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WESTERN RESOURCE ADEQUACY PROGRAM

Review of preliminary, binding WRAP regional data for the current participating footprint for the Winter 2027-2028 and advisory data for the Winter 2030-2031 season

June 4, 2026

Today's Objectives

- Provide an overview of the loads and resources in the WRAP footprint
- Provide an overview of installations and nameplate for wind and solar
- Provide an overview of the Qualifying Capacity Contributions (QCC) and Effective Load Carrying Capability (ELCC) values for each resource class
- Provide an overview of Planning Reserve Margin values (PRM)

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Before We Begin

- Modeling provided utilizes WRAP program design, assuming full binding implementation of the WRAP as designed
- Modeling was performed based on the WRAP footprint as of October 31, 2025
  - Included WRAP Binding Participants committed to participating in the Winter 2027-2028 Season
  - Load Resource Zones (LRZs) 1-5 and 8 remained in the study while 6, 7, and 11 were removed from the study (refer to slide 4)
    - LRZ 5 was moved from the SWEDE to the MIDC (refer to slide 4)
  - Boundary of wind VER Zone 6 extended to include Idaho and wind VER Zone 4 was not included (refer to slide 8) and the Idaho portion of solar VER Zone 3 was moved into solar VER Zone 1 and solar VER Zone 3 was not included (refer to slide 11)
  - Changes to WRAP participation may impact these metrics
  - These assessments cannot account for adequacy needs or activities of non-participating load or resources
- Be aware of the limits of drawing regional conclusions from aggregate information
  - Information is best applied at individual LREs; WRAP's scope does not include matching LREs in need of additional forward procurement with available resources
  - It cannot be assumed that all resources modeled in the loss of load expectation study will be available to the WRAP footprint
  - Planned outages are not considered; they will be managed by LREs from their surplus

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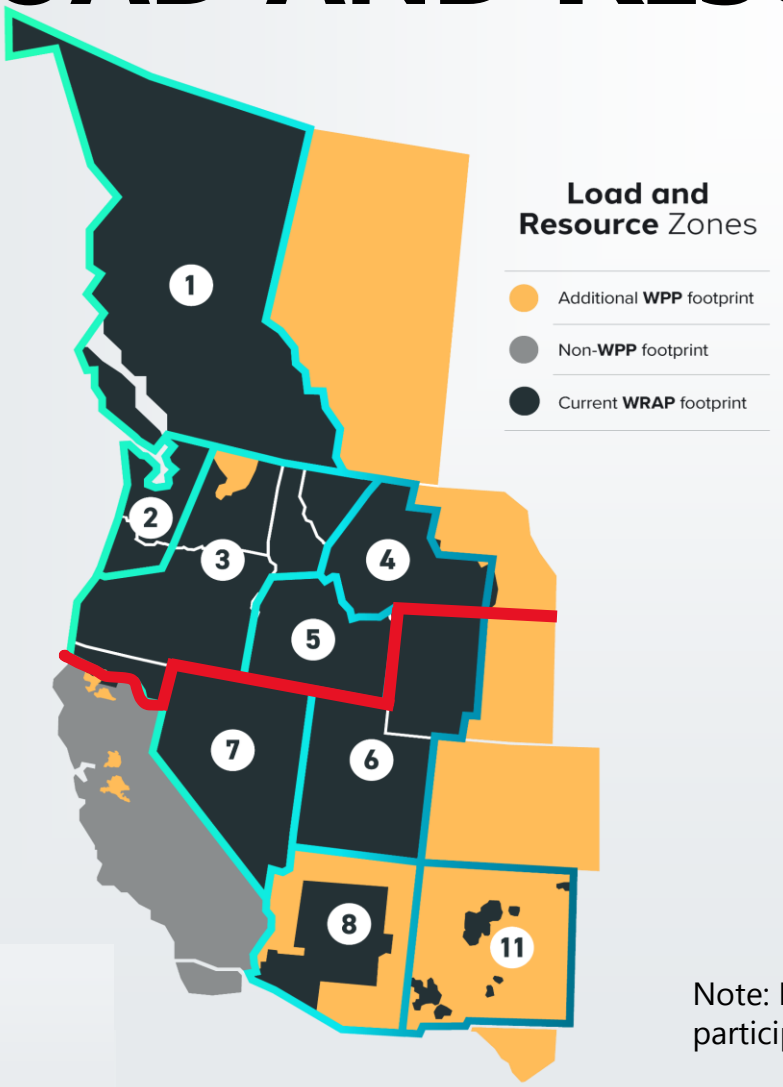
Load and Resource Zones



Subregion	Zone	Geographical Description
MidC	Zone 1	British Columbia
	Zone 2	West of Cascades
	Zone 3	East of Cascades
	Zone 4	NorthWestern
	Zone 5	Idaho Power
SWEDE	Zone 8	Arizona

Note: Load Resource Zones (LRZs) 6, 7, and 11 were removed from the study to reflect committed participation for Winter 2027-2028

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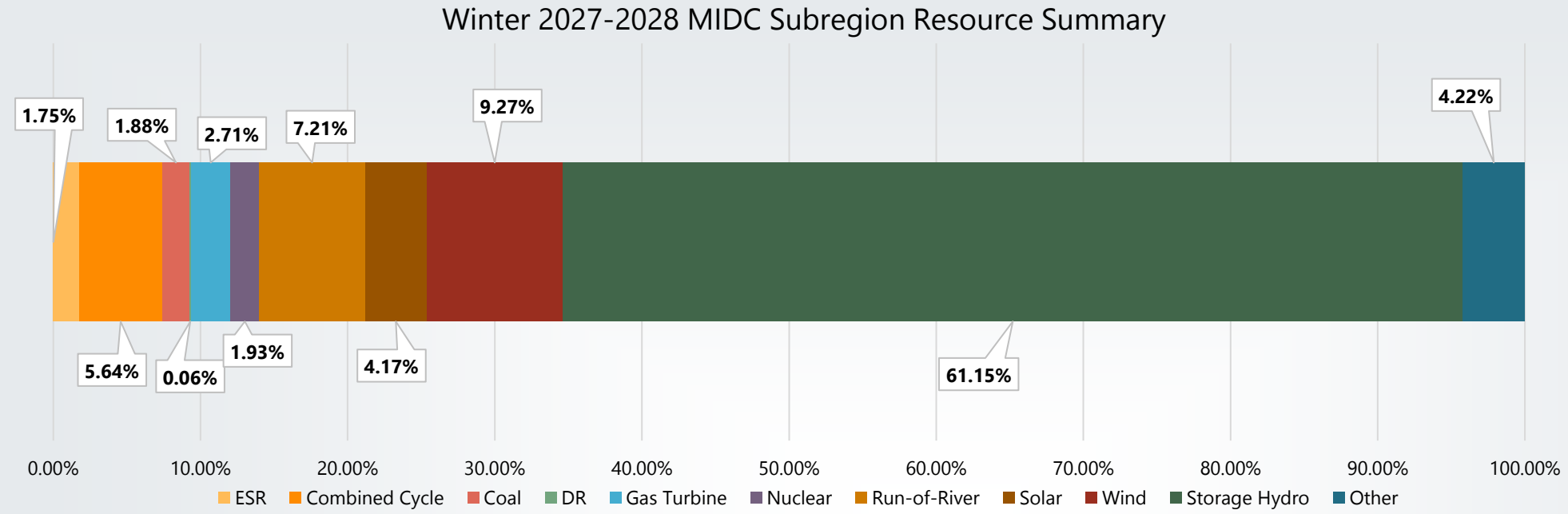
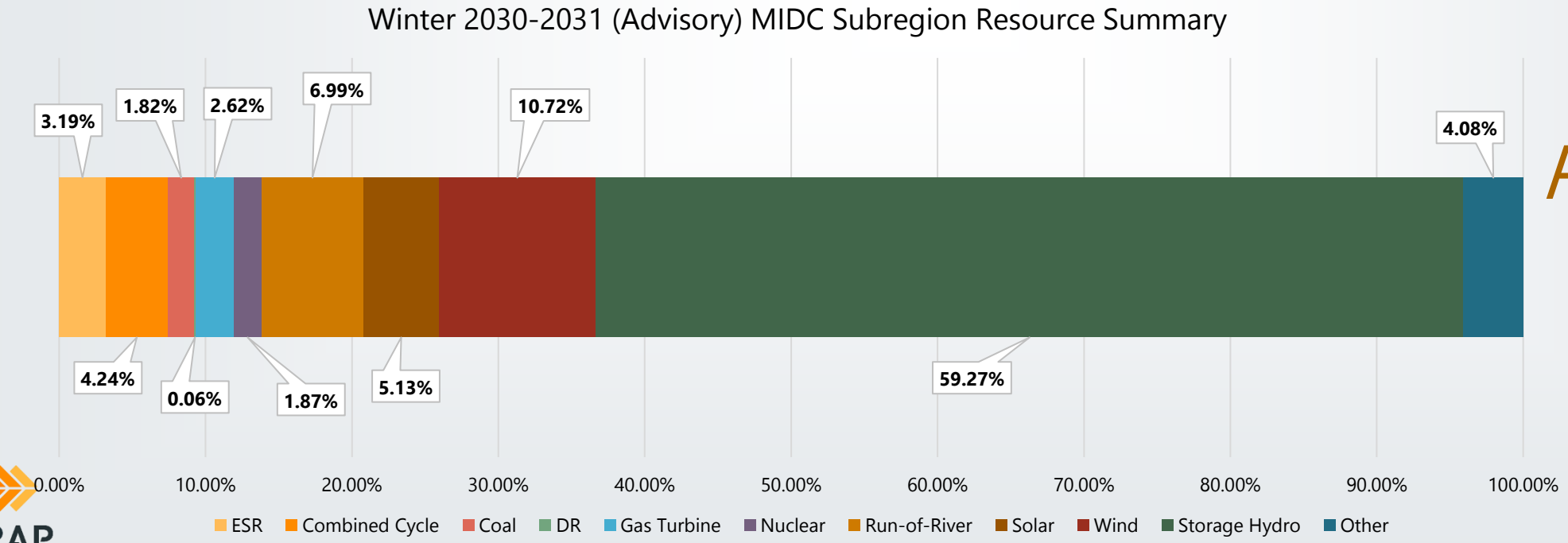
MIDC Subregion Winters Resource Summary

Percentage





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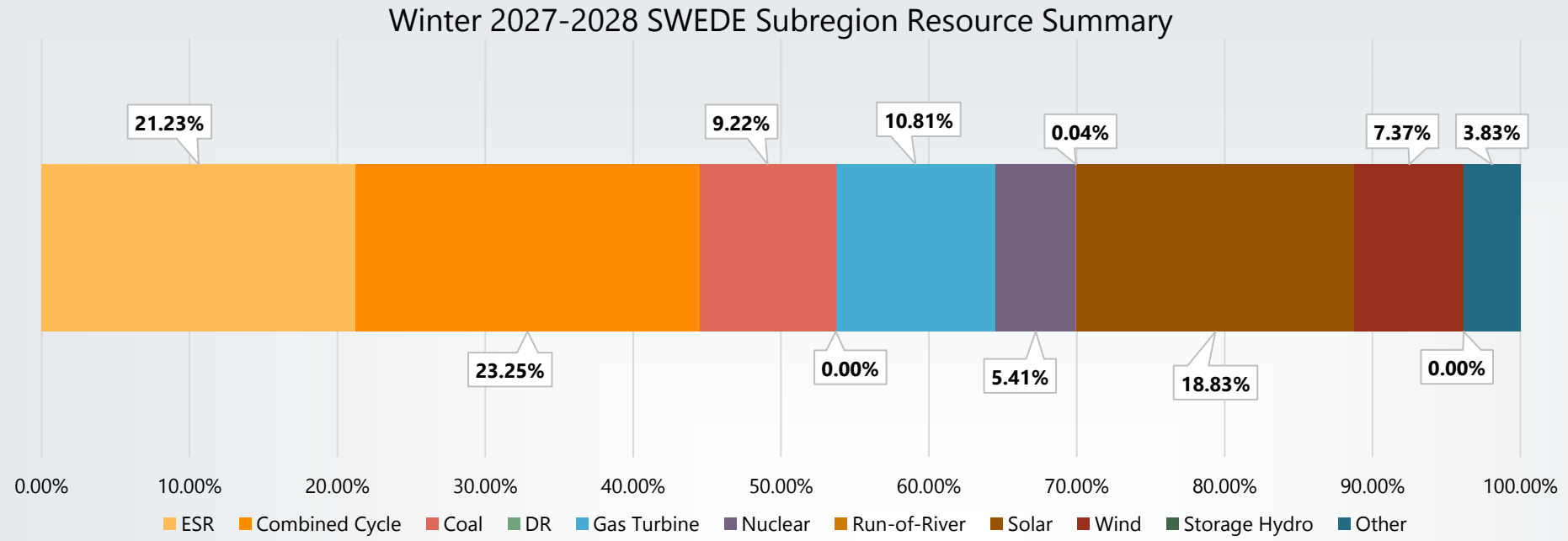
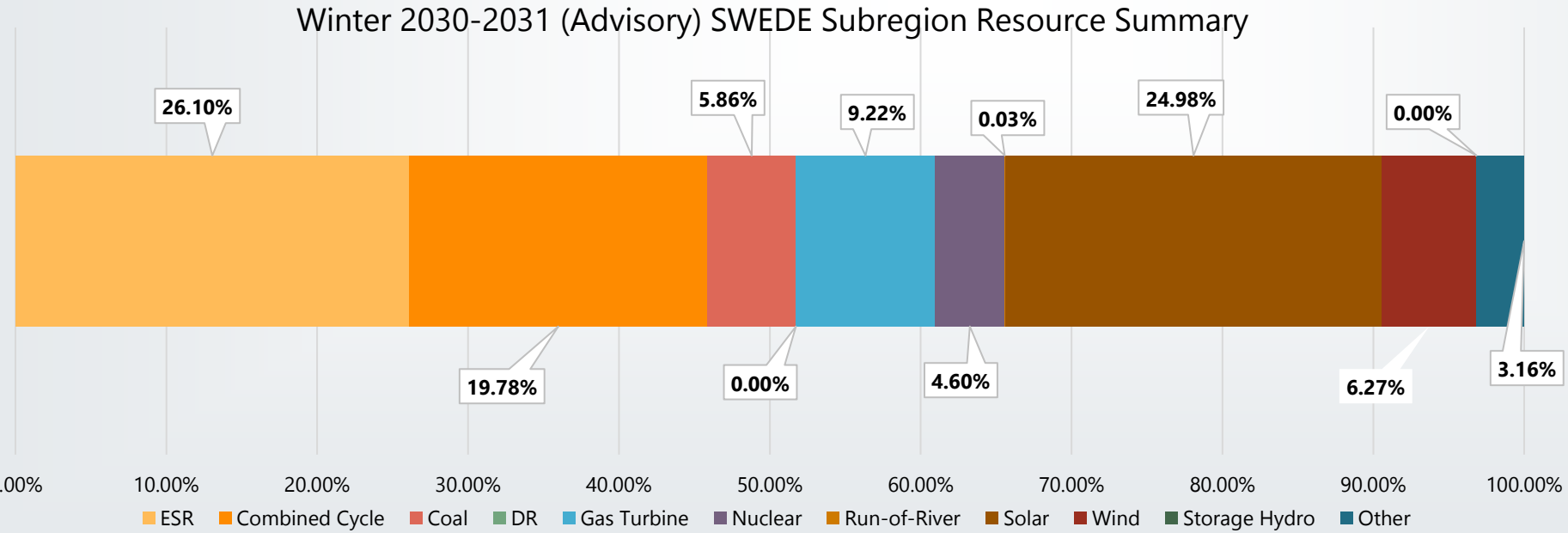
SWEDE Subregion Winters Resource Summary

