

PCDS Meeting

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WECC

**Electric Reliability
& Security for the West**

July 9, 2025

Unserved Load in 2034 ADS by Area for the Whole Year

1		Unserved_Load	Total Hours	Max_Hourly	Region
2	AVA	167.4	1	167.4	NW
3	CIPV	143.7	2	125.6	CA
4	IPFE	12.1	1	12.1	BS
5	IPMV	31.9	2	16	BS
6	IPTV	523.7	1	523.7	BS
7	NWMT	535.2	17	218.3	NW
8	PAID	126.5	4	42	BS
9	PAUT	2635	17	256.5	BS
10	PAWY	236.2	6	46.9	BS
11	PSCO	11923.5	28	771.8	RM
12	SPPC	150.5	1	150.5	SW
13	WACM	10680.3	40	790.1	RM
14	WAUW	9	2	4.5	NW

PSCO/WACM Unserved Load Investigation

Thermal units in PSCO/WACM with non-unity VAR margin ratios (far-right column)

Generat	Name	Bus ID	Bus Nar	Bus KV	Unit ID	Generat	SubType	Long ID	Long Na	Service	Commis	Retirem	DevStat	Area Na	Region	PSSEMI	PSSEMI	Cap(MW)
4005	Lange Gt 1 GT	74029	LNG CT1	13.8	'1	1	Combustic	EIA-55478- Lange Pea	#TRUE#	#2002-03-1	#2050-12-3	Existing	WACM	RM_WACM	19	38	0.89	
13797	Manchief 1 GT	70314	MANCHEF	16	'G1	1	Combustic	EIA-55127- Manchief I	#TRUE#	#2000-05-1	#2040-12-3	Existing	PSCO	RM_PSCO	78.07813	131.5	0.870313	
13798	Manchief 2 GT	70315	MANCHEF	16	'G2	1	Combustic	EIA-55127- Manchief I	#TRUE#	#2000-05-1	#2040-12-3	Existing	PSCO	RM_PSCO	69.59375	131	0.870313	
13822	Blue Spruce 2 GT	70563	SPRUCE2	18	'G2	1	Combustic	EIA-55645- Blue Spruc	#TRUE#	#2003-04-1	#2050-12-3	Existing	PSCO	RM_PSCO	72.26667	135.5	0.923333	
13824	Frank Knutson 1 GT	70565	KNUTSON	13.8	'G1	1	Combustic	EIA-55505- Frank R. Ki	#TRUE#	#2002-06-1	#2050-12-3	Existing	PSCO	RM_PSCO	40.44	67.4	0.893333	
13825	Frank Knutson 2 GT	70566	KNUTSON	13.8	'G2	1	Combustic	EIA-55505- Frank R. Ki	#TRUE#	#2002-06-1	#2050-12-3	Existing	PSCO	RM_PSCO	47.09	74	0.893333	
13829	Fountain Valley 1 GT	70577	FTNVL1&2	13.8	'G2	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	15.2381	40	0.946429	
13830	Fountain Valley 2 GT	70577	FTNVL1&2	13.8	'G1	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	15.2381	40	0.946429	
13831	Fountain Valley 3 GT	70578	FTNVL3&4	13.8	'G4	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	17.14286	40	0.946429	
13832	Fountain Valley 4 GT	70578	FTNVL3&4	13.8	'G3	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	17.14286	40	0.946429	
13833	Fountain Valley 5 GT	70579	FTNVL5&6	13.8	'G6	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	17.14286	40	0.946429	
13834	Fountain Valley 6 GT	70579	FTNVL5&6	13.8	'G5	1	Combustic	EIA-55453- Fountain V	#TRUE#	#2001-09-1	#2032-01-3	Existing	PSCO	RM_PSCO	17.14286	40	0.946429	
13903	Pueblo Airport Generating Station 6 GT	71005	BAC_MSA	13.8	'G1	1	Combustic	EIA-56998- Airport 5-1	#TRUE#	#2016-12-1	#2050-12-3	Existing	PSCO	RM_PSCO	21.06383	90	0.9	
13929	Burlington 1 GT	73302	BRLNGTN	13.8	'1	1	Combustic	EIA-6619-1 Burlington	#TRUE#	#1977-06-1	#2050-12-3	Existing	WACM	RM_WACM	39.5	60	0.952381	
13930	Burlington 2 GT	73303	BRLNGTN	13.8	'1	1	Combustic	EIA-6619-2 Burlington	#TRUE#	#1977-07-1	#2050-12-3	Existing	WACM	RM_WACM	39.5	60	0.952381	
13963	Ray D Nixon GT2 GT	73435	NIXONCT2	12.5	'G1	1	Combustic	EIA-8219-C Ray D Nix	#TRUE#	#1999-07-1	#2054-12-3	Existing	WACM	RM_WACM	18.9	27	0.9	
13964	Ray D Nixon GT1 GT	73434	NIXONCT1	12.5	'G1	1	Combustic	EIA-8219-C Ray D Nix	#TRUE#	#1999-07-1	#2054-12-3	Existing	WACM	RM_WACM	16.97143	27	0.771429	
13974	Limon 1 GT	73532	LINCOLN1	13.8	'1	1	Combustic	EIA-55504- Limon Ger	#TRUE#	#2002-01-1	#2050-12-3	Existing	WACM	RM_WACM	44.93333	67.4	0.893333	
13975	Limon 2 GT	73533	LINCOLN2	13.8	'1	1	Combustic	EIA-55504- Limon Ger	#TRUE#	#2002-01-1	#2050-12-3	Existing	WACM	RM_WACM	41.27734	67.3	0.893333	
13986	Cheyenne Prairie 1CC	74061	CPGSTN 1	13.8	'G1	1	Combined	EIA-57703- Cheyenne	#TRUE#	#2014-10-1	#2050-12-3	Existing	WACM	RM_WACM	23.5	47	0.9	
13987	Cheyenne Prairie Generation St 2 GT	74062	CPGSTN 2	13.8	'G1	1	Combustic	EIA-57703- Cheyenne	#TRUE#	#2014-10-1	#2050-12-3	Existing	WACM	RM_WACM	20	37	0.776596	
15949	Front Range CC1b	73508	FTRNG2CC	18	'G2	1	Combined	EIA-55283- FrontRang	#TRUE#	#2003-04-1	#2050-12-3	Existing	WACM	RM_WACM	120	240	0.96	
16047	Rocky Mtn CC1b	70589	RMEC2	15	'G2	1	Combined	EIA-55835- RockyMou	#TRUE#	#2004-06-1	#2049-12-3	Existing	PSCO	RM_PSCO	106.3547	307.5	0.97	
17952	Spag 1 A1 GT	73729	SPAG2	13.8	'G1	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-03-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
17953	Spag 2 A2 GT	73729	SPAG2	13.8	'G2	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-04-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
17954	Spag 3 A3 GT	73729	SPAG2	13.8	'G3	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-04-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
17955	Spag 4 A4 GT	73730	SPAG1	13.8	'G1	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-04-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
17956	Spag 5 A5 GT	73730	SPAG1	13.8	'G2	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-04-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
17957	Spag 6 A6 GT	73730	SPAG1	13.8	'G3	1	Combustic	EIA-3989-A	0 #TRUE#	#2023-04-1	#2050-12-3	Existing	WACM	RM_WACM	13.104	27.3	0.909091	
20640	Spindle Hill 1 GT	70593	SPNDLE1	18	'G1	1	Combustic	EIA-56445- Spindle Hi	#TRUE#	#2007-06-1	#2027-05-1	Existing	PSCO	RM_PSCO	72.42919	143.07	0.8944	
20641	Spindle Hill 2 GT	70594	SPNDLE2	18	'G2	1	Combustic	EIA-56445- Spindle Hi	#TRUE#	#2007-06-1	#2027-05-1	Existing	PSCO	RM_PSCO	70.295	140.59	0.8788	

