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WESTERN RESOURCE ADEQUACY PROGRAM

Review of preliminary, non-binding WRAP regional data for the current participating footprint for the Summer 2027 and advisory data for the Summer 2030 season

December 10, 2025

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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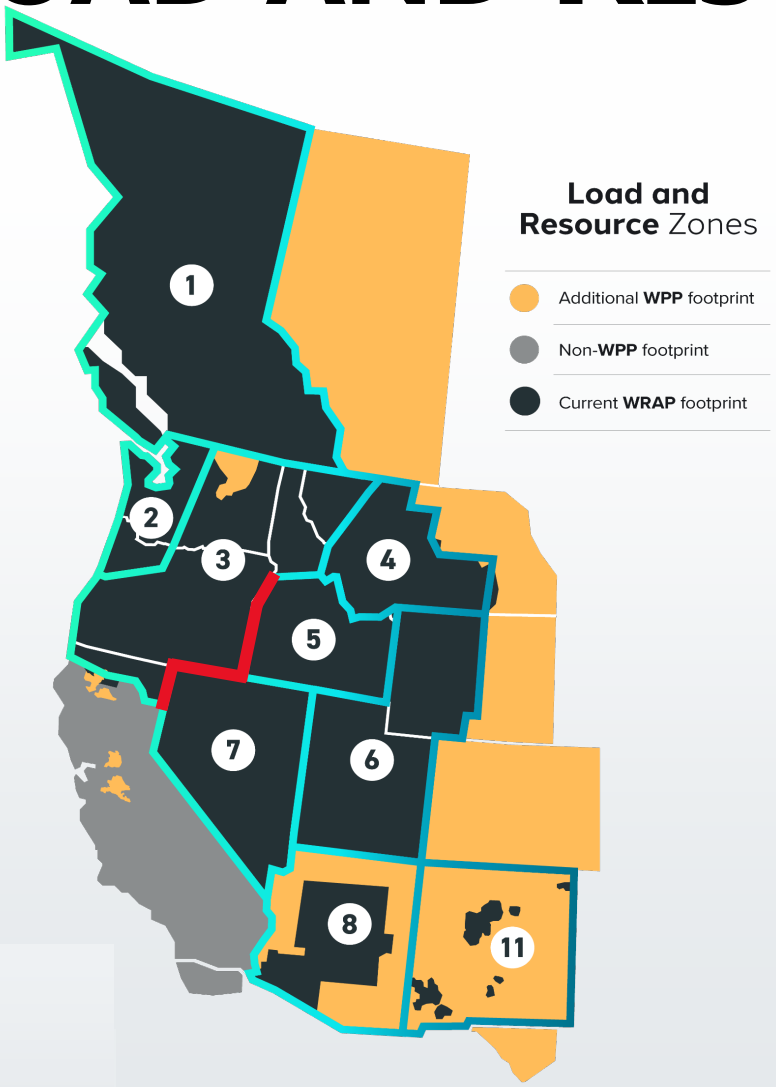
Before We Begin

- 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 2025
  - Included twenty-two WRAP Participants
  - 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

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
SWEDE	Zone 5	Idaho Power
	Zone 6	PacifiCorp East
	Zone 7	Nevada
	Zone 8	Arizona
	Zone 11	New Mexico

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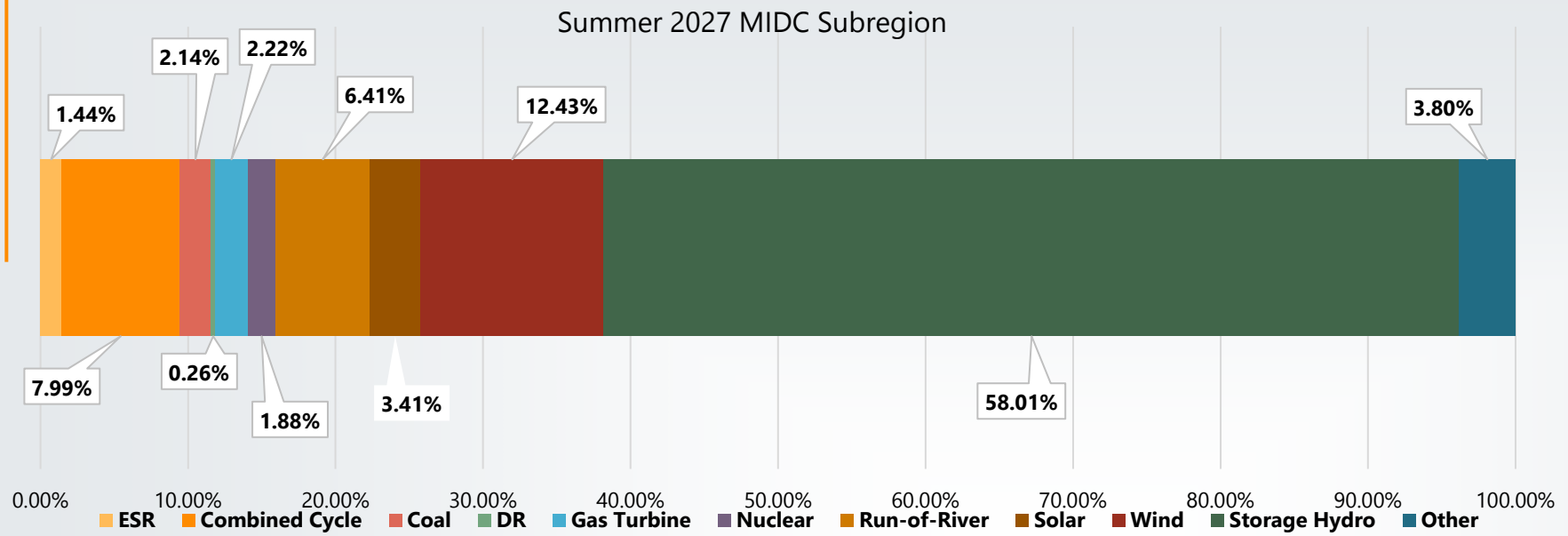
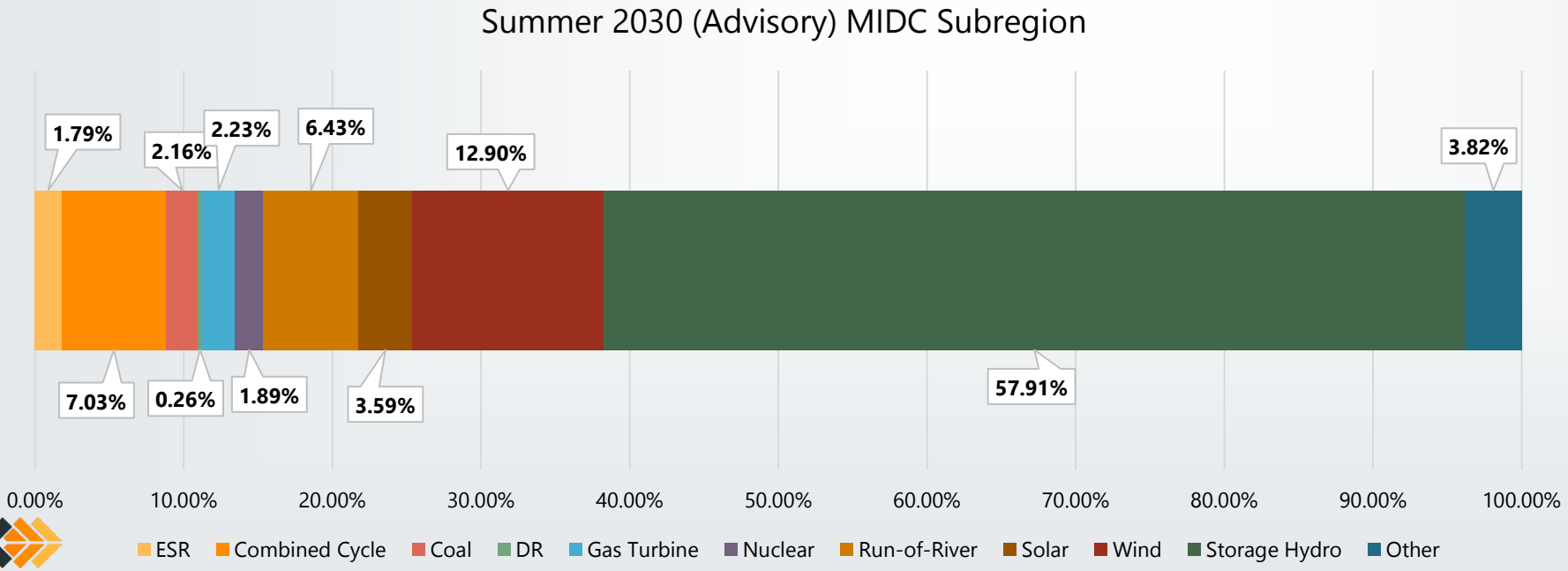
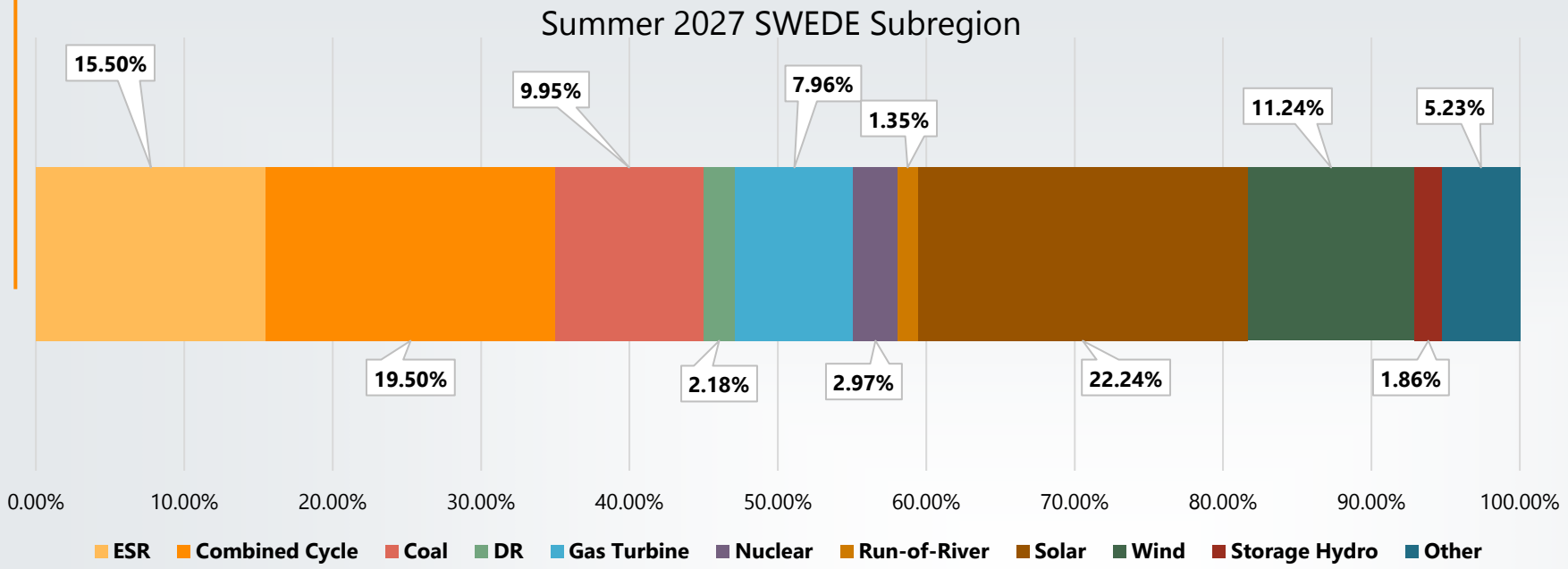




