Malin-Round Mtn 500 kV # 2
9	P6_1_1-25.swt	N-2		500 kV double line outage north of Los Banos, several RAS options, no RAS on peak
10	P6_1_1-25_sn.swt	N-2	load and generation tripping	
11	P6_1_1-37.swt	N-2	load and generation tripping	500 kV double line outage south of Los Banos, RAS for south to north flow
12	P6_1_1-37_noRAS.swt	N-2		
13	P6_1_1-37_sn	N-2	load and generation tripping	
14	P6_1_1-46.swt	N-2		500 kV double outage North of Midway, RAS for south to north flow
15	P6_1_1-46_sn.swt	N-2	load and generation tripping	
16	NESE.swt	system separation	load and generation tripping, opening ties	Northeast/Southeast system separation
17	PaloVerde-g2-OL-MA-RAS.swt	G-2	load tripping in Arizona	outage of 2 Palo Verde units
18	PaloVerde-g2-OL-MA-RAS_sn.swt	G-2	no load tripping	
19	P7_2-0.swt	DC bi-pole	generation tripping, shunt capacitors insertion	PDCI bi-pole outage with several RAS options
20	P7_2-0_22_hi_renew.swt			
21	P7_2-0_new.swt			
22	P7_2-0_new19.swt			
23	P7_2-0_noRAS.swt			
24	P6_1_1-0.swt	N-2	generation tripping, shunt capacitors insertion	Round Mtn-Table Mtn 500 kV # 1&2, several RAS options
25	P6_1_1-0_new.swt	N-2		
26	P6_1_1-0_off_pk.swt	N-2		
27	P6_1_1-11.swt	N-2	generation tripping, shunt capacitors insertion	500 kV double line outage south of Table Mtn, several RAS options
28	P6_1_1-11_hi_renew.swt	N-2		
29	P6_1_1-11_new19.swt	N-2		
30	P6_1_1-11_new22.swt	N-2		
31	P6_1_1-11_off_pk.swt	N-2		
32	P6_1_1-12.swt	N-2	generation tripping, shunt capacitors insertion	500 kV double line outage north of Tesla, several RAS options
33	P6_1_1-12_new19.swt	N-2		
34	P6_1_1-12_off_pk.swt	N-2		

2017-2018 ISO Transmission Planning Process
Contingencies on the ISO System which may impact Adjacent Systems

Study Area: Consolidated Southern CA SCE

Contingency files: SCE-BULK-OTG.zip, SCE-BULK-SW.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Potentially Affected Adjacent Area [Description of SPS (if any)]
Steady State Contingencies (OTG Format)			
1	line "PALOVRDE 500.00" "COLRIVER 500.00" "1" 1 0	P1	Area 26, Area 21, Area 14
2	line "ELDORDO 500.0" "LUGO 500.0" "1" 1 0	P1	Area 26 [Lugo-Victorville RAS]
3	line "N.GILA 500.00" "IMPRLVLY 500.00" "1" 1 0	P1	Area 21, Area 14
4	line "MOHAVE 500.0" "ELDORDO 500.0" "1" 1 0 line "ELDORDO 500.0" "LUGO 500.0" "1" 1 0	P6/Extreme	Area 26 [Lugo-Victorville RAS]
5	line "ELDORDO 500.0" "LUGO 500.0" "1" 1 0 line "PALOVRDE 500.00" "COLRIVER 500.00" "1" 1 0	P6	Area 26 [Lugo-Victorville RAS]
7	line "N.GILA 500.00" "IMPRLVLY 500.00" "1" 1 0 line "PALOVRDE 500.00" "COLRIVER 500.00" "1" 1 0	P6	Area 26, Area 21, Area 14
6	line "MOHAVE 500.0" "ELDORDO 500.0" "1" 1 0 line "MOHAVE 500.0" "LUGO 500.0" "1" 1 0	P6	Area 18 [NVE RAS]
7	line "ECO 500.00" "MIGUEL 500.00" "1" 1 0 line "OCOTILLO 500.00" "SUNCREST 500.00" "1" 1 0	P6/Extreme	Area 20, Area 21 [San Diego 500 kV N-1 RAS, San Diego Safty Net]
8	line "DEVERS 500.00" "REDBLUFF 500.00" "1" 1 0 line "DEVERS 500.00" "REDBLUFF 500.00" "2" 1 0	P6 (NERC)/ P7 (WECC) /Extreme	Area 26, Area 21, Area 14 [Colorado River Corridor RAS]
9	line "EAGLROCK 230.00" "SYLMAR S 230.00" "1" 1 0 line "SYLMAR S 230.00" "GOULD 230.00" "1" 1 0	P7	Area 26
Stability Contingencies			
	None identified		

