WECC

Anchor Data Set 2032 ADS

Initial Dispatch Results

June 21, 2022

Jamie Austin, Chair

Overview

- Assessment of the initial 2032 ADS PCM
- Next Steps

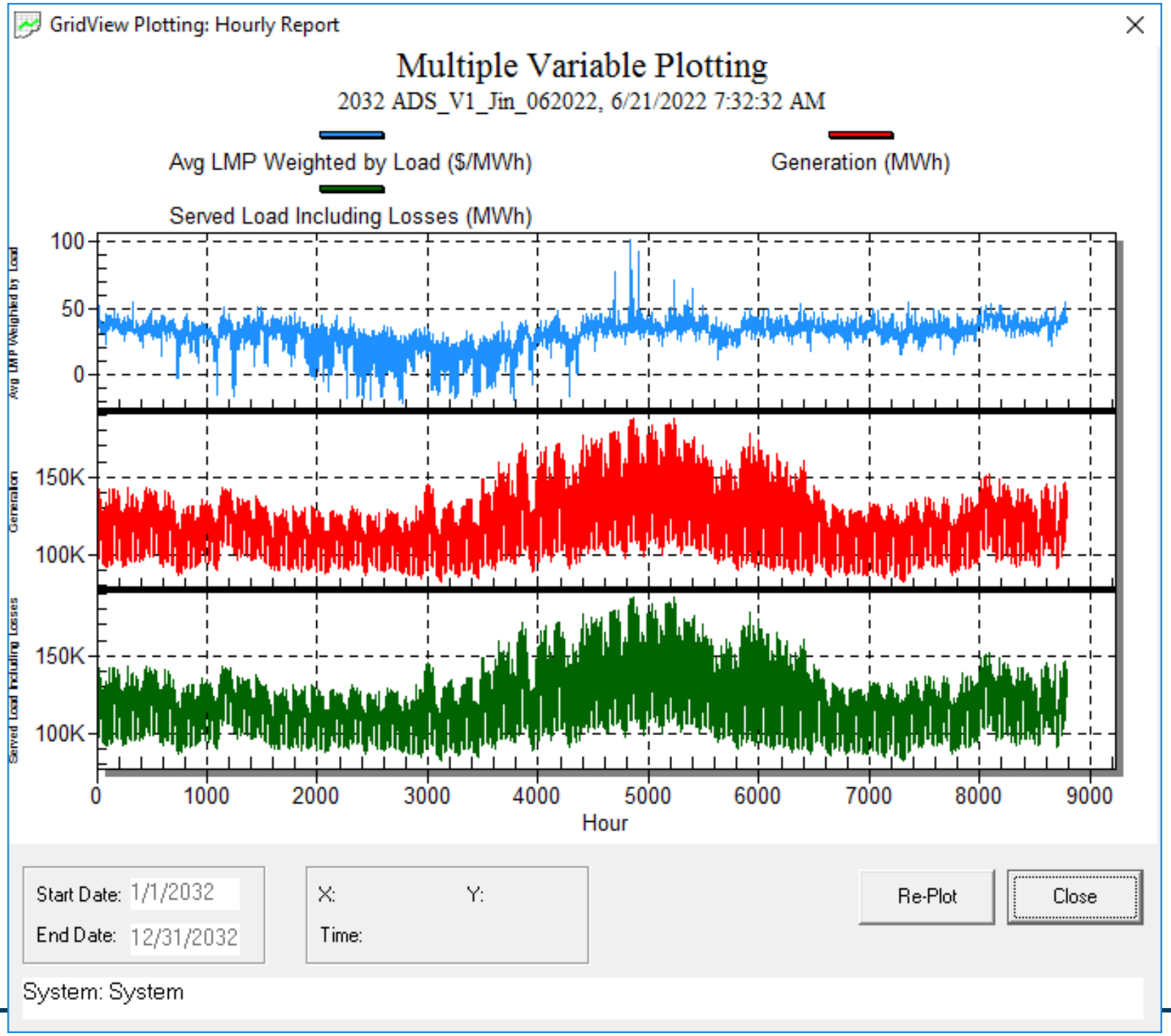
High Level Assessment

Issues Causing Longer Run Time

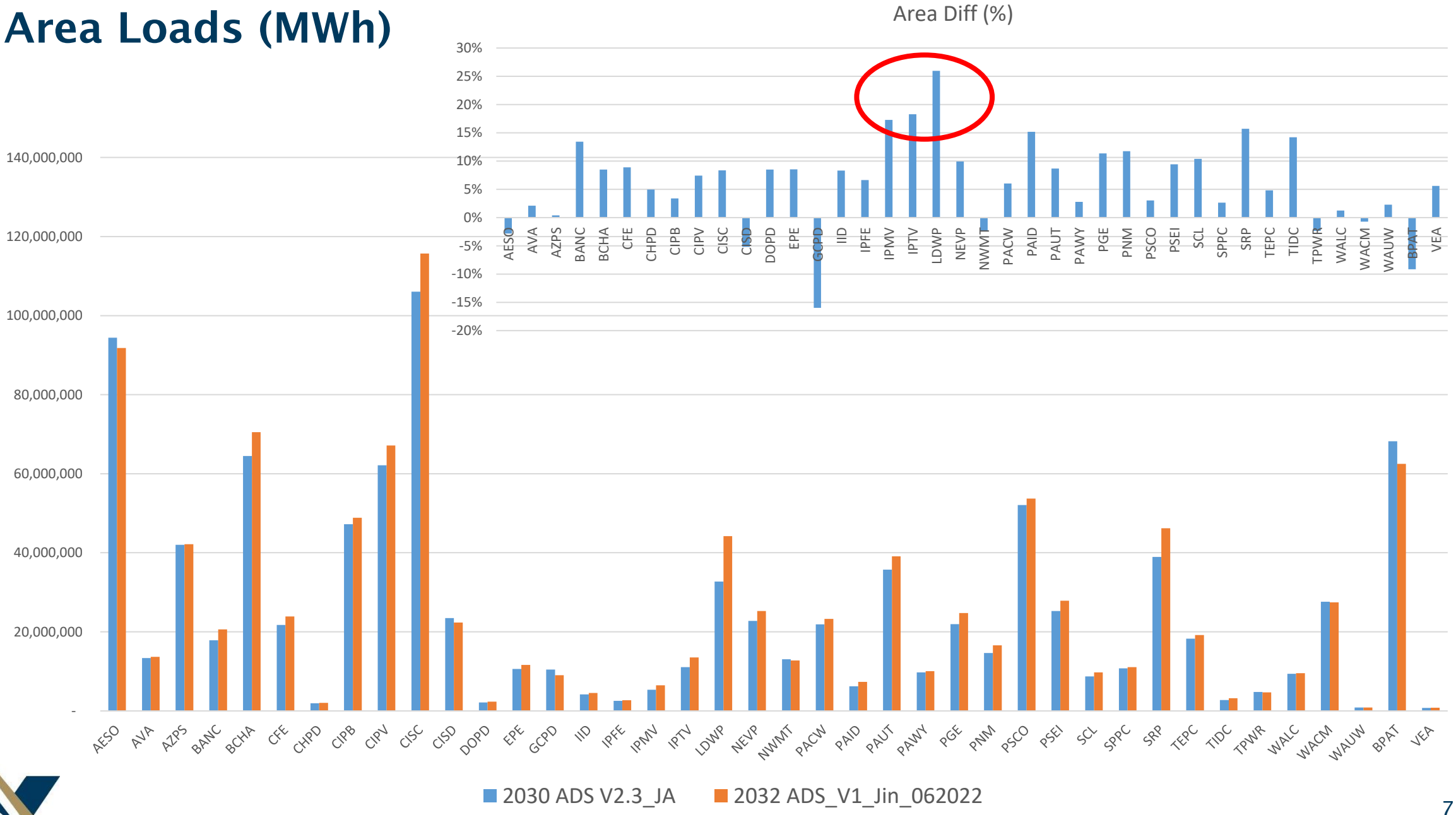
- Inaccurate assumptions used for calculating per unit shapes for Wind and Pumping Loads… together with using the wrong distribution of BTM capacity to County level have resulted in significant overloads and congestion on the Transmission System
  - Used the Wrong shape files for PumpStorate_GrandCouliee_BPA_2028
- Still using many 2009 energy shapes from the 2030 ADS that must be replaced with 2018 shapes. This is necessary to produce the coincident dispatch in the 2032 ADS.