PSCO/WACM Unserved Load Investigation

- Forced outages observed in the PSCO/WACM region during the summer months, which coincided with some of the higher unserved load hours.
- Ran a simulation with unity VAR margin ratios for thermal units (154 MW capacity increase for WACM and 77 MW increase for PSCO) in the PSCO/WACM area. Unserved Load reduced by around 15–20% for PSCO and WACM.
- Ran a simulation with unity VAR margin ratios for thermal units in the PSCO/WACM area and a different seed (to address forced outages). Unserved Load reduced by up to 40% for PSCO and 35% for WACM, although it did increase a little in some of the other areas.

	Unserved_Load	Total Hours	Max_Hourly	Regio
PSCO	6791.6	26	757	RM
WACM	7126	38	503.7	RM

PSCO/WACM Unserved Load Investigation (Units Retiring Before 2034)

- Total of 315 units that are operational but retiring before 2034 in the ADS PCM (203 thermal, 53 hydro and 59 hourly resources).
- 20% of these are in PSCO (61 in total). WACM has 8 units.
- 65 units in total retiring between 2032 and 2034 (3384 MW combined capacity for all areas, 643 MW for PSCO).

PSCO/WACM Unserved Load Investigation (Retired Renewable Units)

- Several renewable units (59 hourly resources in total) that are operating are retiring in the ADS PCM before 2034.
- PSCO has 13 of these units with a total capacity of 1,356 MW. WACM has two units with a total capacity of 141 MW.
- Given the commissioning dates of these units, most of the retirement dates indicate the end of PPA rather than an actual retirement.
- In the past, retired renewable projects have been used to meet RPS goals, so these can be turned on unless there is new L&R supply to replace it.

Generat	Name	Bus ID	Bus Nar	Bus KV	Unit ID	Generat	SubType	Long ID	Long Na	Service	Comm	Retirem	DevStat	Area Na	Region	PSSEMI	PSSEMI
13880	Twin Buttes 1 WT	70704	TBI_GEN	0.575	'W1	4	WT-Onsho	EIA-56460	Twin Butte	#TRUE#	#2007-07-	#2027-07-	Existing	PSCO	RM_PSCO	0	75
13881	Logan County 1 WT	70710	PTZLOGN	34.5	'W1	4	WT-Onsho	EIA-56613	Logan Win	#TRUE#	#2007-12-	#2027-12-	Existing	PSCO	RM_PSCO	0	201
13882	Peetz Table 1	70712	PTZLOGN	34.5	'W2	4	WT-Onsho	EIA-56563	Peetz Tabl	#TRUE#	#2007-12-	#2032-12-	Existing	PSCO	RM_PSCO	0	199.5
13884	Northern Colorado Wind 1 WT	70714	PTZLOGN	34.5	'W4	4	WT-Onsho	EIA-57290	Northern C	#TRUE#	#2009-08-	#2034-08-	Existing	PSCO	RM_PSCO	0	174
13885	Spring Canyon 1 WT	70721	SPRNGCA	0.57	'W1	4	WT-Onsho	EIA-56320	Spring Car	#TRUE#	#2006-02-	#2026-02-	Existing	PSCO	RM_PSCO	6.48	60
13889	Cedar Creek 1 WT	70823	CEDARCK	34.5	'W1	4	WT-Onsho	EIA-56371	Cedar Cre	#TRUE#	#2007-11-	#2027-11-	Existing	PSCO	RM_PSCO	0	300
13893	Greater Sandhill PV-T	70931	GSANDHIL	34.5	'S1	4	PV-Trackir	EIA-57377	Greater Sa	#TRUE#	#2010-09-	#2030-12-	Existing	PSCO	RM_PSCO	0	8.421053
13894	Iberdrolasan Luis Solar 1 PV-T	70932	SLVS_IBRI	34.5	'S2	4	PV-Trackir	EIA-57317	San Luis V	#TRUE#	#2011-12-	#2033-12-	Existing	PSCO	RM_PSCO	0	30
13895	Cogentrix 1 PV-T	70933	ALAMOSA	34.5	'S3	4	PV-Trackir	EIA-57368	Alamosa S	#TRUE#	#2012-04-	#2024-04-	Existing	PSCO	RM_PSCO	0	30
13915	Kit Carson Wind Farm 1 WT	72714	KC_GEN	0.69	'G1	4	WT-Onsho	EIA-57244	Kit Carson	#TRUE#	#2010-11-	#2030-11-	Existing	WACM	RM_WACM	2.4	51
13977	Colorado Highlands Wind 42 WT	73631	COHIWND	0.69	'W	4	WT-Onsho	EIA-57174	Colorado I	#TRUE#	#2012-12-	#2032-12-	Existing	WACM	RM_WACM	12.3	90
16445	Cedar Point 1 WT	70670	CEDARPT	0.69	'W1	4	WT-Onsho	EIA-57315	Cedar Poir	#TRUE#	#2011-11-	#2031-10-	Existing	PSCO	RM_PSCO	0	126
16446	Cedar Point 2	70671	CEDARPT	0.69	'W2	4	WT-Onsho	EIA-57315	Cedar Poir	#TRUE#	#2011-11-	#2031-10-	Existing	PSCO	RM_PSCO	0	126
16852	Alamosa 1 PV-NT	70374	SANLSVL	115	'X1	4	PV-Trackir	EIA-NA-NA	NA	#TRUE#	#2007-12-	#2027-12-	Existing	PSCO	RM_PSCO	0	6.95
18152	Nrel Nwtc Wind Agg HY	70170	NREL	115	'X0	4	WT-Onsho	Agg	ADS2032	#TRUE#	#2010-01-	#2027-07-	Existing	PSCO	RM_PSCO	0	19.69