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: **SCE Metro**

Contingency files: **SCE-METRO-OTG.zip, SCE-METRO-SW.zip**

Contingency file location: *Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files*

No	Contingency	Category Description	Potentially Affected Adjacent Area [Description of SPS (if any)]
	See contingency list for SCE Bulk system.		

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: SCE North of Lugo

Contingency files: Reliab1415_SCE-NOL_Contingencies.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
1	CONTROL - NEVBD502 55.0 ck 1	N-1	
2	CONTROL - INYO 115.0 ck 1	N-1	
3	CONTROL - INYOKERN 115.0 ck 1	N-1	Bishop RAS - trips Bishop area generation
4	INYOKERN - KRAMER 115.0 ck 1	N-1	
5	KRAMER-INYOKERN-RANDSB 115 ck 1	N-1	Kramer RAS - trips partial or entire generation North of Kramer
6	CONTROL-COSO-INYOKERN 115 ck 2	N-1	Bishop RAS - trips Bishop area generation
7	All common-mode and N-1-1 combinations that include the aforementioned facilities	N-2, Breaker failure, bus outages and N-1-1	
8	Control West Bus	Bus Fault	
9	Control East Bus	Bus Fault	
10	Control-Coso-Haiwee-Inyokern & Control-Haiwee-Inyokern 115kV RAS	N-2	Bishop RAS - trips Bishop area generation

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: **SCE East of Lugo**

Contingency files: Reliab1415_EOL-VEA_Contingencies.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
1	ELDORDO 500/230 kV Bank 3	N-1	
2	ELDORDO 500/230 kV Bank 4	N-1	
3	Eldorado2 220/500-kV Tran Bnk 5	N-1	Ivanpah RAS
4	ELDORDO 500.0 to LUGO 500.0 Circuit 1	N-1	
5	LUGO 500.0 to MOHAVE 500.0 Circuit 1	N-1	
6	MOHAVE 500.0 to ELDORDO 500.0 Circuit 1	N-1	
7	PISGAH 230.0 to CIMA 230.0 to ELDORDO 230.0 Circuit 1	N-1	
8	PISGAH 230.0 to CIMA 230.0 to ELDORDO 230.0 Circuit 2	N-1	
9	ELDORDO2 230.0 to BOB SS 220.0 Circuit	N-1	
10	LUGO 230.0 to PISGAH 230.0 Circuit	N-1	
11	LUGO 230.0 to CALCITE 230.0 to PISGAH 230.0 Circuit	N-1	
12	Ivanpah 230/115kV Transmformer No. 1	N-1	Ivanpah RAS
13	Ivanpah 230/115kV Transmformer No. 2	N-1	Ivanpah RAS
14	Ivanpah-Mountain Pass 115kV Circuit	N-1	Ivanpah RAS
15	Ivanpah-Eldorado 230kV Circuit	N-1	Ivanpah RAS
16	primm-Eldorado 230kV Circuit	N-1	Ivanpah RAS
17	All N-2 and N-1-1 combinations that include the aforementioned facilities	N-2, Breaker failure, bus outages and N-1-1	
18	Bulk_P1_EIDorado_5AA_RAS	N-1	Ivanpah RAS
19	Main_P5-5_Eldorado230	Bus outage	
20	Main_P5-5_EldoradoB230	Bus outage	
21	Bulk_EOL_Lugo-ELD_Mh-500_RAS	N-2 with RAS	Lugo-Eldorado RAS