Status

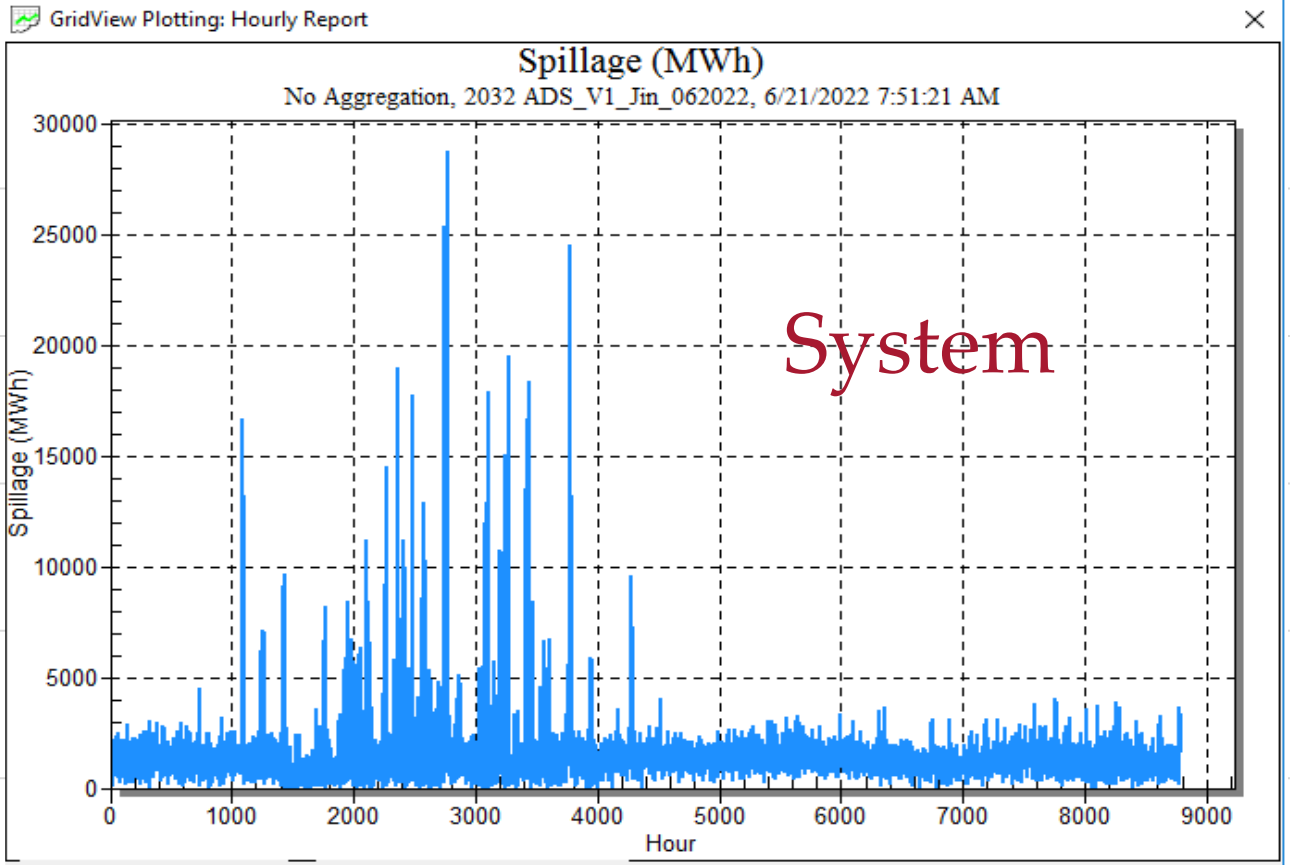
- Currently posted 2032 ADS yields a dataset ready for your inspection and validation.
  - Review and let us know if your respective system is reasonably represented?
  - Does the initial dispatch produce reasonable results?
- With your help, we're hoping to post the dataset on June 30th as planned.


GridView Plotting: Hourly Report
Multiple Variable Plotting
2032 ADS_V1_Jin_062022, 6/21/2022 7:32:32 AM
Avg LMP Weighted by Load ($/MWh)
Generation (MWh)
Served Load Including Losses (MWh)
Avg LMP Weighted by Load
100
50
0
Generation
150K
100K
Served Load Including Losses
150K
100K
0
1000
2000
3000
4000
5000
6000
7000
8000
9000
Hour
Start Date: 1/1/2032
End Date: 12/31/2032
X:
Y:
Time:
Re-Plot
Close
System: System

Area Loads (MWh)

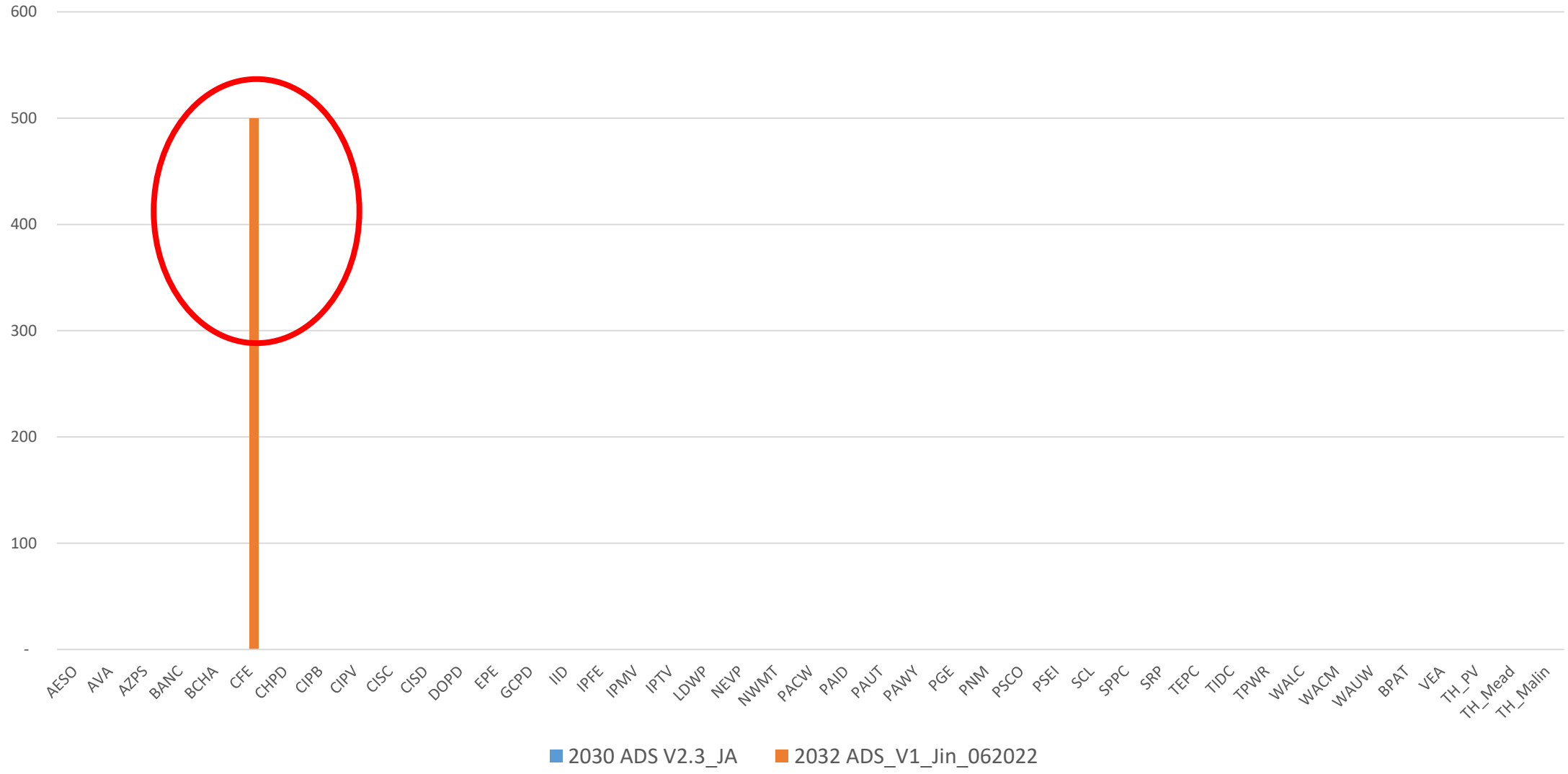


Total Spillage (MWh)