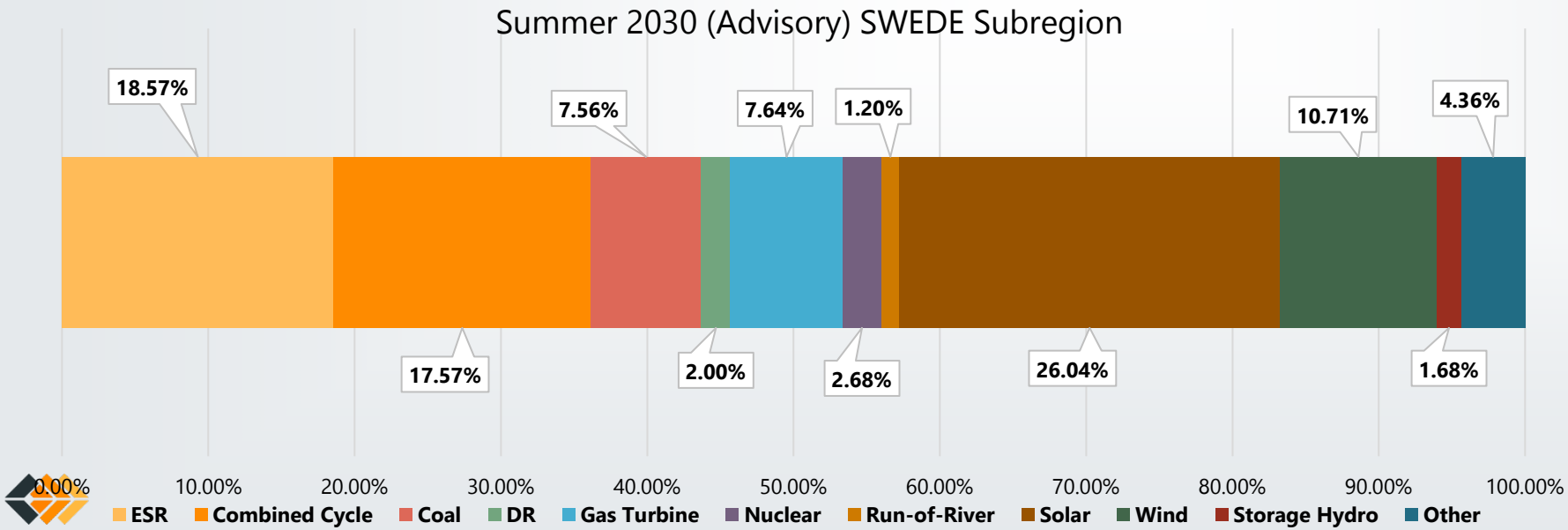
MIDC Subregion Summers

Percentage



SWEDE SUBREGION SUMMERS

Percentage



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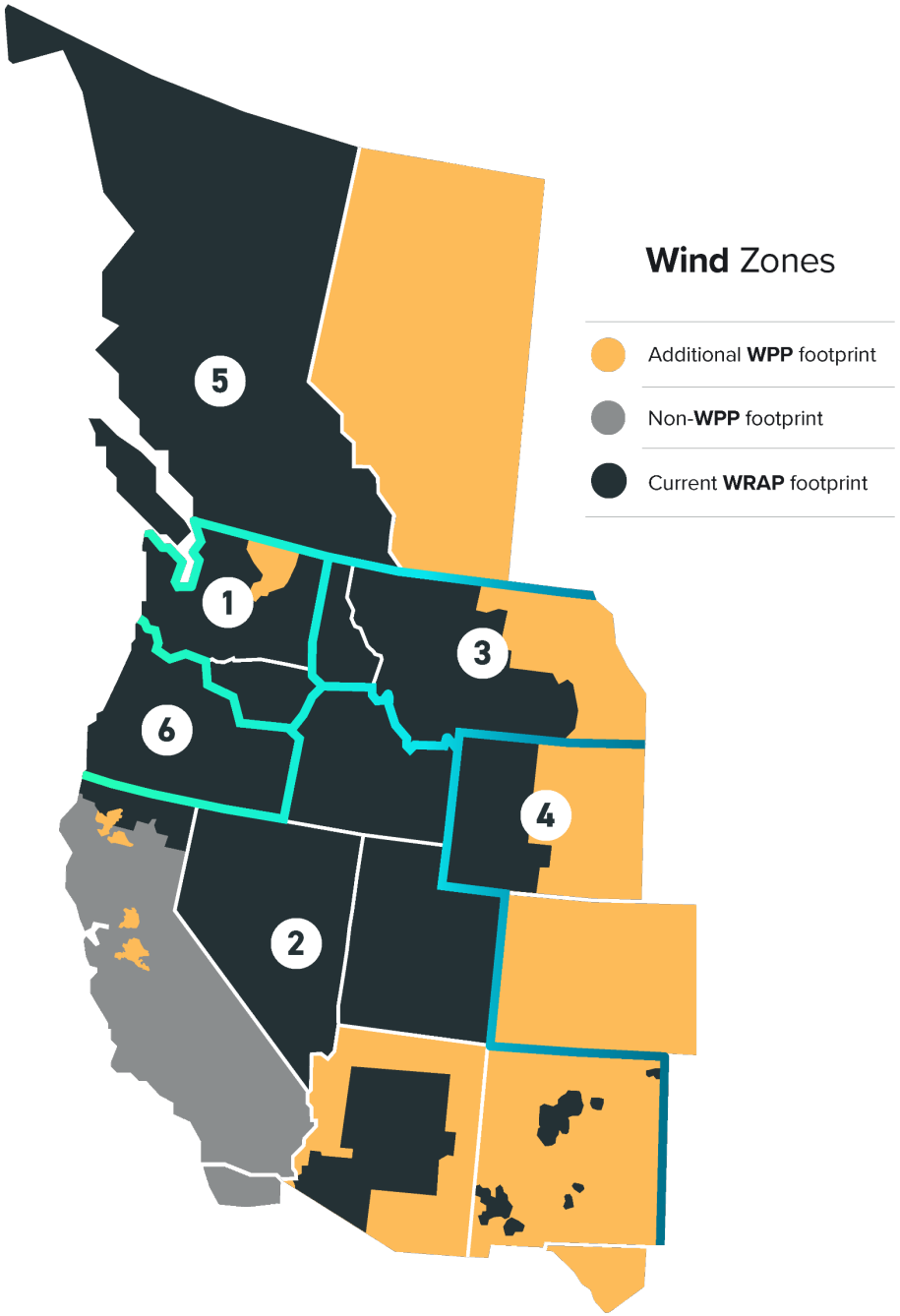
Key Reminders

- 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 VER1	**5,186**
Wind VER2	**3,450**
Wind VER3	**1,544**
Wind VER4	**5,000**
Wind VER5	**747**
Wind VER6	No wind
Total	**15,927**

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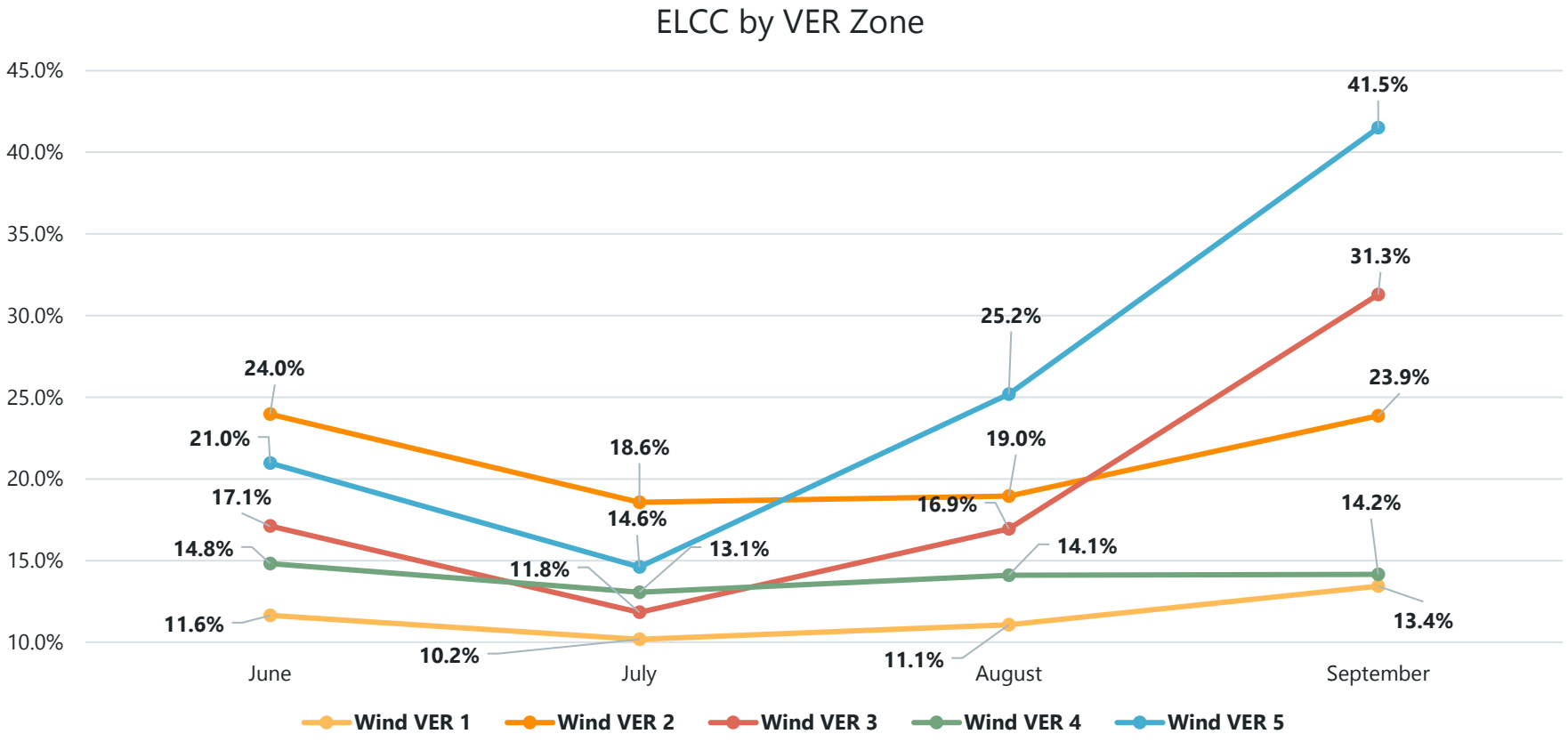
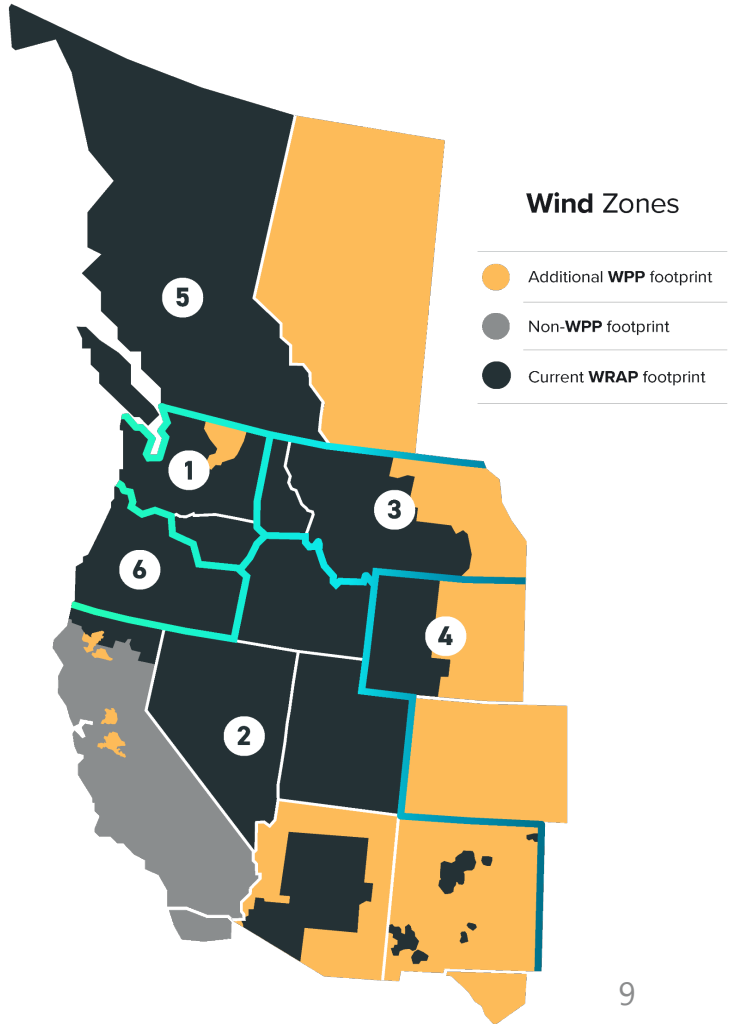
Wind ELCC - Summer





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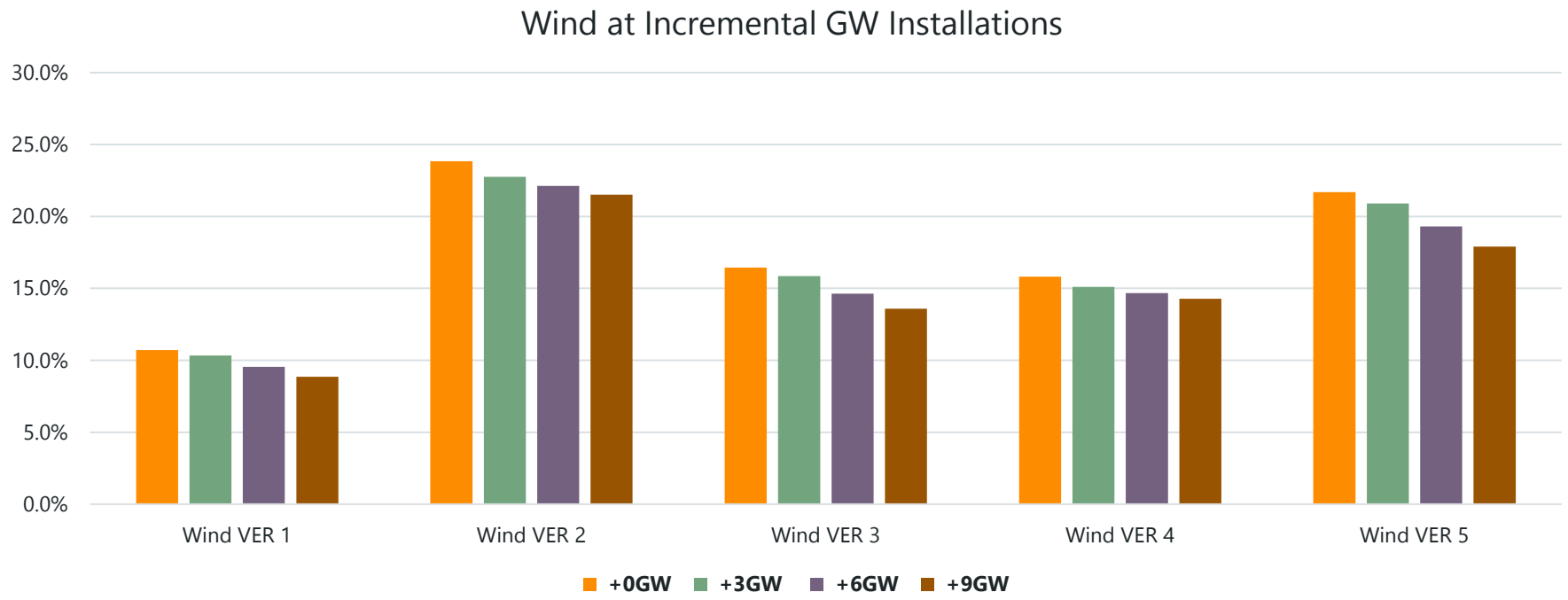
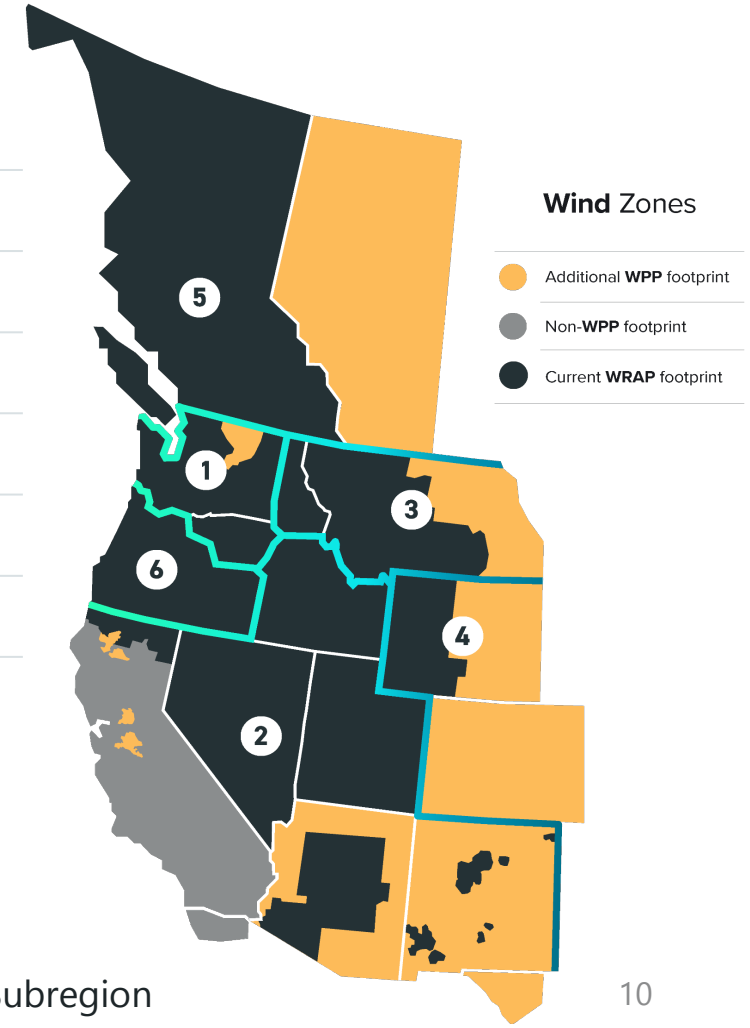
Wind ELCC