Percentage

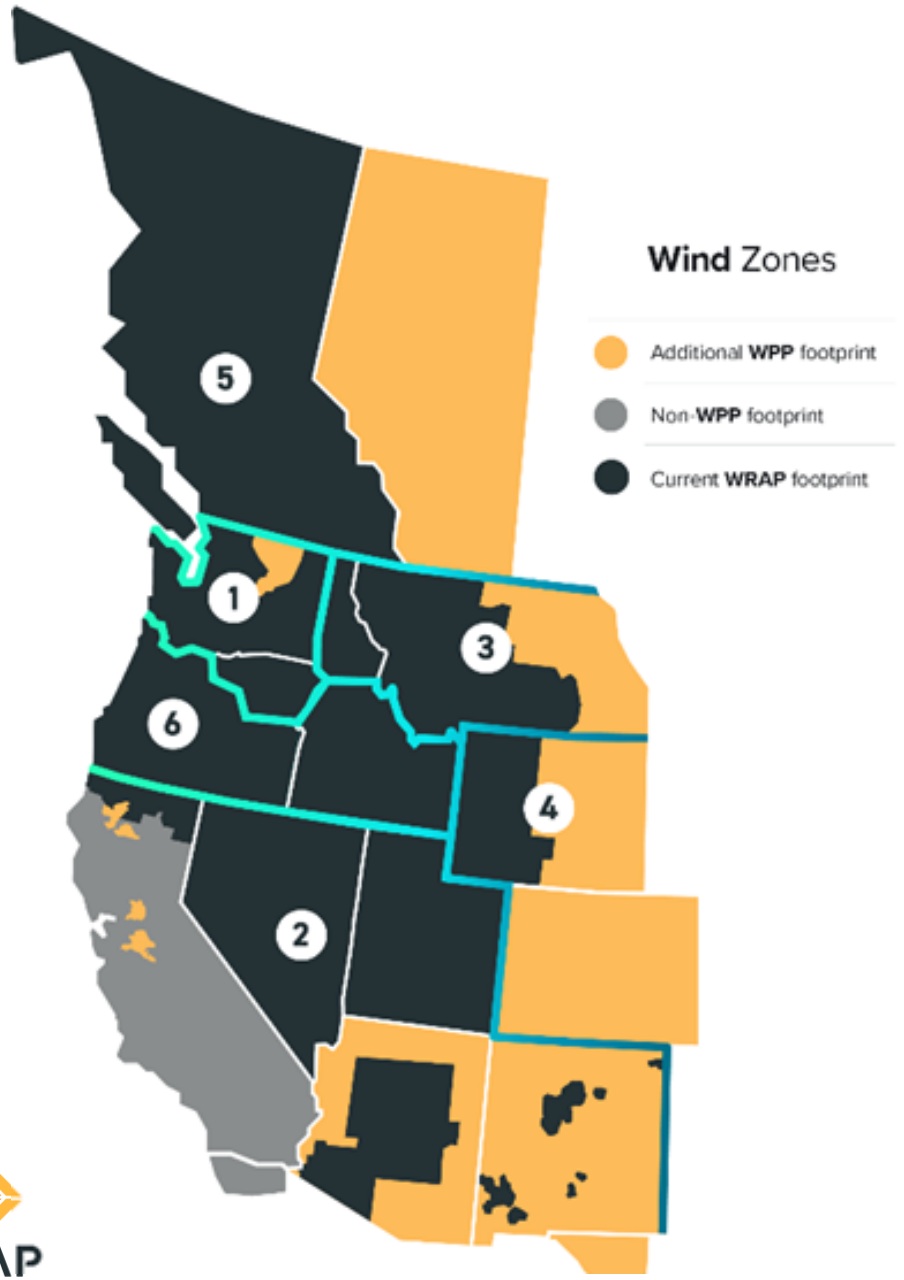




Key Reminders

- Not all resources shown in the preceding slides can be assumed to be available to the WRAP footprint for resource adequacy purposes
  - Planned outages are not considered; they will be managed by LREs from their surplus
  - Does not account for activities and needs of neighboring, non-participating regions or entities
  - Based on information and projections provided by participants
- Aggregate information does not give insight into whether individual participants have enough supply
  - WRAP motivates participants to acquire the necessary capacity
  - Cannot assume this has yet happened or will happen without binding implementation of WRAP

Wind Zones



Zone	Nameplate Capacity (MW)
Wind VER 1	**3,299**
Wind VER 2	**2,683**
Wind VER 3	**1,018**
Wind VER 4	**No Wind Modeled**
Wind VER 5	**747**
Wind VER 6	**561**
Total	**8,308**

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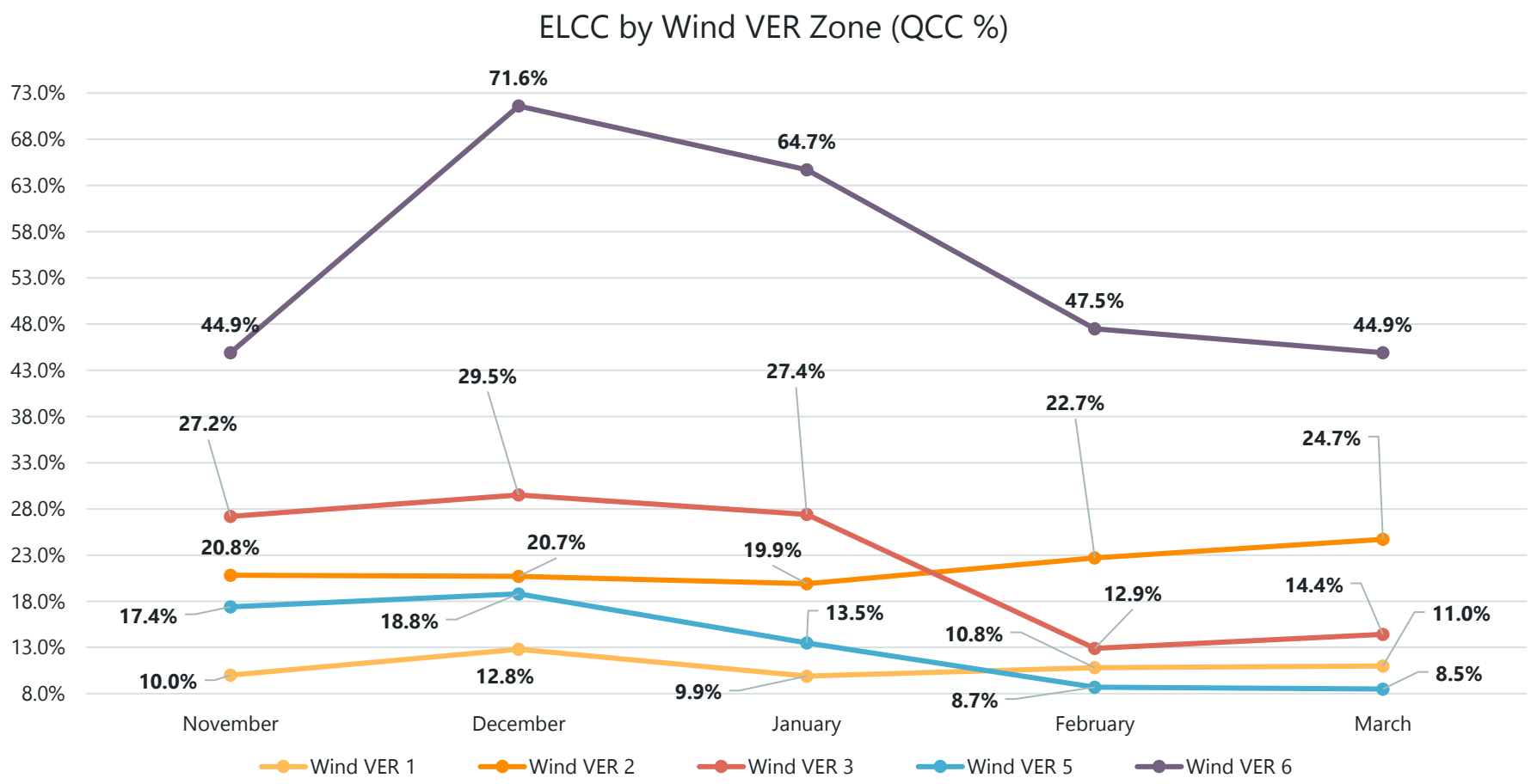
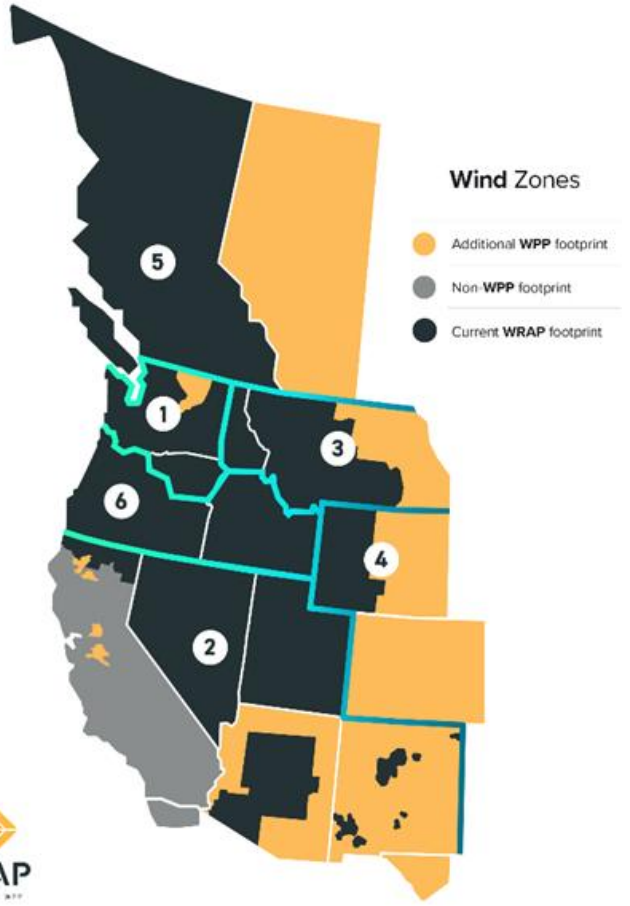
Wind ELCC - Winter