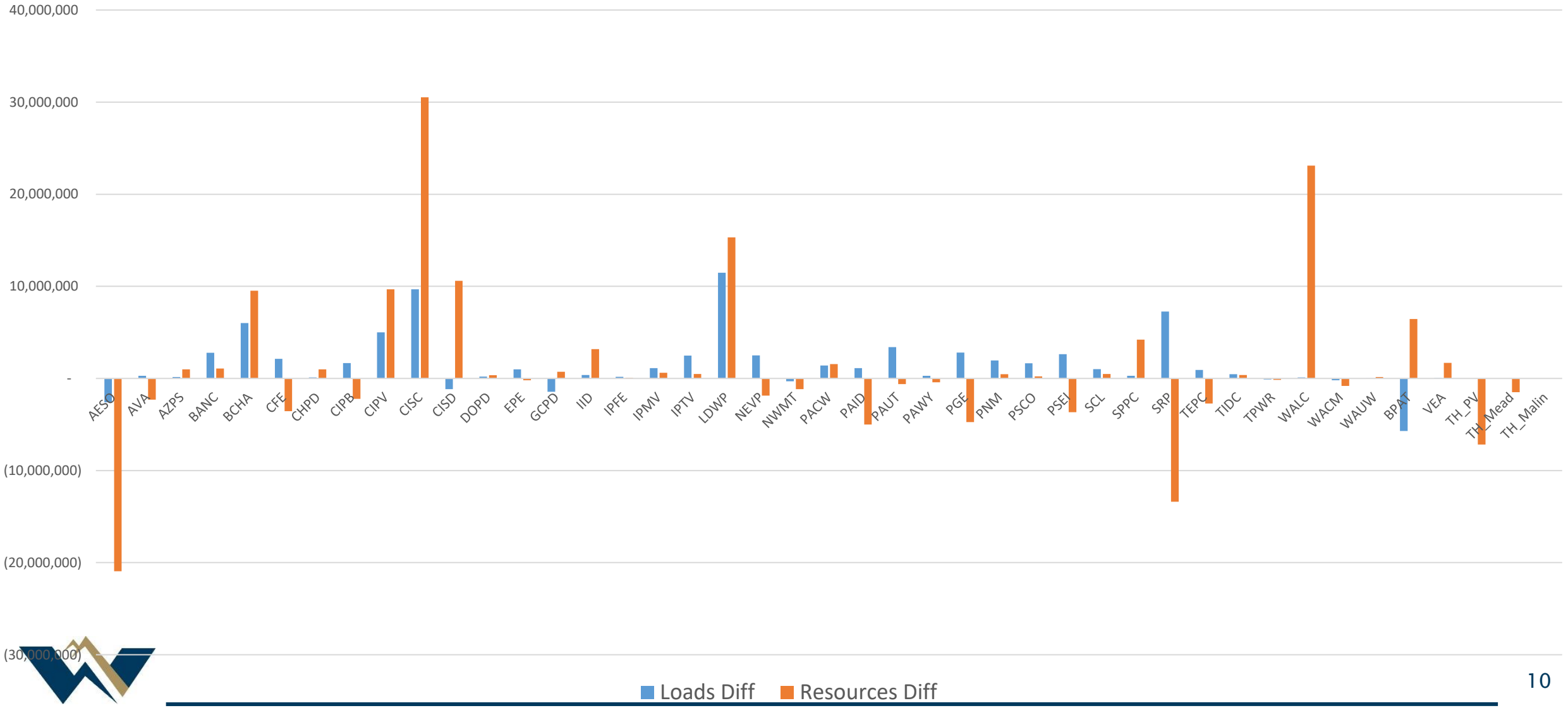


System

Unserved Area Loads (MWh)



Diff _ Area L&R (2032-2030) (MWh)

