WECC

PCDS Meeting

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Electric Reliability
& Security for the West

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2036 ADS V2.0 Assumptions

- Approach
  - LnR
  - PF
  - …
- Example of some difference
  - PF – Extend retirements of old units
  - LnR – Retire old units, adds new units

What will be in the 2036 ADS PCM V2.0?

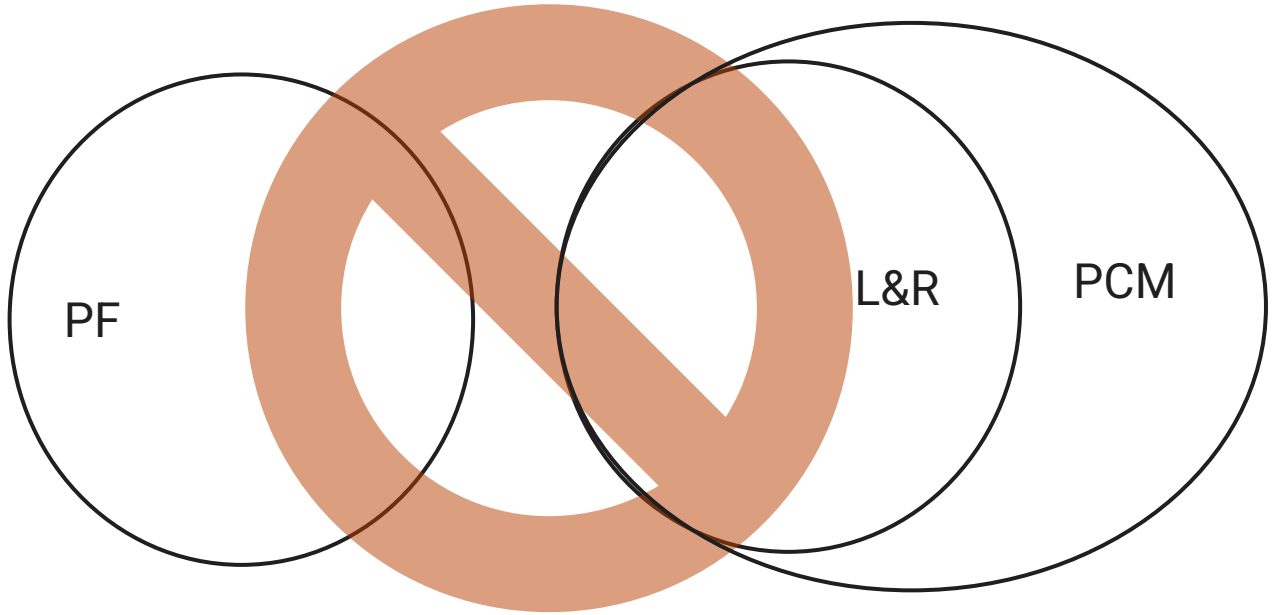
- Already decided
  - Transmission (busses, transformer, branches) will be from the 2036HS1a PF
  - Loads based on the 2026 L&R
    - Non-conforming load status from the 2036HS1a PF

V2.0 Approach Decision

- Should the 2036 ADS PCM V2.0 be Power Flow(PF) based or L&R based?
  - Do we use the unaligned PF units, or do we use the unaligned L&R units?
  - Keep in mind that the aligned PF and L&R units (meaning, we have matched the units in the PF and L&R datasets) will be included in the 2036 ADS PCM V2.0 no matter which way we decide.
  - Do we include the unaligned PF units, or do we use the unaligned L&R units?
    - We can put both in the case, but we should only have one set enabled (dispatchable) to prevent double counting.