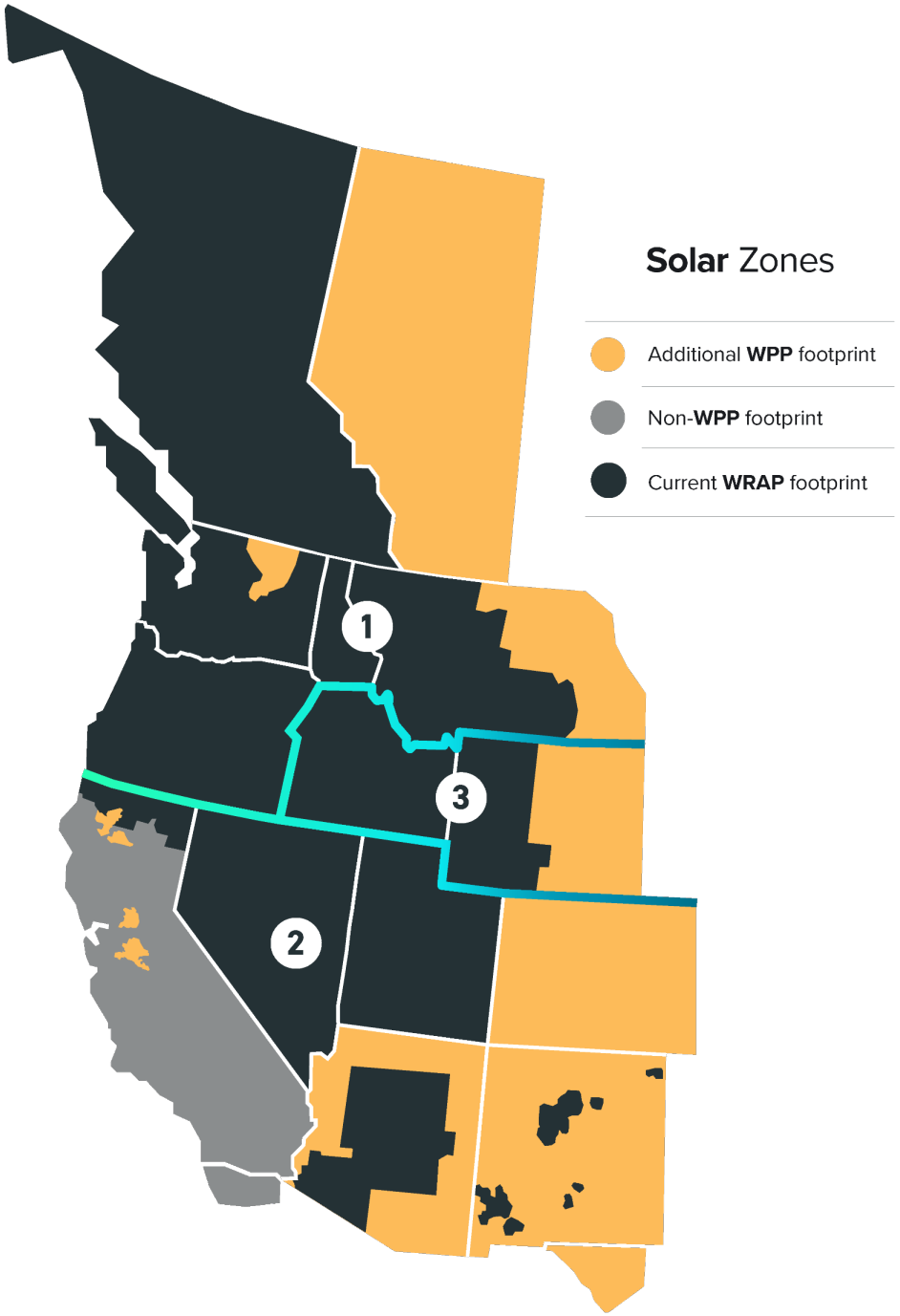
Wind at Incremental GW Installations





+3, +6, and +9 GW added to both SWEDE and MidC, split between VER Zones in that Subregion

SOLAR ZONES



Zone	Nameplate Capacity (MW)
Solar VER1	**2,054**
Solar VER2	**14,974**
Solar VER3	**1,469**
Total	**18,497**

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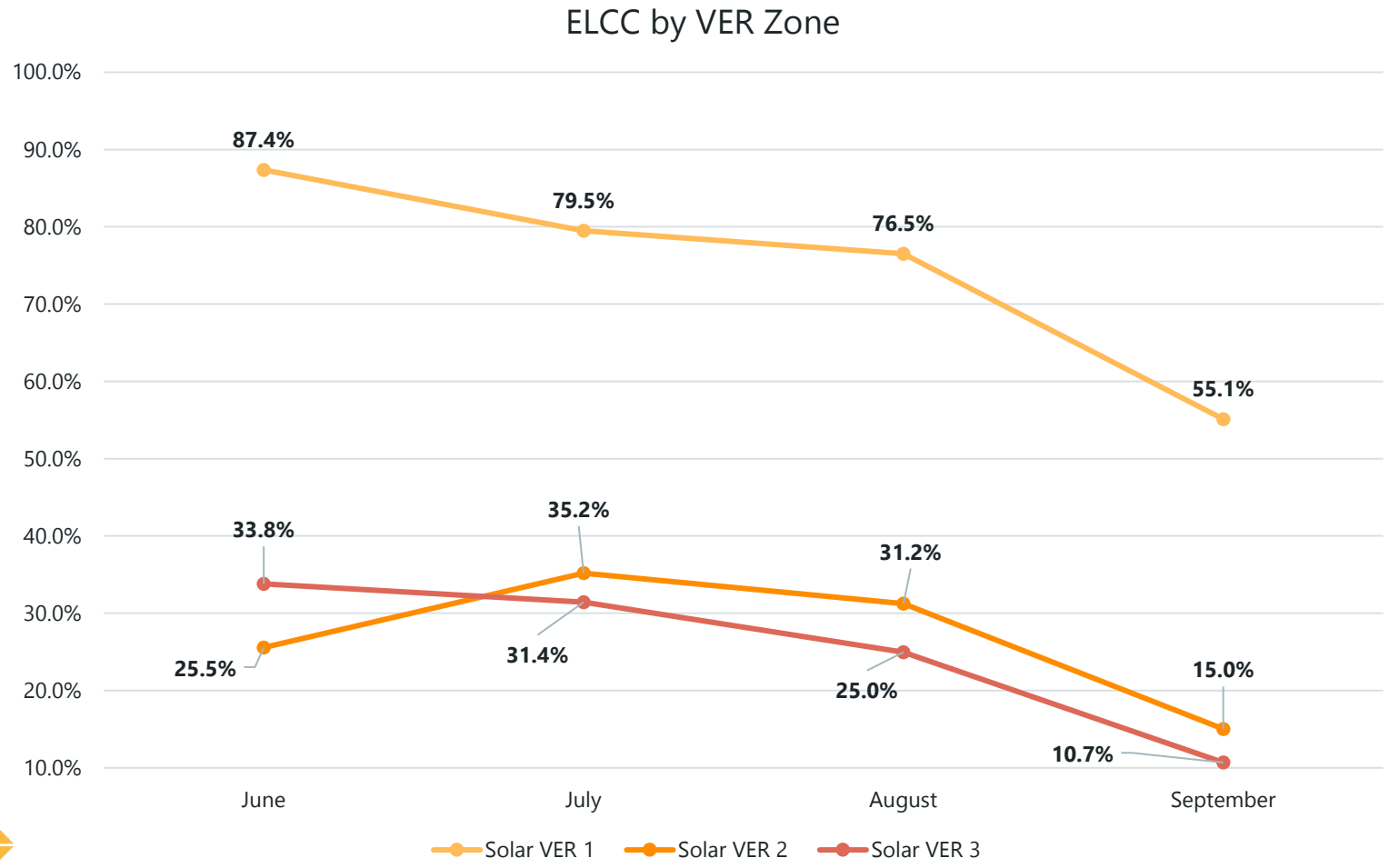
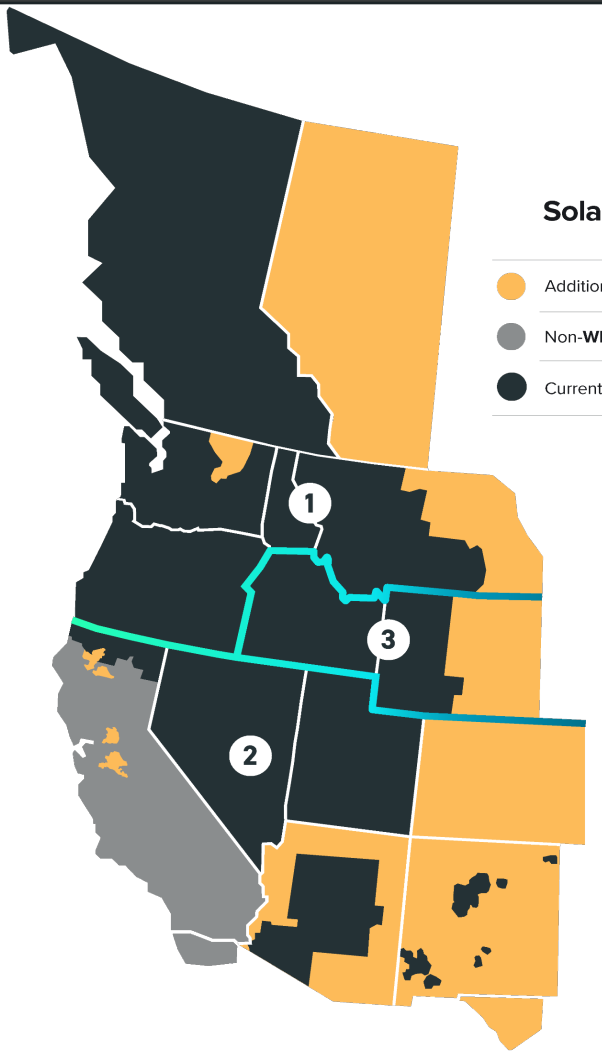
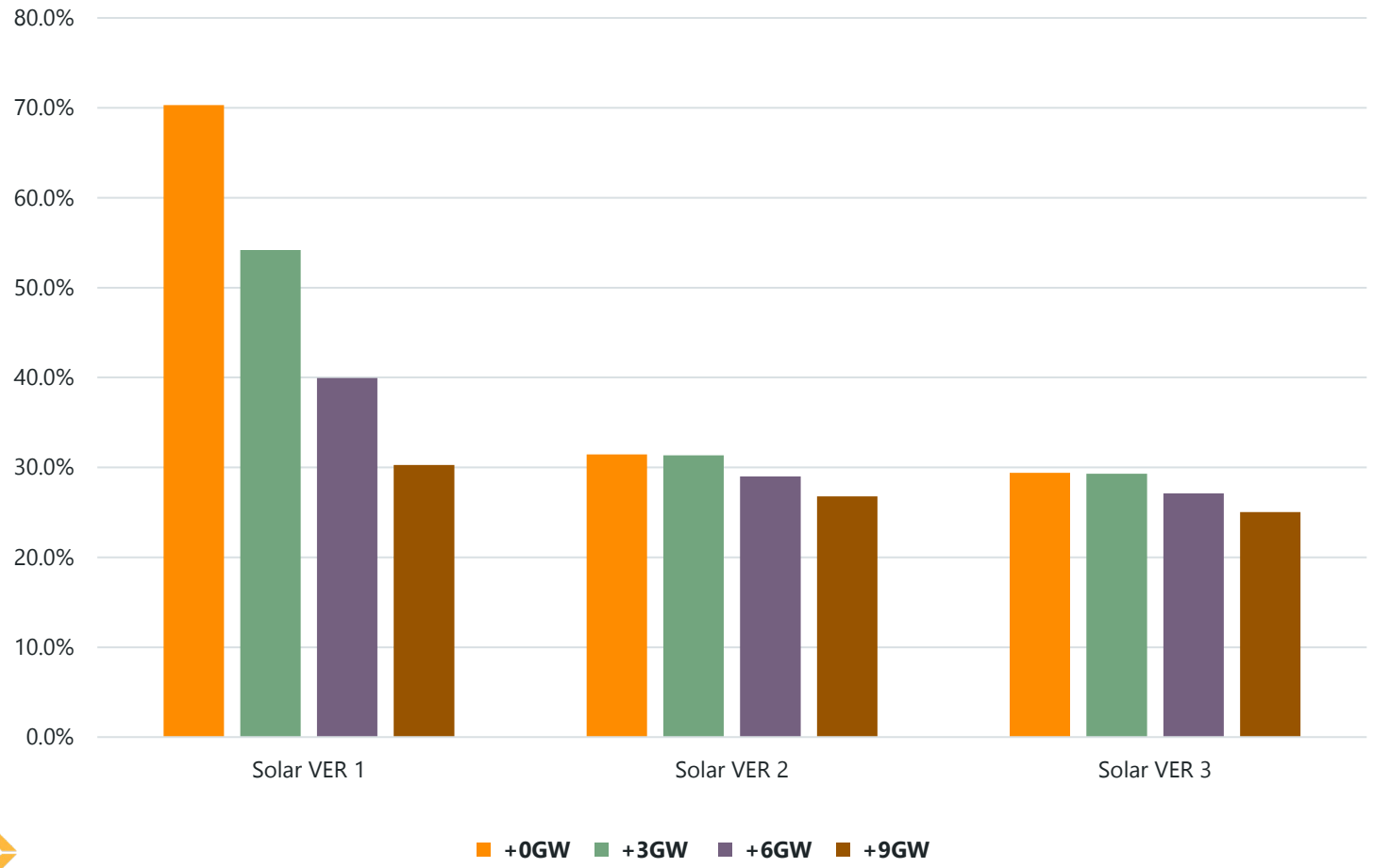
Solar ELCC - Summer