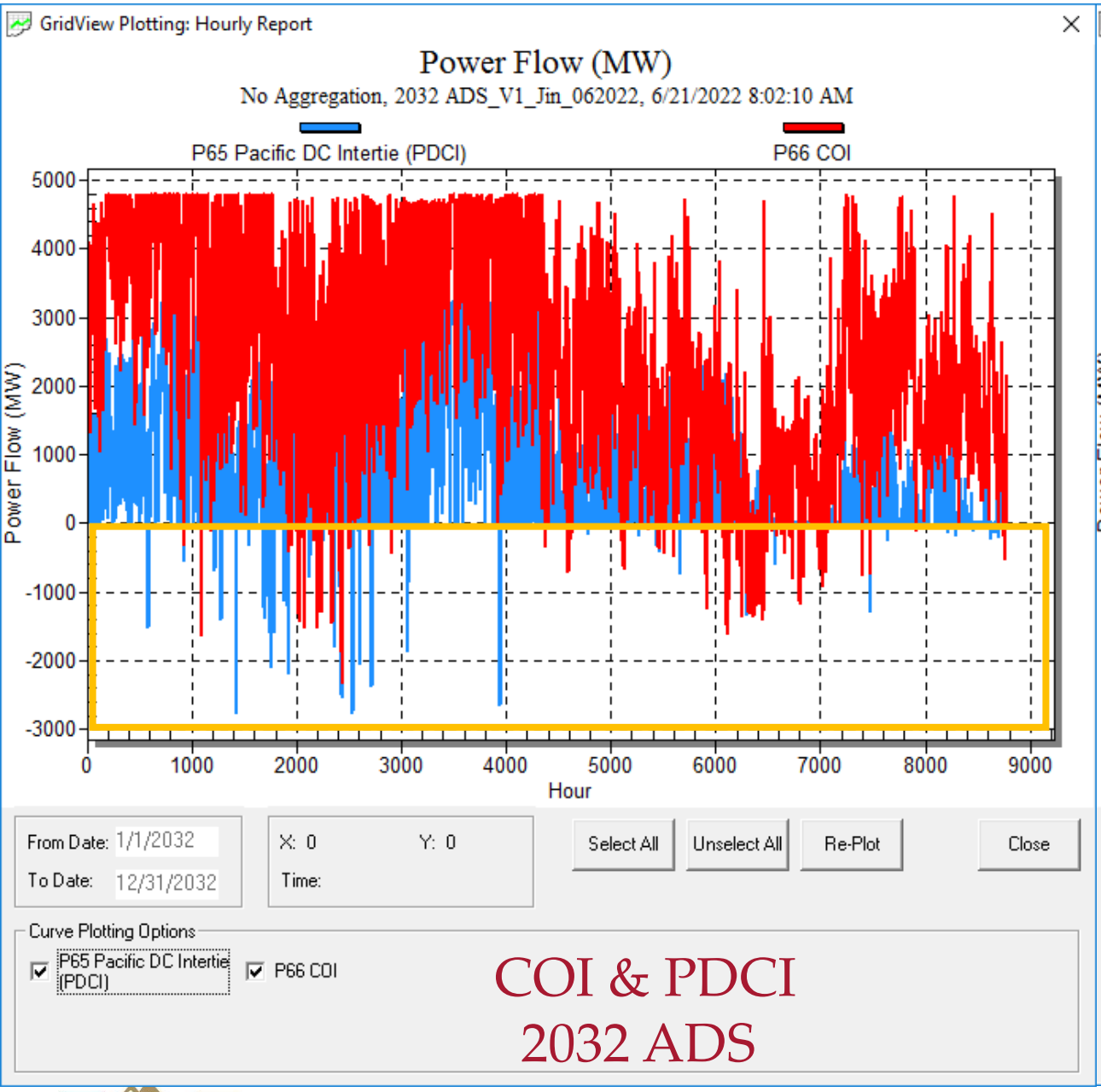


Transformer Constraints

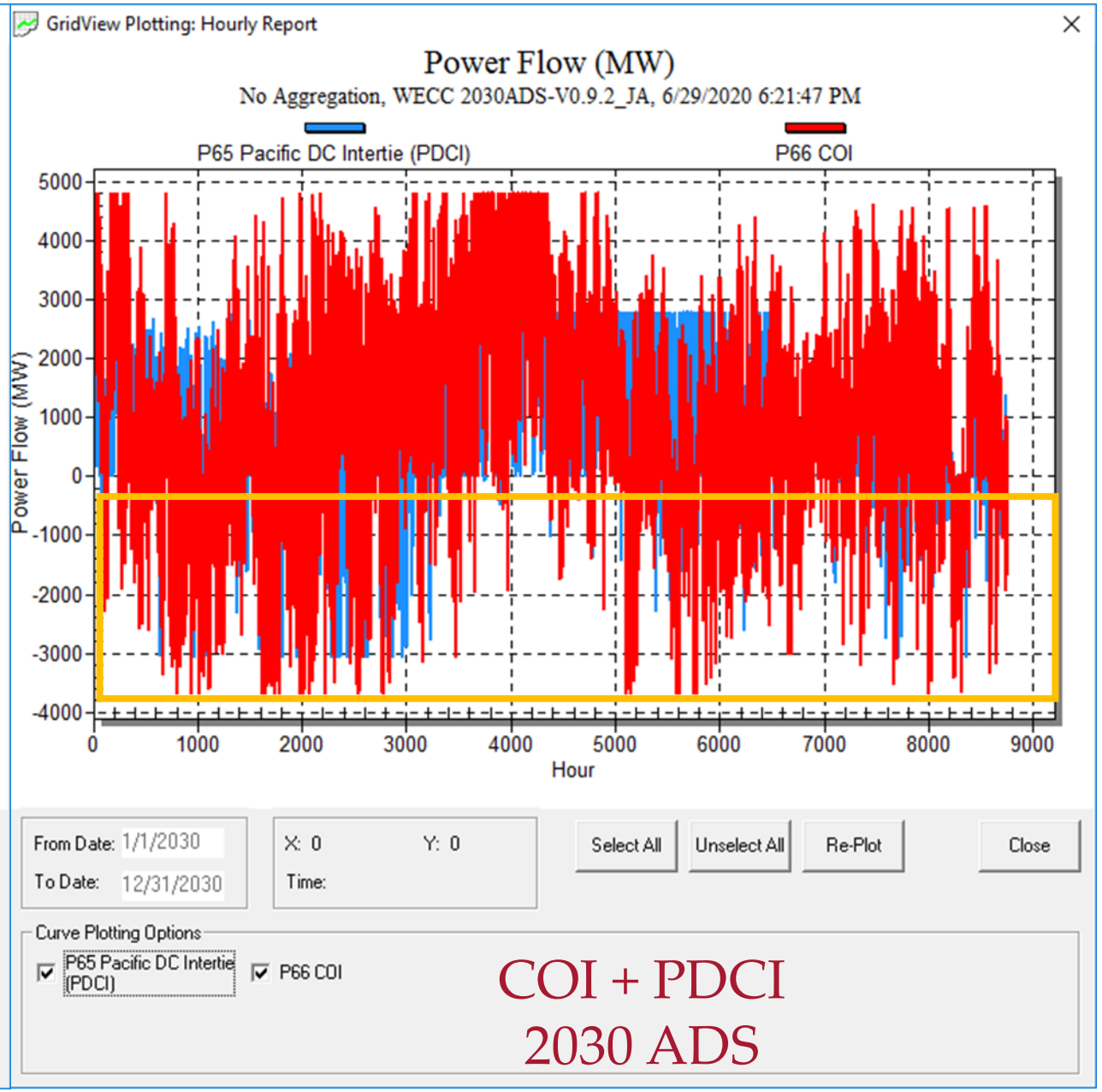
Constraints Name	Duration_F (Hrs)	*FromBusName*	*FromBusID*	*ToBusName*	*ToBusID*	*CKT*
LIVOCK01 240/240 kV transformer #PS	1,125	LIVOCK01	55288	LIVOCKPS	59602	PS
NLY 230 230/230 kV transformer #2	3,475	NLY 230	50784	NLY 2PS2	50822	2
GLDSTNPS 230/230 kV transformer #1	1,010	GLDSTNPS	12181	GLADSTON	12101	1
DRUMMOND 115/46.0 kV transformer #1	378	DRUMMOND	65470	DRUMMOND	66760	1
DRUMMOND 115/46.0 kV transformer #2	378	DRUMMOND	65470	DRUMMOND	66760	2
JFRSNPHA 161/161 kV transformer #1	1,051	JFRSNPHA	65860	JEFFERSN	65850	1
CROSSOVER 230/230 kV transformer #PS	390	CROSSOVER	630040	PHSHFT XOVER	630041	PS
DRY_CK 115/69.0 kV transformer #1	170	DRY_CK	66813	DRY_CK	66814	1
ANTICLIN 345/345 kV transformer #1	464	ANTICLIN	67827	ANT PST	67801	1
ARR___PS 345/345 kV transformer #1	311	ARR___PS	11014	ARROYO	11017	1
SLVR PKX 57.5/57.5 kV transformer #1	1,692	SLVR PKX	64095	SLVER PK	64094	1
BLG RIMROCK 161/161 kV transformer #PS	106	BLG RIMROCK	623005	PHSHFT RIMRK	623004	PS
CAL SUB 120/120 kV transformer #1	278	CAL SUB	64025	CAL S PS	64023	1
ANTICLIN 345/345 kV transformer #2	162	ANTICLIN	67827	ANT PST	67801	2
BLG STEAMPLT 230/230 kV transformer #PS	68	BLG STEAMPLT	623001	PHSHFT STMPL	623002	PS
KEEPHIL5 240/240 kV transformer #PS	69	KEEPHIL5	54421	KEEPHIL4	54420	PS
IV PFC1 230/230 kV transformer #1	36	IV PFC1	22357	IV PFC	22358	1
HA PS 345/345 kV transformer #1	18	HA PS	18002	H ALLEN	18001	1
LS ESTRS 230/230 kV transformer #1	10	LS ESTRS	30731	SSS	38901	1
FT CHUR N 120/120 kV transformer #1	58	FT CHUR N	64053	FT CH PS	64048	1
CRSTL N 500/500 kV transformer #1	10	CRSTL N	18452	CRYSTAL	26123	1
IV PFC1 230/230 kV transformer #2	14	IV PFC1	22357	IV PFC	22358	2

Transmission Constraints

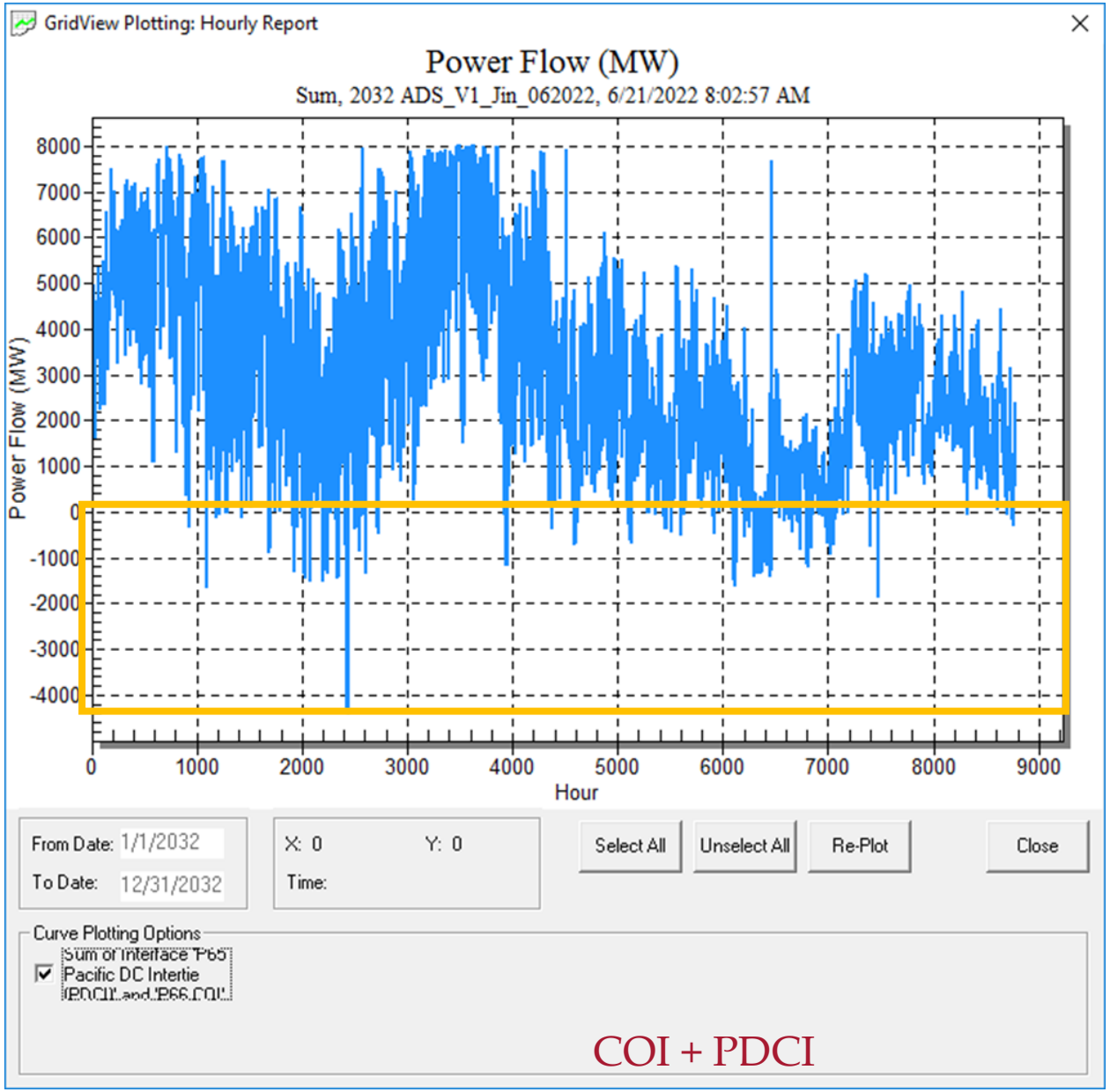
Constraints Name	Duration_F (Hrs)	*FromBusName*	*FromBus ID*	*ToBusName*	*ToBusID*	*CKT*