Next Steps

- WECC to extend retirement dates of renewable units that are operational but retiring before 2034 (for all areas).
- Increase VAR margin ratio to 94% for all thermal units with non-unity ratios.
- Run a simulation to compare the results with the recently published v3.1 case.

Optional Change Cases Updates

- CrossTie_Interfacefix_Optional_v2.mdb
 - Updated interface ratings along with the original changes
- Path_42_Upgrade_NameFix_Optional.mdb
 - Updated path names
- SWIP-North_SWIP-South_Interfacefix.mdb
 - Interface updated
- TWE PF_Optional_7-2-2025.mdb
 - Fixed interfaces definitions and duplicates
- VEA_OptionalChange_7-2-2025.mdb
 - Updated configuration of the CAISO approved VEA updates
- Latest change cases on PCDS team site
- Awaiting response from SWIP rating for limiting branches

Other Change Case Updates

- 01-Path 27 Min Flow Nomogram Fix.mdb
 - Nomogram accounting fix
- 02-Diff Hydro Updates-Automatically_Calculate_K_and_p_Factors.mdb
 - Various K&P factors updated from PNNL
- 03-Diff Generator Type Corrections.mdb
 - Radiance Solar and Raft River type corrections
- 04-Diff Hydro Monthly Vars - Dispatch Cost.mdb
 - Dispatch cost updated

Other Change Case Updates

- 05-Diff-Path 65 Ownership-Disable Pole Balancing.mdb
 - P65 Ownership and Pole Balancing update
- 06-Diff Generator Type Corrections-Comanche 2.mdb
 - Comanche 2 type correction
- 07-Diff Arroyo Storage 1 PV-Dispatch Cost.mdb
 - Arroyo storage dispatch cost updated
- 08-Diff VEA_GenDist_Core.mdb
 - Updates gen distribution to not move VEA units to new topology

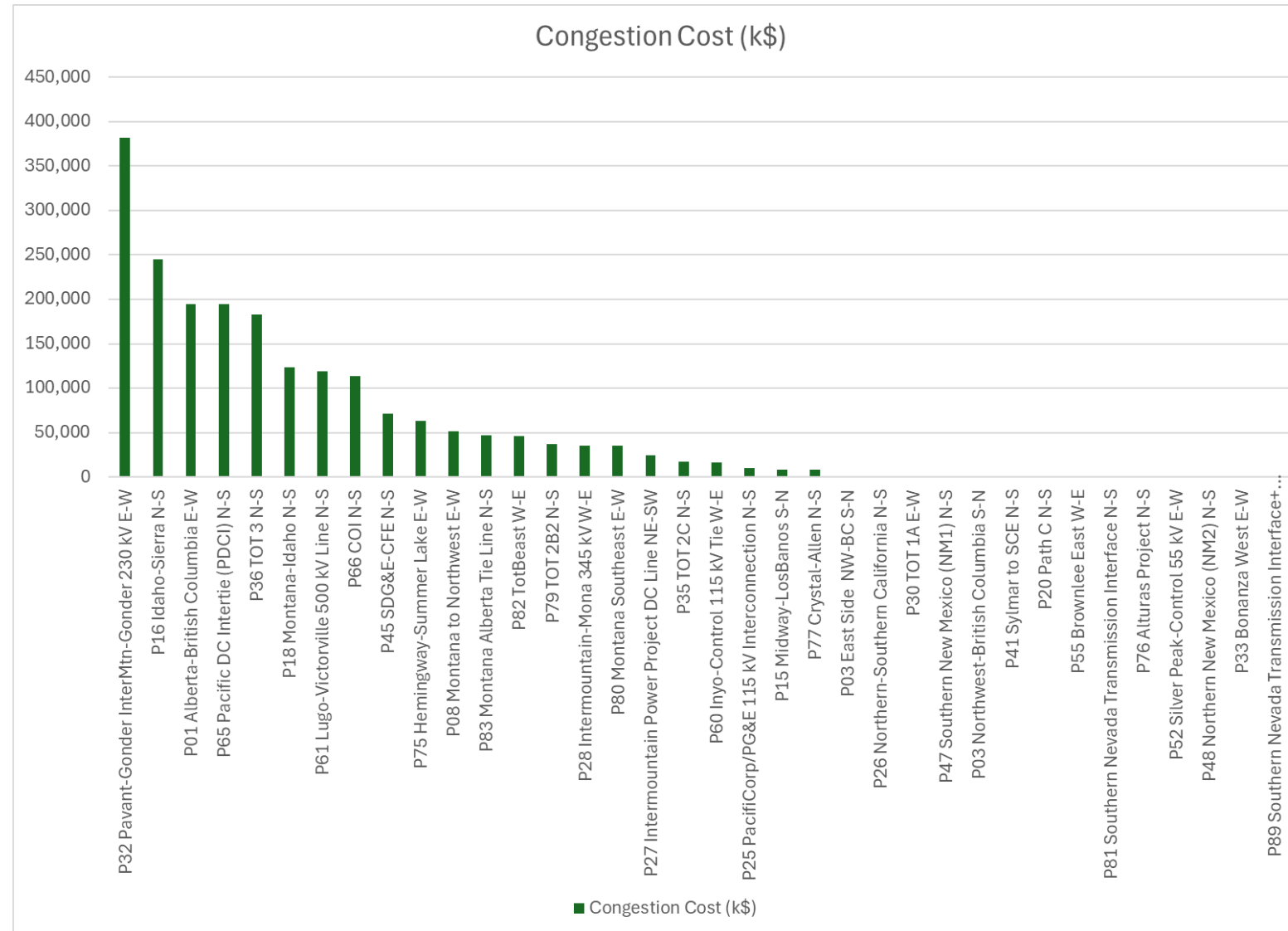
WACM

- WACM example hour—7/20/2034 Hour 17
 - TOT3 congested
 - Congested around Four Corners and PARs area
 - Spilling on Bus 73107 LAR.RIVR