V2.0 Approach Decision

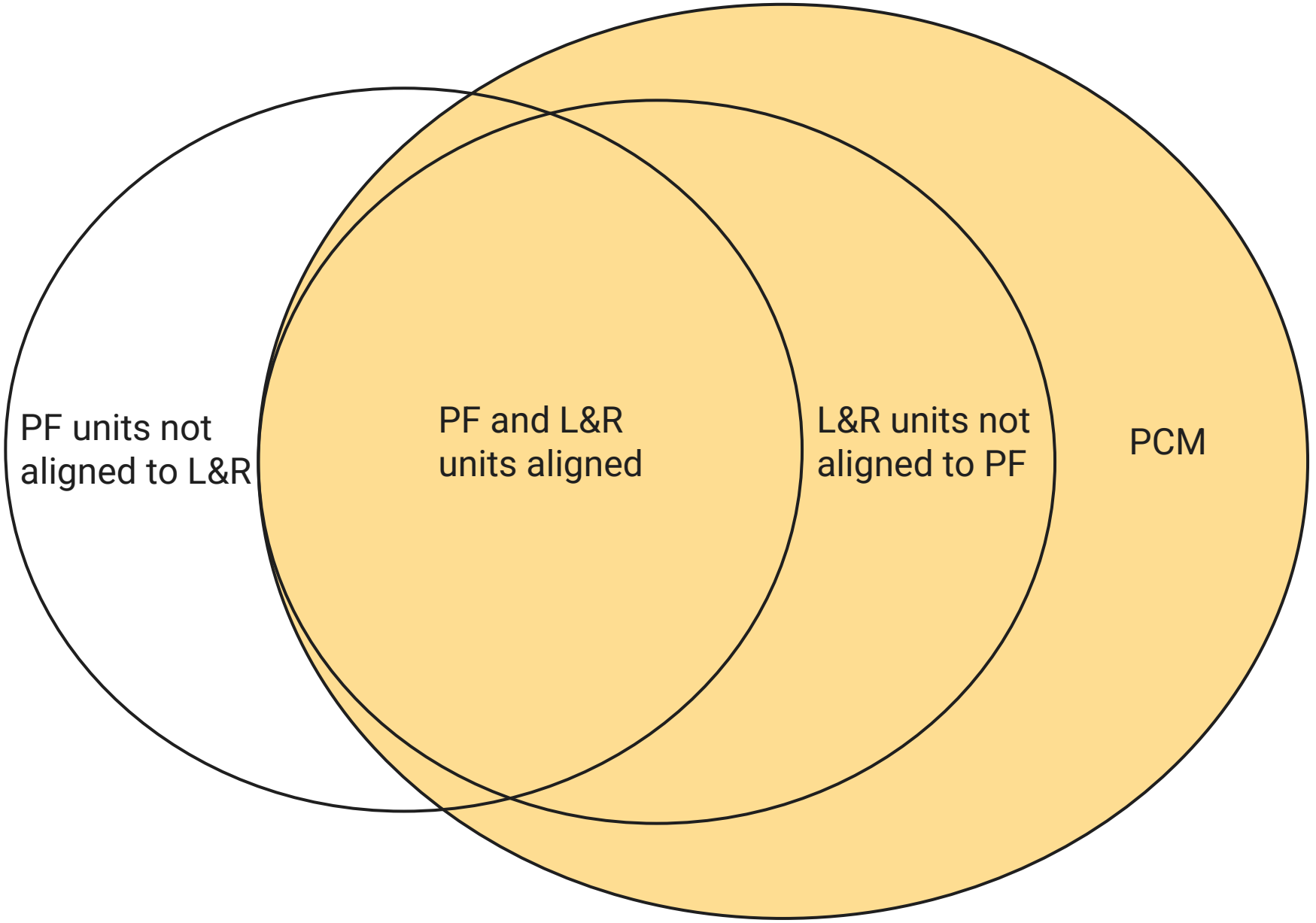
- L&R-based or PF-based decision
  - Does not mean that one data source or the other will be entirely excluded
- The units that are aligned in PF and L&R will be included
- The question:
  - Use the unaligned PF units
  - Or use the unaligned L&R units