FORTROCK-ROUNDVLY 230 kV line #1	3,277	FORTROCK	14240	ROUNDVLY	14223	1
AEOANT&1-ANTICLIN 500 kV line #1	935	AEOANT&1	67797	ANTICLIN	67826	1
HELLSCYN-BROWNLEE 230 kV line #1	528	HELLSCYN	60150	BROWNLEE	60095	1
BIGLWCYN-JOHN DAY 230 kV line #1	1,033	BIGLWCYN	47844	JOHN DAY	40584	1
LUZ LSP-KRAMER 230 kV line #1	2,495	LUZ LSP	24736	KRAMER	24701	1
GREENWD-MONACO12 230 kV line #1	482	GREENWD	70212	MONACO12	70481	1
NINEMILE-WALLULA 230 kV line #1	1,354	NINEMILE	47572	WALLULA	45331	1
COLEMAN7-NTL 138 138 kV line #1	1,908	COLEMAN7	54232	NTL 138	50776	1
SHLH4 TP-BDLSWSTA 230 kV line #1	604	SHLH4 TP	30470	BDLSWSTA	30479	1
SUTTER-OBANION 230 kV line #1	1,999	SUTTER	37524	OBANION	37520	1
SYLMAR2-SYLMARLA 230 kV line #1	336	SYLMAR2	26099	SYLMARLA	26094	1
HEYBURN-RIVERTON 138 kV line #1	80	HEYBURN	61850	RIVERTON	60831	1
INTERMT-MONA 345 kV line #1	551	INTERMT	26043	MONA	65995	1
DR W TP-DALREED 230 kV line #1	338	DR W TP	45162	DALREED	45075	1
CHP 5C1K-CHP 5C1C 500 kV line #CX	104	CHP 5C1K	50648	CHP 5C1C	51652	CX
RINALDI-AIRWAY 230 kV line #1	64	RINALDI	26061	AIRWAY	26013	1
INTERMT-MONA 345 kV line #2	207	INTERMT	26043	MONA	65995	2
DILLONSALMON-BIGGRASS 161 kV line #1	89	DILLONSALMON	621004	BIGGRASS	65155	1
POE-RIO OSO 230 kV line #1	159	POE	30280	RIO OSO	30330	1
BEACONTP-BARRENRD 230 kV line #1	19	BEACONTP	26905	BARRENRD	26132	1
BCK 274P-POCATER7 138 kV line #1	40	BCK 274P	50830	POCATER7	54329	1
ANTELOPE-PARDEE 230 kV line #1	23	ANTELOPE	24401	PARDEE	24114	1
VICTOR-LUGO 230 kV line #1	58	VICTOR	24601	LUGO	24085	1
EMERY-HUNTNGTN 345 kV line #1	9	EMERY	65510	HUNTNGTN	65805	1
INTERMT-GONDER 230 kV line #1	38	INTERMT	26041	GONDER	64056	1
CARBERY-ROUND MT 230 kV line #1	15	CARBERY	30116	ROUND MT	30245	1
J.HINDS-MIRAGE 230 kV line #1	19	J.HINDS	25406	MIRAGE	24806	1
SILVERGT-OLD TOWN 230 kV line #1	18	SILVERGT	22430	OLD TOWN	22596	1
VICTOR-LUGO 230 kV line #2	18	VICTOR	24601	LUGO	24085	2