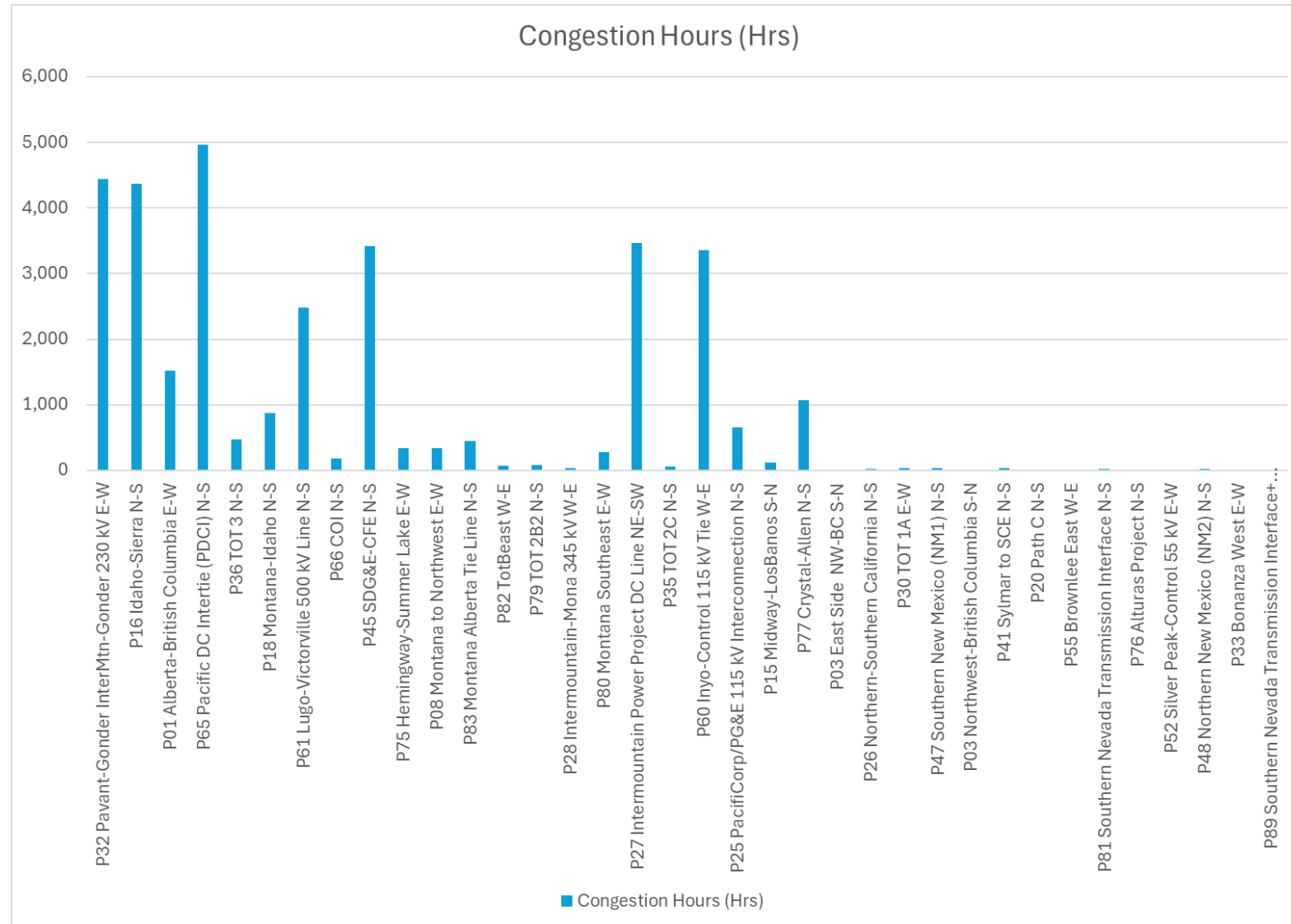
PSCO

- PSCO example hour—8/9/2034 Hour 16
 - TOT3 congested
 - Congested around Walsenburg 70459
 - Spilling on 70725 Spanish Peaks and 70094 Solar Community Gardens

Congestion Cost (k\$)



