



Anchor Data Set 2032 ADS

Initial Dispatch Results

June 28, 2022

Jamie Austin, Chair

Overview

- Assessment of the initial 2032 ADS PCM
- Next Steps

Pending Questions

Incremental Fixes (Iteration 1 vs. Iteration 2)

Jin reported:

- The Spikes on hydro generation is caused by Load – wind – solar initial shapes. Data errors (e.g., caused by inaccurate hourly resources' multiplier resulted in shapes exceeding load for the day).
 - Hitachi has capped the multiplier * shape at Capacity * Inverter loading ratio. That will limit the bad data impacts on the results.
 - *We still need to find the proper generation level for all units to better align with L&R Resources*
- Helped with reading in the “Reference Case”, making sure that all L&R resources are implemented.

Tyler reported:

- L&R Resources are turned-on
- Non-L&R resources are turned-off
- The staff corrected multipliers in the corrupted energy shape files.
- Fixed an error leading to more than 1000 MW of BTM on three busses that had caused overloads.



Pmax violations

The following generator with VAR Margin Ratio is 0. Should be 1.

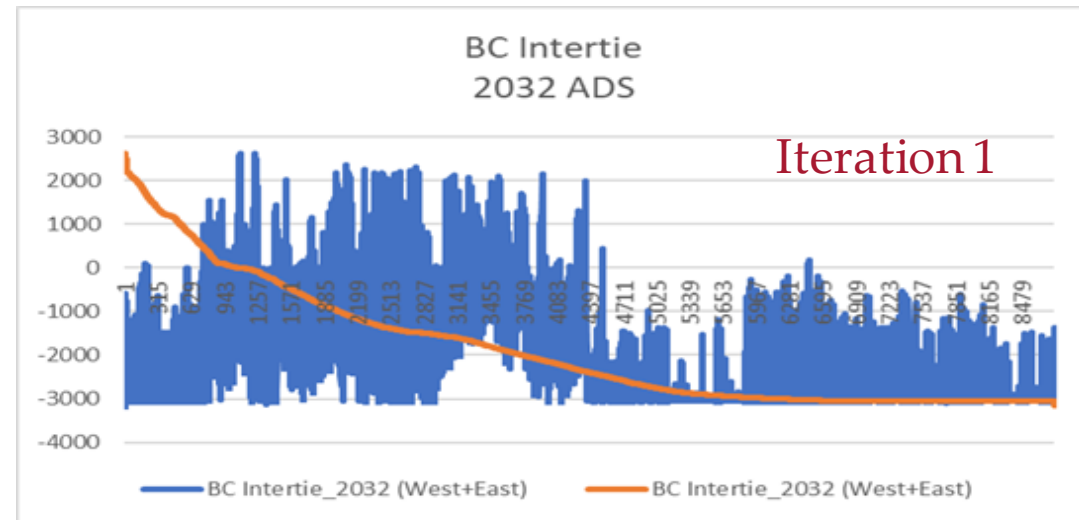
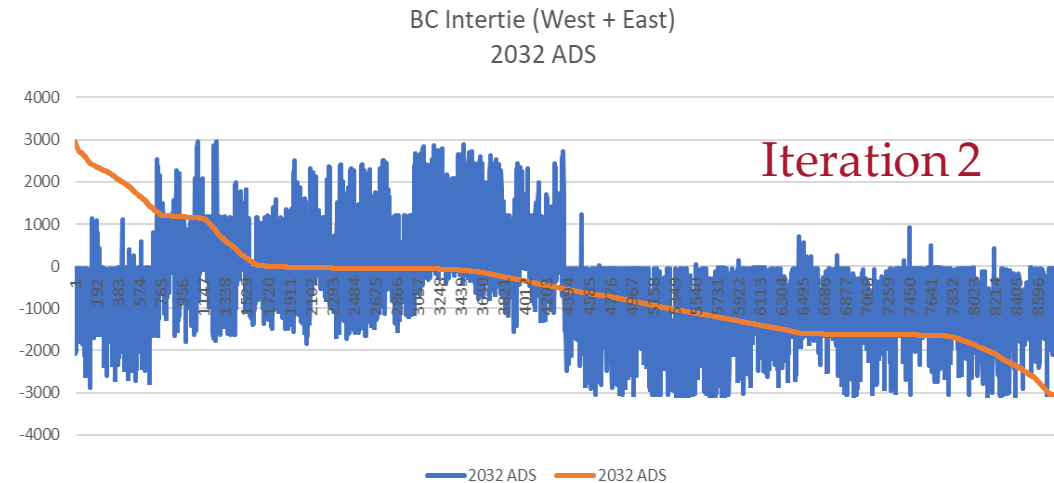
PUMPED_STORAGE_MONTHLY_SCHEDULE								
Generator	Type	Year	M1	M2	M3	M4	M5	M6
Battery Storage - S-Oregon1BA41.5	VARMarginRatio	0	0	0	0	0	0	0
Battery Storage - Yakima1BA20	VARMarginRatio	0	0	0	0	0	0	0
Horn Rapids BatteryBA1BA1	VARMarginRatio	0	0	0	0	0	0	0
Utility Solar+Storage - Borah1BA600	VARMarginRatio	0	0	0	0	0	0	0
Utility Solar+Storage - PV - S-Oregon1BA377	VARMarginRatio	0	0	0	0	0	0	0
Utility Solar+Storage - PV - S-Oregon1BA52.5	VARMarginRatio	0	0	0	0	0	0	0
Utility Wind+Storage - Yakima1BA160	VARMarginRatio	0	0	0	0	0	0	0