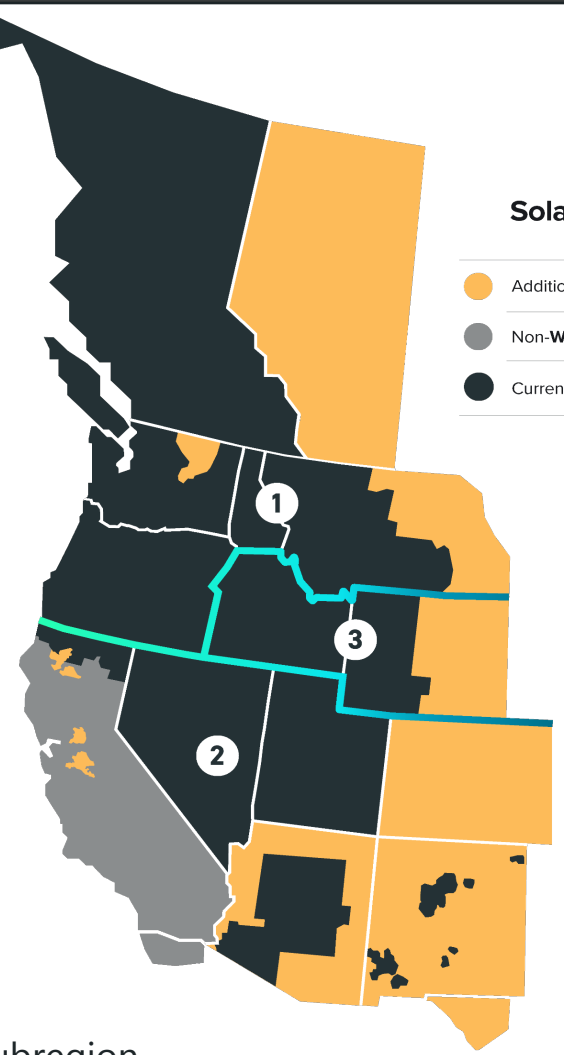




Solar ELCC

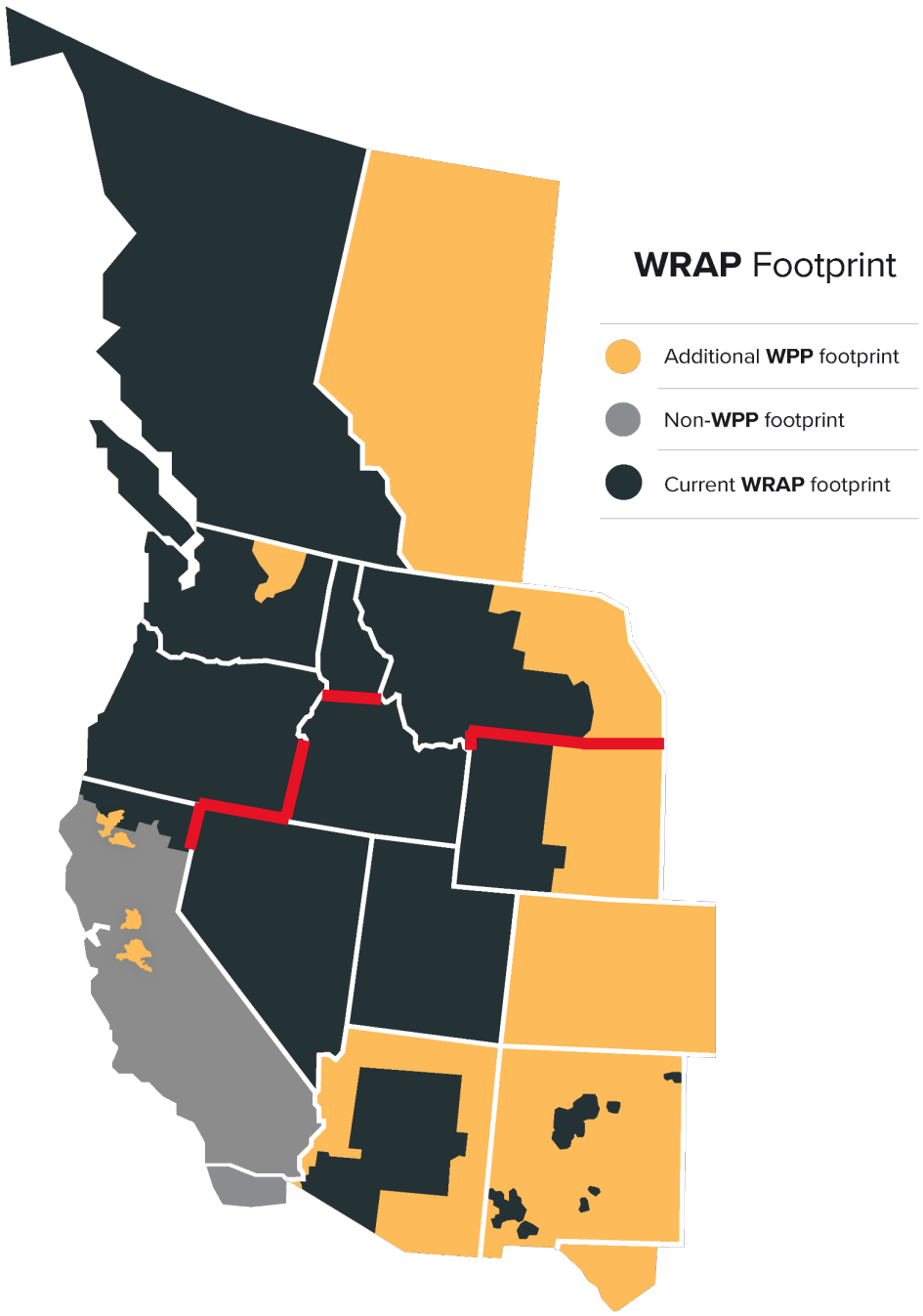
Solar at Incremental GW Installations





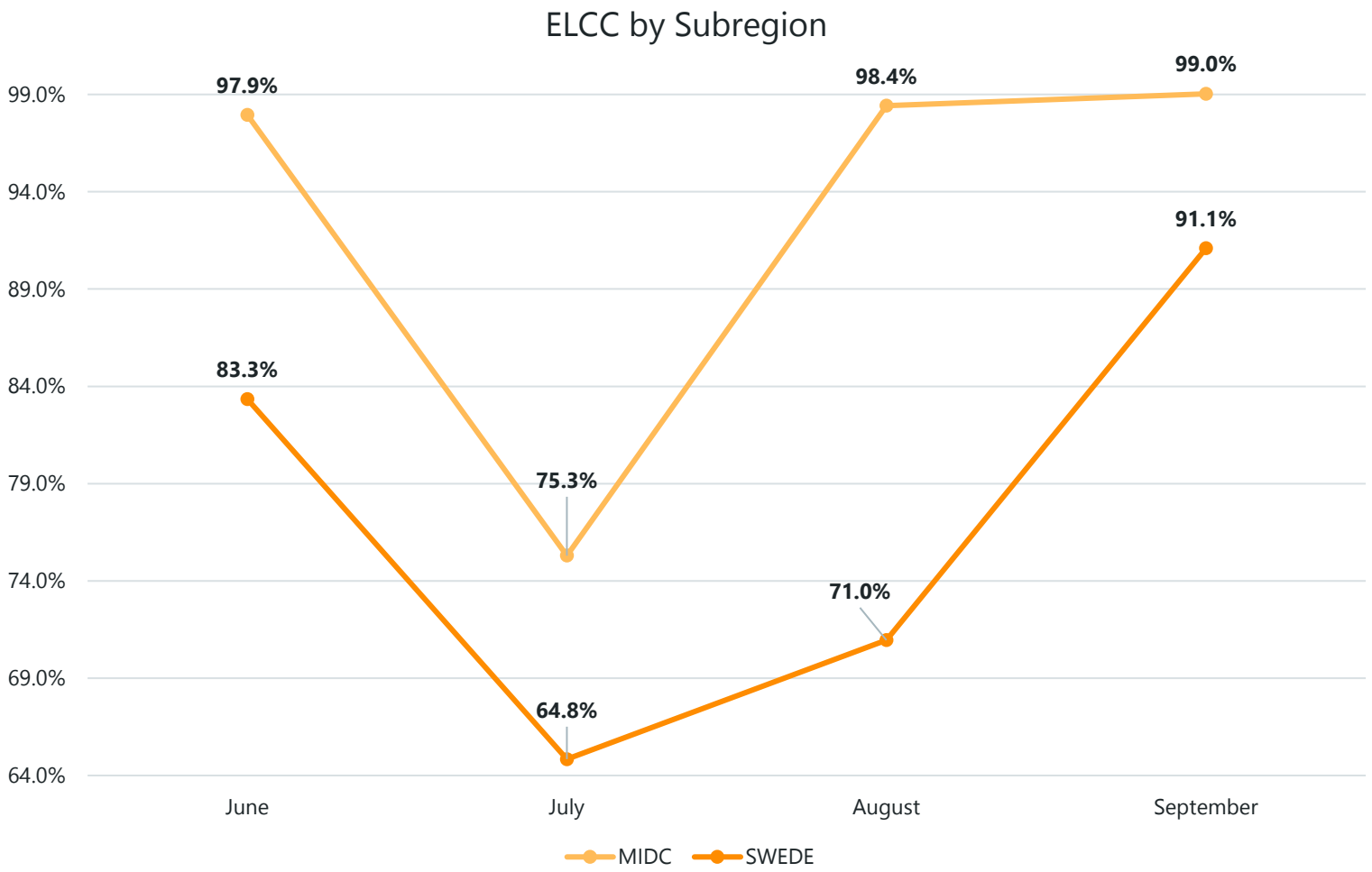
+3, +6, and +9 GW added to both SWEDE and MIDC, split between VER Zones in that Subregion