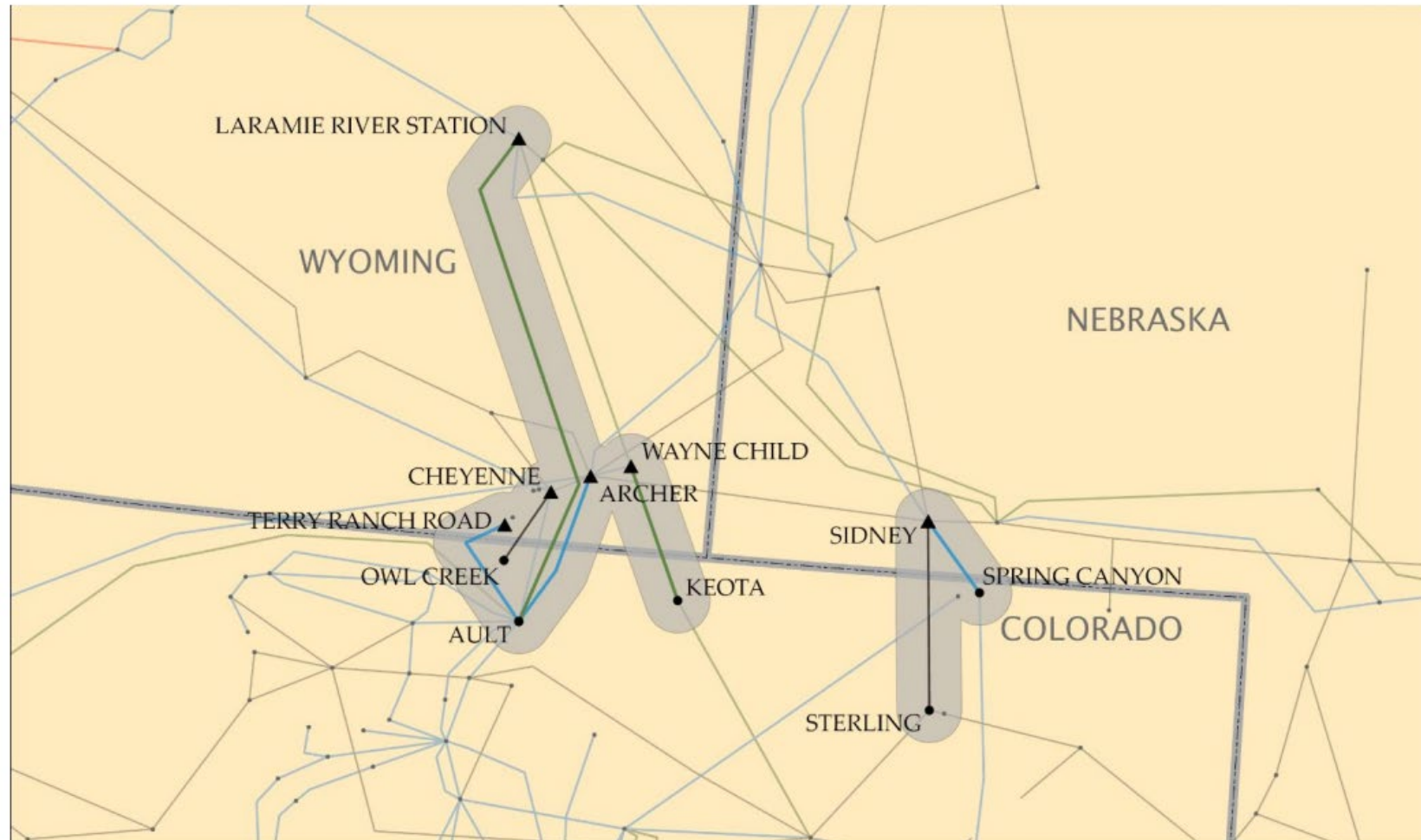
Congestion Hours (Hrs)