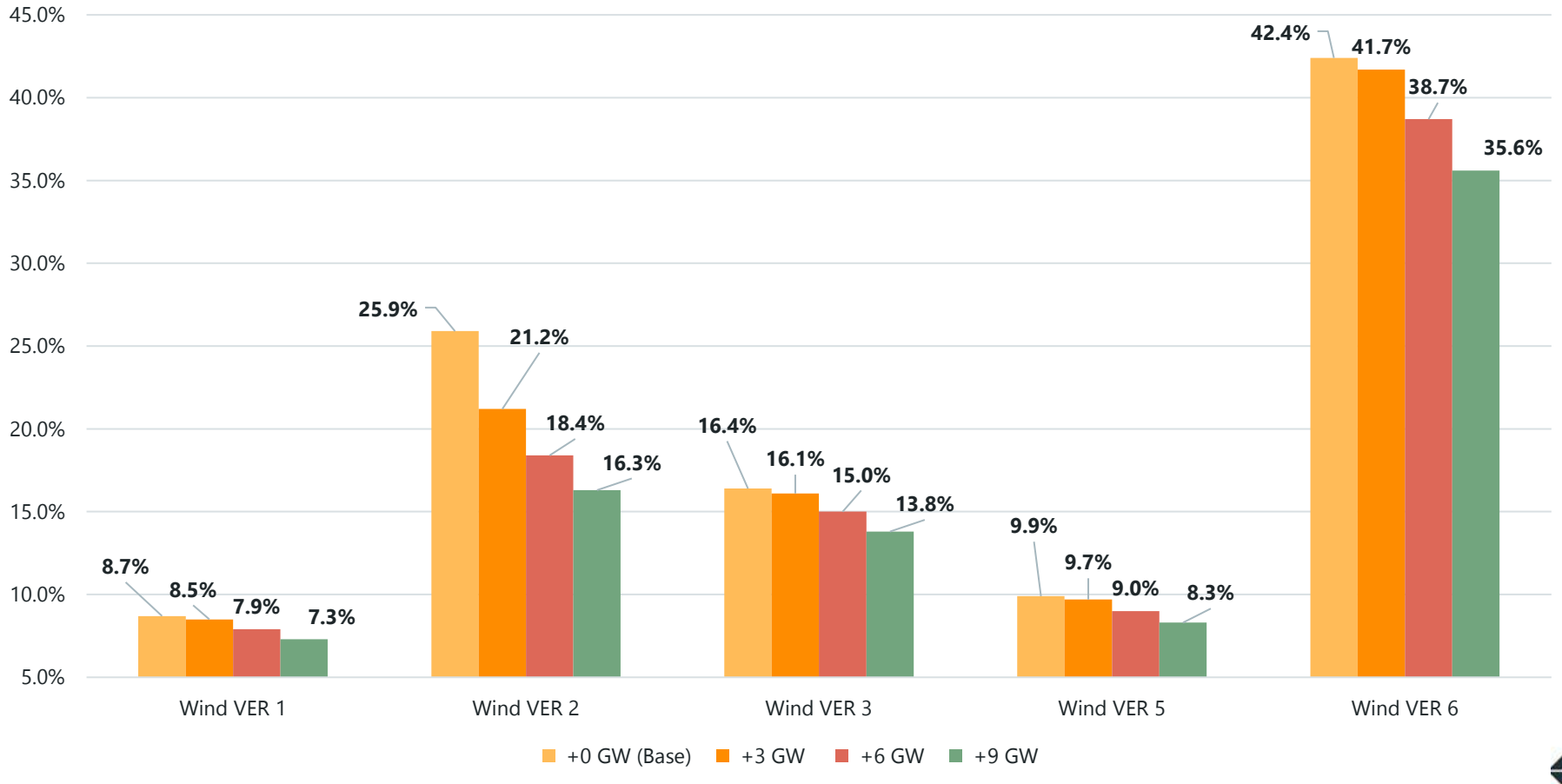




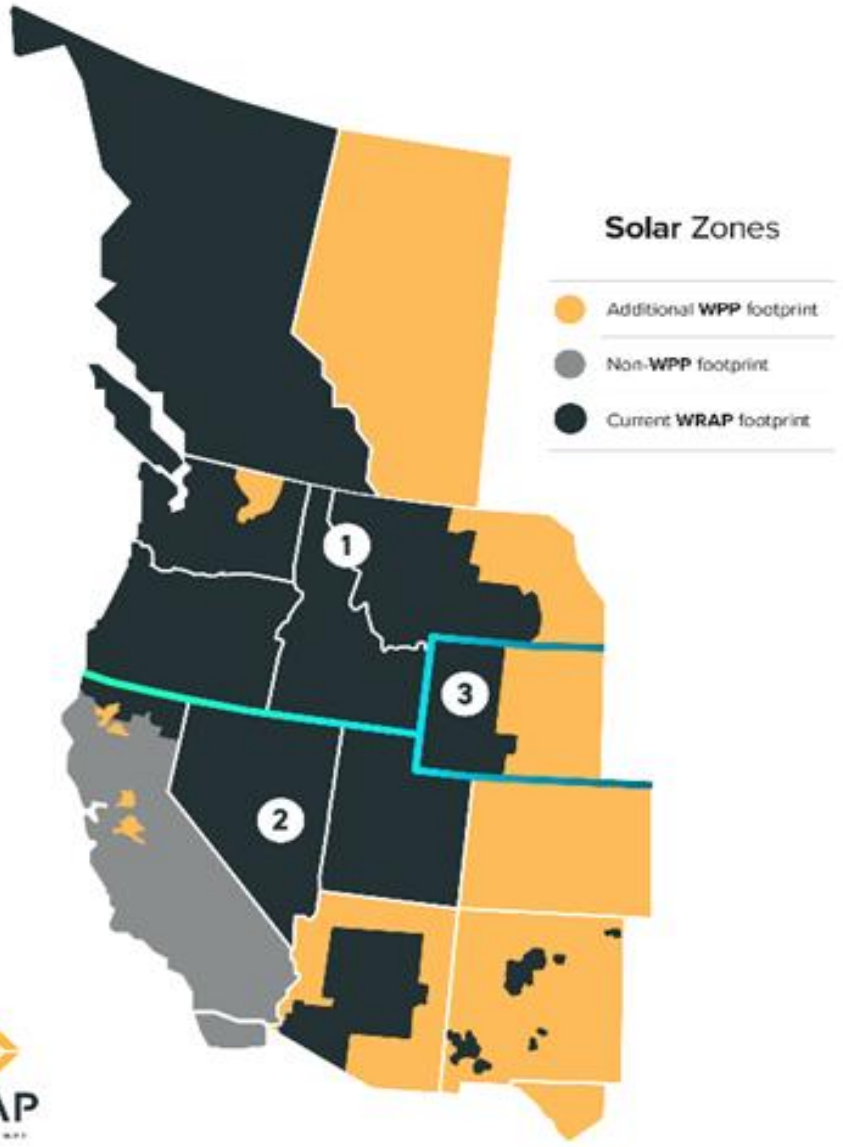
Note: Wind VER Zone 4 was not included in W27-28 modeling

Wind ELCC

Wind (QCC%) at Incremental GW Installations



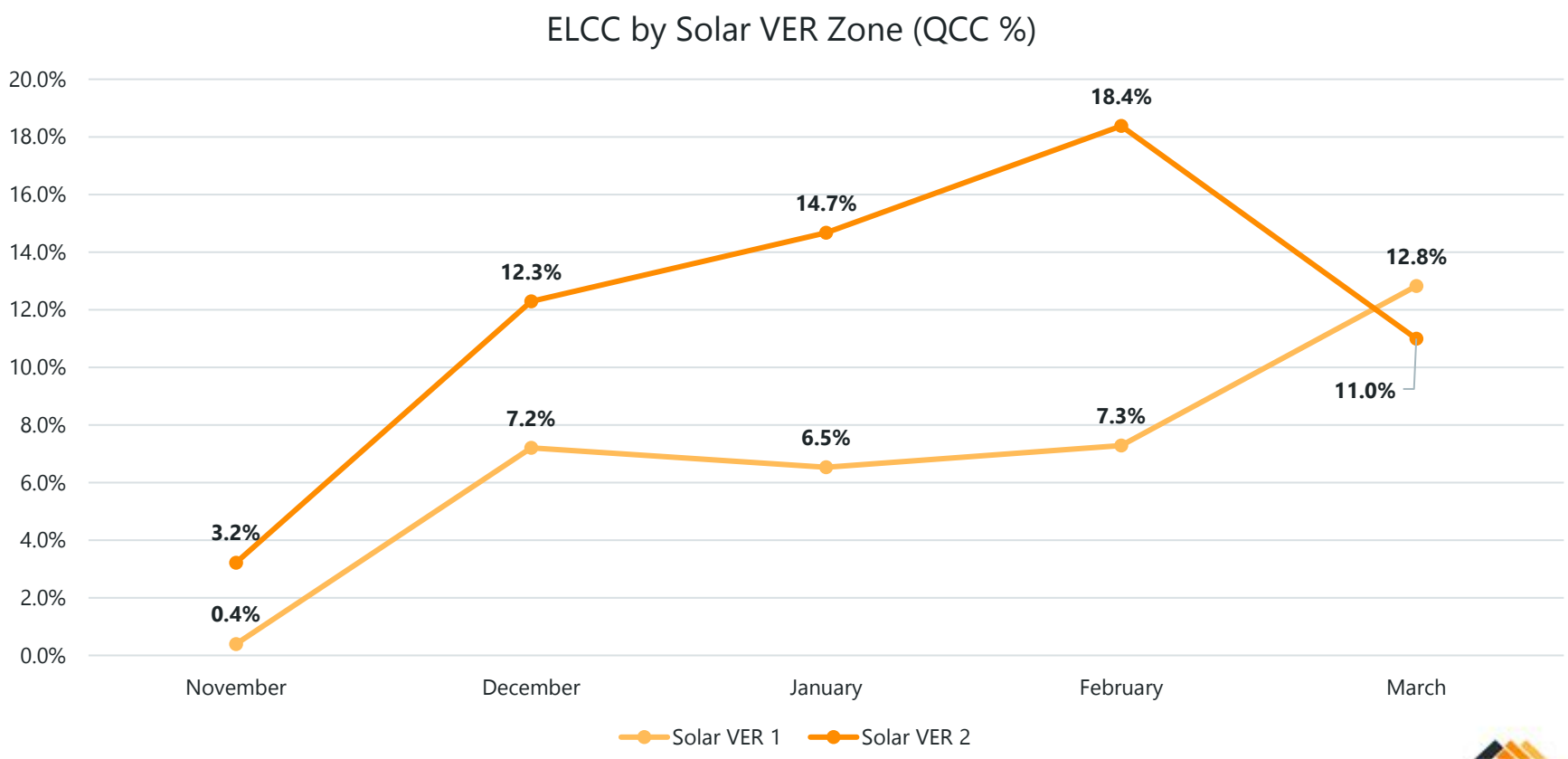
+3, +6, and +9 GW added to both SWEDE and MidC, split between VER Zones in that Subregion;
Note: Wind VER Zone 4 was not included in W27-28 modeling

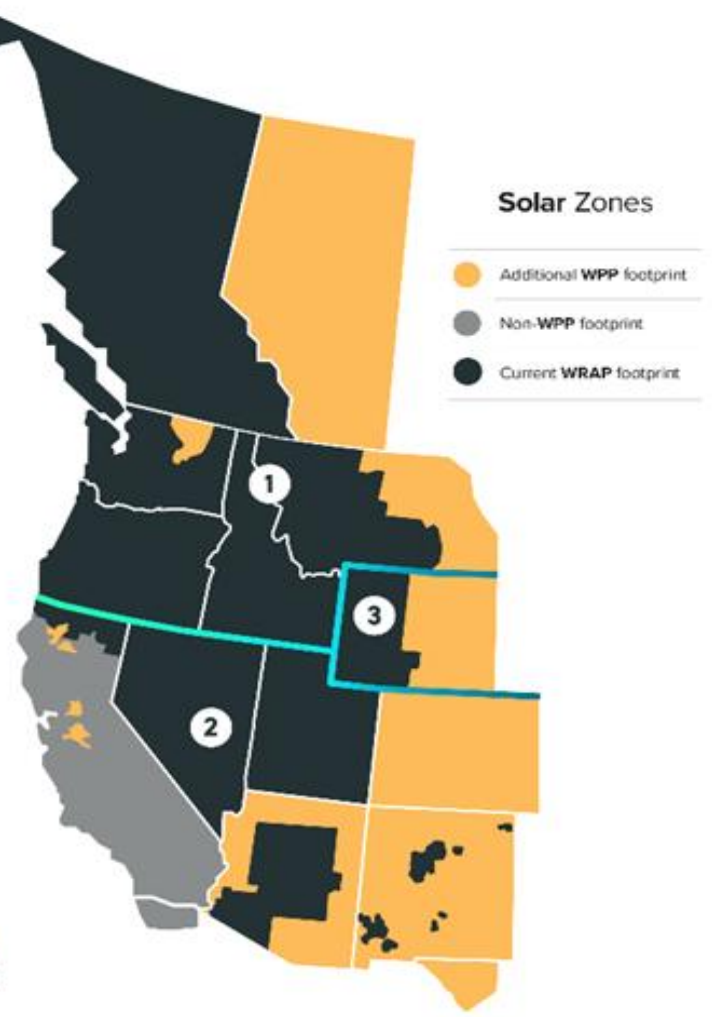


SOLAR ZONES

Zone	Nameplate Capacity (MW)
Solar VER 1	**2,527**
Solar VER 2	**6,584**
Solar VER 3	**No Solar Modeled**
Total	**9,111**

Solar ELCC - Winter

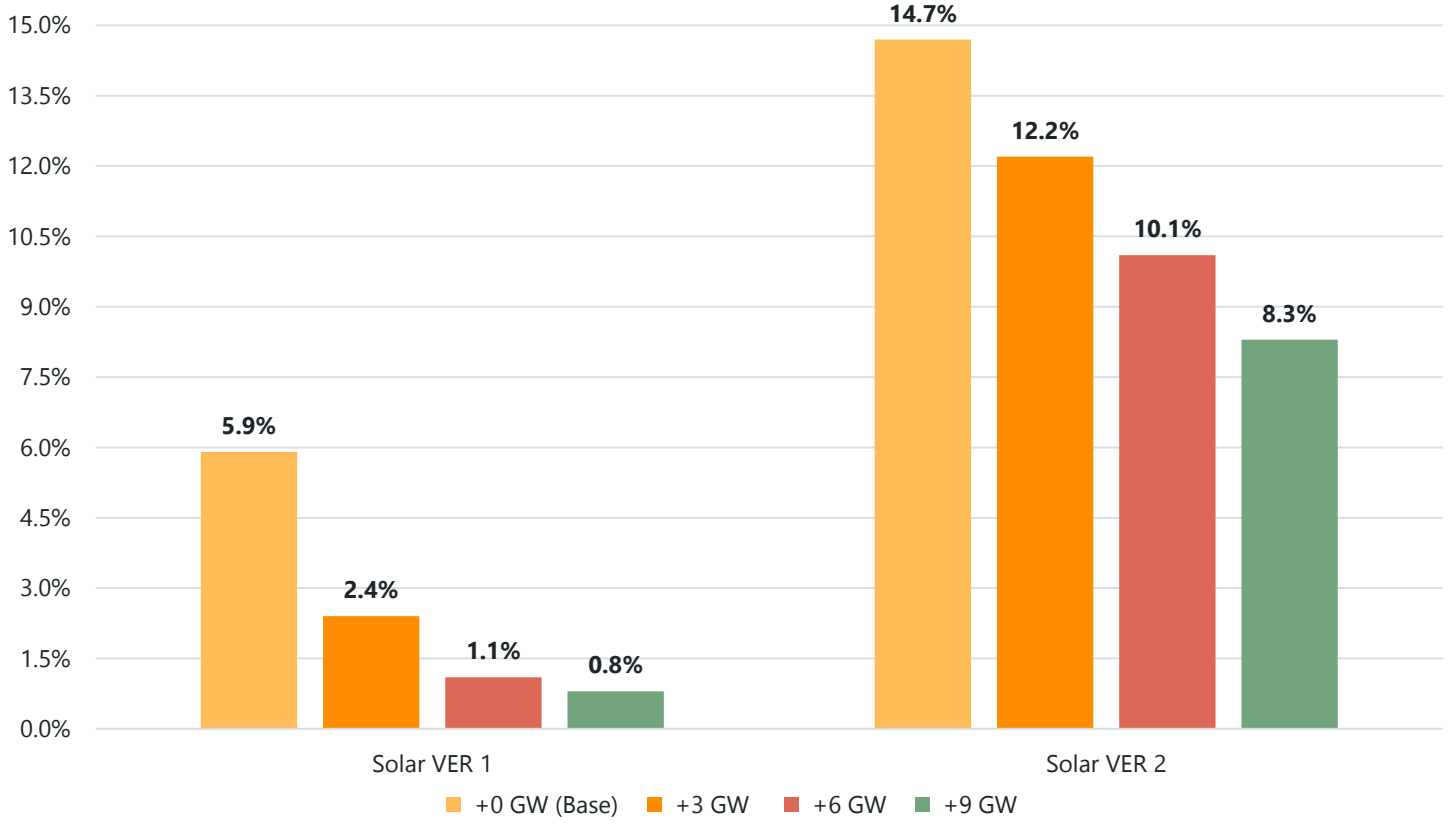




Note: Solar VER Zone 3 was not included in W27-28 modeling

Solar ELCC

Solar at Incremental GW Installations



+3, +6, and +9 GW added to both SWEDE and MidC, split between VER Zones in that Subregion;
Note: Solar VER Zone 3 was not included in W27-28 modeling