The following solar generation and capacity does not match:	Max	Sum	Win
Fifth Standard Solar	36	150	150
IPCO IRP Generic 60177 Solar	120	215	215
IPCO IRP Generic 60249 Solar	120	250	250
IPCO IRP Generic 60396 Solar	120	200	200
Northern Orchard Solar	36	100	100
Scarlet Solar CA 1A	36	100	100
Scarlet Solar CA 1B	36	100	100
SCE S Nevada Solar 1	787.446	902	902
Slate Solar PV	163	300	300
Utility Solar+Storage - Borah1BA600	0	600	600
Utility Solar+Storage - PV - S-Oregon1BA377	0	377	377
Utility Solar+Storage - PV - S-Oregon1BA52.5	0	52.5	52.5
Westlands Solar Blue	20	250	250
The following wind generation does not match with capacity	Max	Sum	Win
Energia Sierra Juarez Wind 2	56.5116	105	105
Garden Plain Wind	115	131	131
IPCO IRP Generic 66315 Wind	85.5	400	400
IPCO IRP Generic 69520 Wind	85.5	300	300
Jenner Wind Power Project 3	71.4	106	106
Lanfine North Wind WAGF	115	145	145
Pennask wind farm	0	15	15
Utility Wind+Storage - Yakima1BA160	0	160	160

Unit	Max	Sum	Win
Agua Fria 6	4.07	69.77843	66.59594
Aquamarine Westside	36	250	250
Chestnut Westside	36	150	150
DCI Lamar	0	210	210
DCI Rapid City	80	200	200
DCI Virginia Smith	0	200	200
EdSan 2 Edwards 3 BESS	96	151	151
Las Camas 1	36	100	100
McClure 1	0	55.55374	60.28344
McClure 2	0	57.8715	53.97807
MillenniumCC-Total	315.464	376	376
NGILAA_5_SDGDYN1CS57	0	53.63727	52.32813
Sandrini Sol 1	25	100	100
SyncrudeCC-Total	443.1598	528.2	528.2
Yucca GT4	0	47.68555	51.06771

BC Hydro Import \ Export

- The hydro data for BCH wasn't updated by PNNL. The Staff reverted to using the old data file by Kevin; this requires backing into the targets for BCH.
- High intra-day import/export implies that BCHY hydro generation is not in sync with modeled load.
- This is one of the items on WECC list of things to do



Pending Questions

- LADWP and SMUD were asked if hydro generation should be able to spill before renewables (wind and solar)...
 - *LADWP's response: For PCM/GridView, LADWP considers Hydro, Wind, and Solar spilling on the same level.*
 - *SMUD - - no response*
- Relative to Hydro Modeling... PNNL is helping to confirm:
 - That the weekly set up is used for all plants where weekly parameters were provided (none were submitted for Canada and not fixed schedules)



2032 ADS Iteration 2 Dispatch Results

Total Served Load Include Losses (MWh)