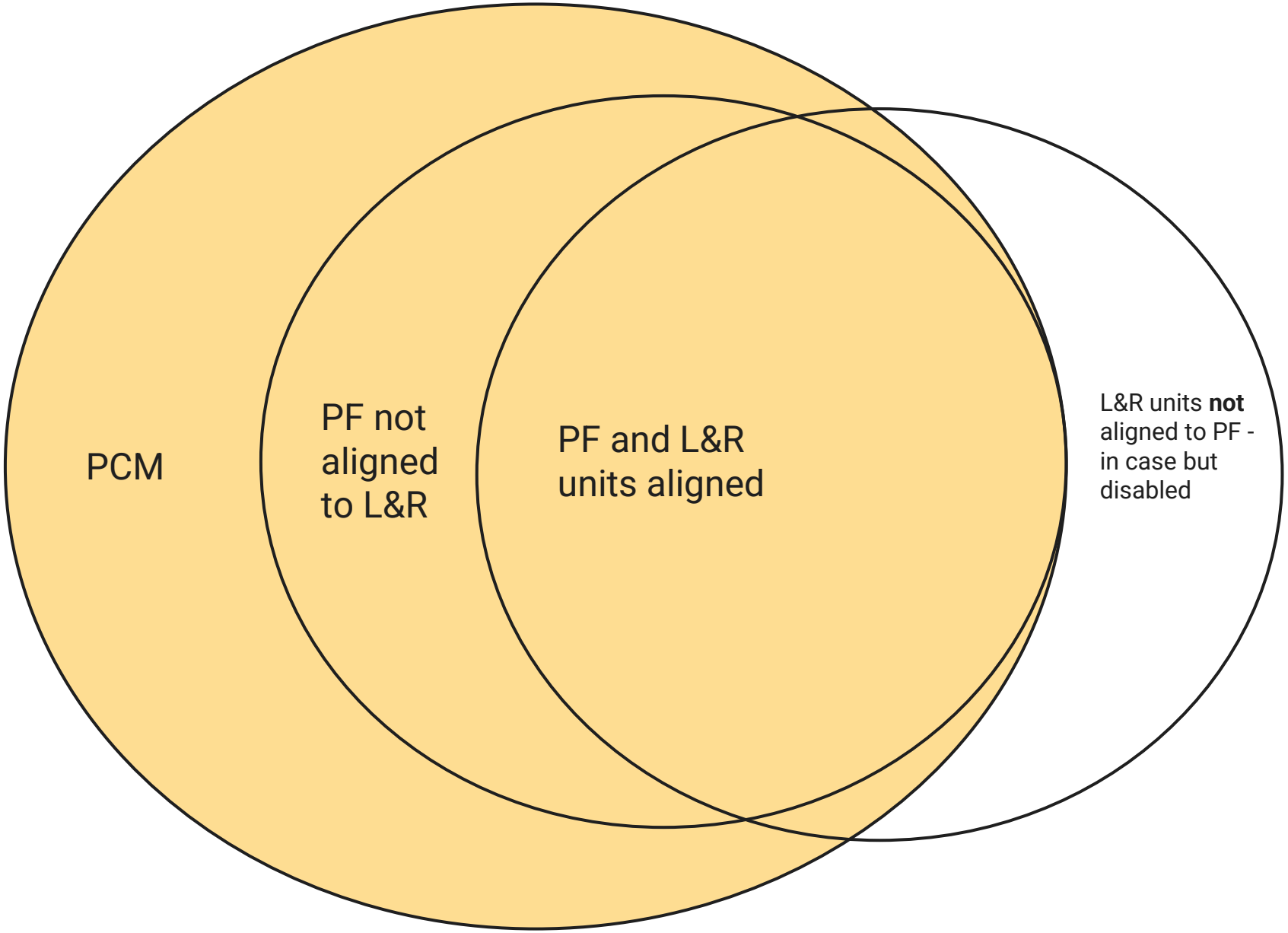
Key Differences and Considerations for 2036 ADS V2.0

- PF – Tend to keep older units in case and extend retirement dates
  - Commission and retirement dates – generally not usable
  - Locations will always be provided
  - Gen types are sometimes unknown
    - Four Corners – dispatchable in PF, retired in L&R
- L&R – Tend to retire old units and add new units, tend to add more speculative
  - Locations are sometimes unknown
  - Gen types are always known
    - IRP identified generic solar – included in L&R without location, not found in PF