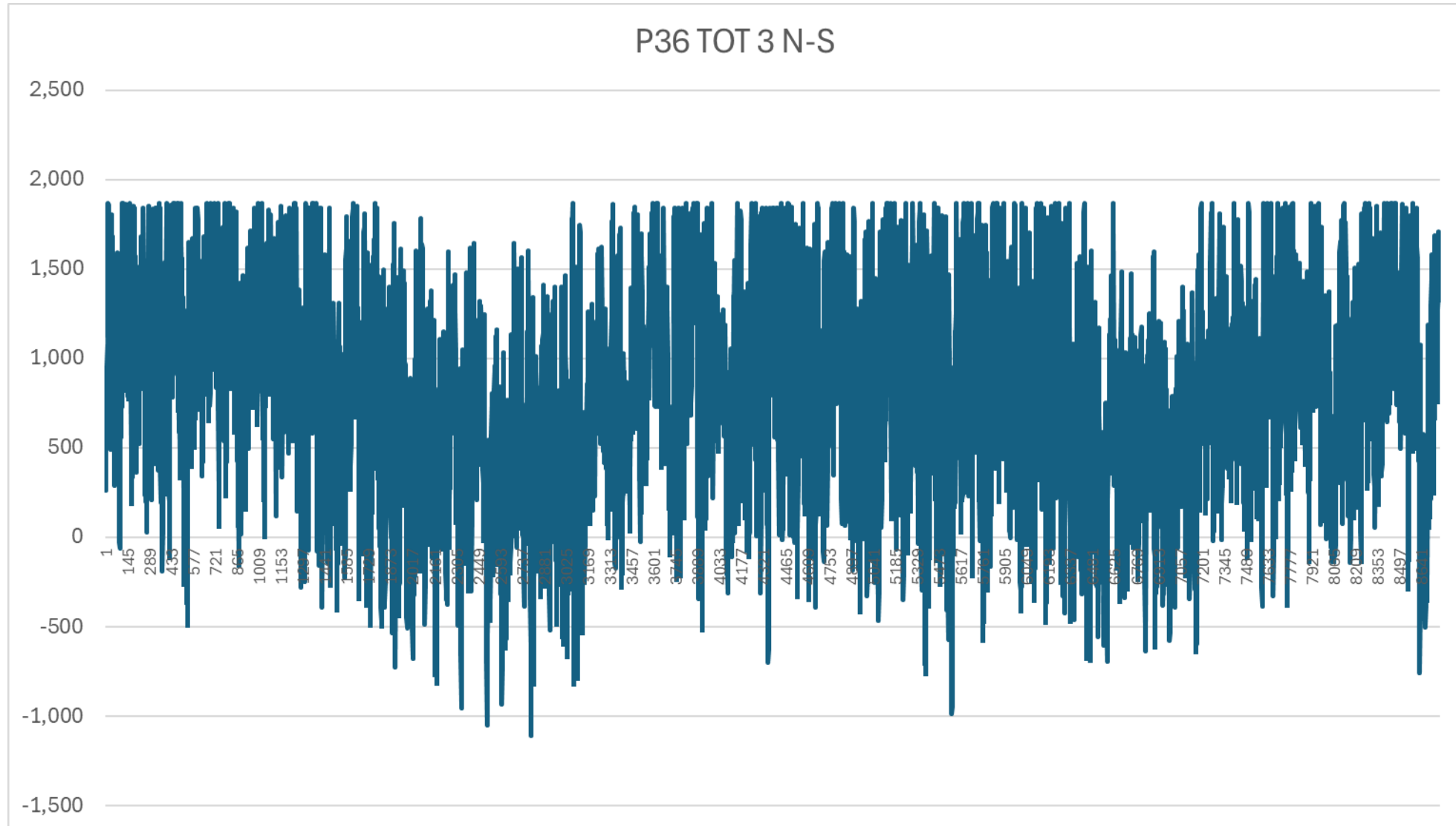
Path 36 TOT 3

36. TOT 3

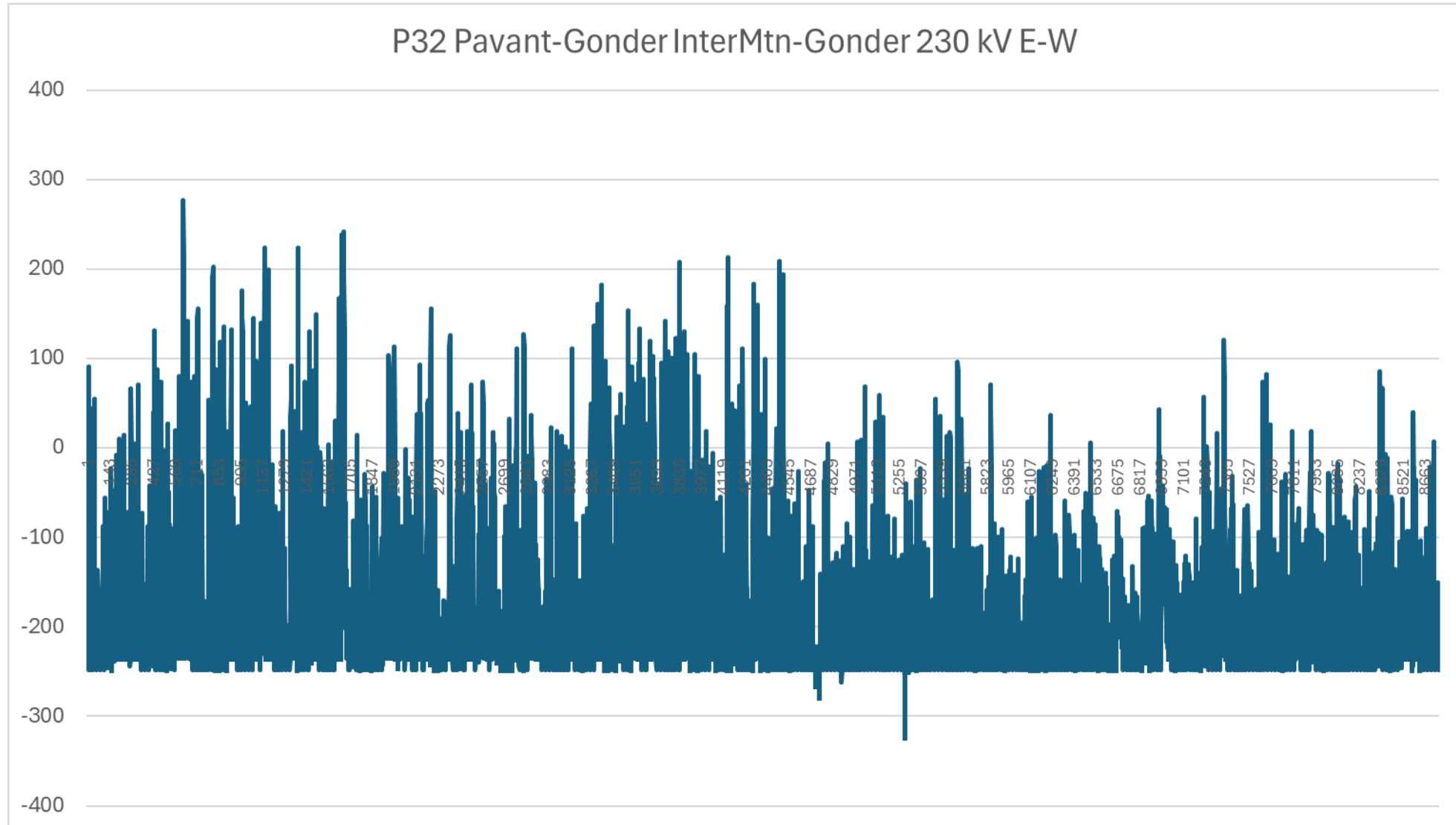
Revised March 2023