ADS 2032 – ADS 2030

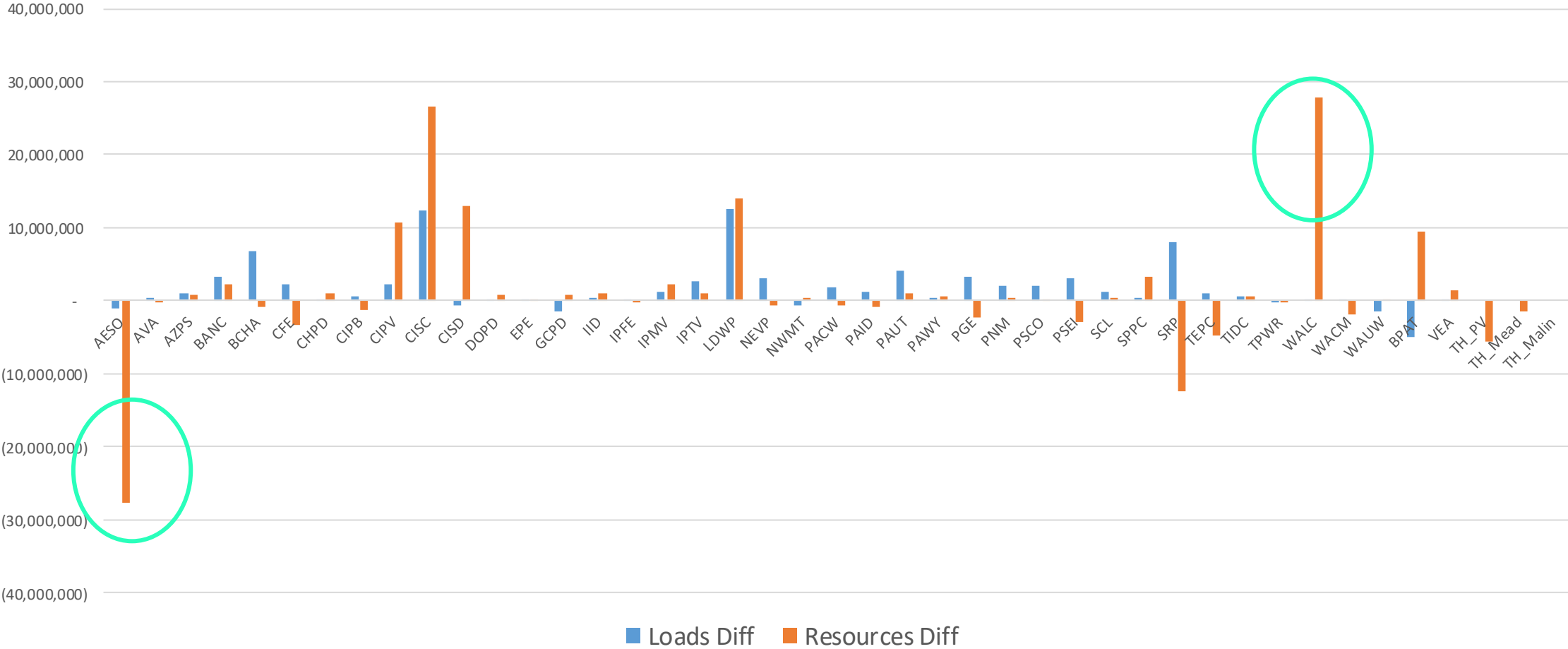
The comparison of Area Loads (year 2032 vs 2030), some area have excessive growth, even with 2-year difference in the forecast.