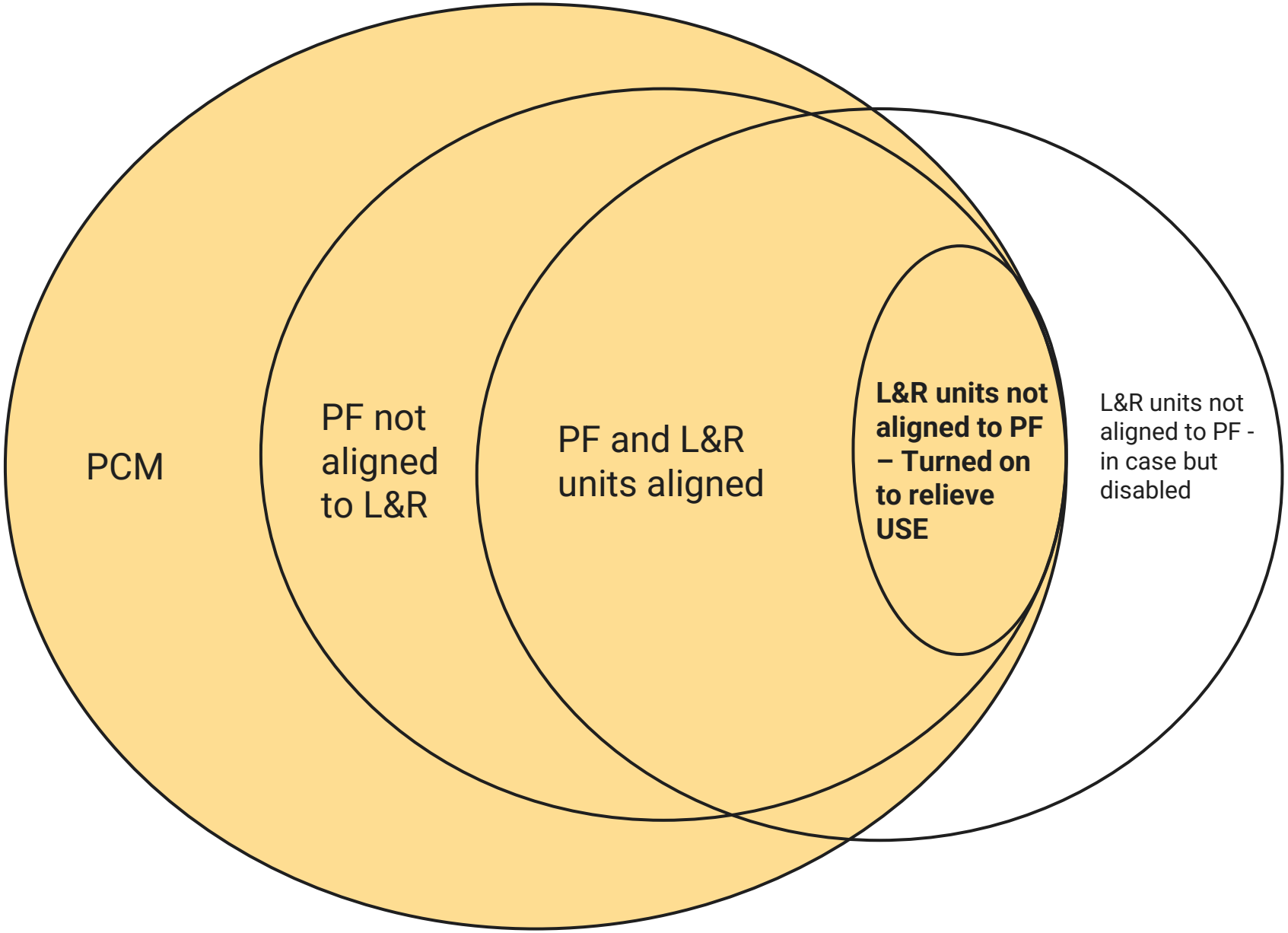
L&R Based


PF units not aligned to L&R
PF and L&R units aligned
L&R units not aligned to PF
PCM

PF 2a Based


PCM
PF not aligned to L&R
PF and L&R units aligned
L&R units **not** aligned to PF - in case but disabled

PF 2b Based


PCM
PF not aligned to L&R
PF and L&R units aligned
L&R units not aligned to PF – Turned on to relieve USE
L&R units not aligned to PF - in case but disabled