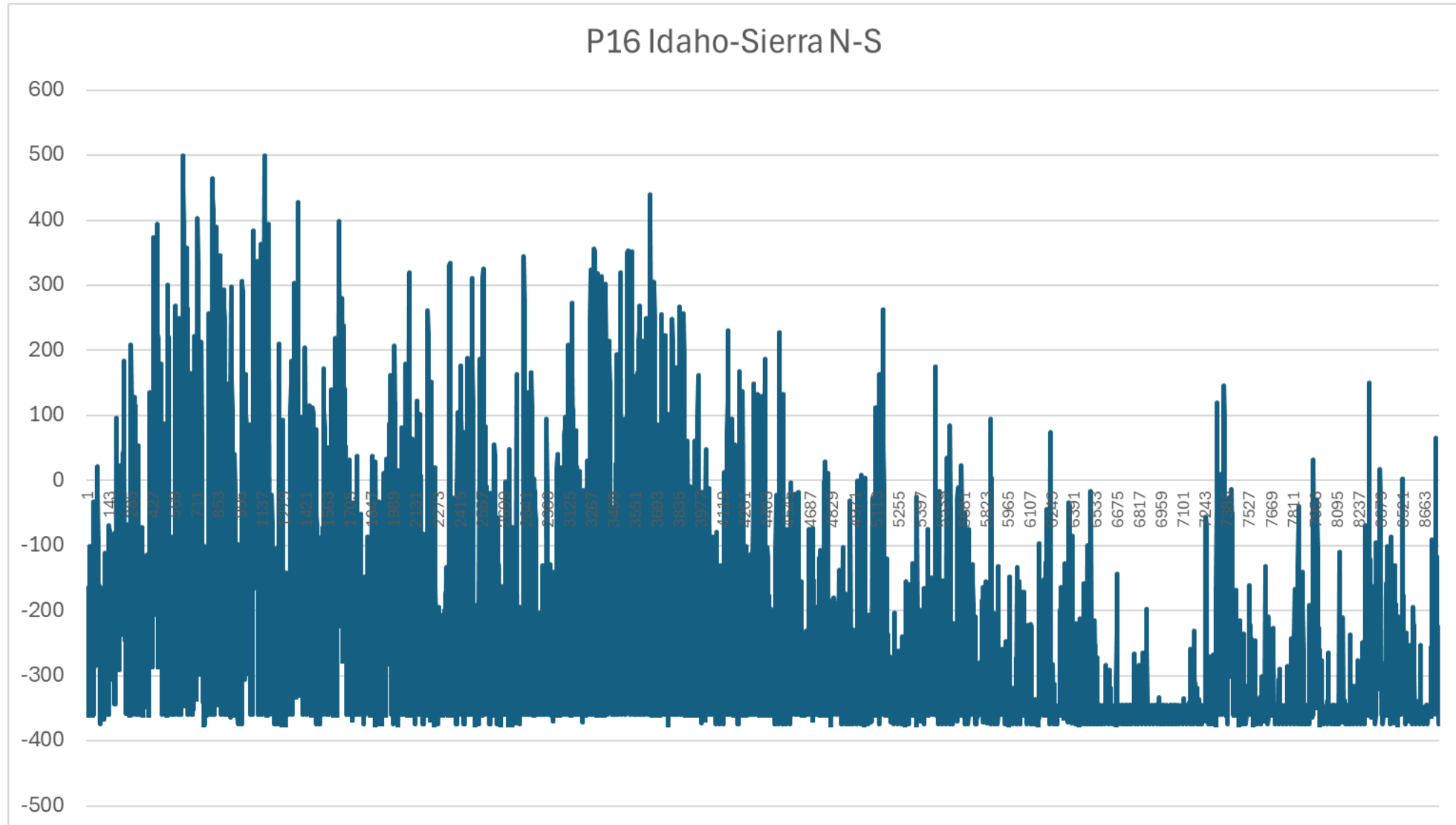
Power Flow



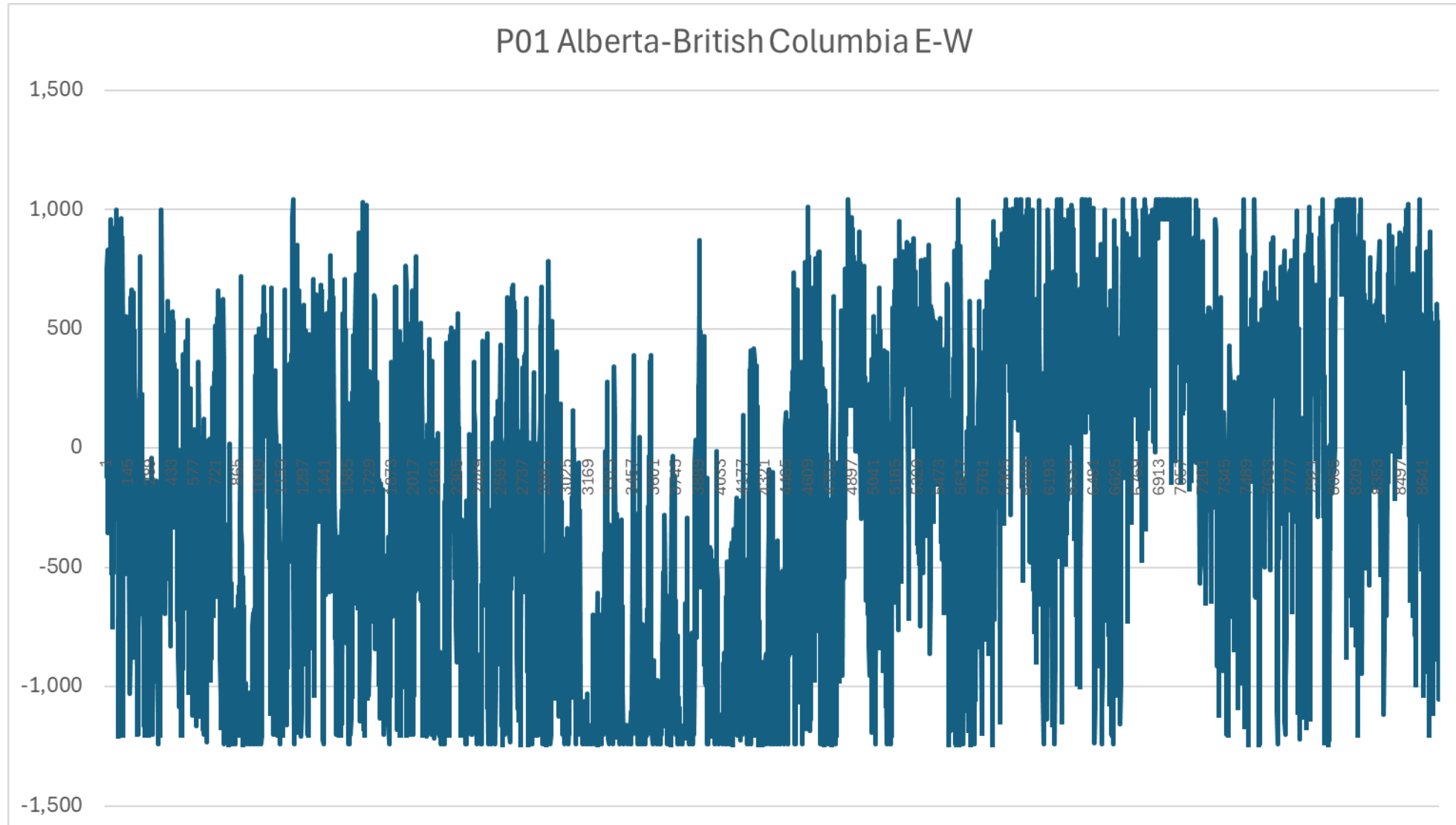
Power Flow



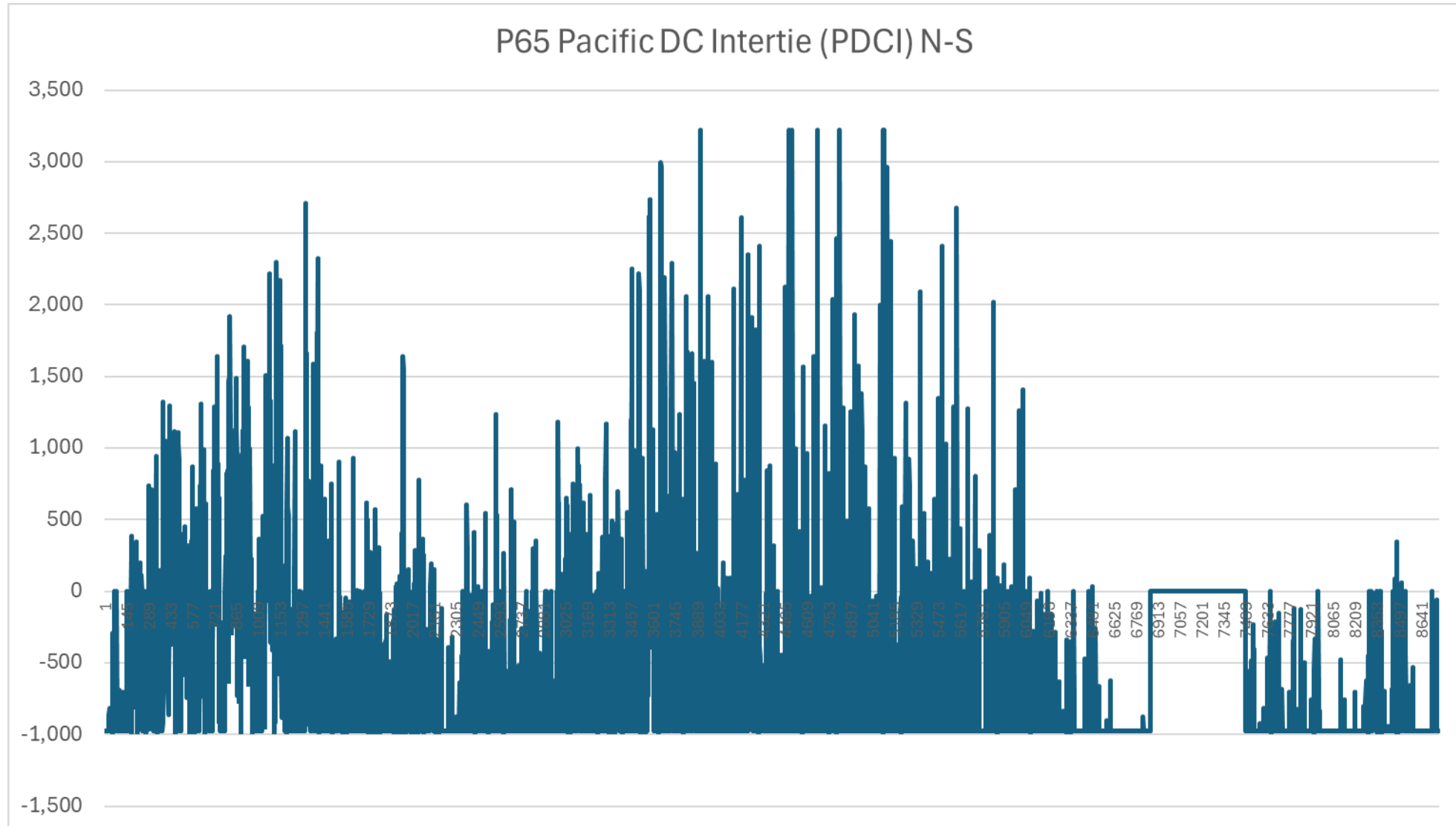
Power Flow