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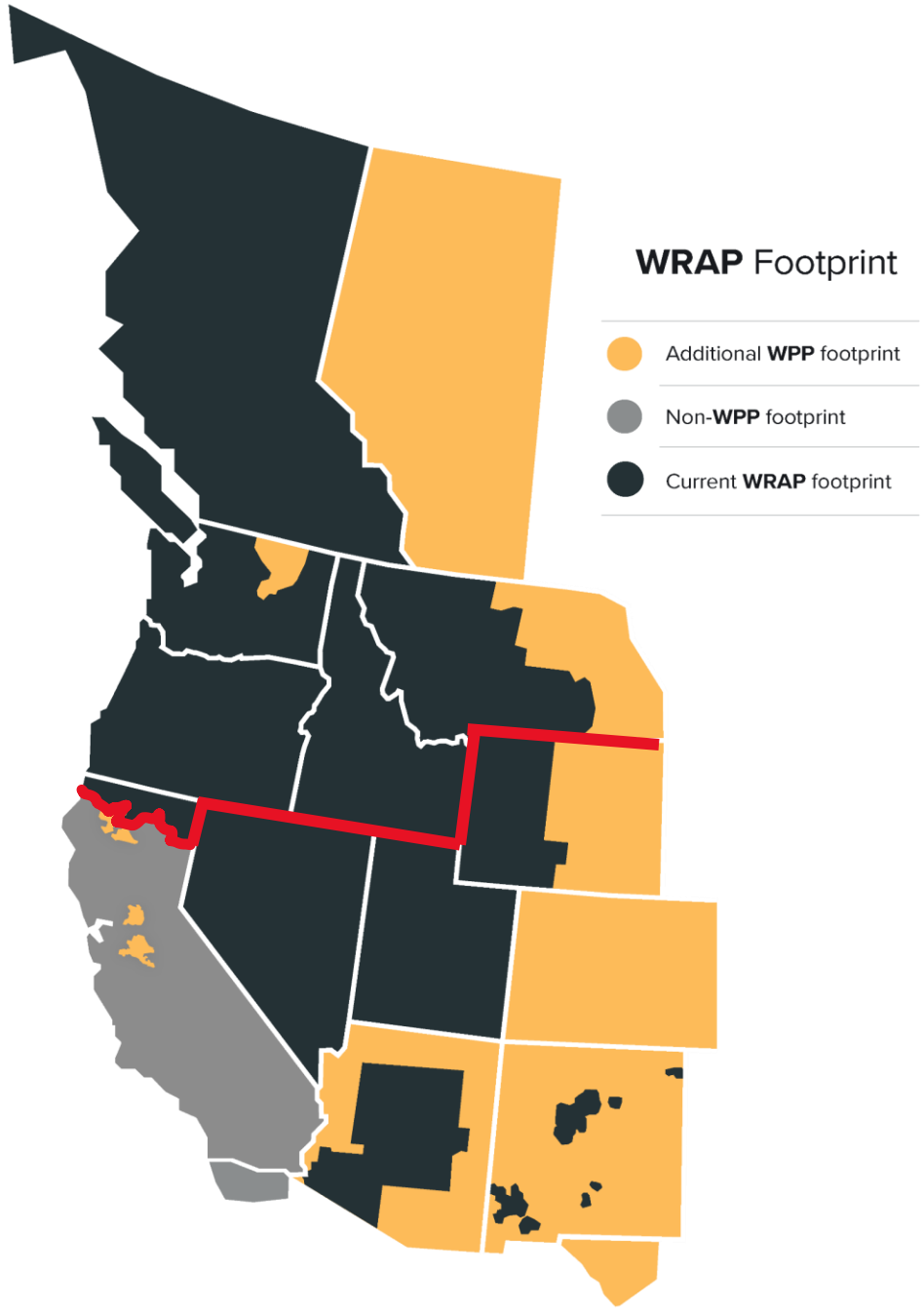
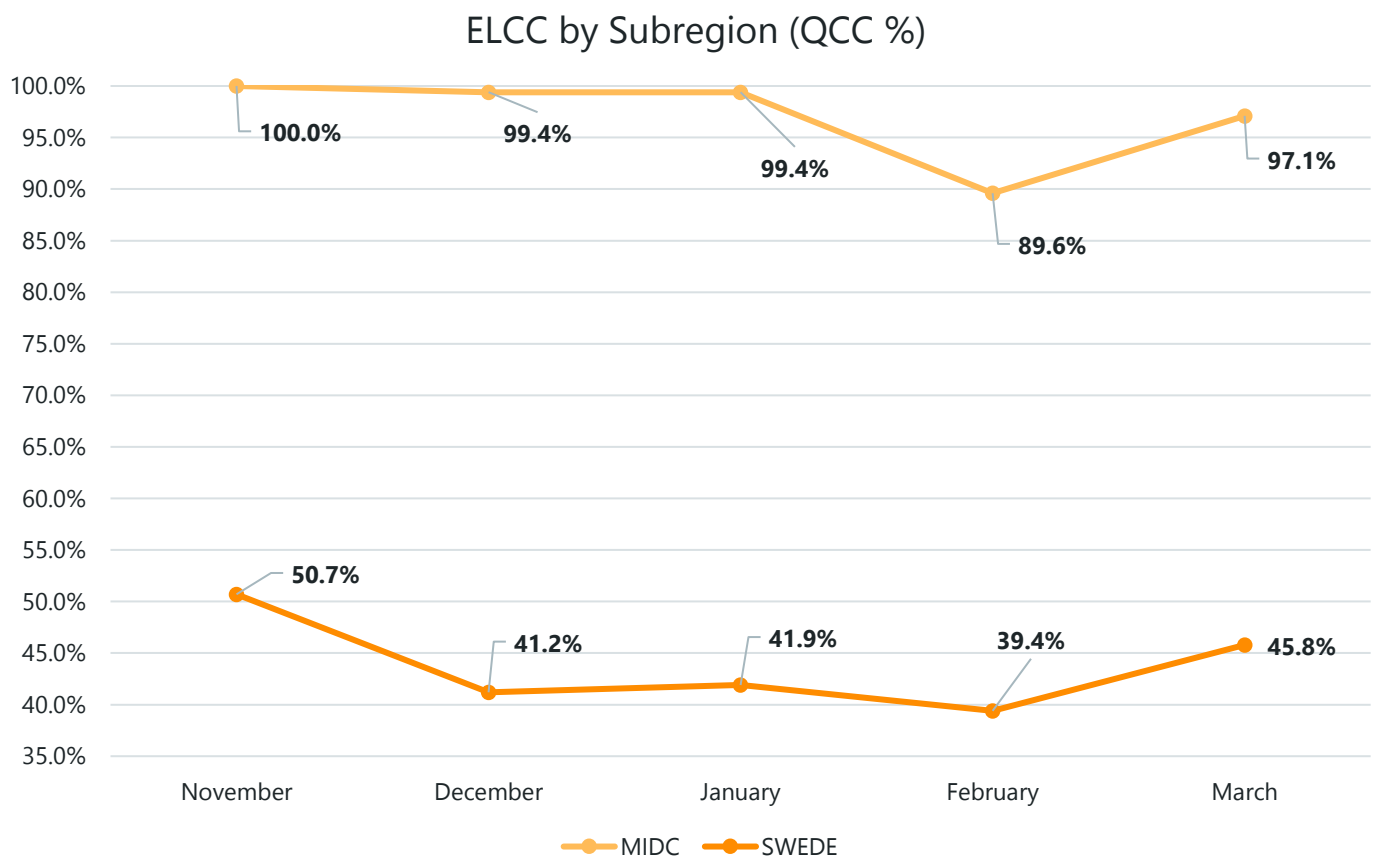
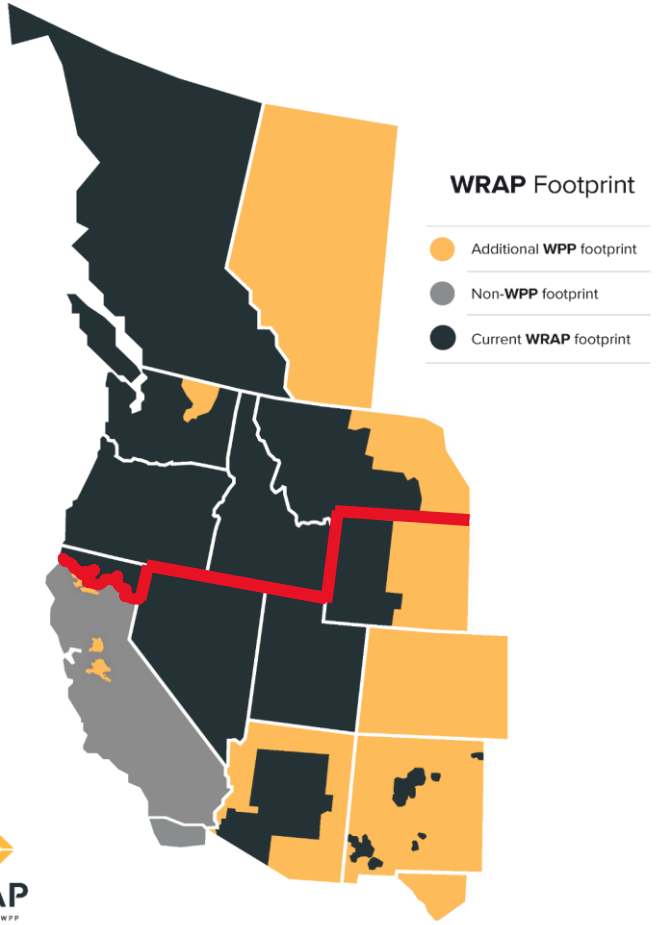