Definitions

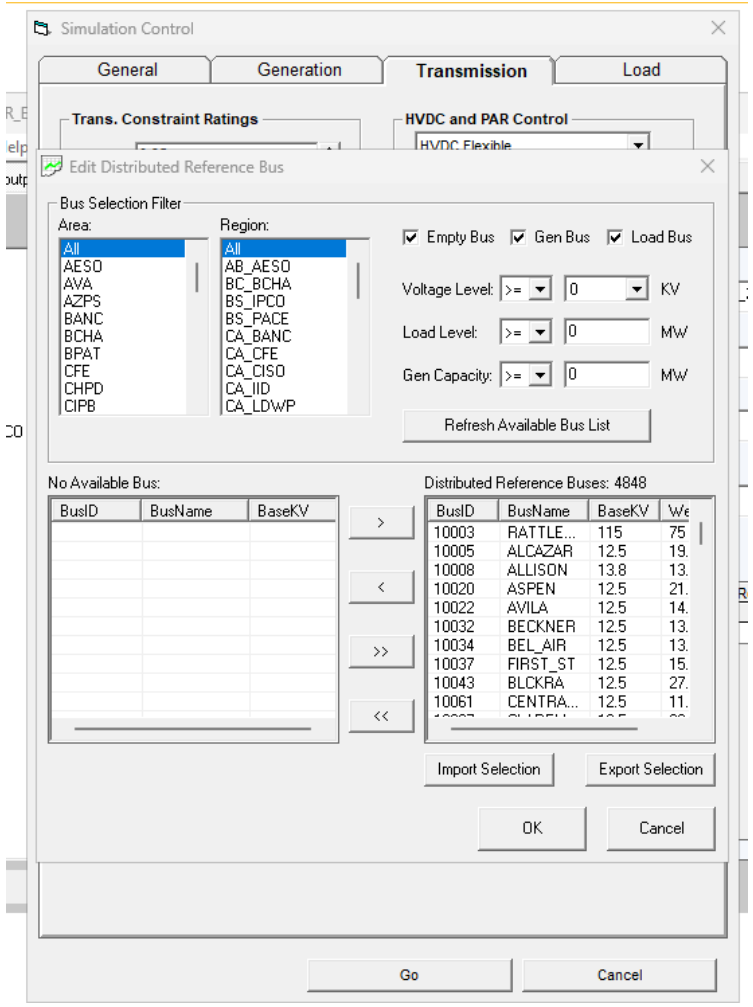
- L&R Based – Only L&R units enabled
- 2a – Only PF enabled
- 2b – PF units enabled with some L&R units turned on to relieve USE

Final Thoughts

- We can keep both the 2026 L&R in the case along with the 2036HS1a power flow units so the user can use whatever data best suits their needs.
  - This only affects what will be used in the released case.

Distributed Reference Bus

- For distributed reference buses
  - Hitachi recommends…
    - Using load weighted distribution for any voltage level.
    - You may use any loads above 5MW or 10 MW.
    - Follow up
      - Distributed reference buses are related to losses only. It does not affect load distribution by each area.



Hydro

- What representation does the PCDS want for Hydro?
  - Most recent?
  - BAU Recent?
  - Hybrid Average?