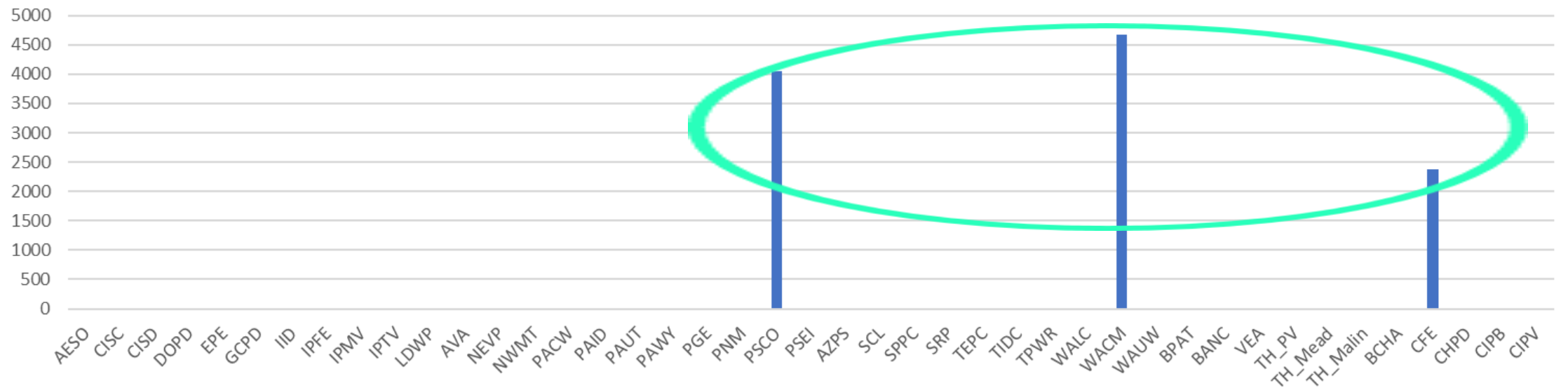
WAUW diff = 247%



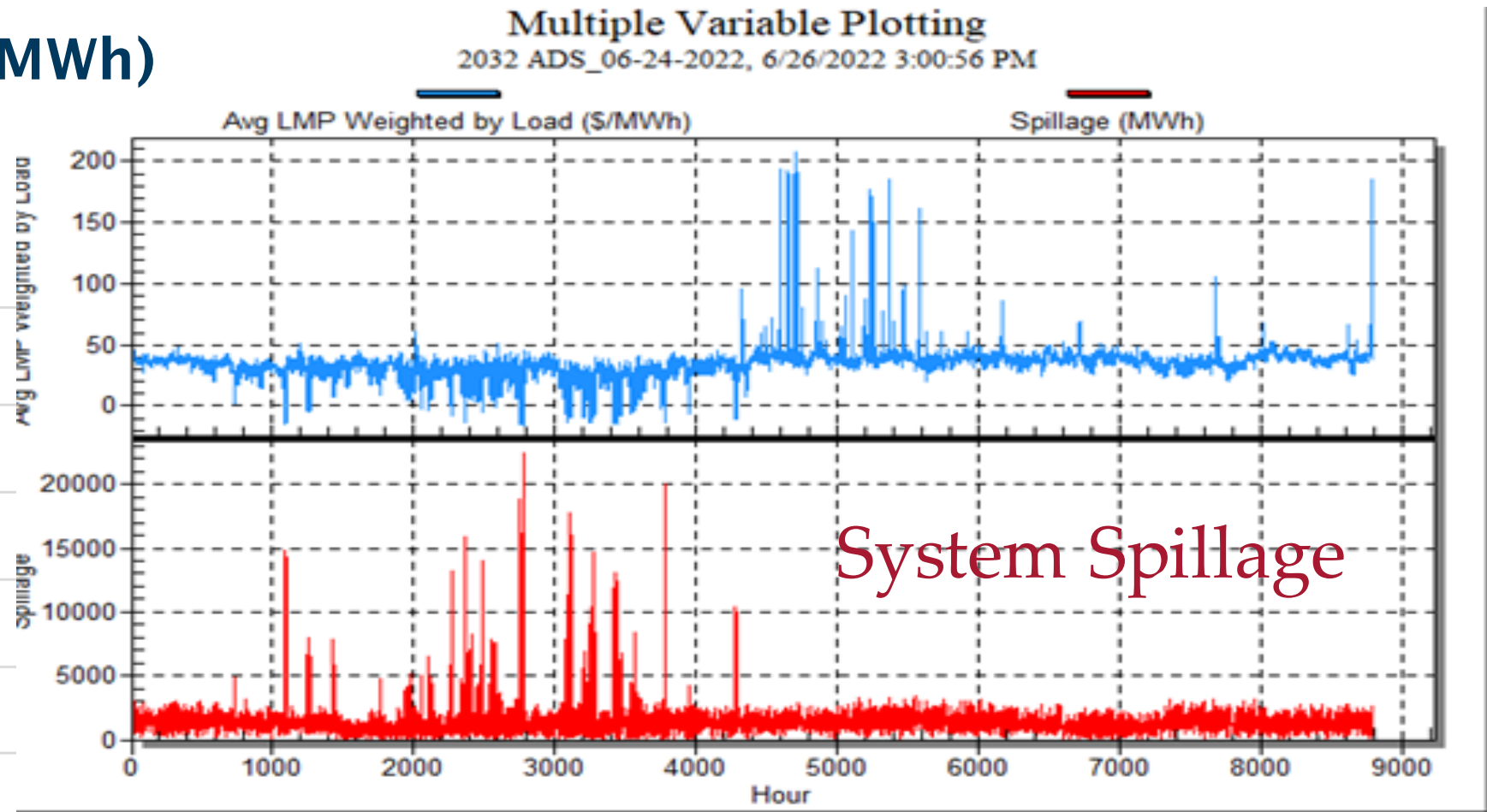