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: SCE Eastern area

Contingency files: SCE-EASTERN-OTG.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
1	Line PALOVRDE 500.0 to COLRIVER 500.0 Ckt 1	L-1	
2	Line DEVERS 500.0 to VALLEYSC 500.0 Ckt 1	L-1	West of Devers (WOD) RAS / Colorado Corridor RAS (future)
3	Line DEVERS 500.0 to VALLEYSC 500.0 Ckt 2	L-1	West of Devers (WOD) RAS / Colorado Corridor RAS (future)
4	Line DEVERS 500.0 to REDBLUFF 500.0 Ckt 1	L-1	Colorado Corridor RAS (future)
5	Line DEVERS 500.0 to REDBLUFF 500.0 Ckt 2	L-1	Colorado Corridor RAS (future)
6	Line COLRIVER 500.0 to REDBLUFF 500.0 Ckt1	L-1	Colorado Corridor RAS (future)
7	Line COLRIVER 500.0 to REDBLUFF 500.0 Ckt 2	L-1	Colorado Corridor RAS (future)
8	Line DEVERS - MIRAGE 230 kV Ckt 1	L-1	
9	Line DEVERS - MIRAGE 230 kV Ckt 2	L-1	
10	Line MIRAGE - RAMON 230 kV Ckt 1	L-1	
11	Line CVSUB230 - MIRAGE 230 kV Ckt 1	L-1	
12	Line J.HINDS - MIRAGE 230 kV	L-1	Blythe Energy RAS
13	Line JHINDMWD - EAGLEMTN 230 kV	L-1	Blythe Energy RAS
14	Line EAGLEMTN - IRON MTN 230 kV	L-1	Blythe Energy RAS
15	CAMINO - GENE - IRON MTN - MEAD 230 KV	L-1	Blythe Energy RAS
16	Line BLYTHESC - EAGLEMTN 161 kV	L-1	Blythe Energy RAS
17	Line PARKER 230.0 to GENE 230.0 Ckt 1	L-1	
18	GenTie Buck Blvd - J.Hinds	L-1	
19	BLYTHE CCGT OUTAGE	G-1	
20	Tran DEVERS 500/230 1AA Bank	T-1	
21	Tran DEVERS 500/230 2AA Bank	T-1	
22	J.HINDS 25MVAR Shunt Reactor	N-1	
23	Bus Tie Breaker JHINDMWD - J.HINDS 230 kV	C.2	Blythe Energy RAS
24	Line DEVERS 500.0 to VALLEYSC 500.0 Ckt 1 & 2	L-2	West of Devers (WOD) RAS / Colorado Corridor RAS (future)
25	Line DEVERS 500.0 to REDBLUFF 500.0 Ckt 1 & 2	L-2	Colorado Corridor RAS (future)
26	Line COLRIVER 500.0 to REDBLUFF 500.0 Ckt 1 & 2	L-2	Colorado Corridor RAS (future)
27	Line DEVERS - MIRAGE 230 kV Ckt 1 & 2	L-2	
Multiple	N-1/N-1 combinations of above N-1 contingencies	N-1/N-1	Same as above depending on the contingency

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: SCE Tehachapi & Big Creek Corridor

Contingency files:

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
	See contingency list for SCE Bulk system.		