Power Flow

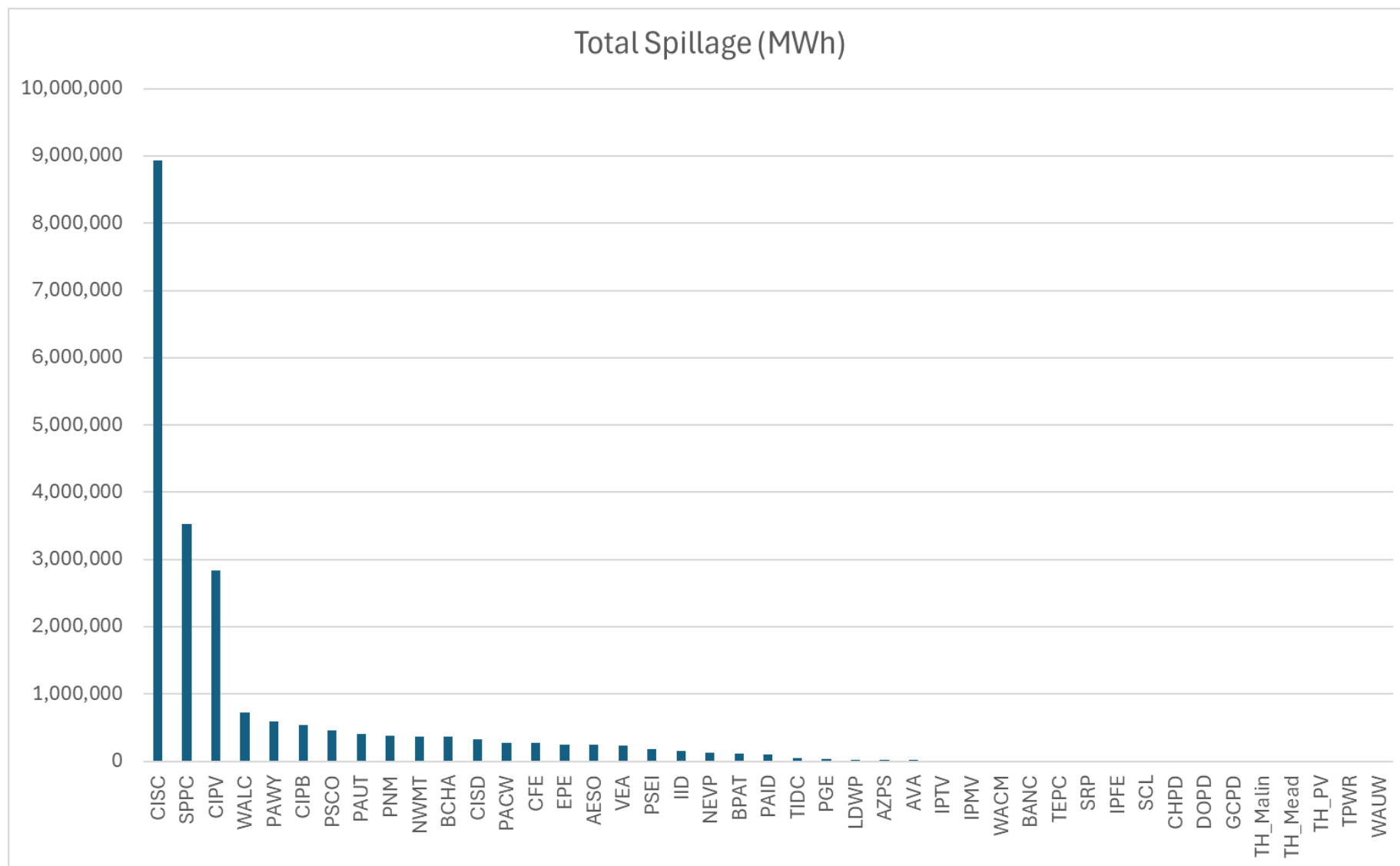


Power Flow





Spillage





WECC



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