- PCDS Decision:
  - Median year
  - Updated river regulations

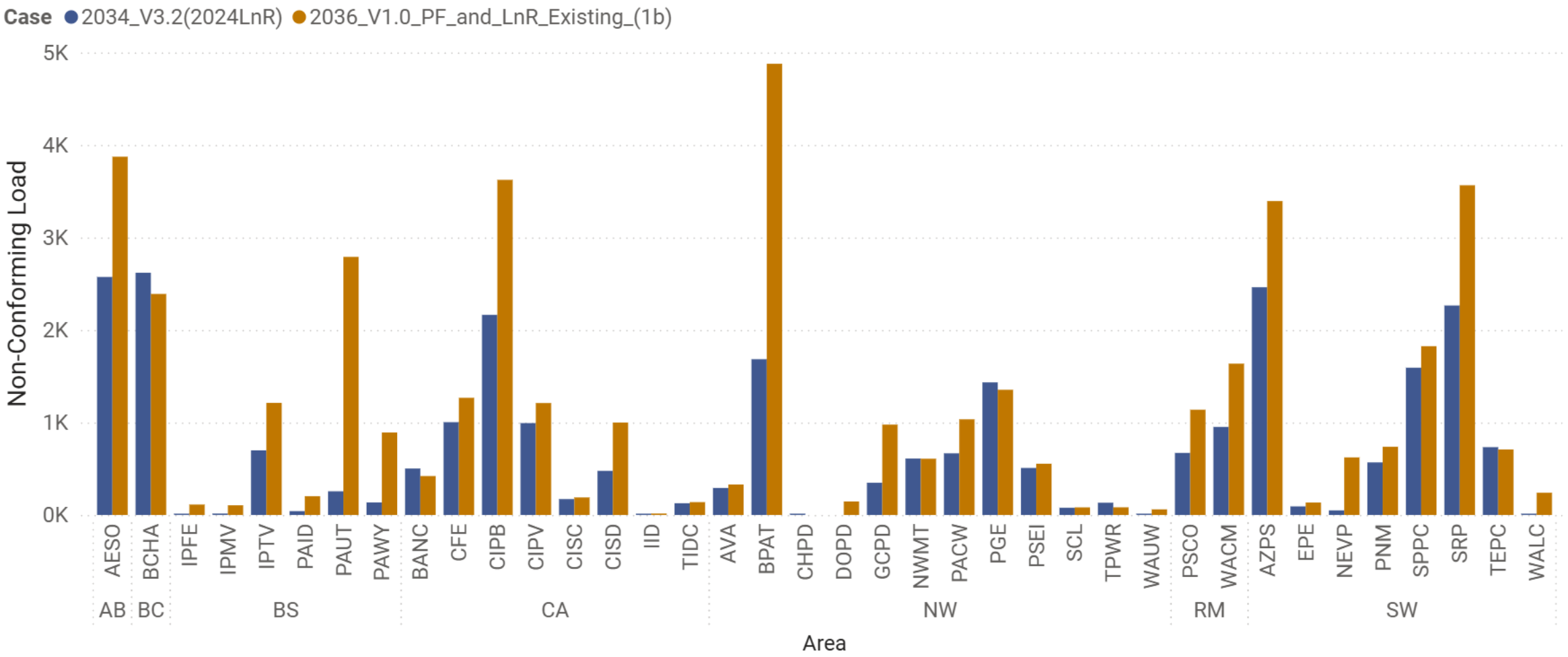
Status

- Mapping 2026L&R to 2025L&R
- 2026L&R Loads
- Paths update
- Wheeling updates
- Fuel price updates
- Cutoff date for new projects?
- PNNL updated 2018 hourly wind and solar
- GERP updates
- NW hybrid hydro year update

Status

- Base Year for profiles – Start on Monday
- Trading hubs modeling – Continue discussion
- North Plains discussion at future meeting
- Model hybrid units
  - TX constraint –
    - Monitor or nomogram
      - Nomogram
    - Assumption, if no info, assume grid charging
  - Contractually, obligated to charge from only PV?
    - Check tax credit