None

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: San Diego Area



Contingency files: SDGE Main Contingency Files OTG

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
CAISO-1	Line From 15021 PALOVRDE to 24900 COLRIVER 500 kV Ckt 1	L-1	
CAISO-2	Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1	L-1	
CAISO-3	Line From 14012 DELANEY to 24900 COLRIVER 500 kV Ckt #1	L-1	
CAISO-4	Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1	L-1	SPS shedding generation in the greater IV area
CAISO-5	Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1	L-1	SPS shedding generation in the greater IV area
CAISO-6	Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1	L-1	SPS shedding generation in the greater IV area
CAISO-7	Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1	L-1	SPS shedding generation in the greater IV area
CAISO-8	Line From Sunrest To Sycamore 230 kC Ckt #1	L-1	Proposed SPS to open Ocotillo-Suncrest 500 kV line while shedding gen in the greater IV area
CAISO-9	Line From Sunrest To Sycamore 230 kC Ckt #2	L-1	Proposed SPS to open Ocotillo-Suncrest 500 kV line while shedding gen in the greater IV area
CAISO-10	Line From 22609 OTAYMESA To 20149 TJI-230 230 Ckt #1	L-1	
CAISO-11	TL23050 From IMPRLVLY To 20118 ROA-230 Ckt #1	L-1	
CAISO-12	Line From 22609 OTAYMESA To 22464 MIGUEL 230 kV Ckt #1	L-1	SPS tripping Otay Mesay and/or Pio Pico generation
CAISO-13	Line From 22609 OTAYMESA To 22464 MIGUEL 230 kV Ckt #2	L-1	SPS tripping Otay Mesay and/or Pio Pico generation
CAISO-14	Transformer Miguel 500/230 kV Bank 80	T-1	Proposed SPS to open Miguel Bank 81 while shedding gen in the greater IV area
CAISO-15	Transformer Miguel 500/230 kV Bank 81	T-1	Proposed SPS to open Miguel Bank 80 while shedding gen in the greater IV area
CAISO-16	Transformer Suncrest 500/230 kV Bank 80	T-1	Proposed SPS to open Suncrest Bank 81 while shedding gen in the greater IV area
CAISO-17	Transformer Suncrest 500/230 kV Bank 81	T-1	Proposed SPS to open Suncrest Bank 80 while shedding gen in the greater IV area

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: **San Diego Area**



Contingency files: SDGE Main Contingency Files OTG

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
CAISO-18	P1T_50021_Xfmer IMPRLVLY 500 to IV BK82 MP 500 Ckt 1 0.00	T-1	
CAISO-19	P1T_50022_Xfmer IMPRLVLY 500 to IV BK81 MP 500 Ckt 1 0.00	T-1	
CAISO-20	TDM Power PLANT	G-1	
CAISO-21	Otay Mesa Power PLANT	G-1	
CAISO-22	P4CB_IV-8022_IV 8022 50002 & BK81 CB	Breaker Fault/Stuck Breaker	
CAISO-23	TDM Power PLANT - AND - Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1	G-1/L-1	
CAISO-24	Otay Mesa Power PLANT - AND - Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1	G-1/L-1	
CAISO-25	Otay Mesa Power PLANT - AND - Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1	G-1/L-1	SPS shedding generation in the greater IV area
CAISO-26	Otay Mesa Power PLANT - AND - Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1	G-1/L-1	SPS shedding generation in the greater IV area
CAISO-27	Otay Mesa Power PLANT - AND - Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1	G-1/L-1	SPS shedding generation in the greater IV area
CAISO-28	Otay Mesa Power PLANT - AND - Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1	G-1/L-1	SPS shedding generation in the greater IV area
CAISO-29	Line From 15021 PALOVRDE to 24900 COLRIVER 500 kV Ckt 1--AND--Line From 14012 DELANEY to 24900 COLRIVER 500 kV Ckt #1	L-1-1	
CAISO-30	Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1--AND--Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1 without the IV phase shifting transformers	L-1-1	IV Gen Shedding SPS and possible cross tripping the tie with CFE
CAISO-31	Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1 without the IV phase shifting transformers	L-1-1	IV Gen Shedding SPS and possible cross tripping the tie with CFE
CAISO-32	Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1--AND--Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1 without the IV phase shifting transformers	L-1-1	IV Gen Shedding SPS and possible cross tripping the tie with CFE
CAISO-33	Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1 without the IV phase shifting transformers	L-1-1	IV Gen Shedding SPS and possible cross tripping the tie with CFE

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Contingencies on the ISO System which may impact Adjacent Systems