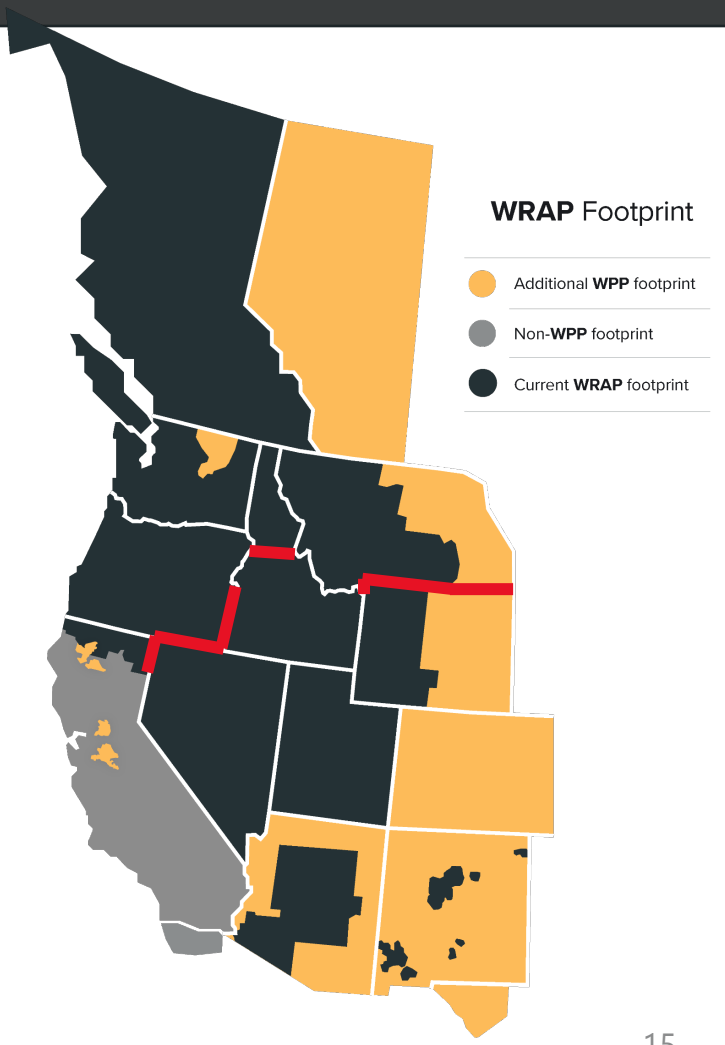
Energy Storage Resource (ESR) Zones



Subregion	Nameplate Capacity (MW)
MIDC	**858**
SWEDE	**11,484**
Total	**12,342**

ESR ELCC - Summer





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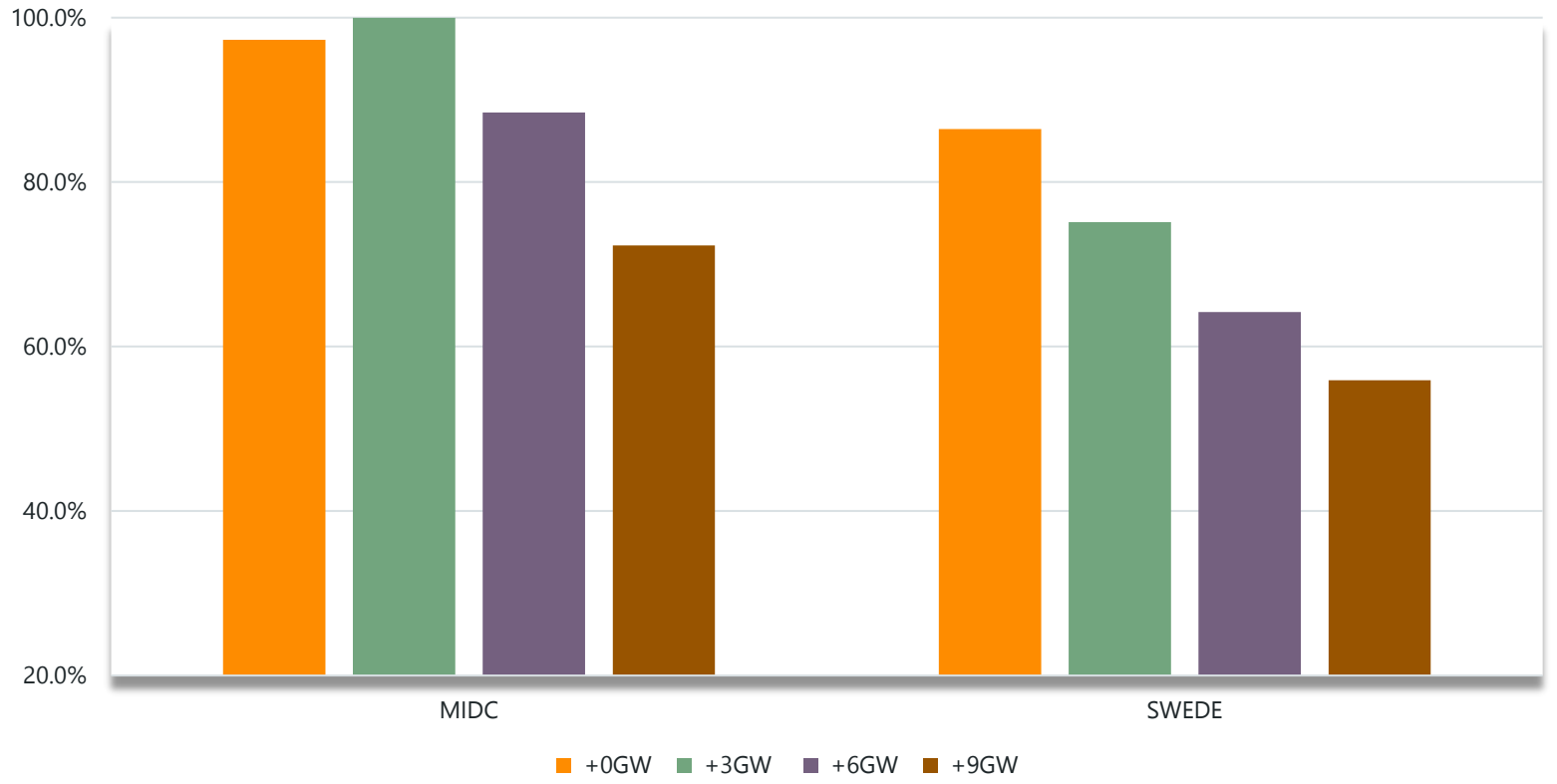
ESR ELCC

ESR at Incremental GW Installations



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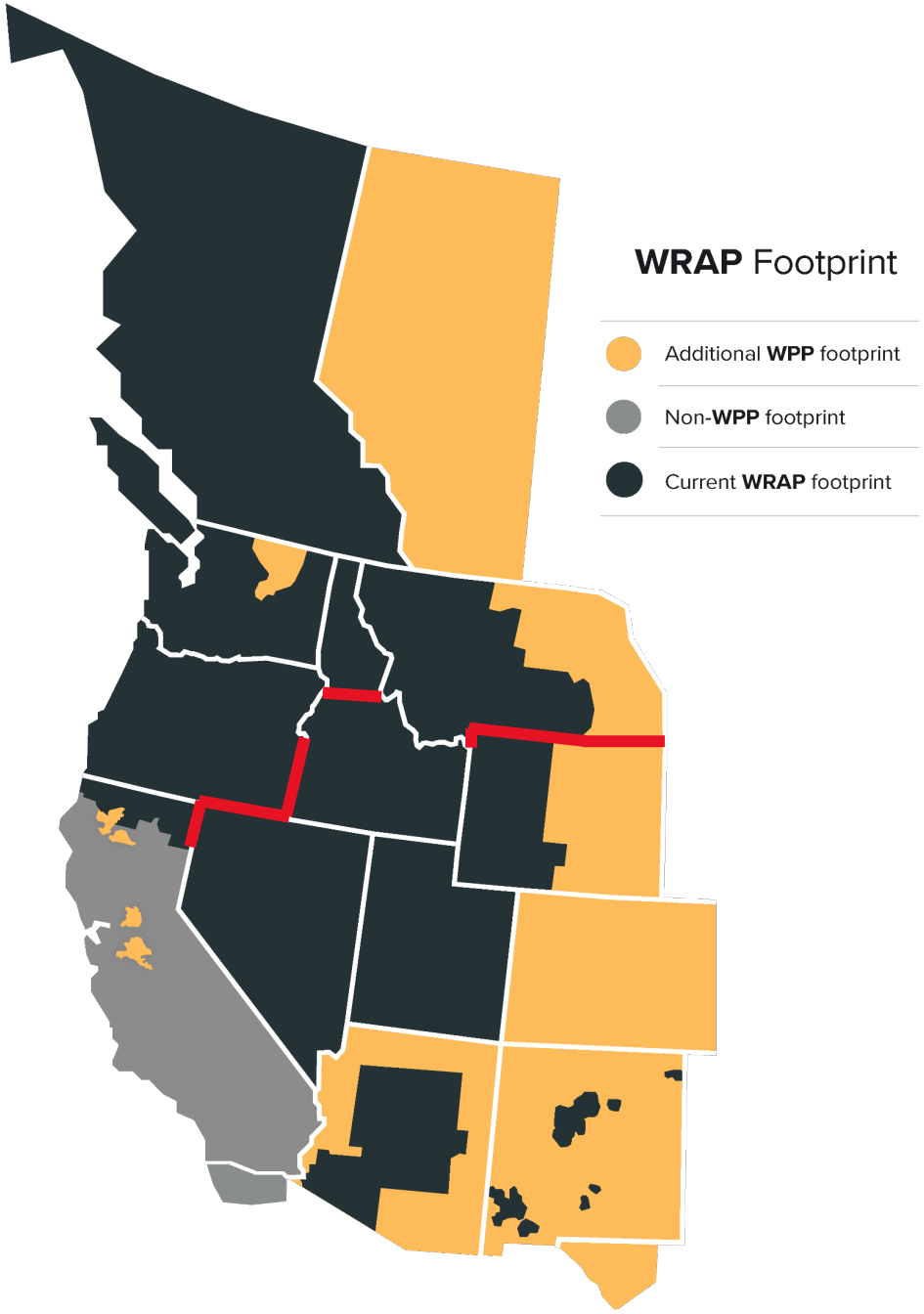
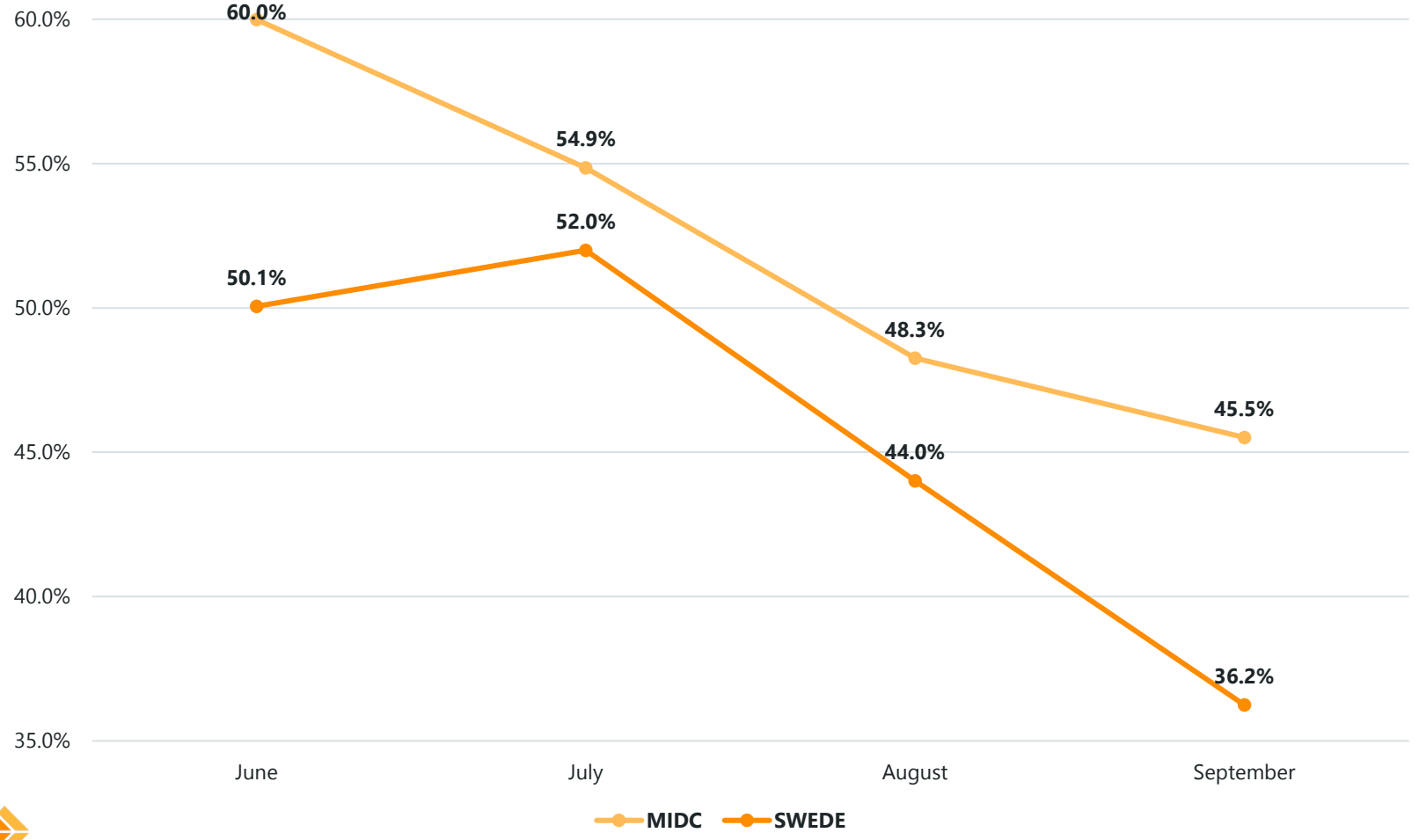
+3, +6, and +9 GW added to both SWEDE and MidC Subregions