NCL Comparisons 2034 VS 2036



GV Enhancements-Update

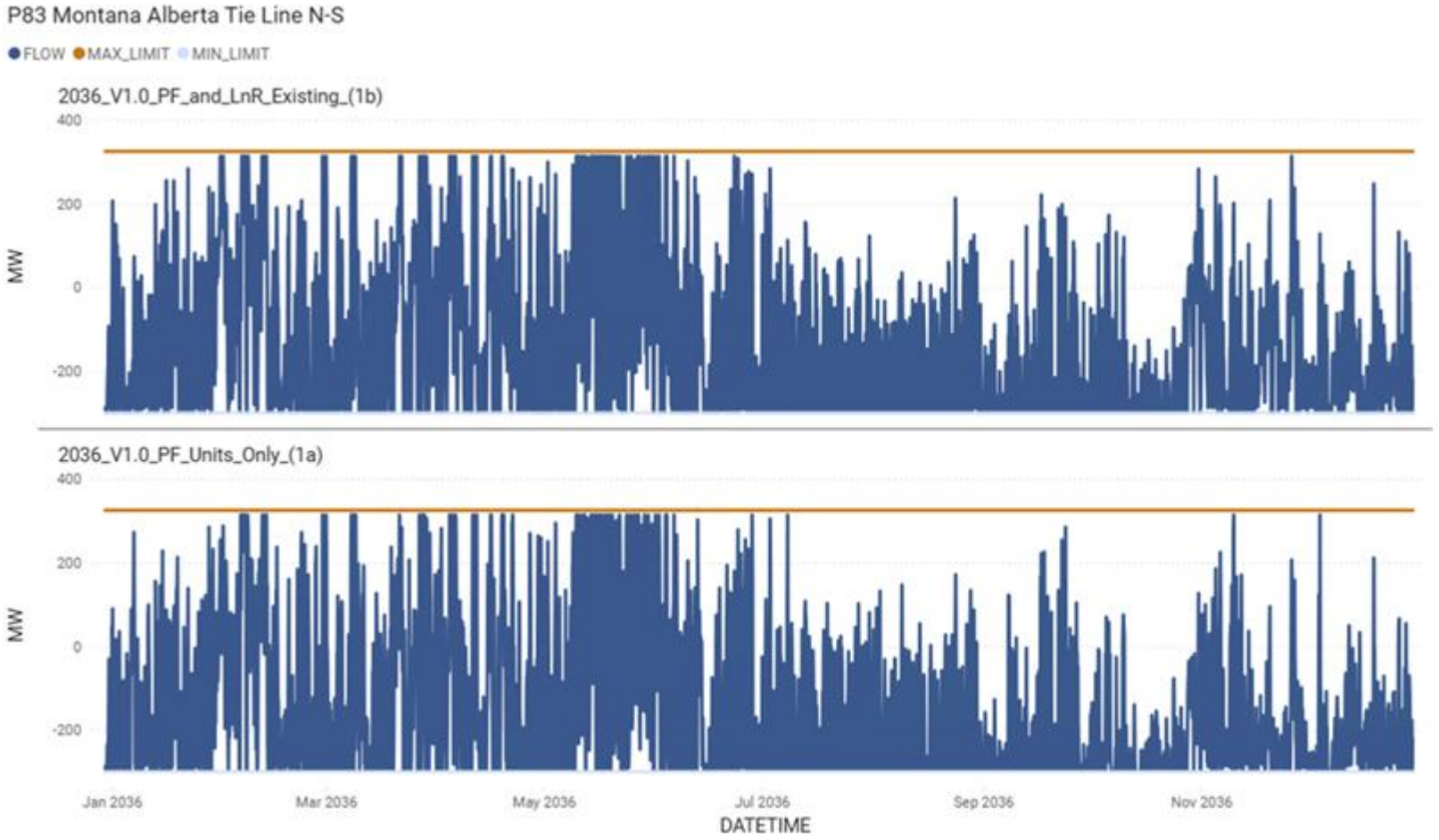
- Received the new version, WECC is testing
  - Maintenance scheduler update
  - Battery enhancement

2036 ADS V1 (1a) – Unserved by Hour

DATE	BCHA	BPAT	IPFE	IPMV	IPTV	NWMT	WAUW	Total
Wednesday, October 15, 2036		**1,122**			**386**			**1,509**
16		118						**118**
17		124						**124**
18		327			386			**713**
19		335						**335**
20		137						**137**
21		82						**82**
Thursday, October 16, 2036		**2,225**	**59**		**317**			**2,601**
0		72						**72**
5		88	59		38			**185**
6		156			279			**435**
7		393						**393**
8		308						**308**
9		177						**177**
13		106						**106**
17		275						**275**
18		333						**333**
19		191						**191**
20		127						**127**
Monday, December 08, 2036	**11**		**482**	**469**	**6,610**	**21**	**5**	**7,598**
6			59		89			**148**
7					413			**413**
8					412			**412**
16			59	56	515			**629**
17	3		113	101	1,150	21	5	**1,392**
18	3		76	101	1,151			**1,330**
19	3		59	101	1,062			**1,223**
20	3		59	101	863			**1,025**
21			59	11	683			**753**
22					272			**272**
Total	**11**	**3,348**	**541**	**469**	**7,314**	**21**	**5**	**11,708**

MATL

Path 83 is the only line in the interchange of NW to AB. Below is the hourly flow for Path 83 which is between 313.5 MW and -300 MW.



MATL

CASENAME	Max	Min	Net Total
2036_V1.0_PF_and_LnR_Existing_(1b)	313.5	-300.0	-1,228.6K
2036_V1.0_PF_Units_Only_(1a)	313.5	-300.0	-1,312.5K
Total	**313.5**	**-300.0**	**-2,541.1K**

CASENAME	2036_V1.0_PF_Units_Only_(1a)
INTERCHANGE	**NW_AB**
Net Flow (GWh)	**-1,312.5**
MAX Flow (MW)	313.5
MIN Flow (MW)	-300.0
Positive Direction (NW to AB) (GWh)	247.8
Negative Direction (AB to NW) (GWh)	1,560.3
Positive Hours (NW to AB) %	19.5
Negative Hours (AB to NW) %	80.5

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