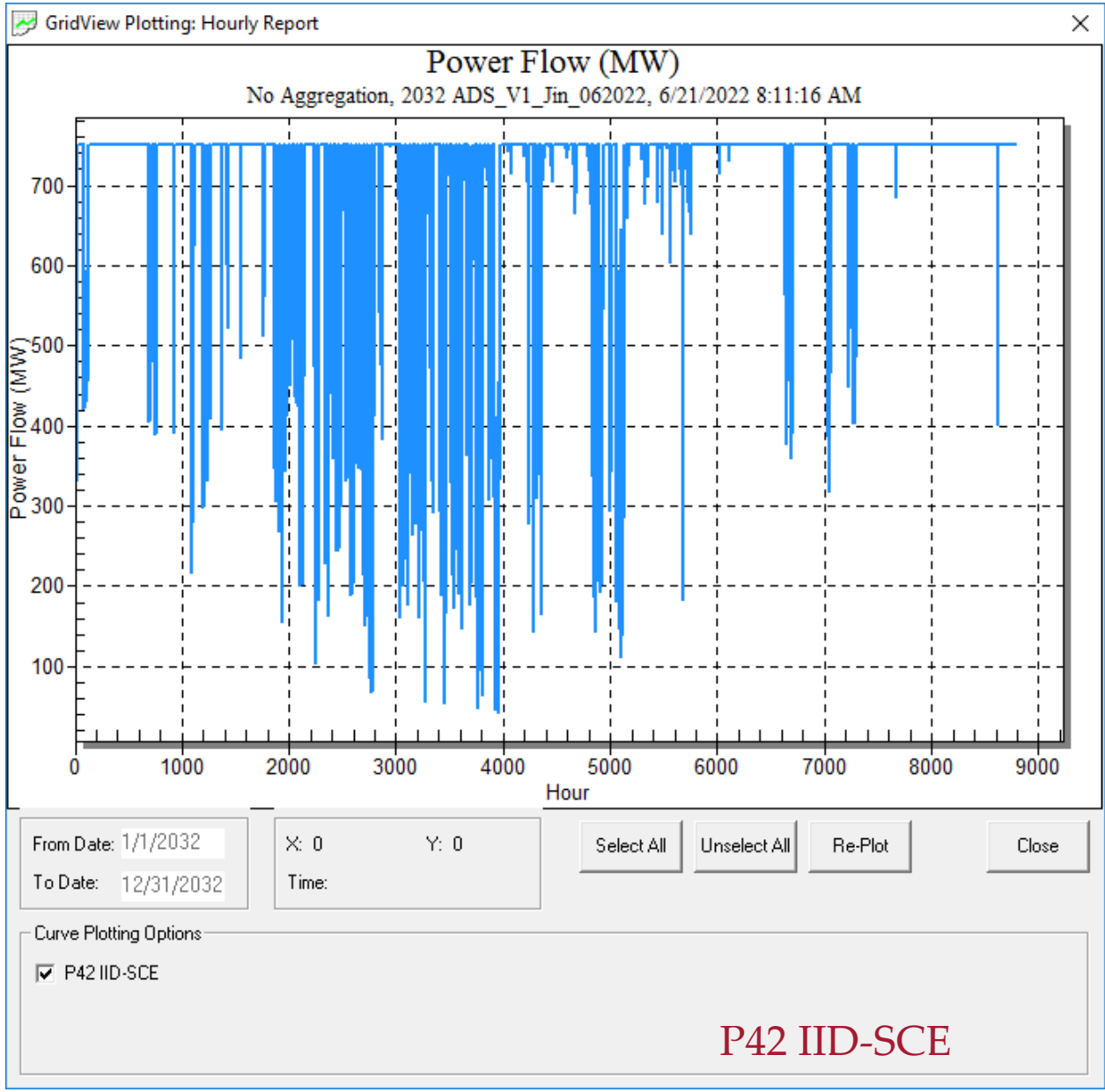


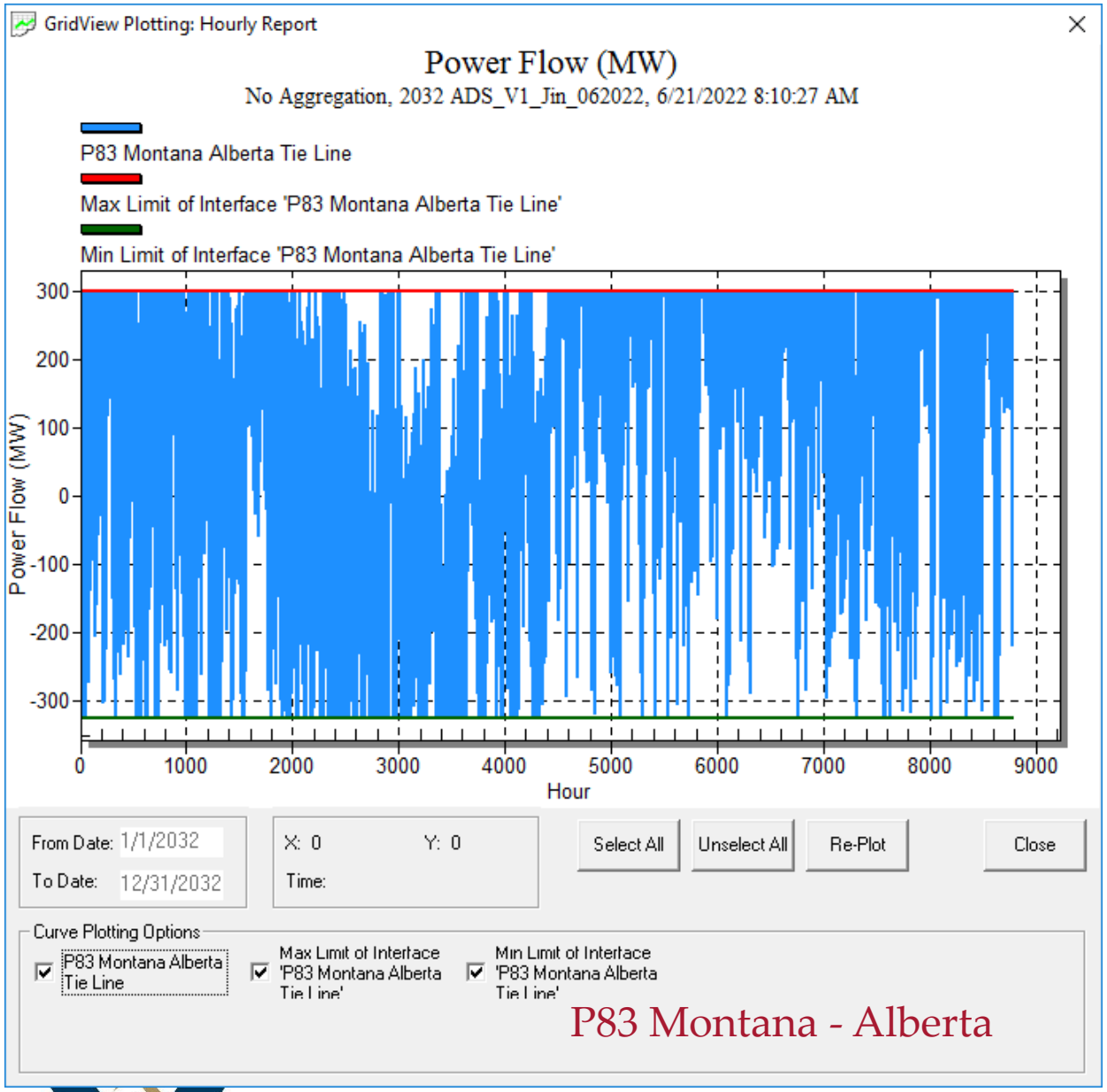
COI & PDCI
2032 ADS



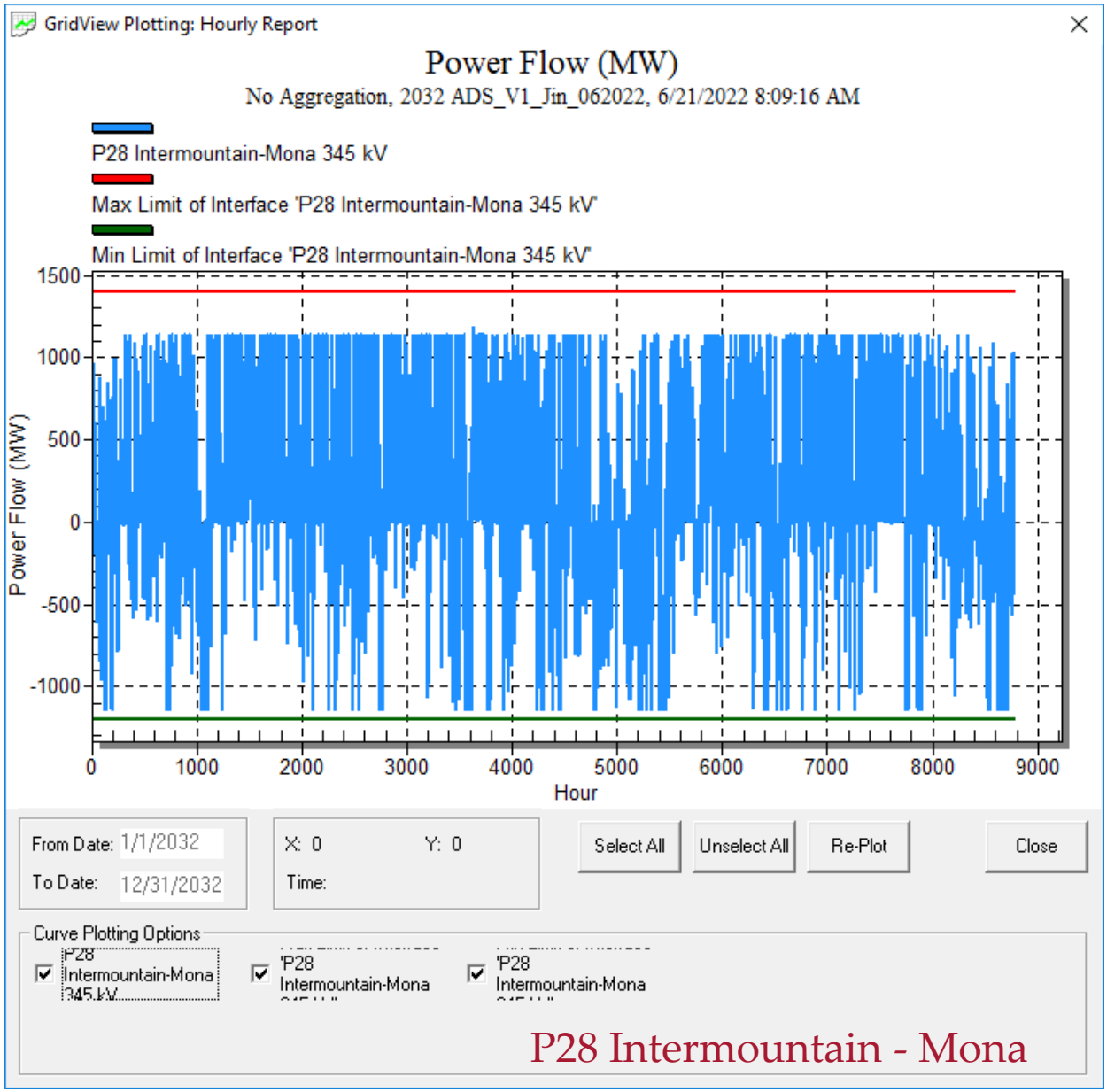
COI + PDCI
2030 ADS


GridView Plotting: Hourly Report
Power Flow (MW)
Sum, 2032 ADS_V1_Jin_062022, 6/21/2022 8:02:57 AM
Power Flow (MW)
Hour
From Date: 1/1/2032
To Date: 12/31/2032
X: 0
Y: 0
Time:
Select All
Unselect All
Re-Plot
Close
Curve Plotting Options
Sum of Interface P65 Pacific DC Intertie (PDCI) and P66 COI
COI + PDCI


GridView Plotting: Hourly Report
Power Flow (MW)
No Aggregation, 2032 ADS_V1_Jin_062022, 6/21/2022 8:11:16 AM
Power Flow (MW)
Hour
From Date: 1/1/2032
To Date: 12/31/2032
X: 0
Y: 0
Time:
Select All
Unselect All
Re-Plot
Close
Curve Plotting Options
P42 IID-SCE
P42 IID-SCE