Energy Storage Resource (ESR) Zones

Subregion	Nameplate Capacity (MW)
MIDC	**1,062**
SWEDE	**7,664**
Total	**8,726**

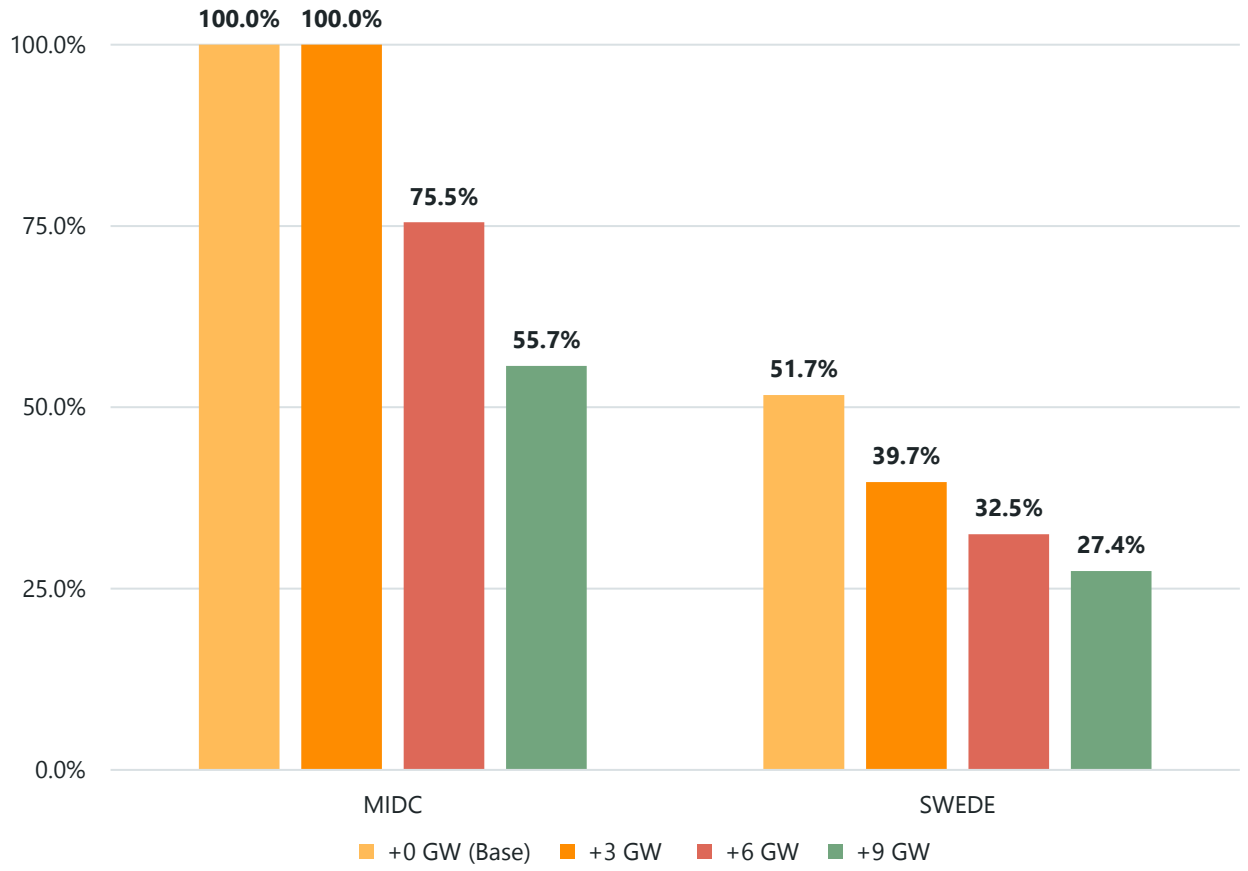
ESR ELCC - Winter

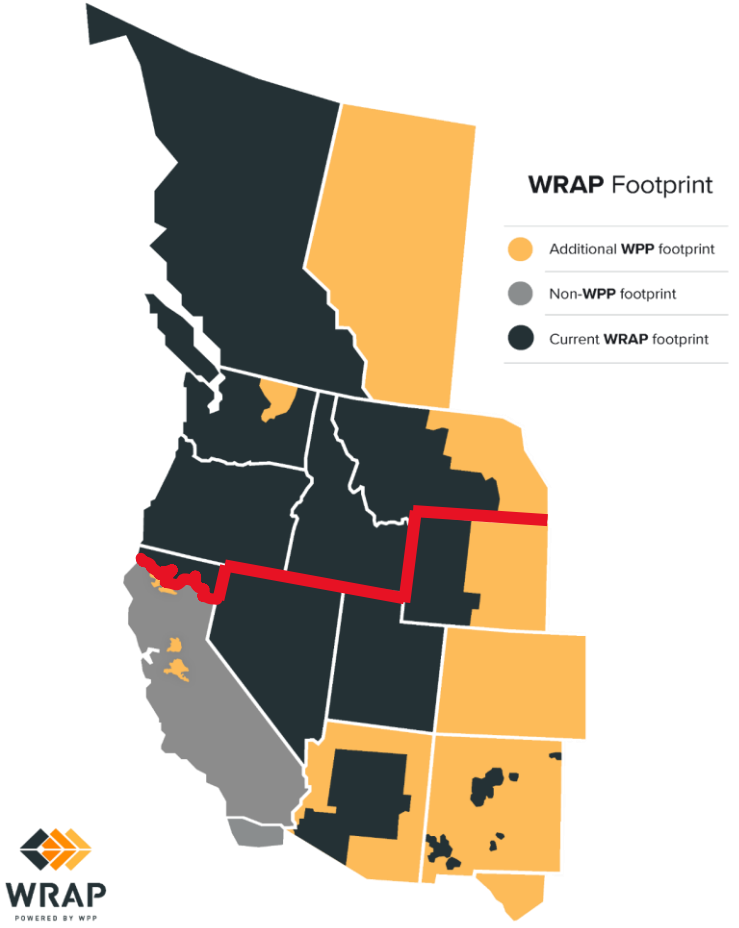




ESR ELCC

ESR at Incremental GW Installations





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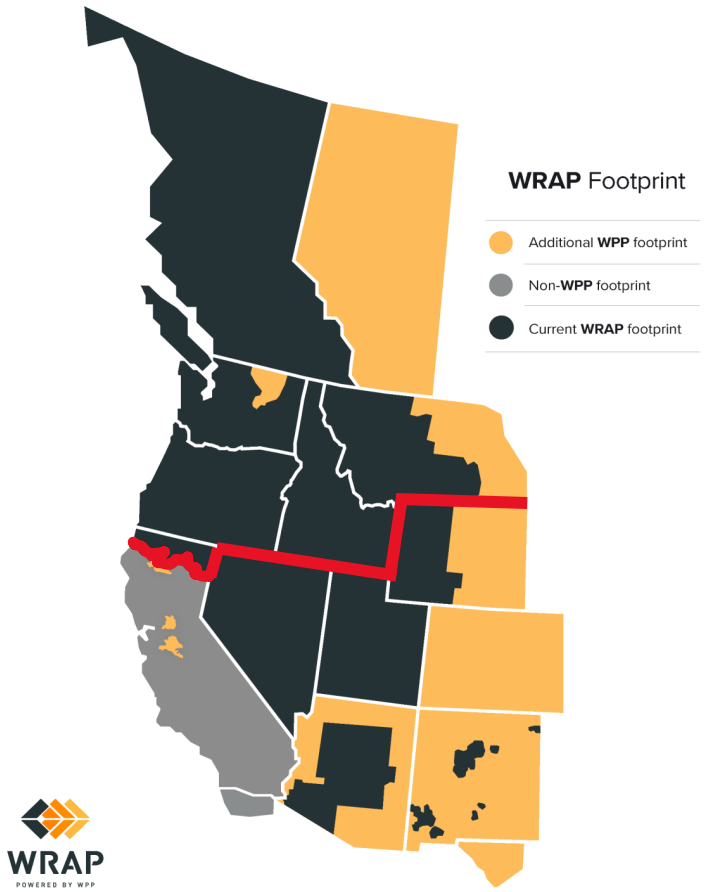
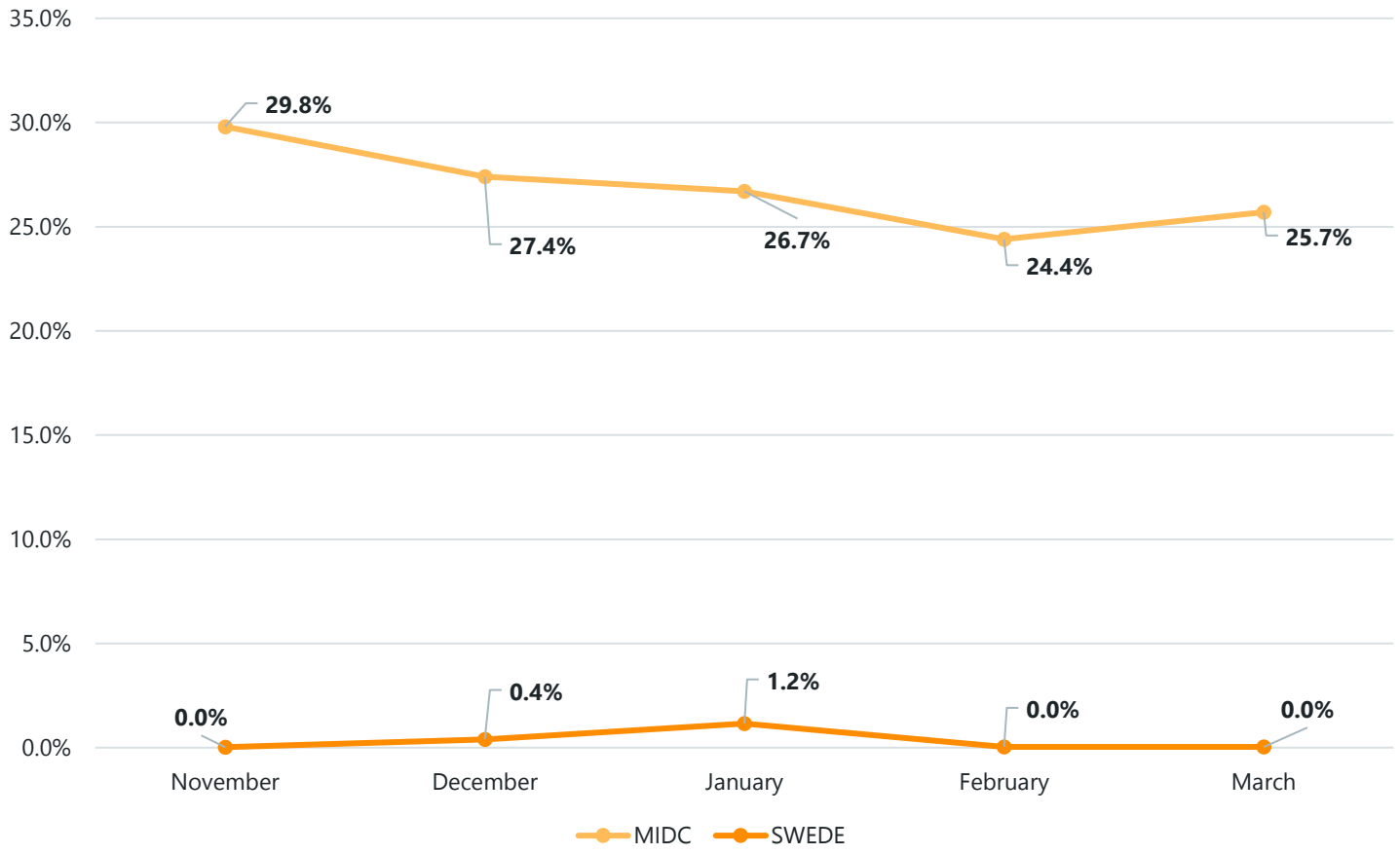
+3, +6, and +9 GW added to both SWEDE and MidC Subregions

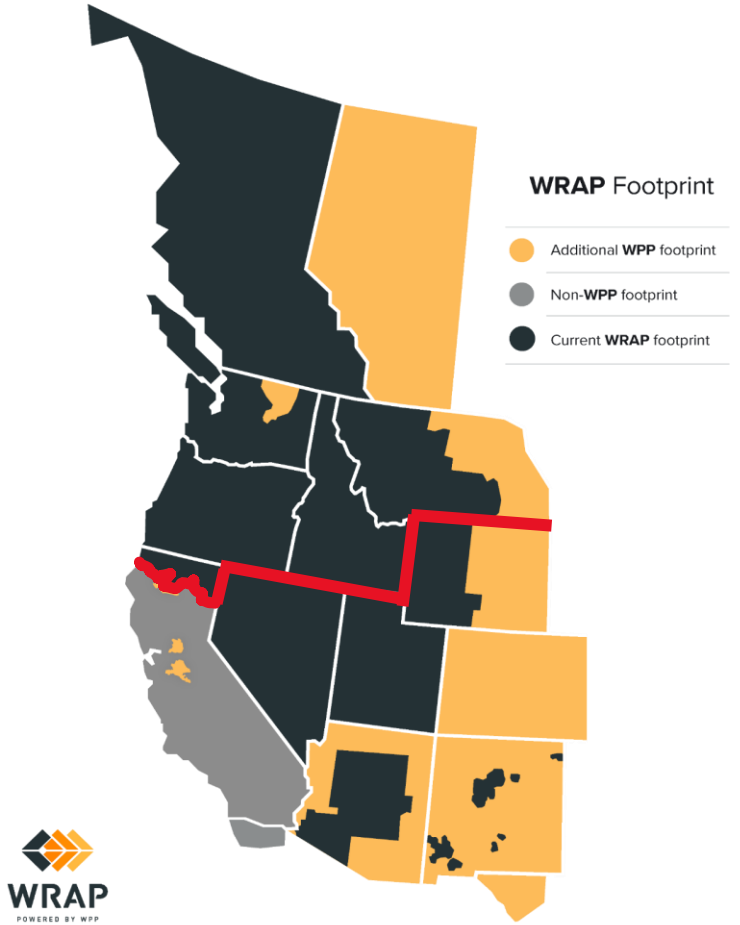
Run of River (RoR) Zones



Subregion	Nameplate Capacity (MW)
MIDC	**4,376**
SWEDE	**13**
Total	**4,389**

RoR QCC - Winter





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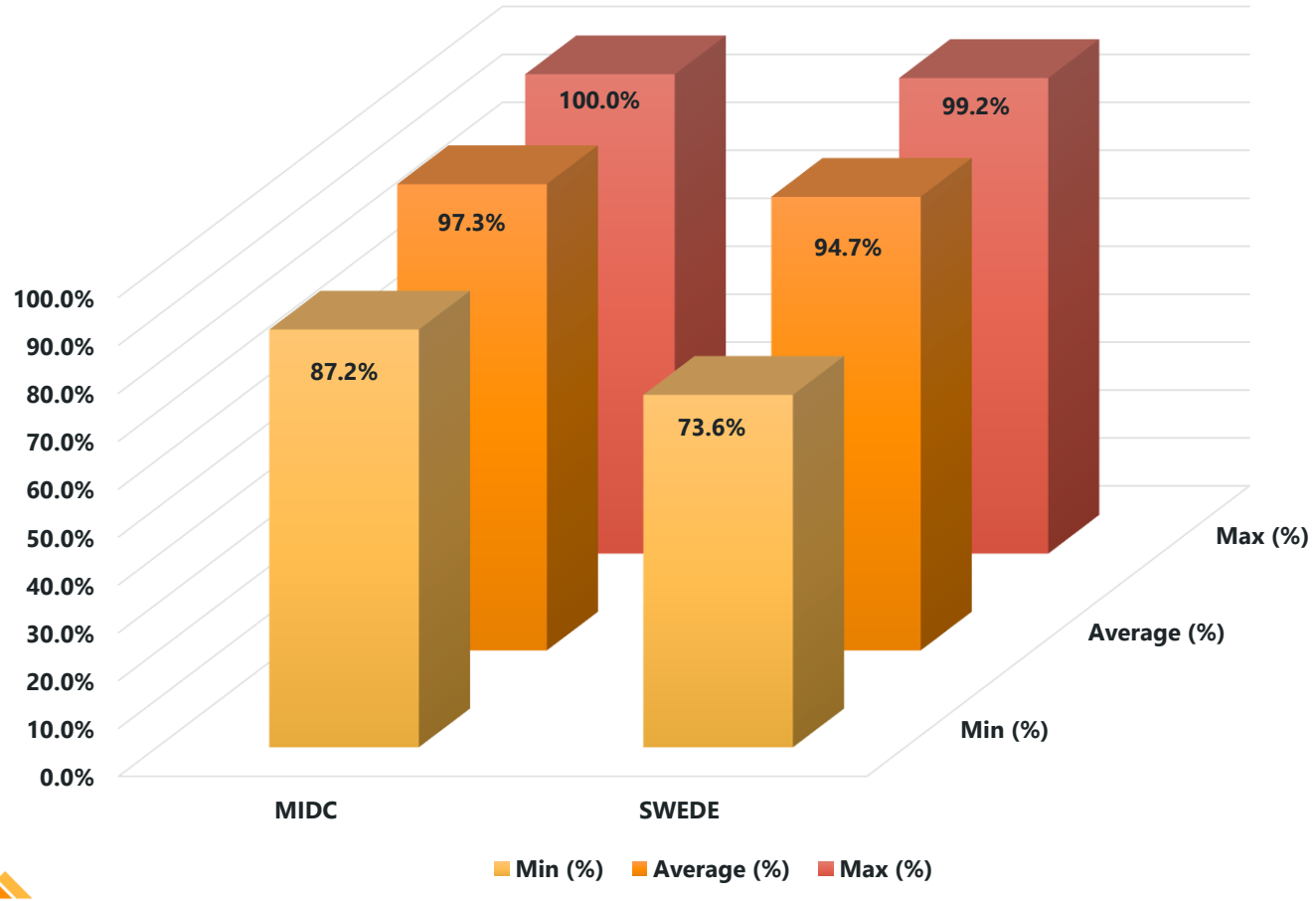
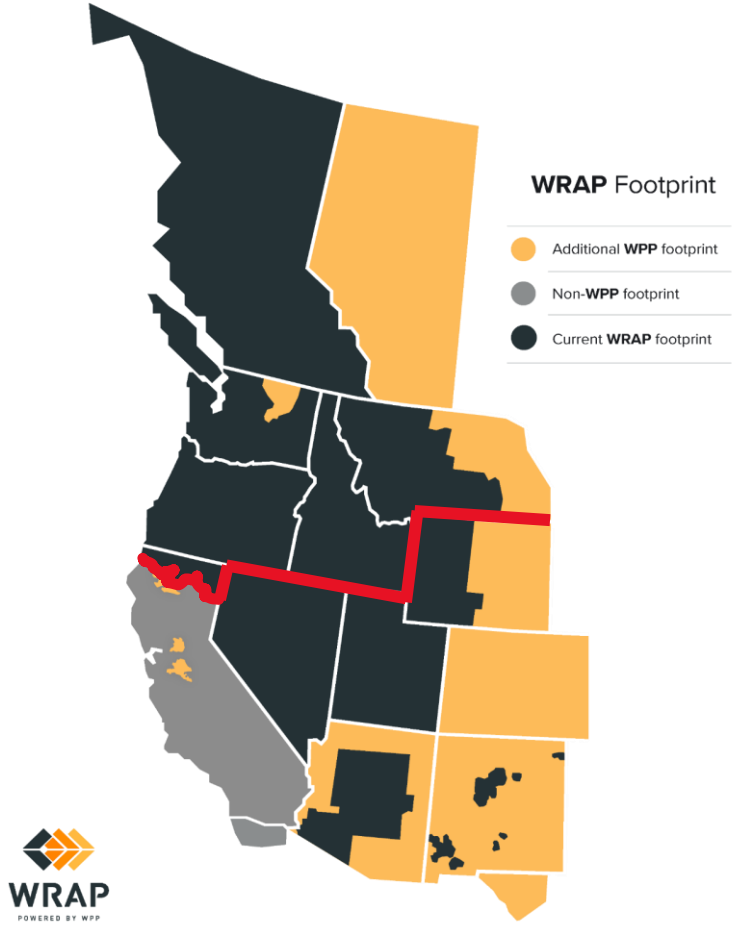
THERMAL QCC