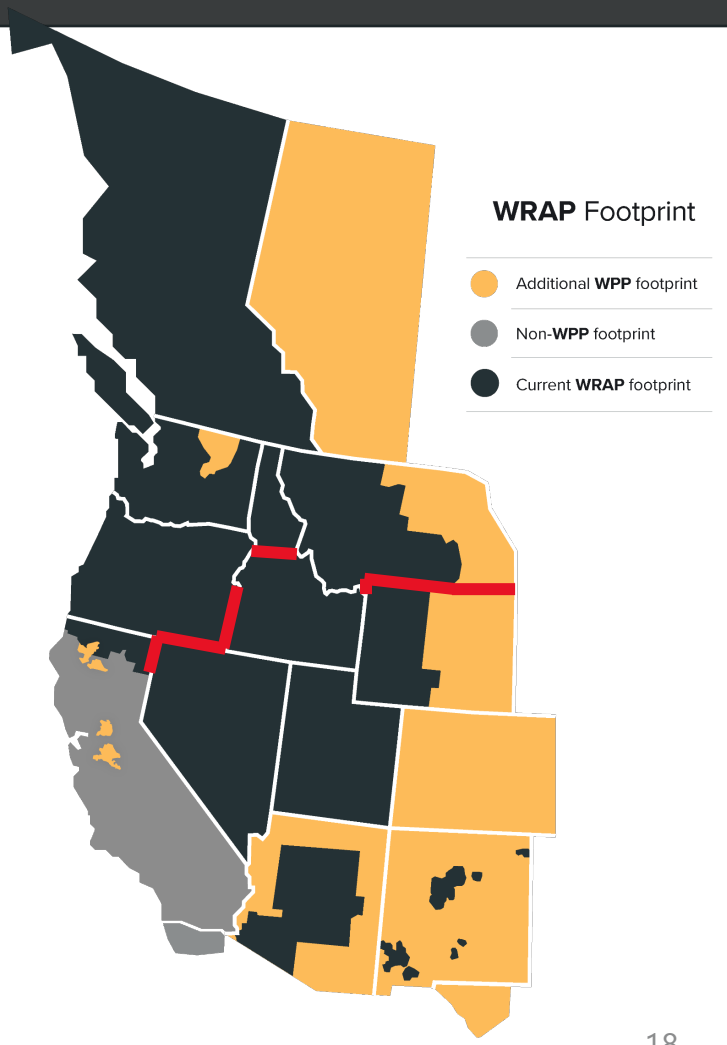
Run of River (RoR) Zones



Subregion	Nameplate Capacity (MW)
MidC	**3,835**
SWEDE	**1,039**
Total	**4,874**

RoR QCC - Summer





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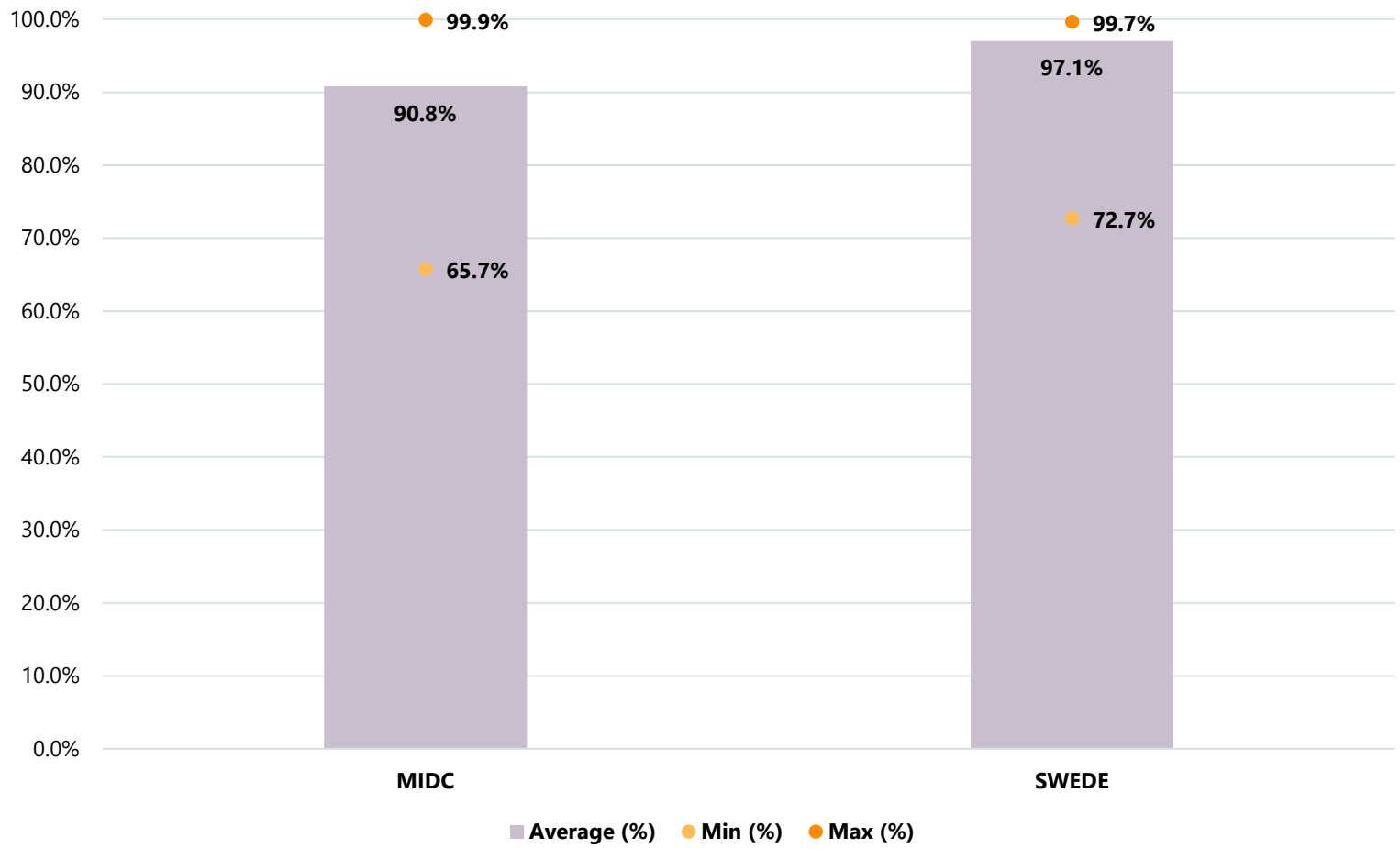
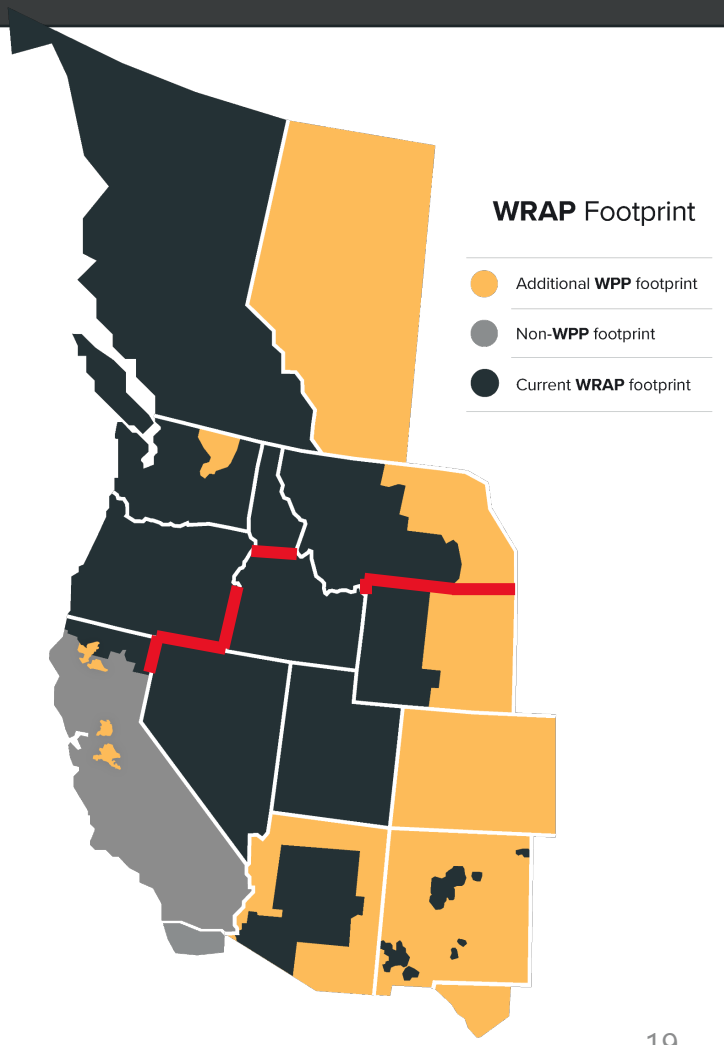
THERMAL QCC





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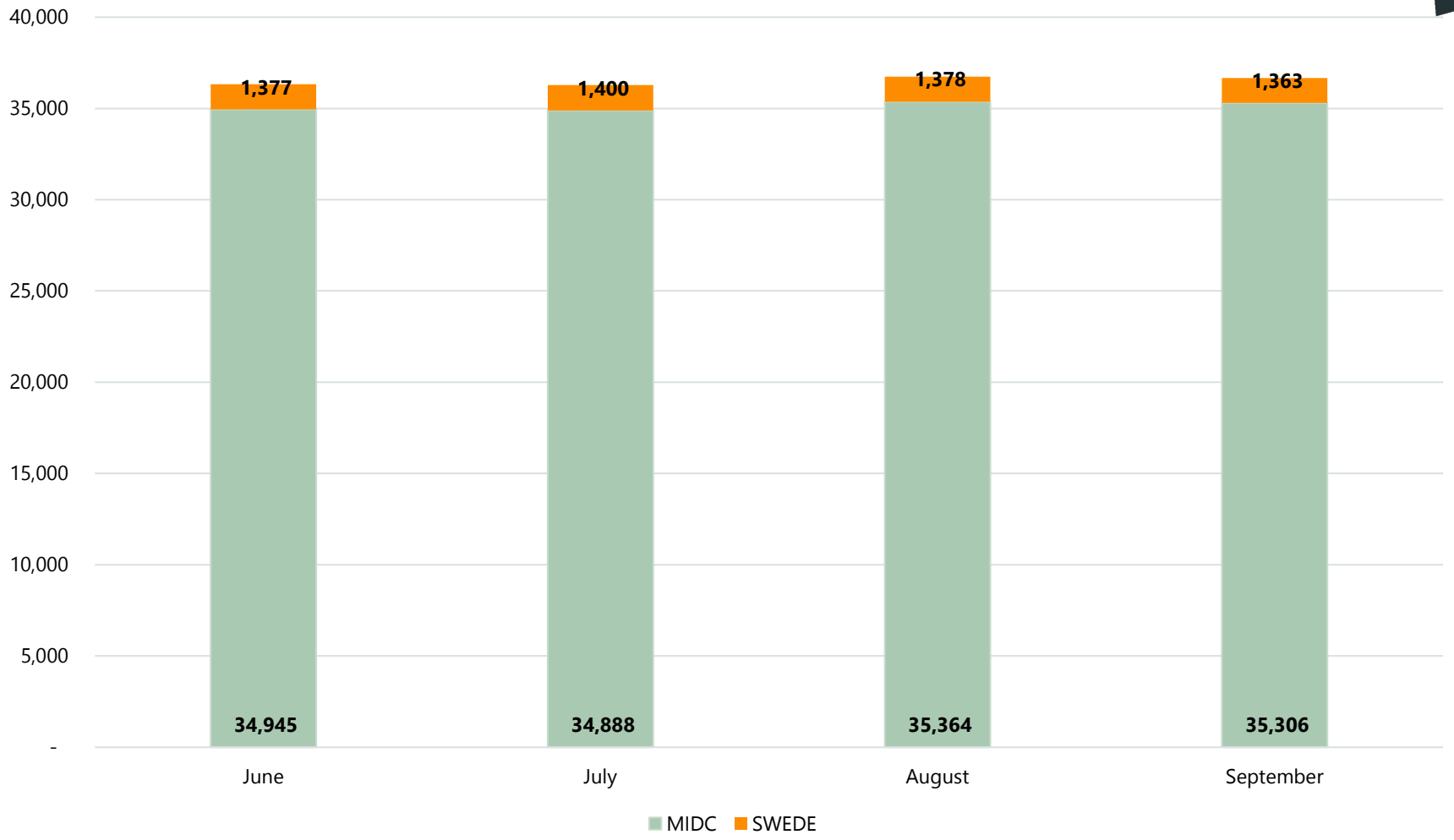
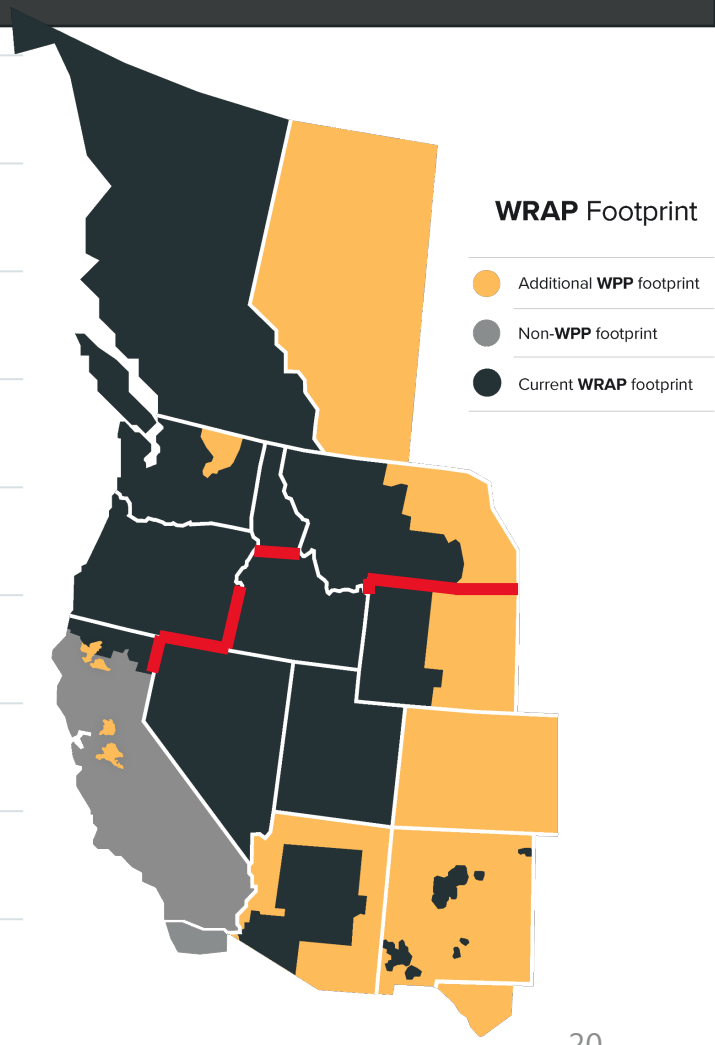
Storage Hydro QCC MW