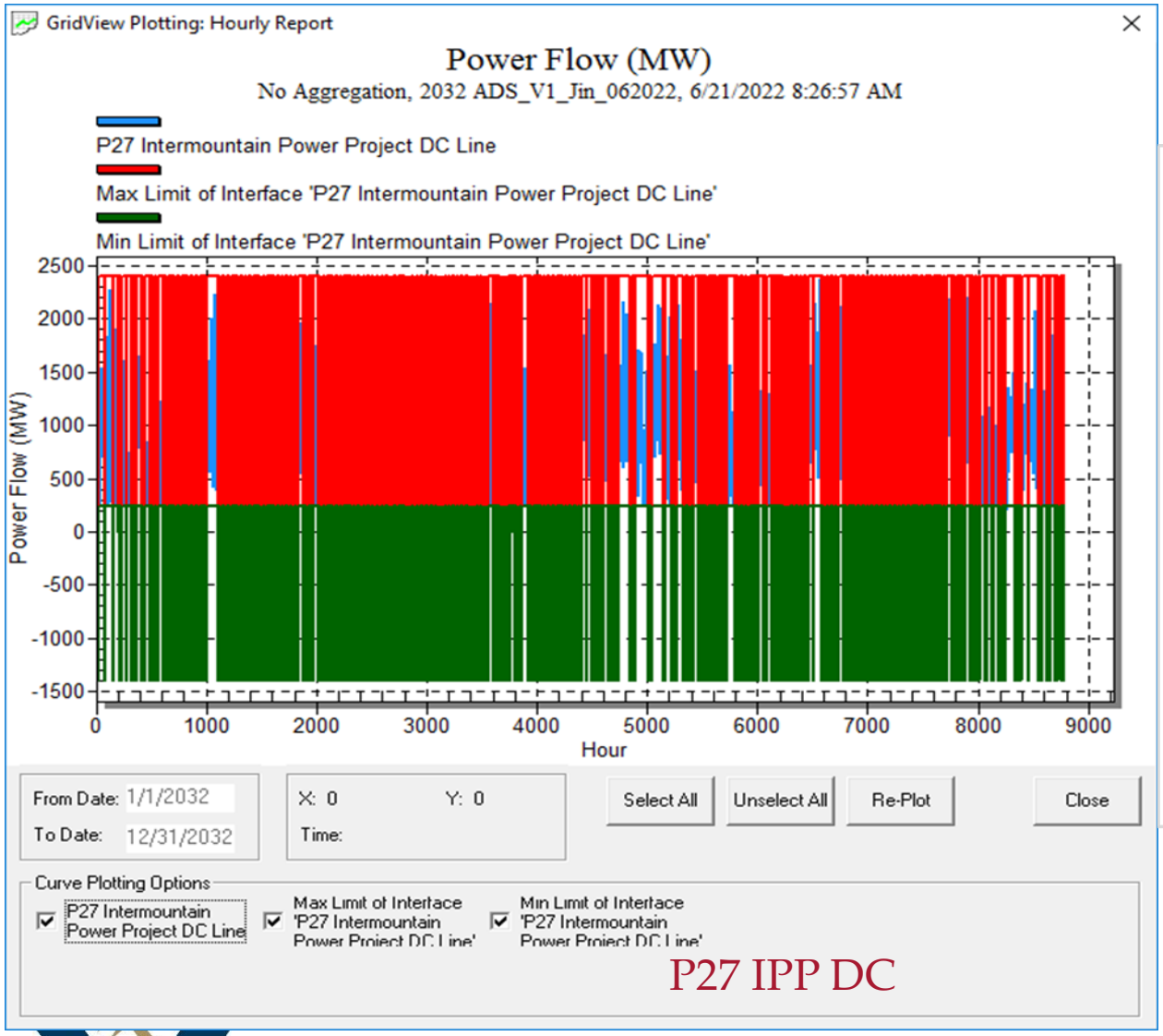


P83 Montana - Alberta

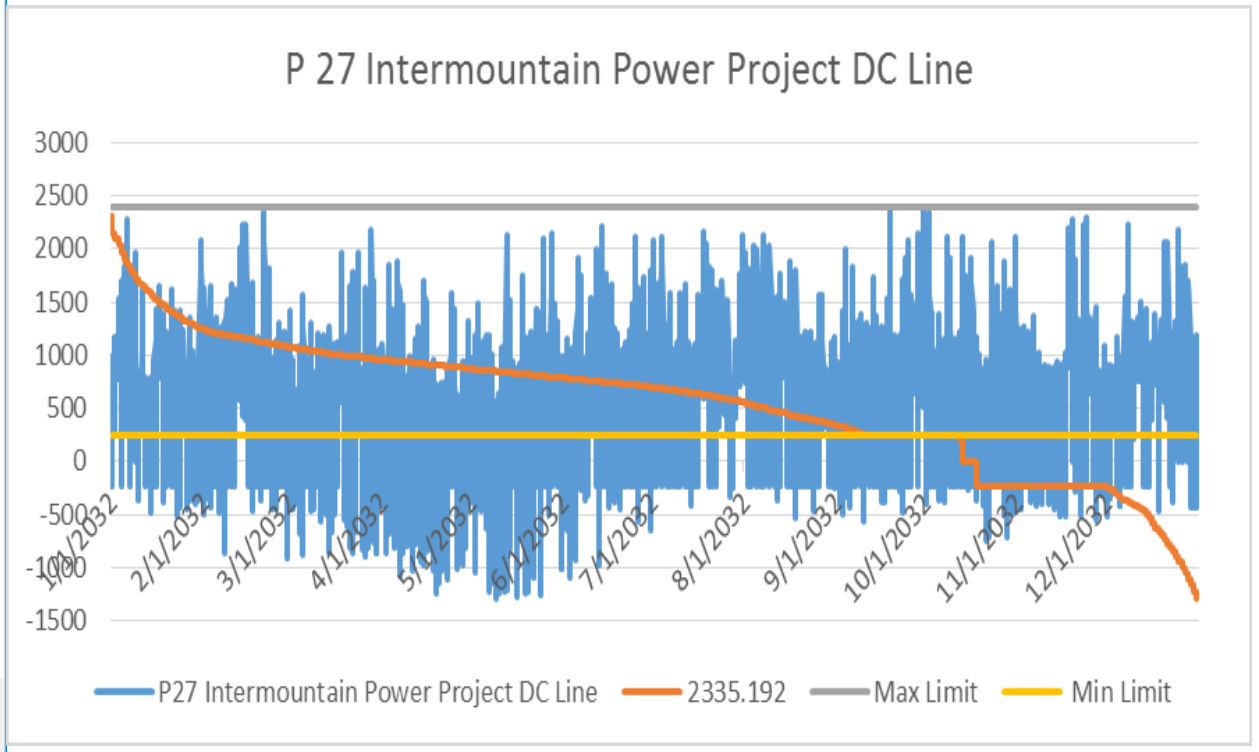


P28 Intermountain - Mona

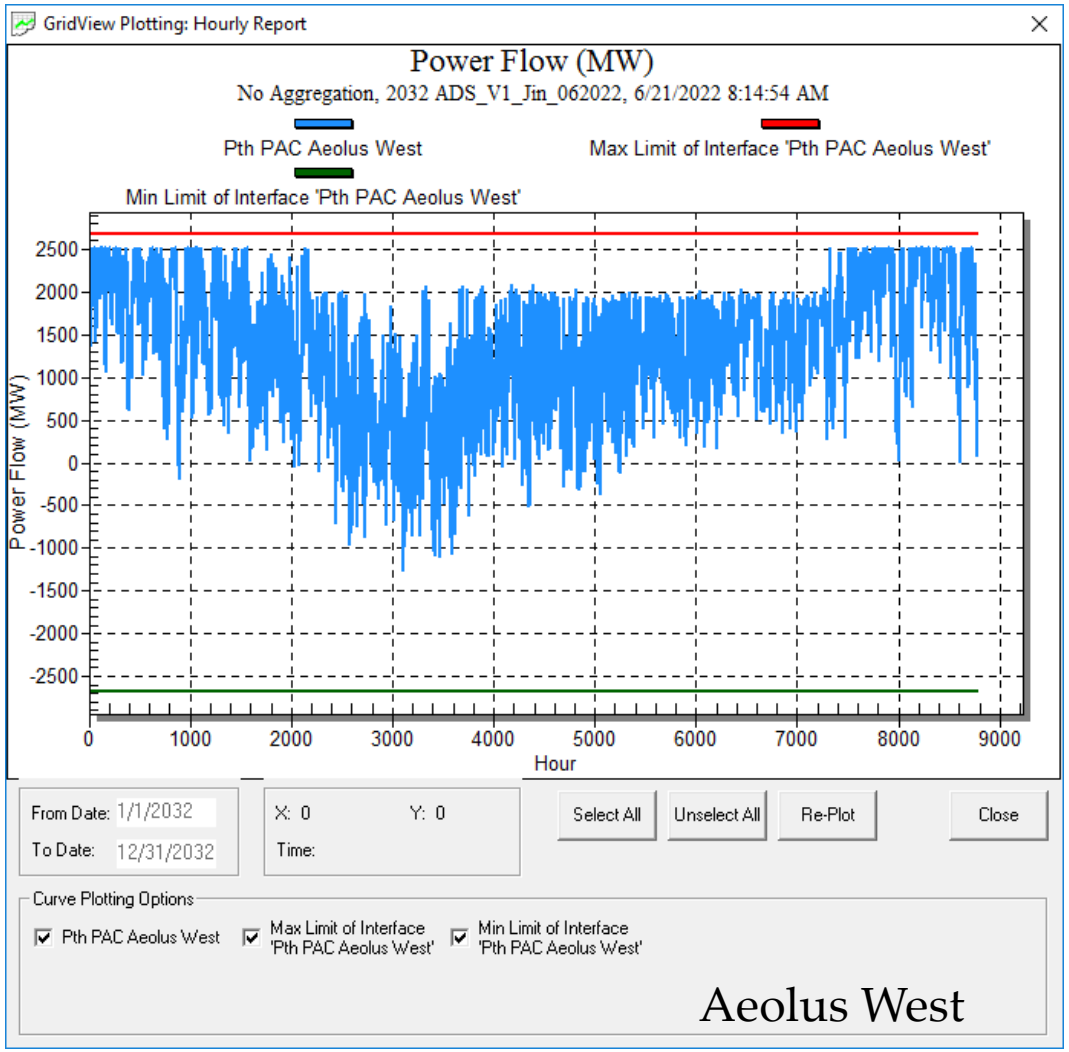
Questionable Limits?