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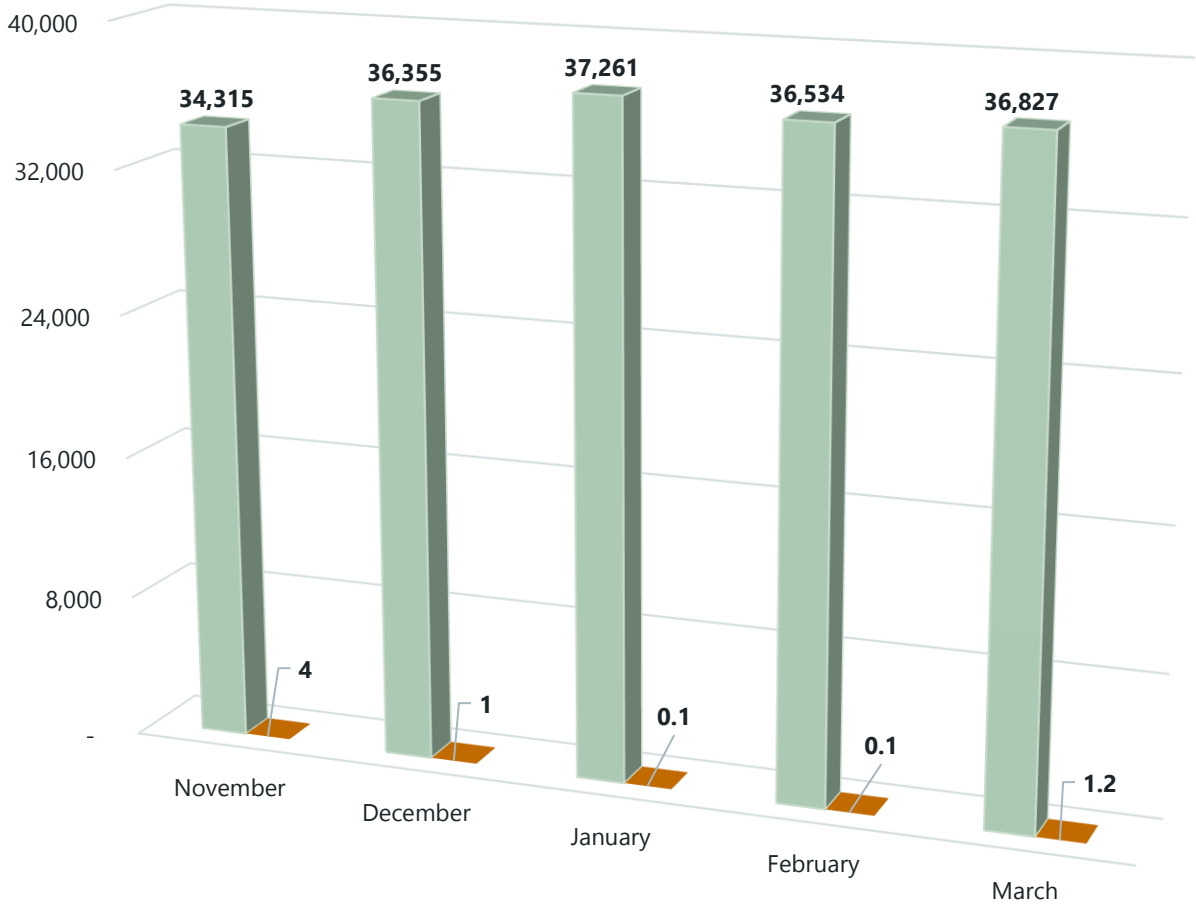
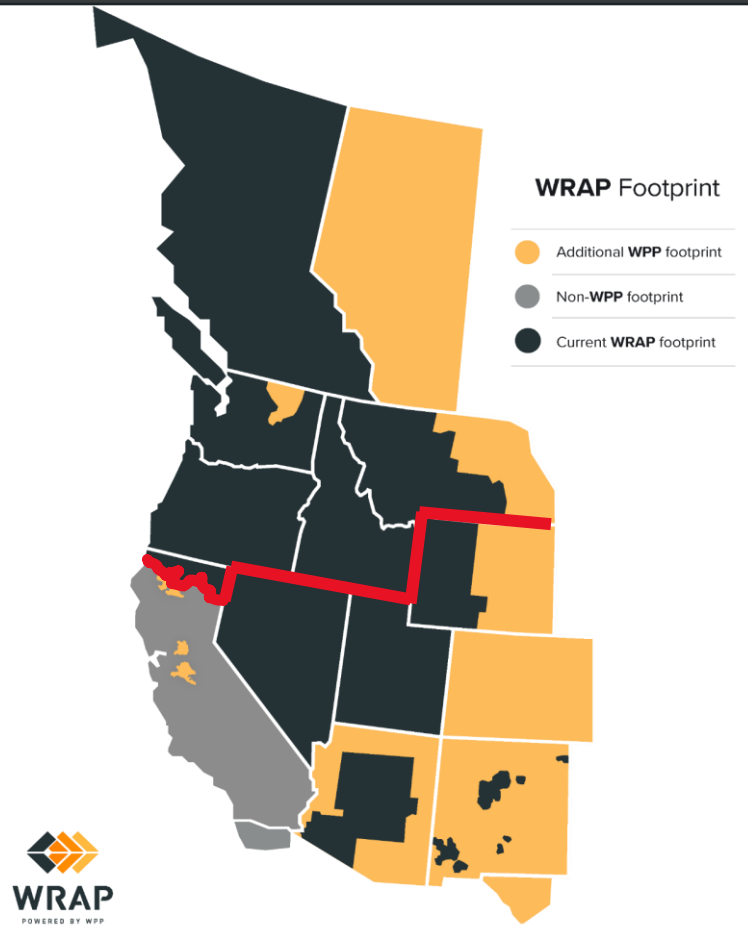
Storage Hydro QCC MW





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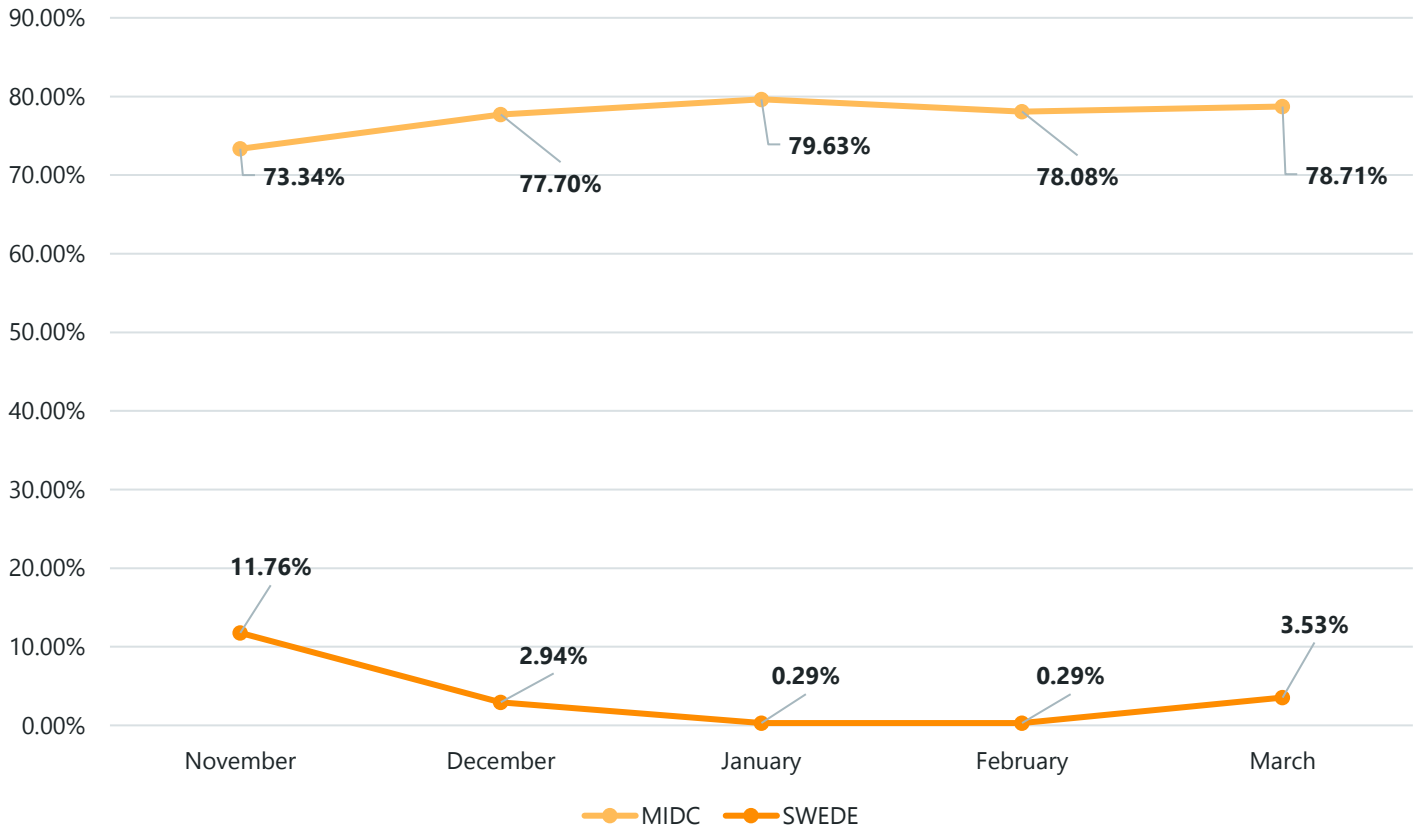
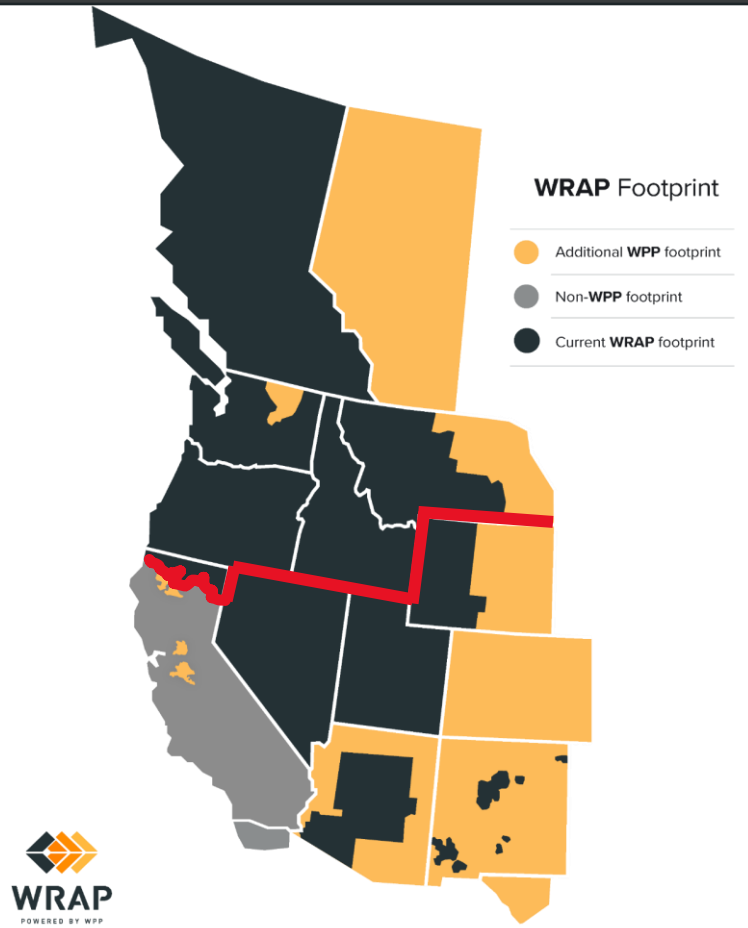
Average Storage Hydro QCC %