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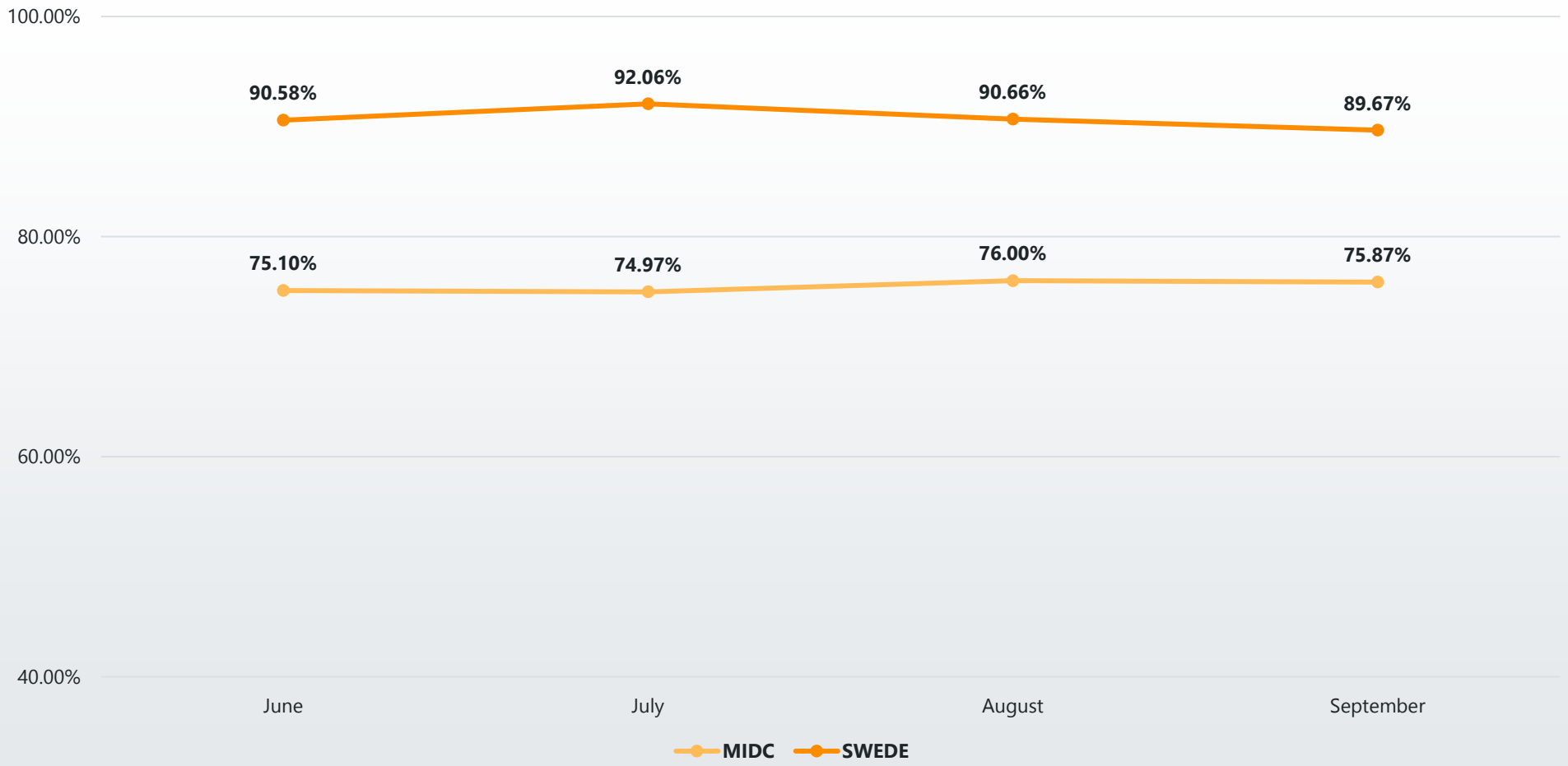
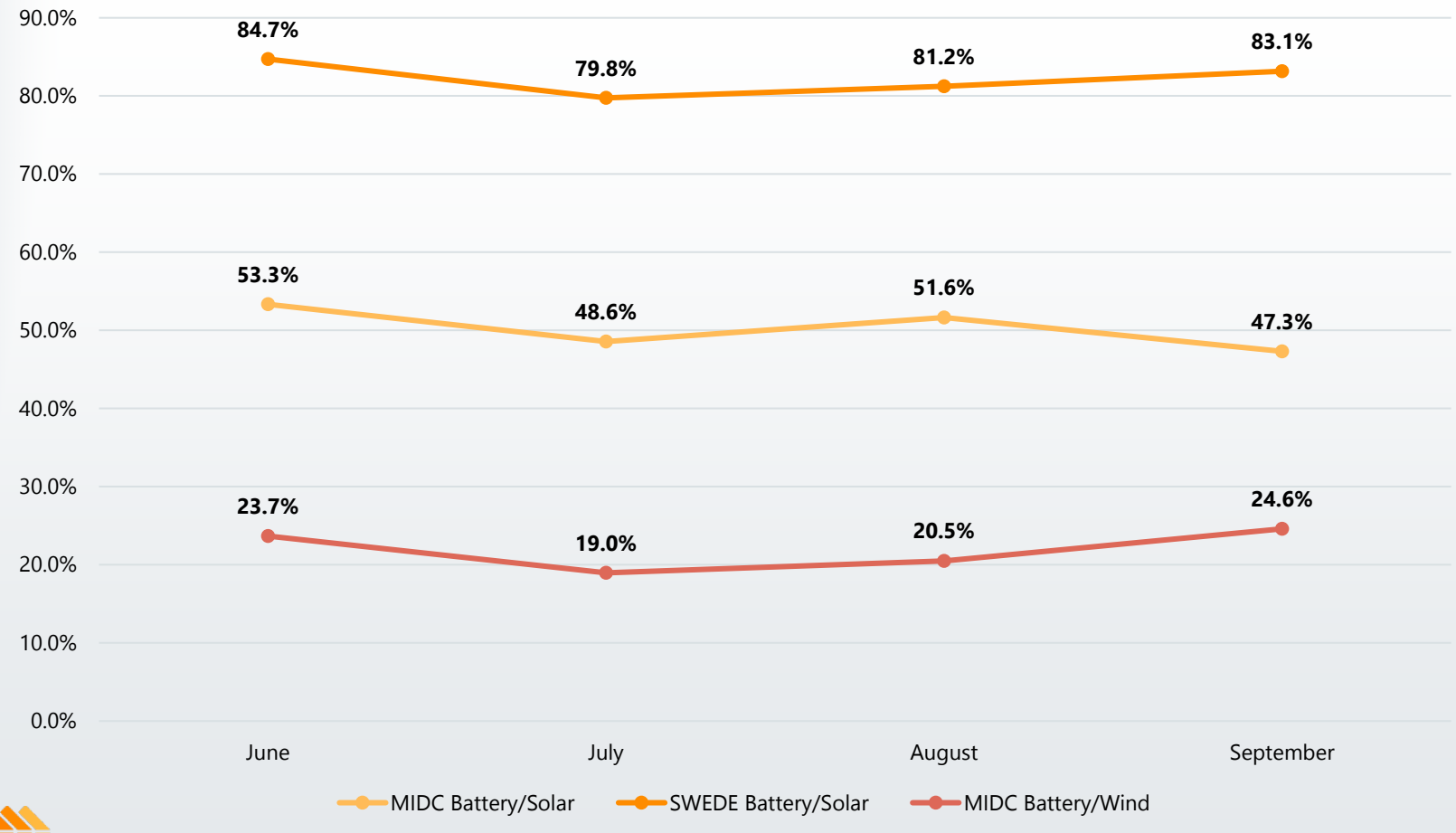
AVERAGE STORAGE HYDRO QCC



Hybrid Resource QCC



Number of installed pairings

	MIDC	SWEDE
Battery/ Solar	4	62
Battery/ Wind	1	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 SW in Summer** *(NW in Winter)*

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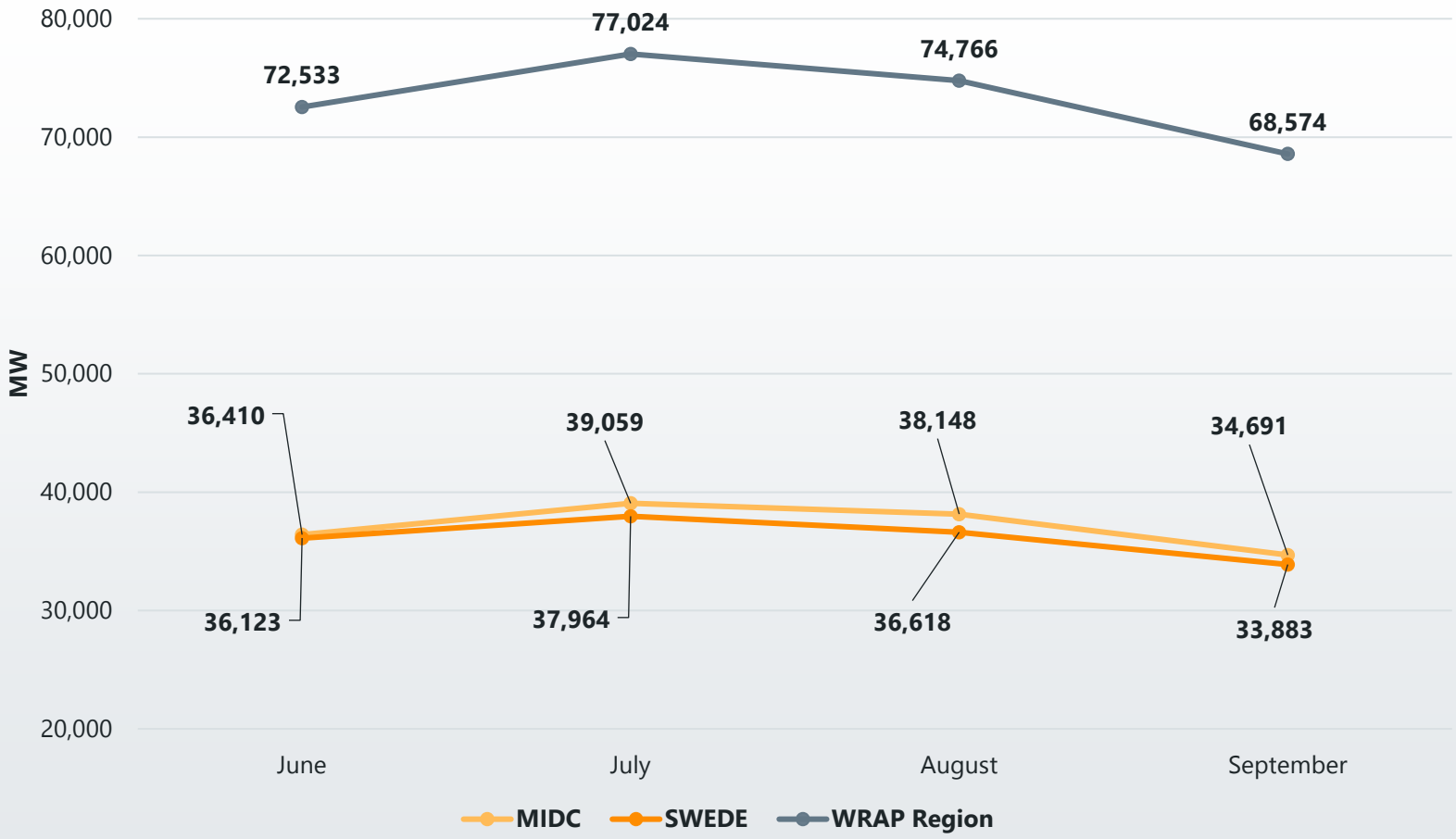
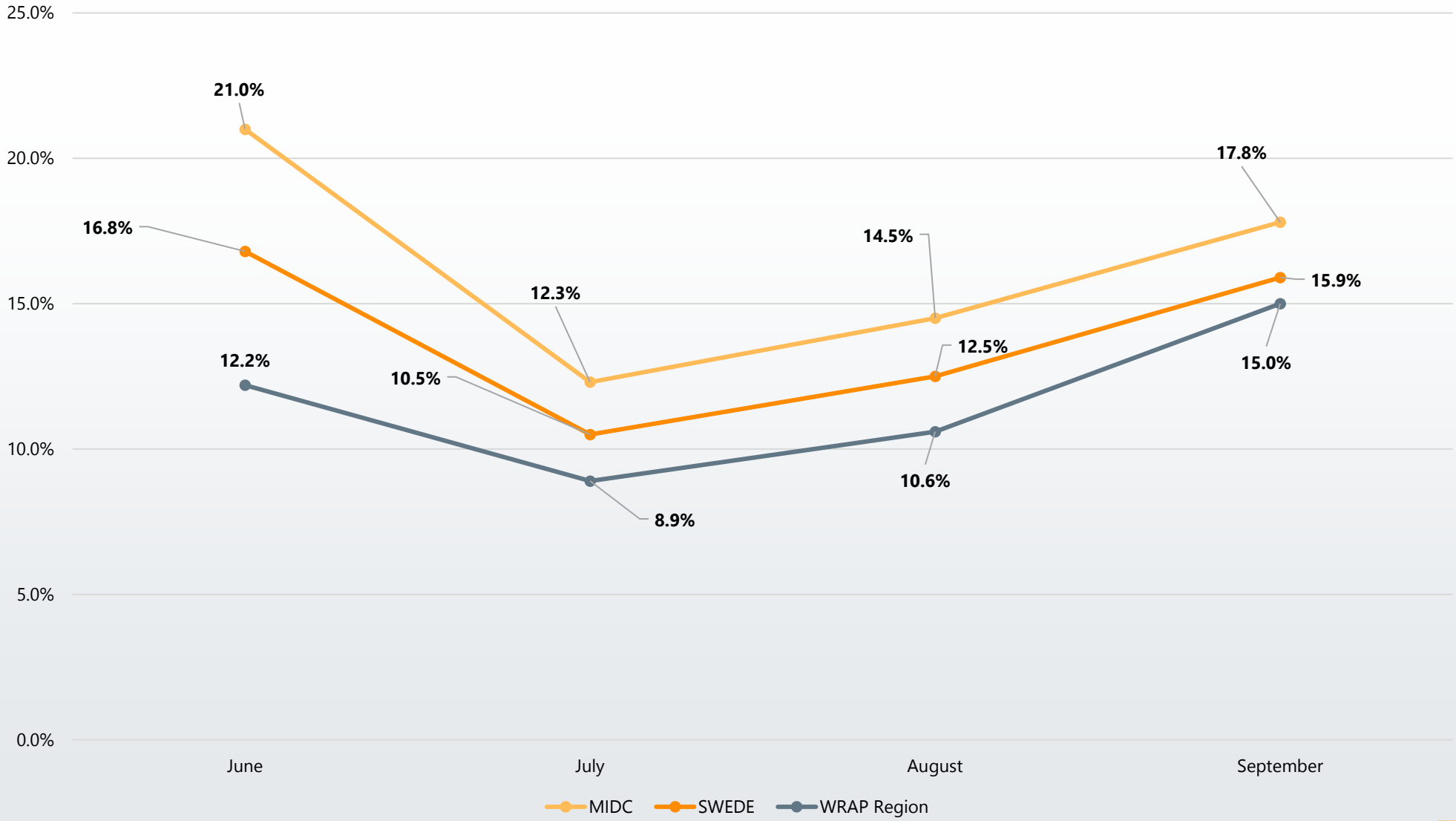
Peak Load