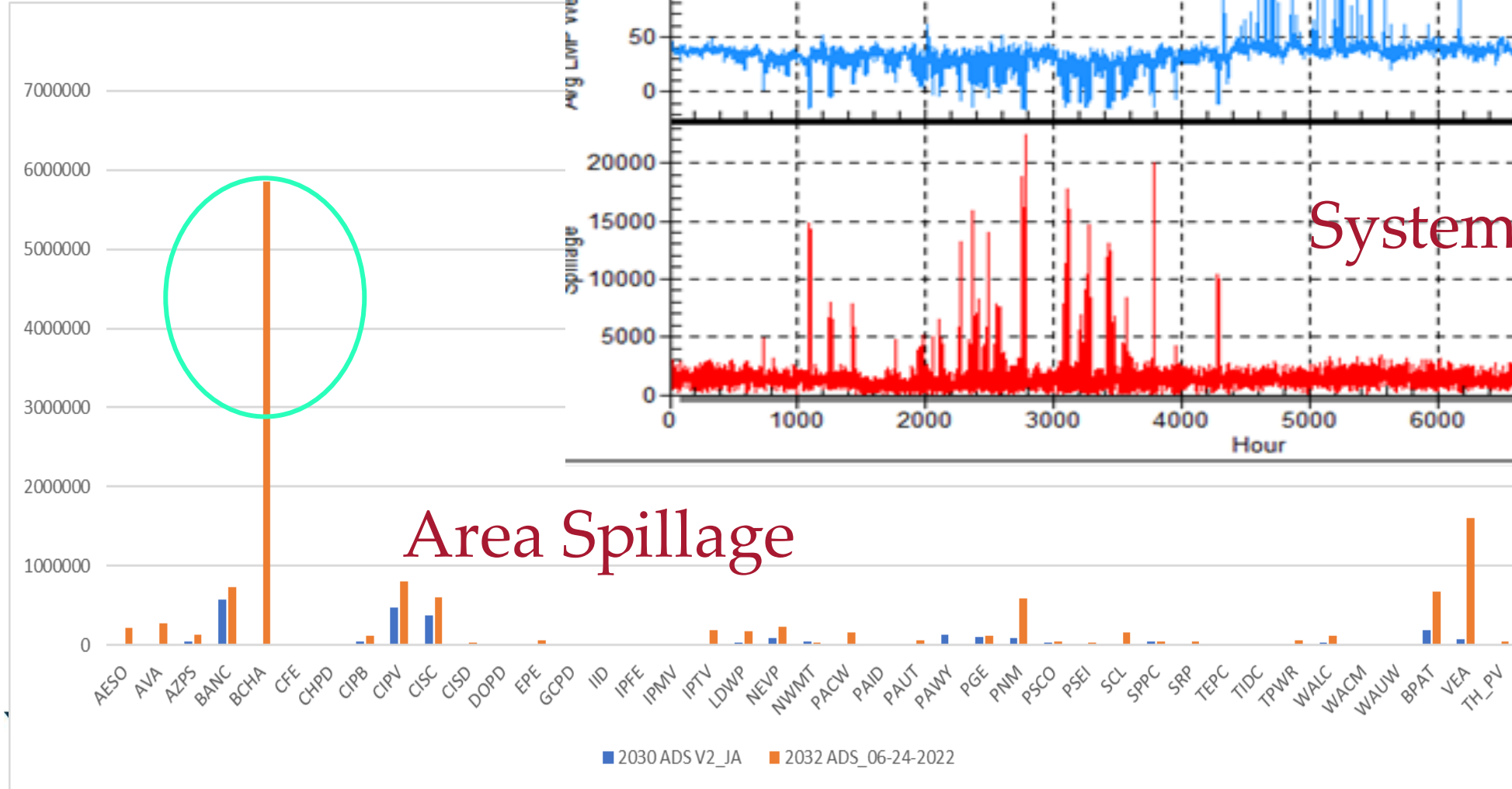
Diff _ Area L&R (2032-2030) (MWh)