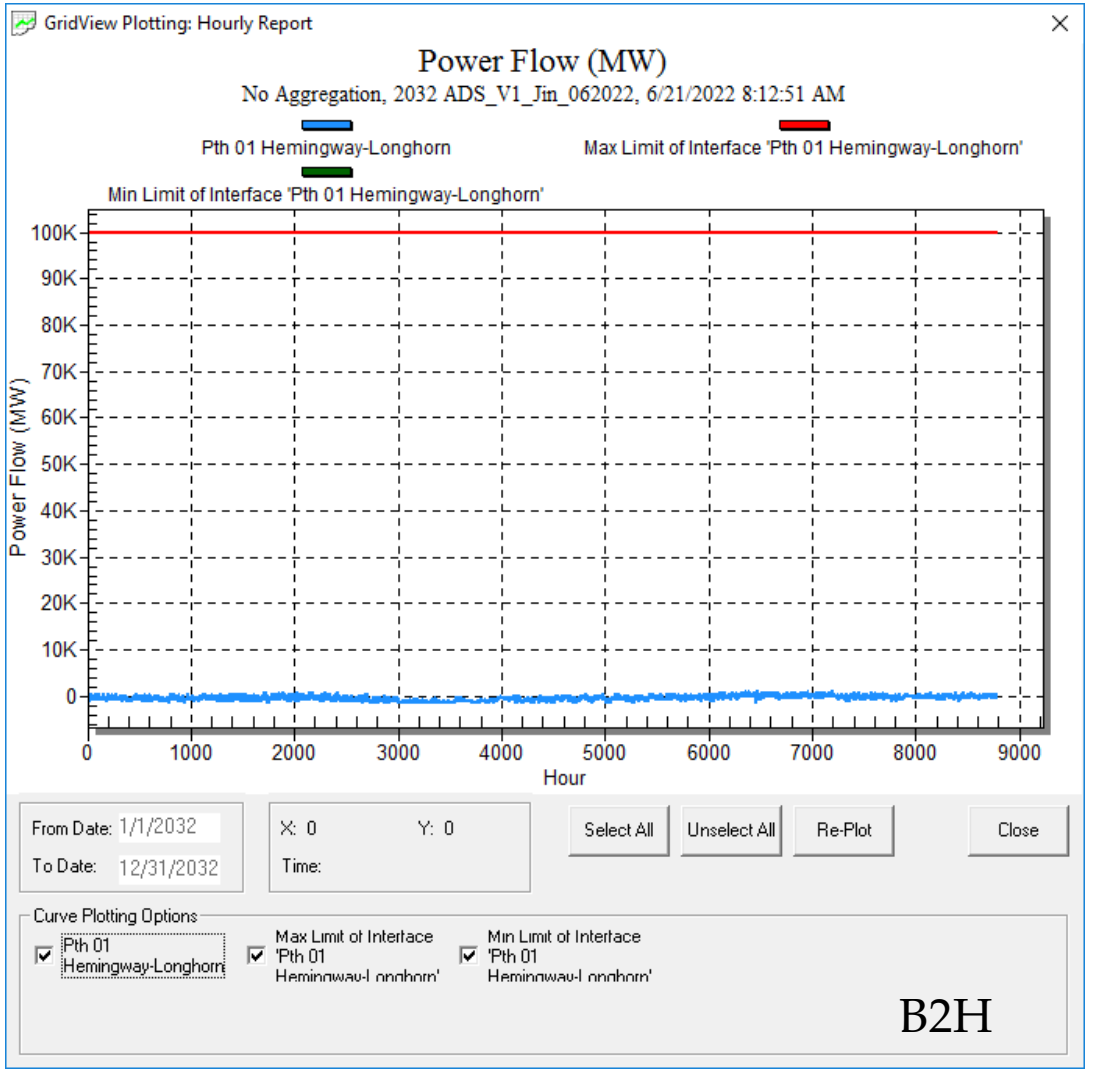


P27 IPP DC



Questionable Flows?





Gen Max Capacity by Technology

Row Labels	Battery Storage	BIO	CCCTs	CTs	DG-BTM	GEO	GT-NG	Hydro	HydroRPS	ICE-NatGas	ICE-OilDistillate	MotorLoad	PS-Hydro	PS-HydroRPS	Pump_Motor Load	SolarPV-NonTracking	SolarPV-Tracking	SolarThermal-CSP0	SolarThermal-CSP6	ST-Coal	ST-NatGas	ST-Nuclear	ST-Other	ST-WasteHeat	WT-Onshore	Grand Total
AESO	6	305	2,490	5,442		-		899		65		(25)					520				2,230		7	20	3,781	15,739
AVA		177	592	244	-	-		1,086		33		(50)				10									120	2,211
AZPS	2,035	16	836	1,665	5,592	-				3						2,030	860		250		30				626	13,943
BANC		18	1,708	662	915	-		2,590	17	65						102	416									6,492
BCHA		809	290	156		-		17,503		0						21	17						11		652	19,459
BPAT	48	444	2,682	16	-	-	23	20,771		50		(301)	273			344	48				8	1,185			5,219	30,809
CFE		-	3,353	373		570	225				61					46					320				30	4,978
CHPD		-	-	-	-	-		1,816																		1,816
CIPB	1,118	34	3,070	1,487	2,727	-		10	12	2					(282)	191	0			2	112		27		1,040	9,548
CIPV	1,448	749	3,224	2,932	6,160	903		5,067	556	290			1,633		(660)	6,406	903								3,120	32,731
CISC	10,229	162	4,735	4,300	7,219	177		1,728	69	39			207	(41)	(1,379)	12,950	4,553	481	641	55	58		17	34	5,970	52,204
CISD	1,775	10	2,180	1,580	1,794	490		320		6			40			1,894	400				364		27		1,136	12,007
DOPD		-	-	-	-	-	11	840																		851
EPE	891	-	260	822	332	-										5	1,279				144				247	3,980
GCPD		-	-	-	-	-		2,049																		2,049
IID	131	65	499	338	109	1,517		84				(44)				434	136				208					3,476
IPFE	600	-	-	-	-	-		92									40						16		80	828
IPMV		3	10	-	-	-		510									215								239	977
IPTV	705	13	312	341	-	11		1,487								183	930								395	4,377
LDWP	620	-	3,402	1,545	800	24		323		4			1,620			2,356	350				605		84		424	12,155
NEVP	553	12	3,826	700	1,213	-										592	3,229		64		8					10,197
NWMT		-	-	144	-	-		716		60						172				1,629			64		854	3,639
PACW	820	97	1,026	58	255	-	11	850	4	5						1,862	291				5				2,341	7,626
PAID		-	-	-	31	-		334		7						600						49			906	1,926
PAUT	1,465	-	1,915	562	575	84		62		66	23					930	3,092			2,786	278		10		160	12,010
PAWY	550	-	-	477	21	-		7								156				1,393		500			5,631	8,735
PGE	2	13	1,661	93	-	-		726		225						169	10								767	3,666
PNM	636	-	850	687	409	10		23				(60)				136	1,955				159				2,704	7,510
PSCO	301	-	3,171	2,529	1,720	-		89		264	30		324			590	1,844			1,967	59				4,454	17,553
PSEI		28	1,011	609	346	-		367		3						2									664	3,029
SCL		-	-	-	63	-		1,912		5																1,980
SPPC	250	-	663	150	117	950		771		140						92	2,035		111	219	9				150	5,659
SRP	135	-	4,597	1,893	-	-		96					147			221	1,696			762	412					9,958
TEPC	31	-	-	303	-	-				189						216	422			1,625	260				180	3,228
TH_Mead		-	-	-		-		2,074																		2,074
TH_PV	2,829	-	4,209	-		-										889	510					4,003				12,439
TIDC		-	269	254	74	-		165								120										881
TPWR		-	-	-	-	-		953																		953
VEA	248	-	-	-	-	-											2,143									2,391
WACM		-	235	552	25	-		2,546		4	10		206			4	130			2,615			4		899	7,631
WALC	2	-	5,362	1,221	-	-		428									1,233			175	1,023				1,902	11,345
WAUW		-	-	-	-	-		113																		113
Grand Total	27,427	2,954	58,435	32,135	30,495	4,735	271	69,410	659	1,523	124	(480)	4,449	(41)	(2,321)	33,724	29,258	481	1,066	13,228	6,290	5,737	265	54	44,692	365,176

Next Steps

- Continued validation involving
  - Western Planning Regions, PCDS Members, PNNL, NREL
- Validation of
  - Transmission losses
  - Generator Capacity Factor
  - Seasonal settings in simulation control – Summer, Winter Periods
- Work with PNNL on finalizing and implementing the "Operating Reserves"
  - AS setup (e.g., check boxes for AS except for Spin in Simulation Control)
  - Does it use region or region group level setup?
- Finalize and implement the Maintenance Schedule
- Work with PNNL and APFWG on Solving the Export Hour in an AC power flow
- DDVM Documentation
- Lessons Learned

WECC

Electric Reliability and Security for the West

Contact:

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