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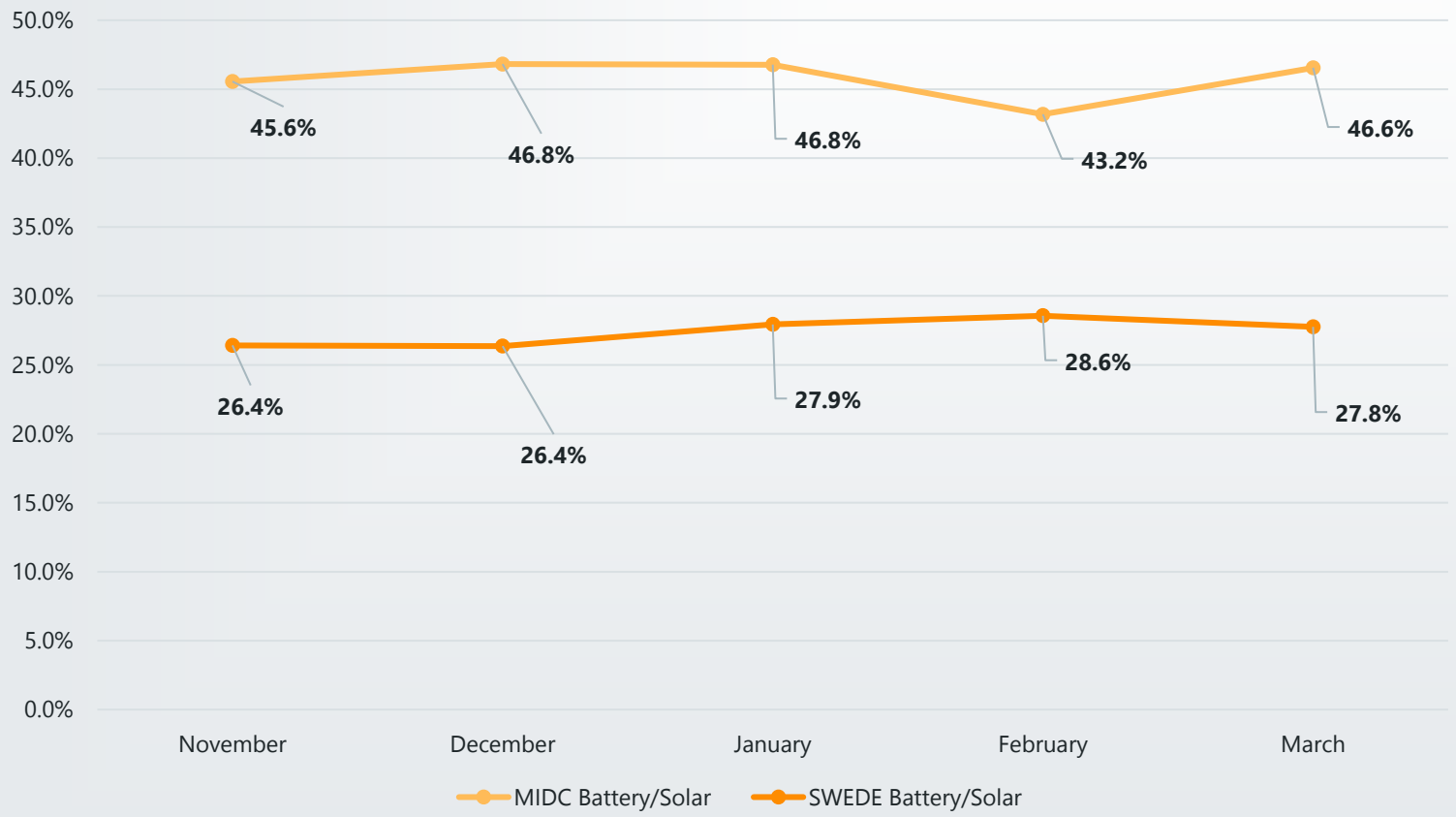
Hybrid Resource QCC %



Number of installed pairings

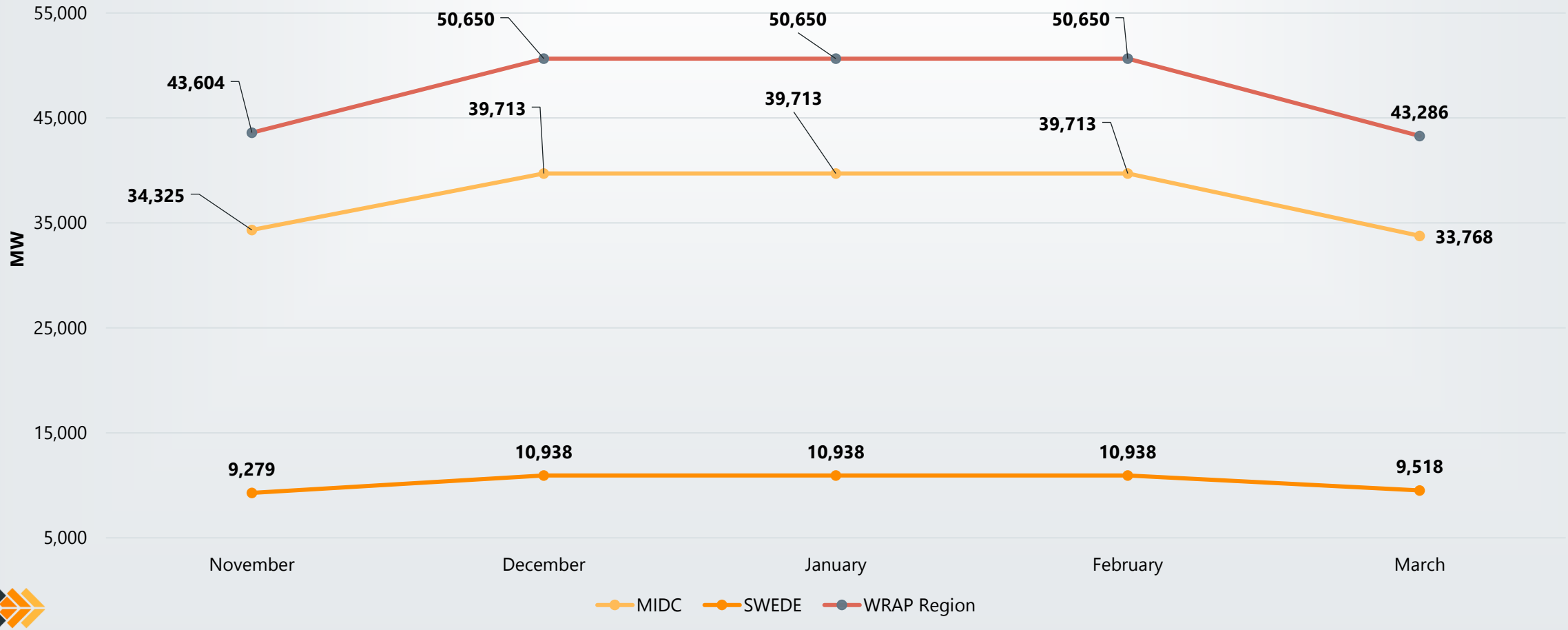
	MIDC	SWEDE
Battery/ Solar	4	35
Battery/ Wind	0	0

PRM Considerations

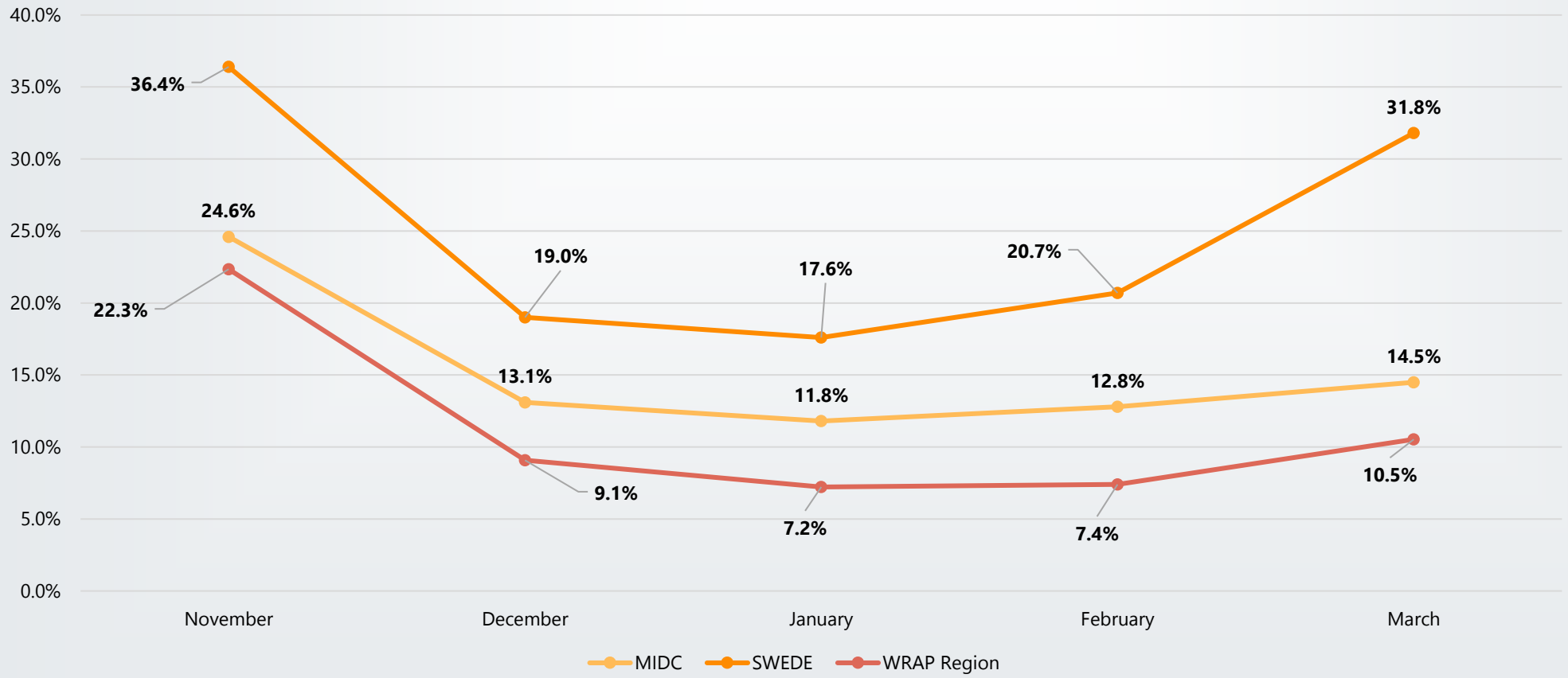
PRM Methodology

- Maintain 0.1 LOLE across the season
- Minimum of 0.01 LOLE in each individual month
- NCP load for a given month a significant factor in calculation of PRM (lower load months will have higher PRM value)
- PRM calculation includes 500 MW of diversity sharing between Subregions **benefitting MIDC in Winter** *(SWEDE in Summer)*

Peak Load

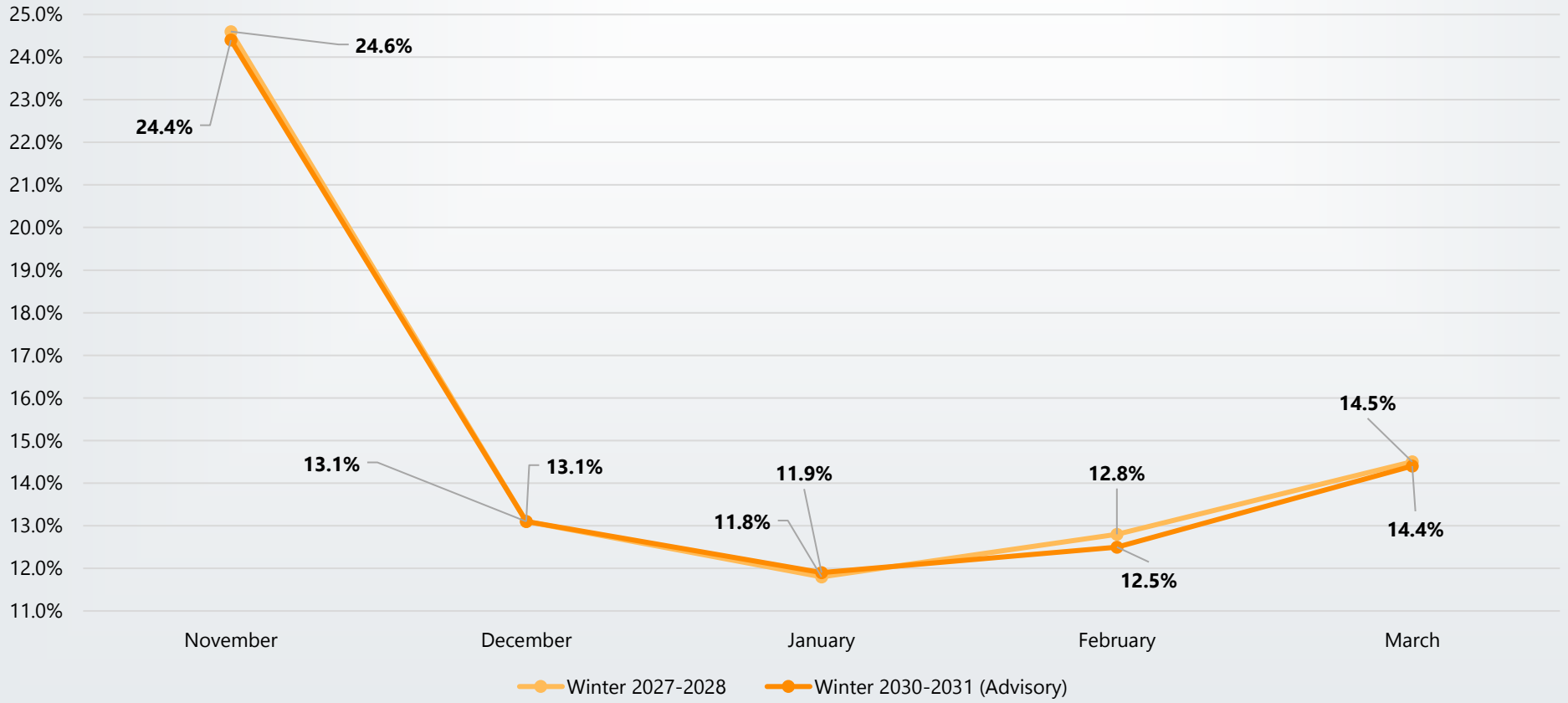

55,000
45,000
35,000
25,000
15,000
5,000
MW
50,650
50,650
50,650
43,604
43,286
39,713
39,713
39,713
34,325
33,768
10,938
10,938
10,938
9,279
9,518
November
December
January
February
March
MIDC
SWEDE
WRAP Region