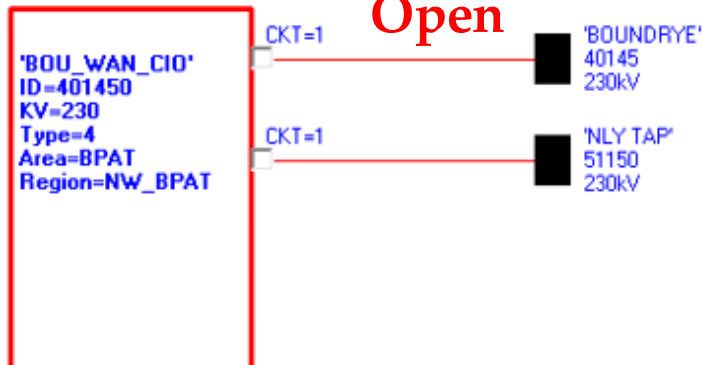


Unserved Load (MWh)



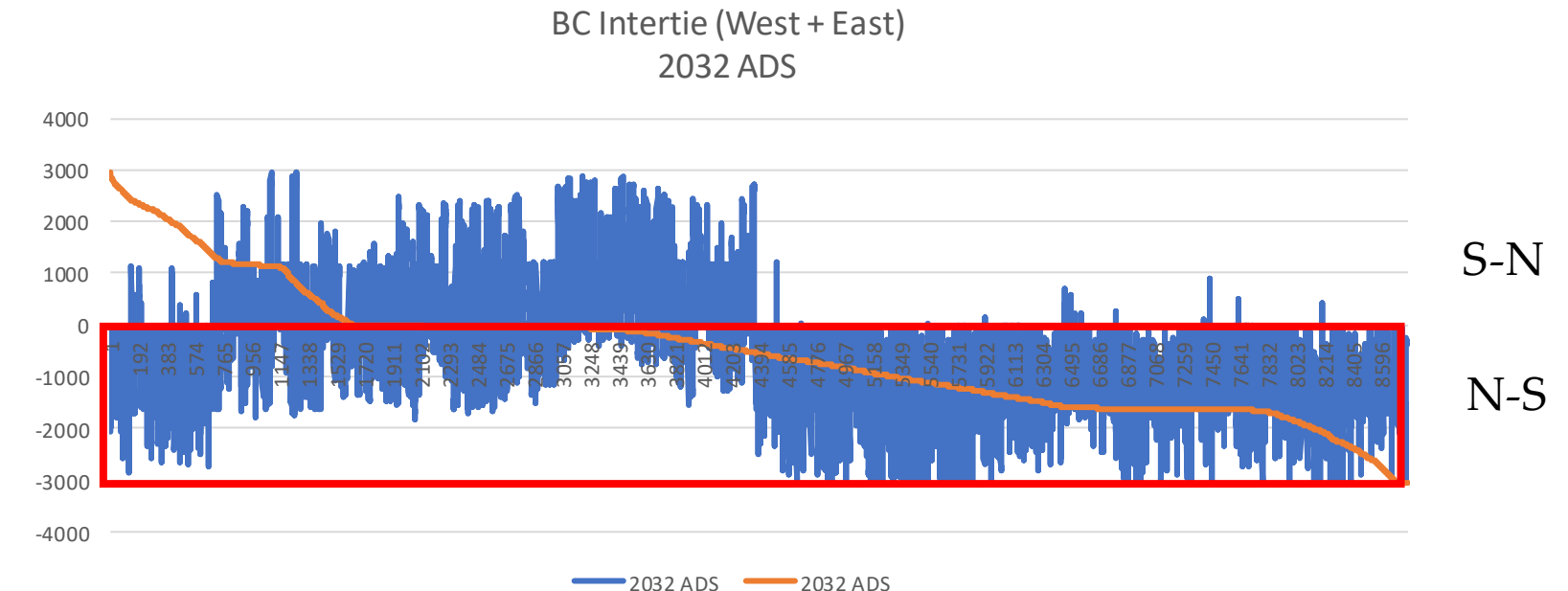
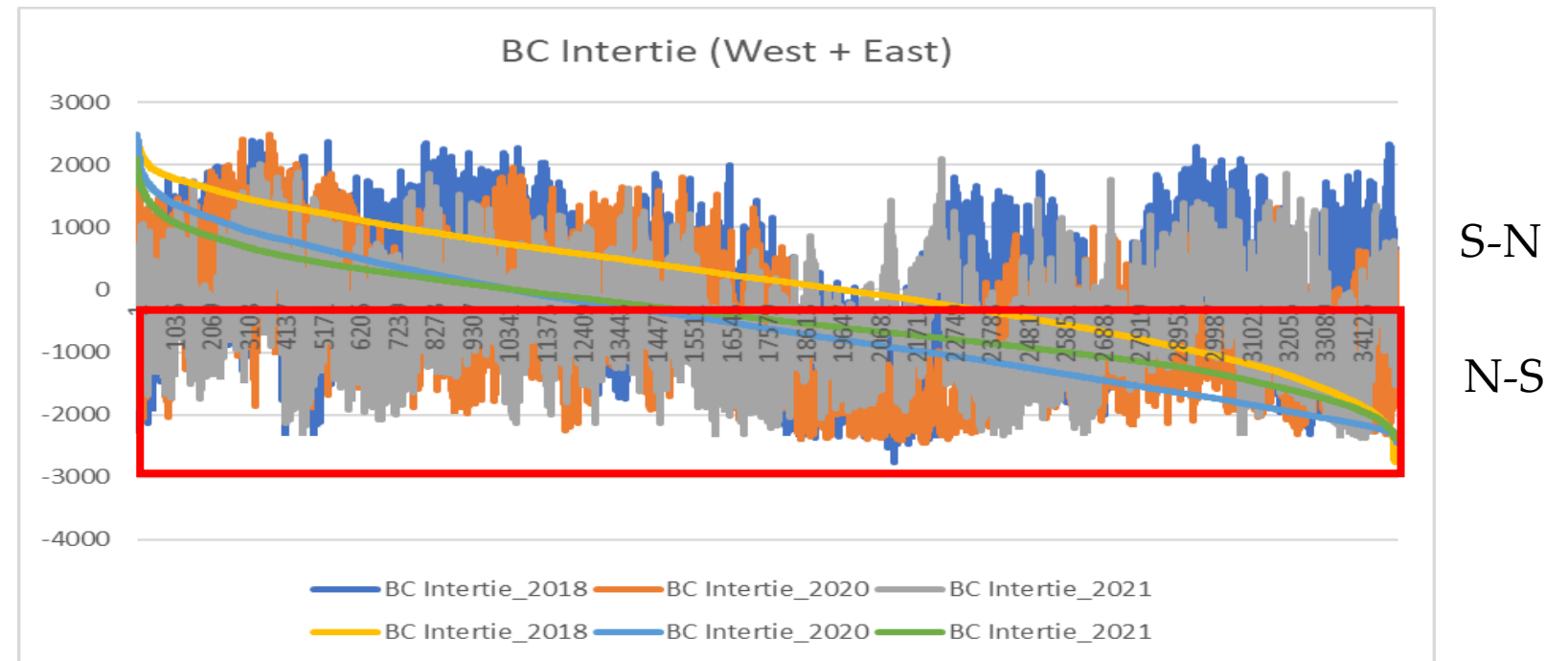
Total Spillage (MWh)