Study Area: **San Diego Area**



Contingency files: SDGE Main Contingency Files OTG

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
CAISO-34	Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1--AND--Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1 with the IV phase shifting transformers	L-1-1	SPS shedding generation in the greater IV area
CAISO-35	Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1 with the IV phase shifting transformers	L-1-1	SPS shedding generation in the greater IV area
CAISO-36	Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1--AND--Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1 with the IV phase shifting transformers	L-1-1	SPS shedding generation in the greater IV area
CAISO-37	Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1 with the IV phase shifting transformers	L-1-1	SPS shedding generation in the greater IV area
CAISO-38	Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1--AND--Line From 22930 ECO to 22468 MIGUEL 500 kV Ckt #1	L-1-1	IV Gen Shedding SPS
CAISO-39	Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1--AND--Line From 23310 OCOTILLO To 22885 SUNCREST 500 kV Ckt #1	L-1-1	IV Gen Shedding SPS
CAISO-40	Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 22930 ECO 500 kV Ckt #1	L-1-1	IV Gen Shedding SPS
CAISO-41	Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1--AND--Line From 22360 IMPRLVLY to 23310 OCOTILLO 500 kV Ckt #1	L-1-1	IV Gen Shedding SPS
CAISO-42	Line From 15021 PALOVRDE to 24900 COLRIVER 500 kV Ckt 1--AND--Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1	L-1-1	
CAISO-43	Line From 15021 PALOVRDE to 24900 COLRIVER 500 kV Ckt 1--AND--Line From 14012 DELANEY to 24900 COLRIVER 500 kV Ckt #1	L-1-1	
CAISO-44	Line From 14012 DELANEY to 24900 COLRIVER 500 kV Ckt #1--AND--Line From 22536 N.GILA to 22360 IMPRLVLY 500 kV Ckt #1	L-1-1	
CAISO-45	P1T_50021_Xfmer IMPRLVLY 500 to IV BK82 MP 500 Ckt 1 0.00 and P1T_50022_Xfmer IMPRLVLY 500 to IV BK81 MP 500 Ckt 1 0.00	T-1-1	Imperial Valley BK 80 SPS shedding IV generation
CAISO-46	Line From 22609 OTAYMESA To 22466 MIGUEL 230 kV Ckt #1-- AND -- Line From 22609 OTAYMESA To 22467 MIGUEL 230 kV Ckt #2	L-2	SPS tripping Otay Mesay and Pio Pico generation
CAISO-47	Line From 24900 COLRIVE To 24374 REDBLUFF 500 kV Ckt #1-- AND -- Ckt #2	L-2	SCE Eastern Gen Shedding SPS

2017-2018 ISO Transmission Planning Process

Contingencies on the ISO System which may impact Adjacent Systems

Study Area: Valley Electric Association

Contingency files: Reliab1415_EOL-VEA_Contingencies.zip

Contingency file location: Market Participant Portal ->Transmission Planning ->2017/2018 ISO Transmission Planning Process ->Contingency Files

No	Contingency	Category Description	Description of SPS (if any)
1	NWEST -DESERT VIEW -INNOVATION 230kV Circuit 1	N-1	
2	MEAD S -BOB SS 230kV Circuit 1	N-1	
3	ELDORDO2 -BOB SS 230kV Circuit 1	N-1	
4	BOB SS-PAHRUMP 230kV Circuit 1	N-1	
5	PAHRUMP -INNOVATION 230kV Circuit 1	N-1	
6	AMARGOSA -SANDY 138kV Circuit 1	N-1	
7	PAHRUMP-GAMEBIRD 138kV Circuit 1	N-1	
8	INNOVATION -MERCYSW 138 Circuit 1	N-1	
9	MERCYSW-JACKASSF -LTHRPWLS 138kV Circuit 1	N-1	
10	PAHRUMP-VISTA 138kV Circuit 1	N-1	
11	PAHRUMP 138/230kV Tran Bnk 1	N-1	
12	PAHRUMP 138/230kV Tran Bnk 2	N-1	
13	INNOVATION 230/138kV Tran Bnk 1	N-1	
14	All common-mode and N-1-1 combinations that include the aforementioned facilities	N-2, Breaker failure, bus outages and N-1-1	VEA local UVLS
15	PAHRUMP-INNOVATION 230 & VISTA-JOHNIE 138	N-2	
16	VISTA-CHARLSTN 138 & VISTA-JOHNIE 138; BKR VI242	Stuck breaker	
17	VISTA-CHARLSTN 138 & VISTA-PAHRUMP 138; BKR VI232	Stuck breaker	
18	PAHRUMP-VISTA 138 & PAHRUMP-GAMEBIRD 138; BKR PA222	Stuck breaker	
19	PAHRUMP 138/230kV Tran Bnk. 3 & PAHRUMP-BOB 230-kV Line; BKR PA112	Stuck breaker	
20	PAHRUMP 138/230kV Tran Bnk. 3 & PAHRUMP-INNOVATION 230; BKR PA132	Stuck breaker	