PRM – Winter 2027-2028



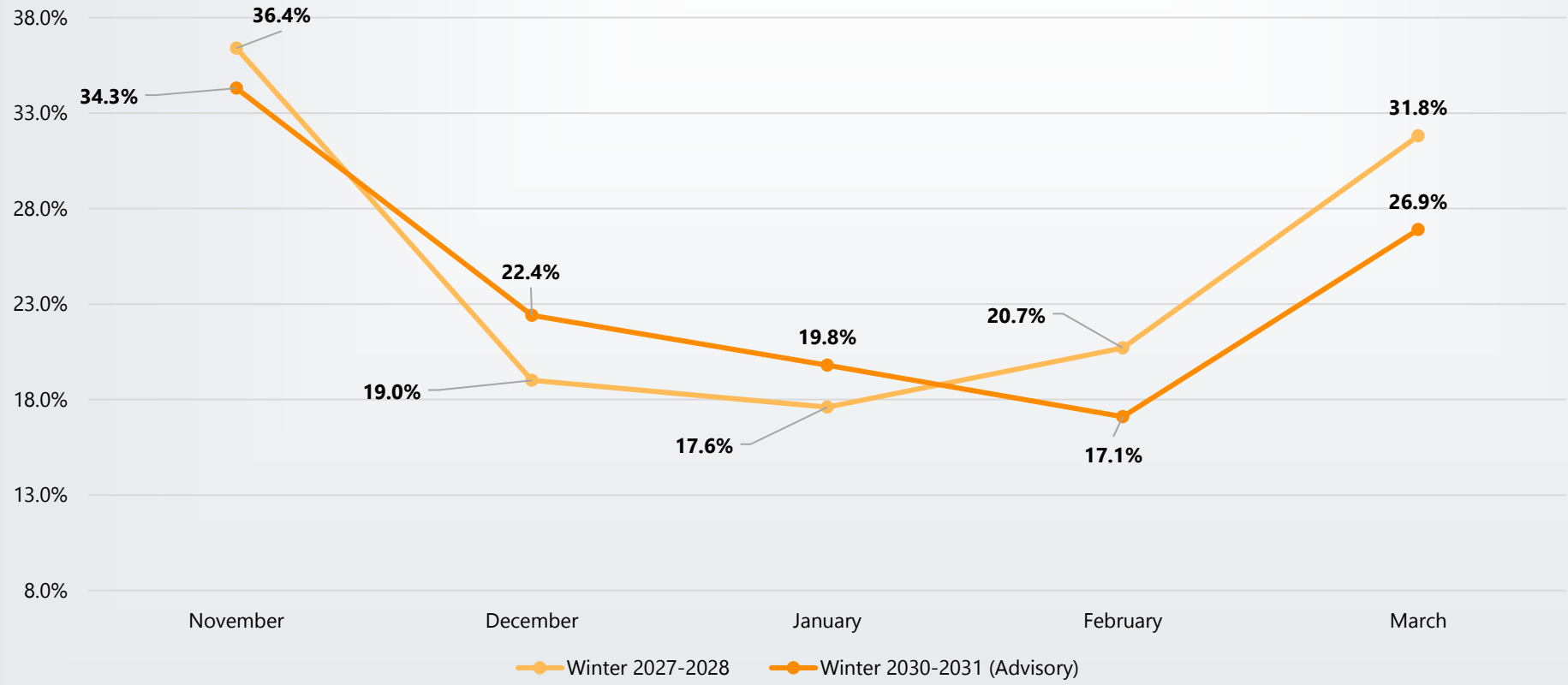
PRM – MIDC WINTER

2027-2028 AND 2030-2031



PRM – SWEDE WINTER

2027-2028 AND 2030-2031

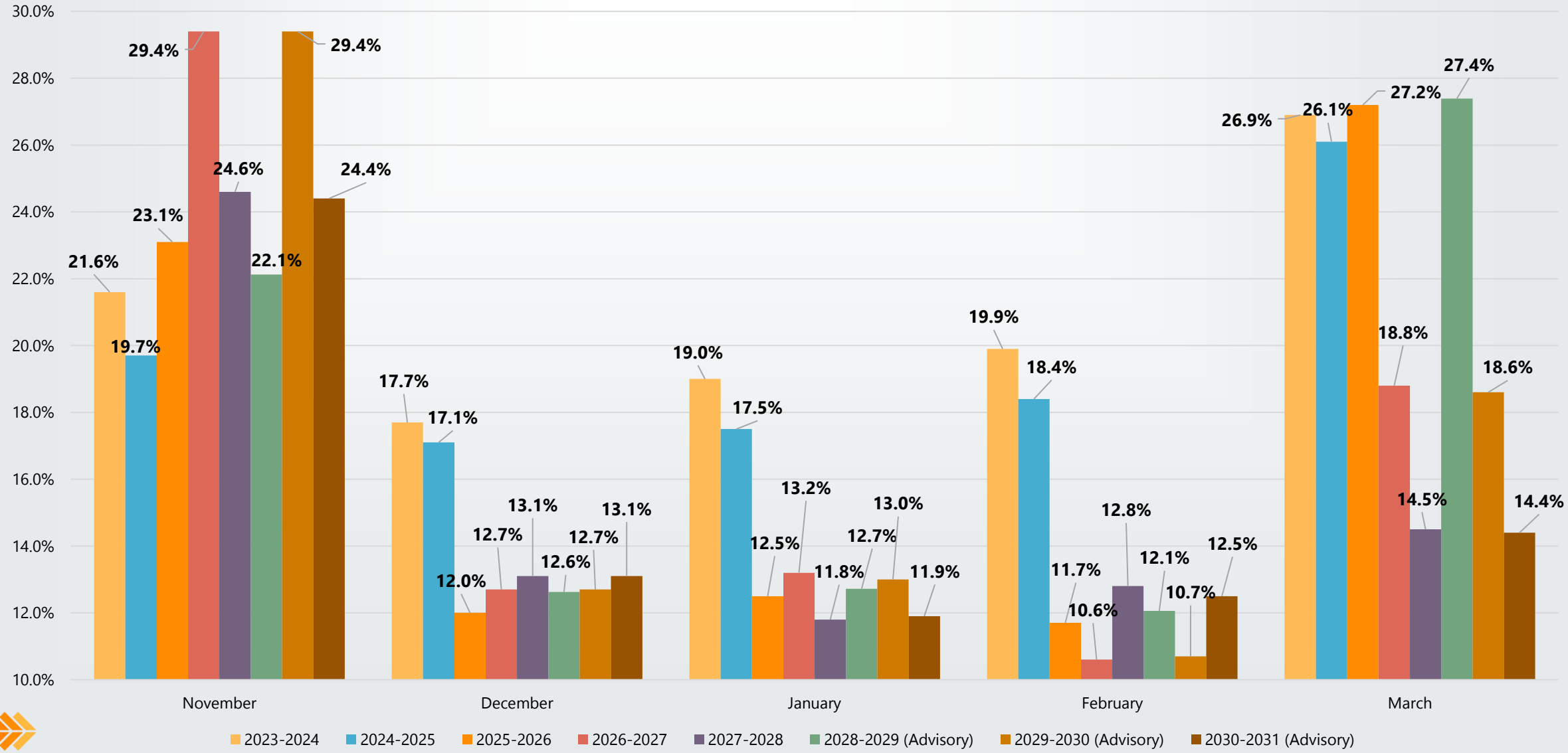


Thank You

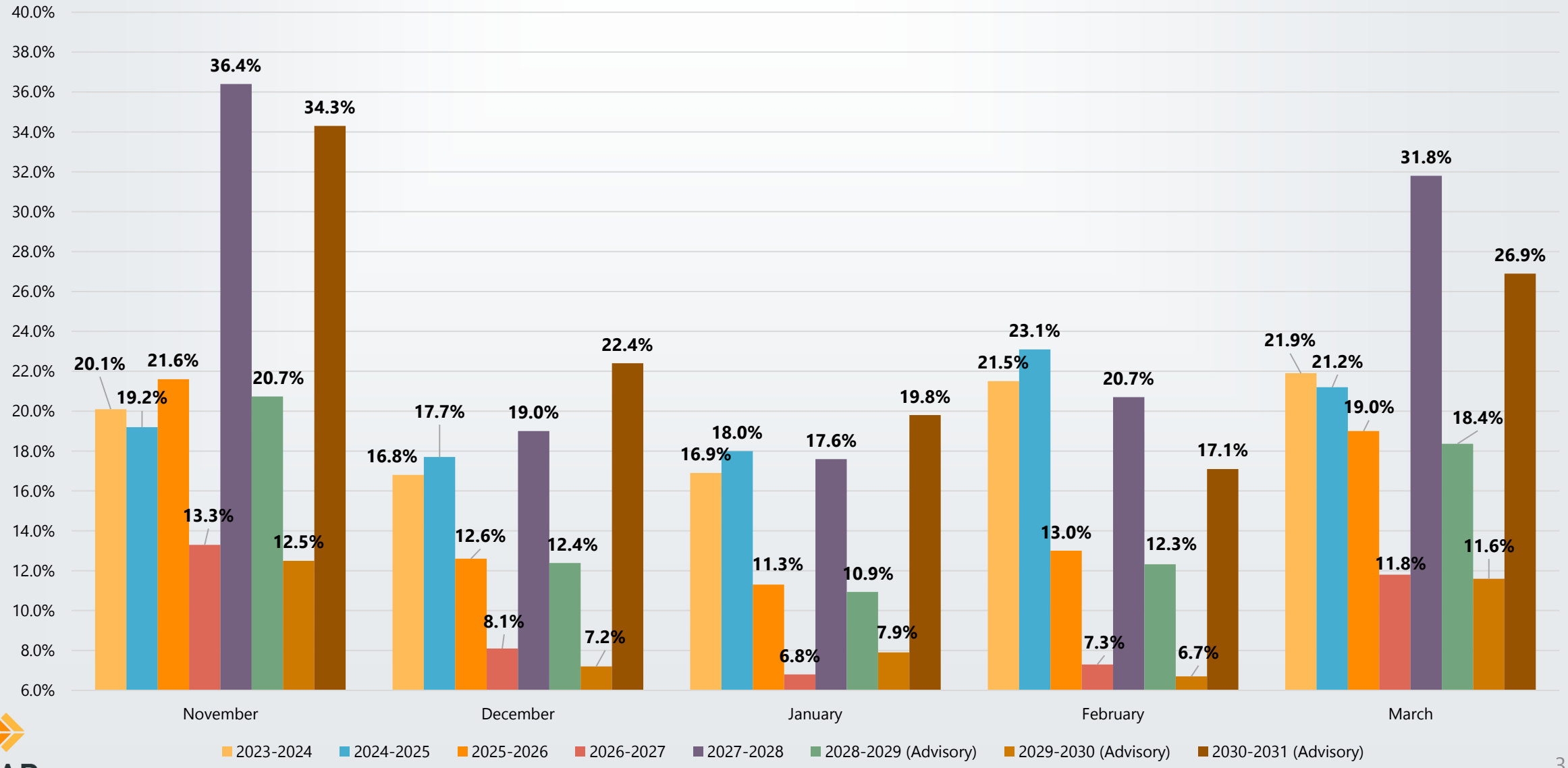
For general inquiries: wrap@westernpowerpool.org

PRM from Additional Winter Seasons

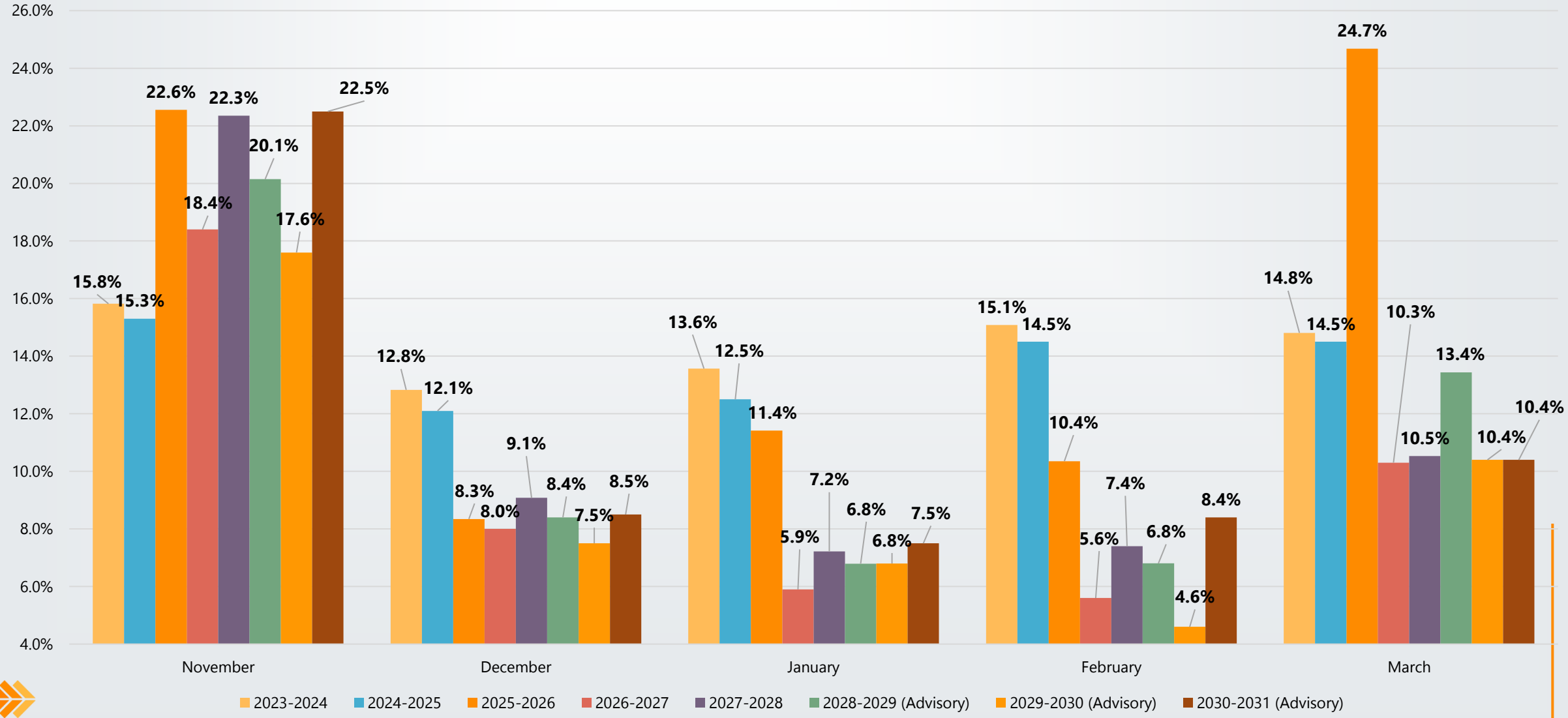
PRMs – MIDC Subregion



PRMs – SWEDE Subregion



PRMs – WRAP Region



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