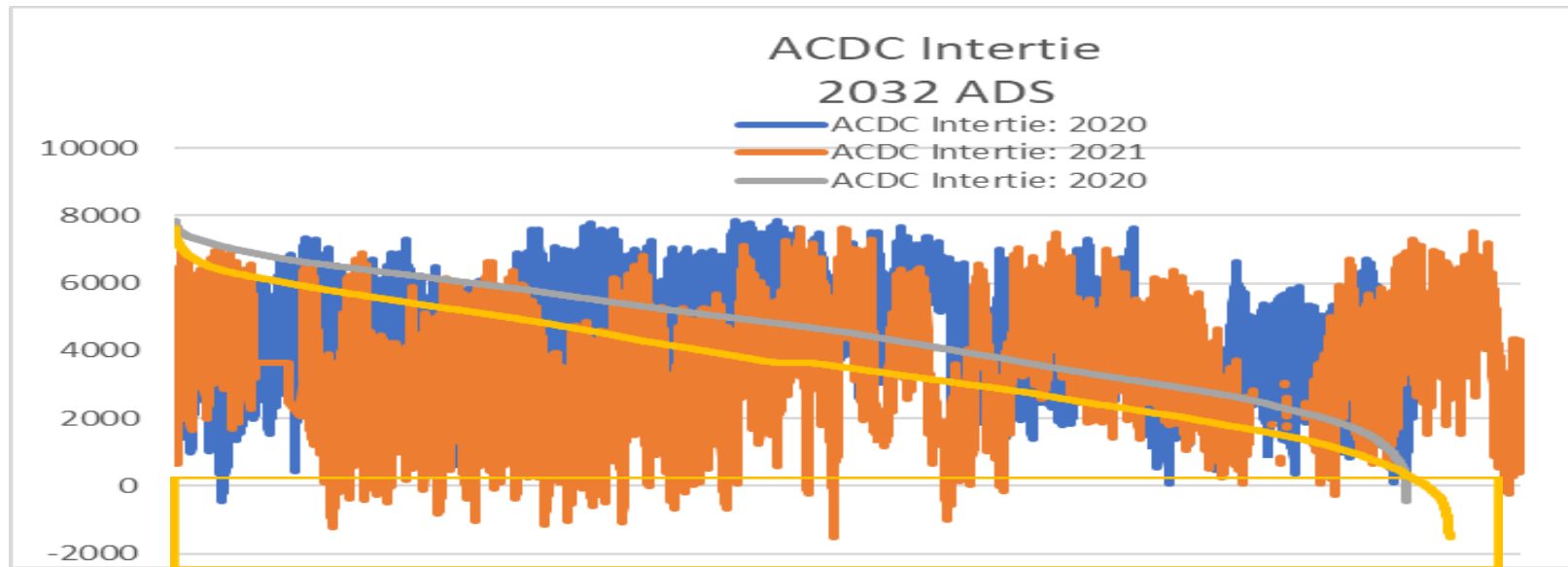
North-to-South: Up to 3,150 MW (all ties). Flow cannot exceed 2,850 MW on both Custer-Ingledow lines 1&2 (Westside Intertie) or 400 MW on the Boundary-Nelway line (one of the two Eastside Interties).

South-to-North: Up to 3,000 MW (all ties). Flow cannot exceed 2,750 MW on both Custer-Ingledow lines 1&2 (Westside Intertie) or 400 MW on the Boundary-Nelway line (one of the two Eastside Interties).



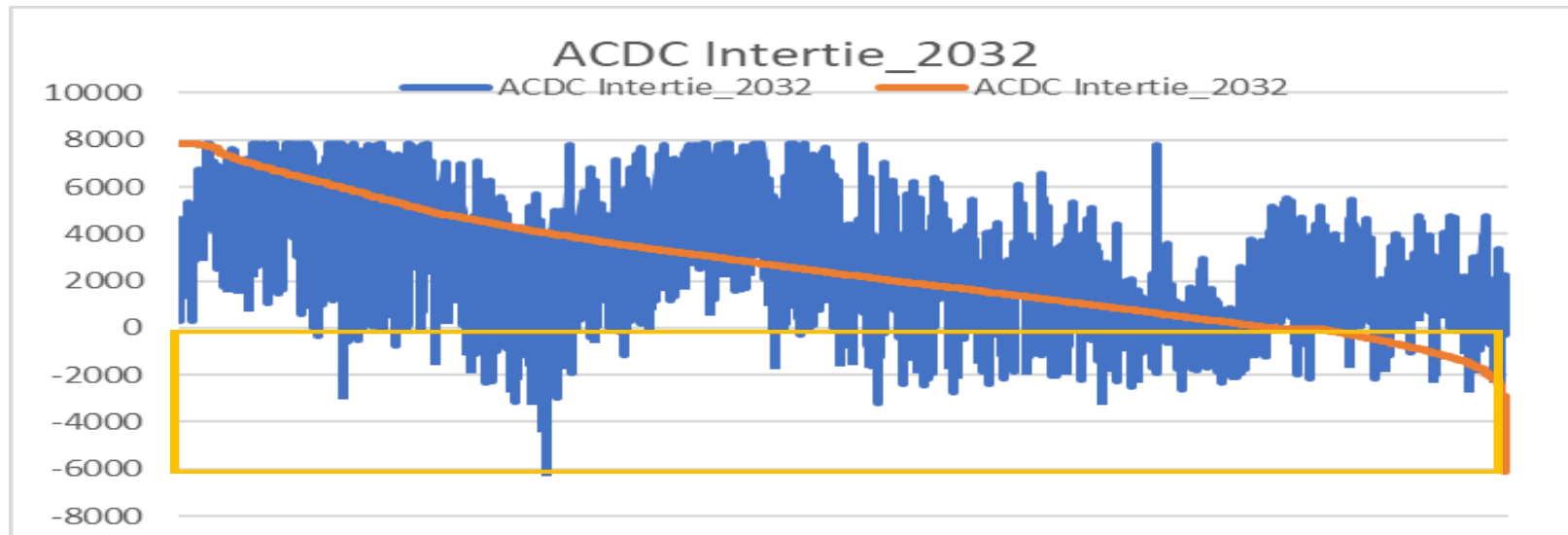
N-S

S-N



N-S

S-N



Total Congestion Hours (Hrs.)

	Type	2030 ADS V2_JA	2032 ADS_06-24-2022
P42 IID-SCE	Interface	1018	7717
P27 Intermountain Power Project DC Line	Interface	1159	2393
P26 Northern-Southern California	Interface	741	1276
P45 SDG&E-CFE	Interface	3111	1260
P83 Montana Alberta Tie Line	Interface	2462	1044
P76 Alturas Project	Interface	0	995
P16 Idaho-Sierra	Interface	620	971
P31 TOT 2A	Interface	0	899
P32 Pavant-Gonder InterMtn-Gonder 230 kV	Interface	66	604
P18 Montana-Idaho	Interface	166	565
P30 TOT 1A	Interface	44	544
P24 PG&E-Sierra	Interface	7	409
Pth BPA Northwest AC Intertie (NWACI)	Interface	874	392
P01 Alberta-British Columbia	Interface	617	359
P66 COI	Interface	3	237
P15 Midway-LosBanos	Interface	11	230
P75 Hemingway-Summer Lake	Interface	81	198
P80 Montana Southeast	Interface	30	148
P36 TOT 3	Interface	78	144
P48 Northern New Mexico (NM2)	Interface	0	104
P03 West Side NW-BC	Interface	312	90
P61 Lugo-Victorville 500 kV Line	Interface	58	57
Pth BPA Net COB (NW AC Intertie)	Interface	75	54
P79 TOT 2B2	Interface	0	51
P08 Montana to Northwest	Interface	38	27
P41 Sylmar to SCE	Interface	0	25
P20 Path C	Interface	12	18
P78 TOT 2B1	Interface	53	12



Total Congestion Hours (Hrs.)

<i>Total Congestion Hours (Hr)</i>	<i>Type</i>	<i>2030 ADS V2_JA</i>	<i>2032 ADS_06-24-2022</i>
30948_34817_1	Branch	0	5136
19020_24017_1	Branch	0	4935
50784_50822_2	Branch	2982	3515
18073_189101_1	Branch	1208	3299
54232_50776_1	Branch	302	3160
64095_64094_1	Branch	3253	3158
12181_12101_1	Branch	1124	2512
25406_24806_1	Branch	371	1953
30879_30881_1	Branch	0	1881
72818_73009_1	Branch	0	1819
47844_40584_1	Branch	1345	1709
54623_54485_1	Branch	2	1148
26043_65995_1	Branch	273	1018
26099_26094_1	Branch	36	940
11014_11017_1	Branch	706	894
30470_30479_1	Branch	0	841
55615_55618_dc	Branch	0	781
64025_64023_1	Branch	297	651
10292_10842_1	Branch	0	568
26041_64056_1	Branch	0	449
73192_70311_1	Branch	223	418
45162_45075_1	Branch	0	397
19012_189040_1	Branch	0	328
26043_65995_2	Branch	128	304
21690_21699_1	Branch	0	291
61850_60831_1	Branch	12	252



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?
- June 30th is 2-days away...



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 “Flex Reserves”
- 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





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