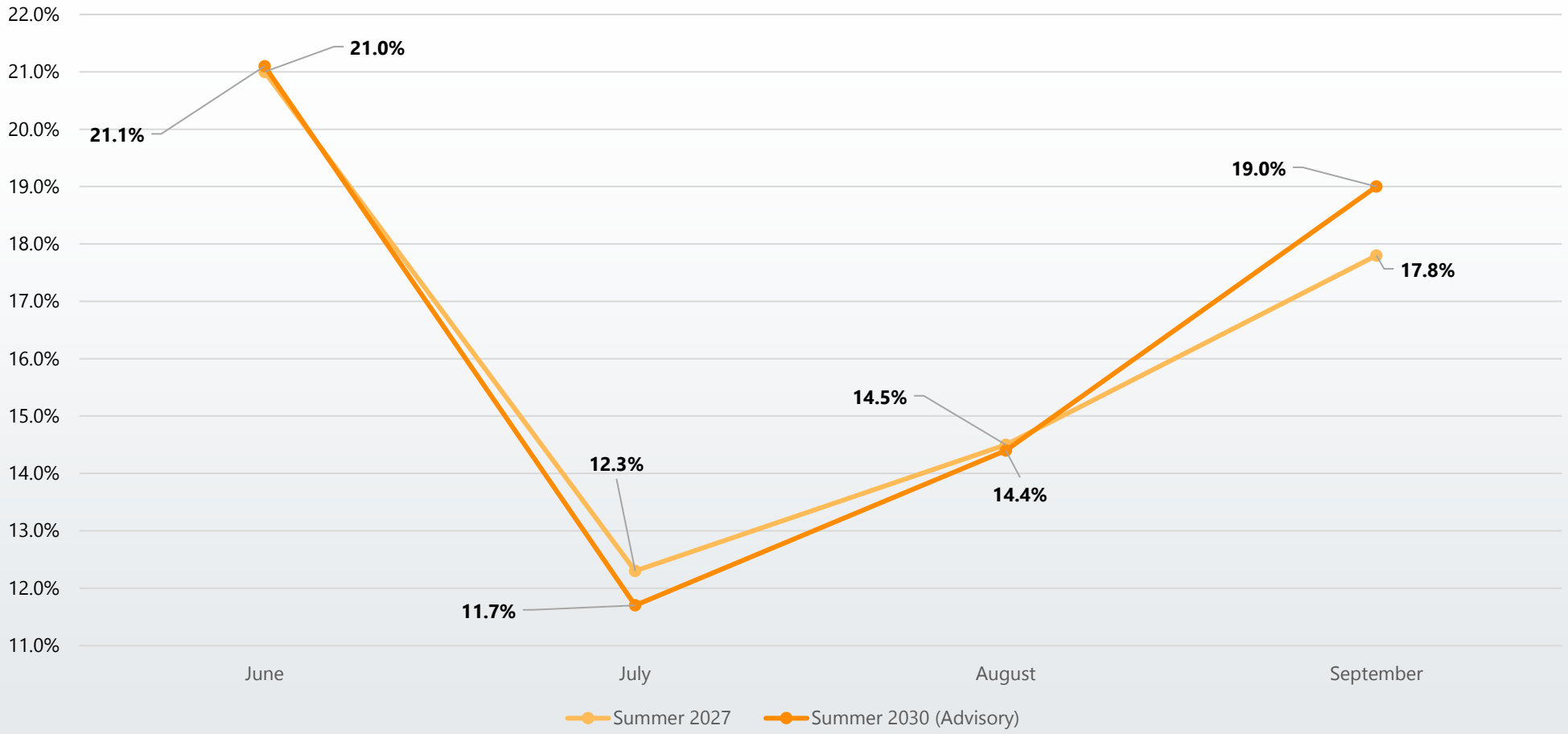
MIDC data labels are above the line, SWEDE data labels are below the line

PRM – Summer 2027



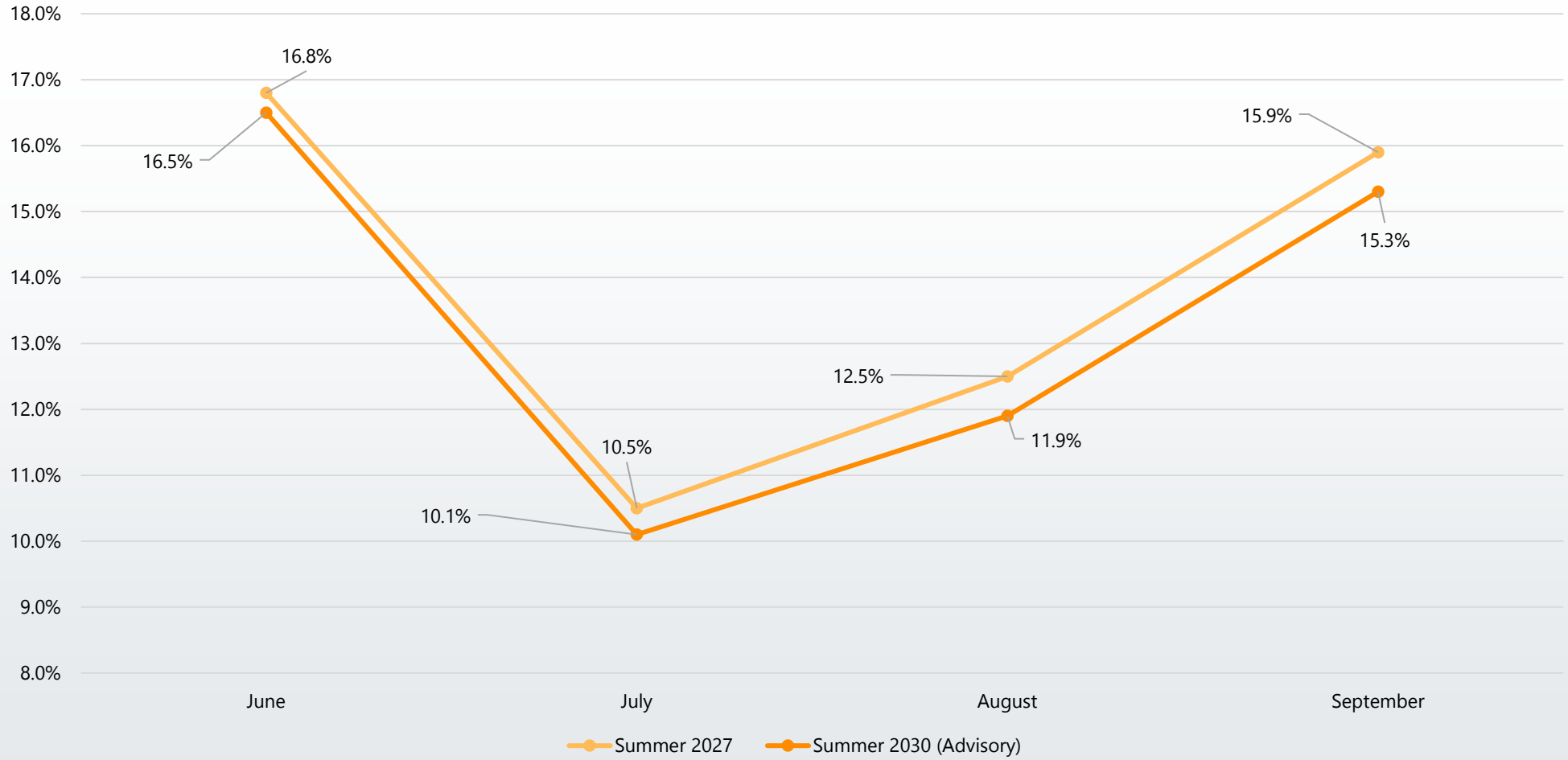
PRM – MIDC SUMMER

2027 AND 2030



PRM – SWEDE SUMMER

2027 AND 2030

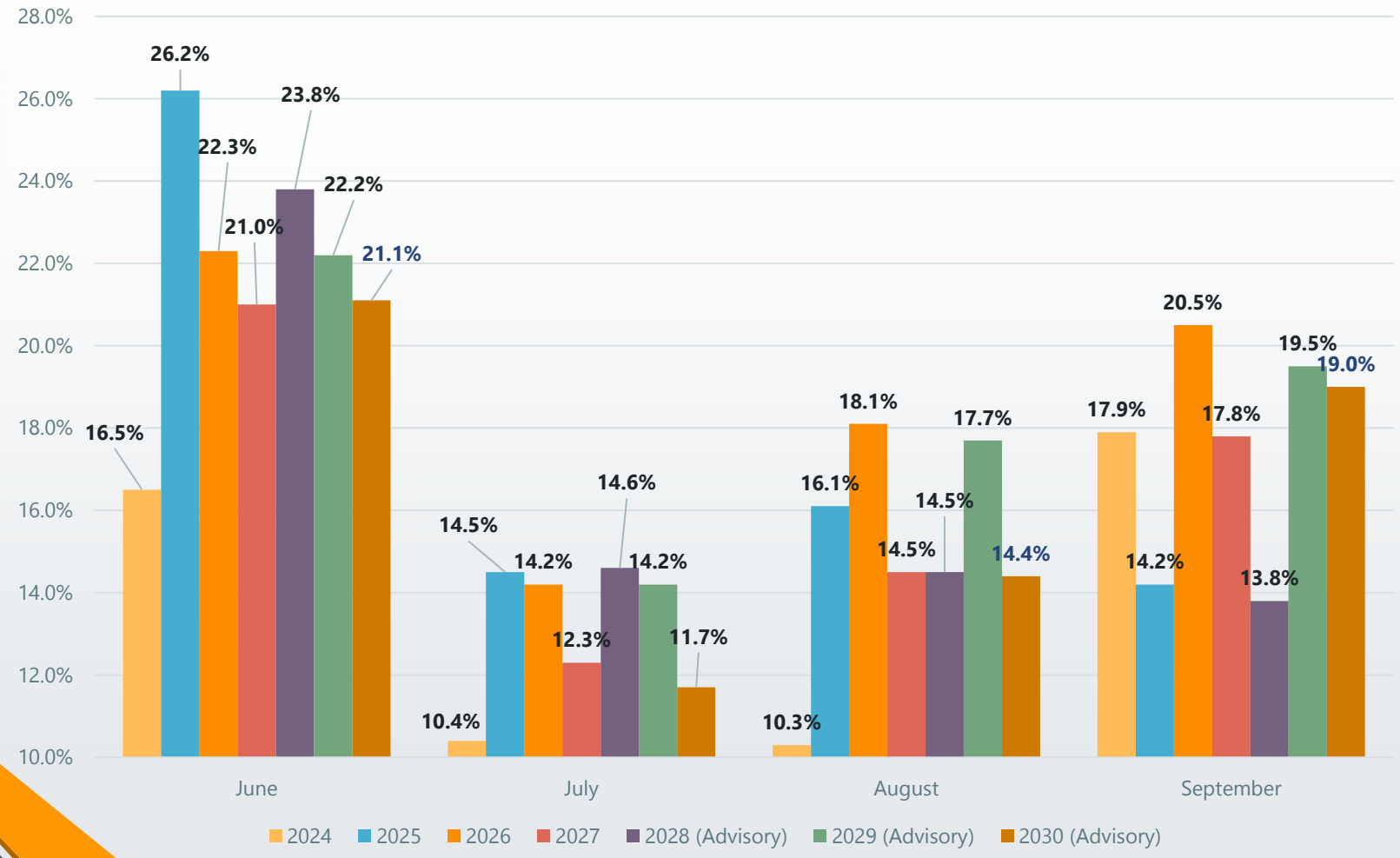


Thank You

For general inquiries: wrap@westernpowerpool.org

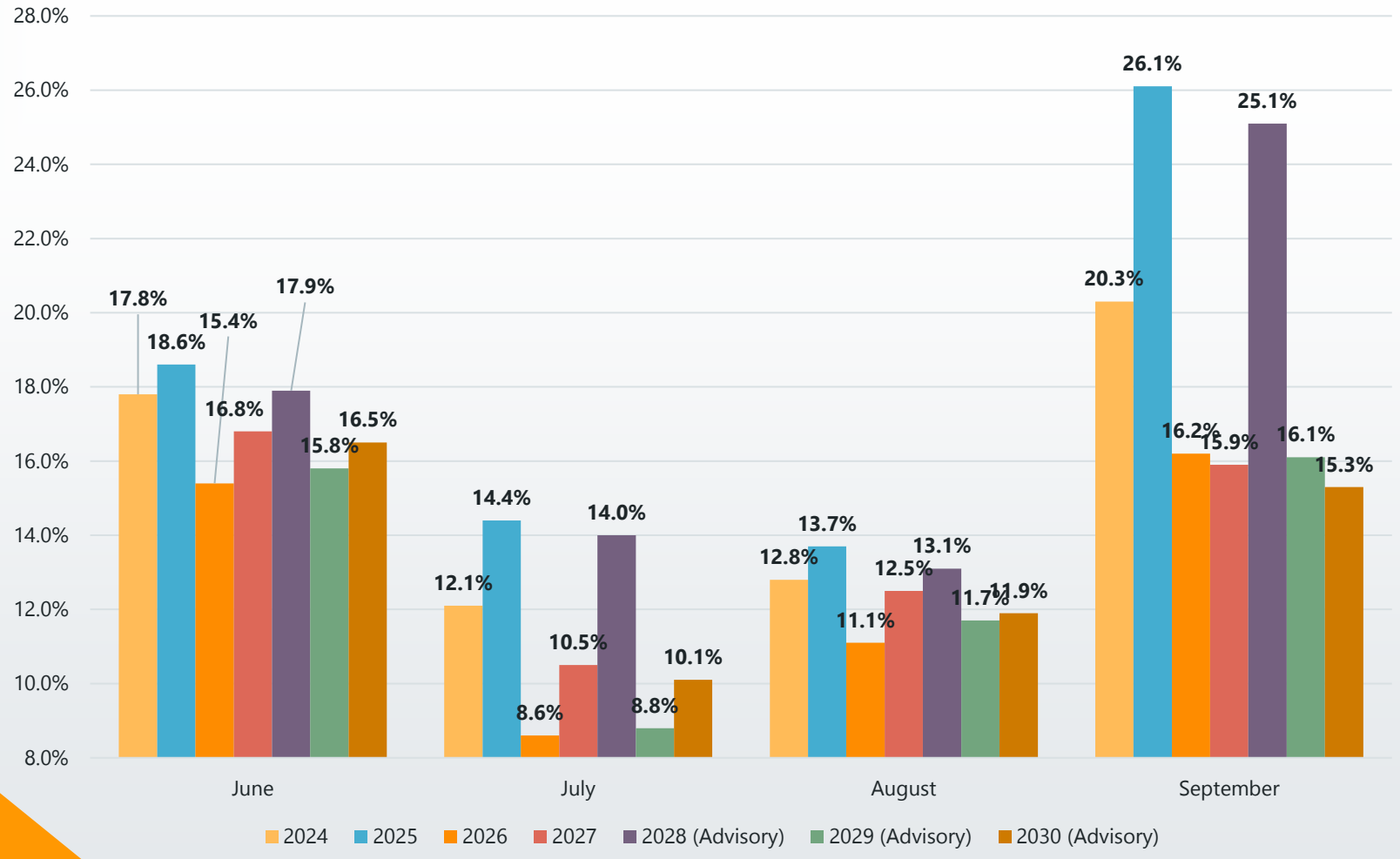
PRM from Additional Summer Seasons

PRMs – MidC Subregion



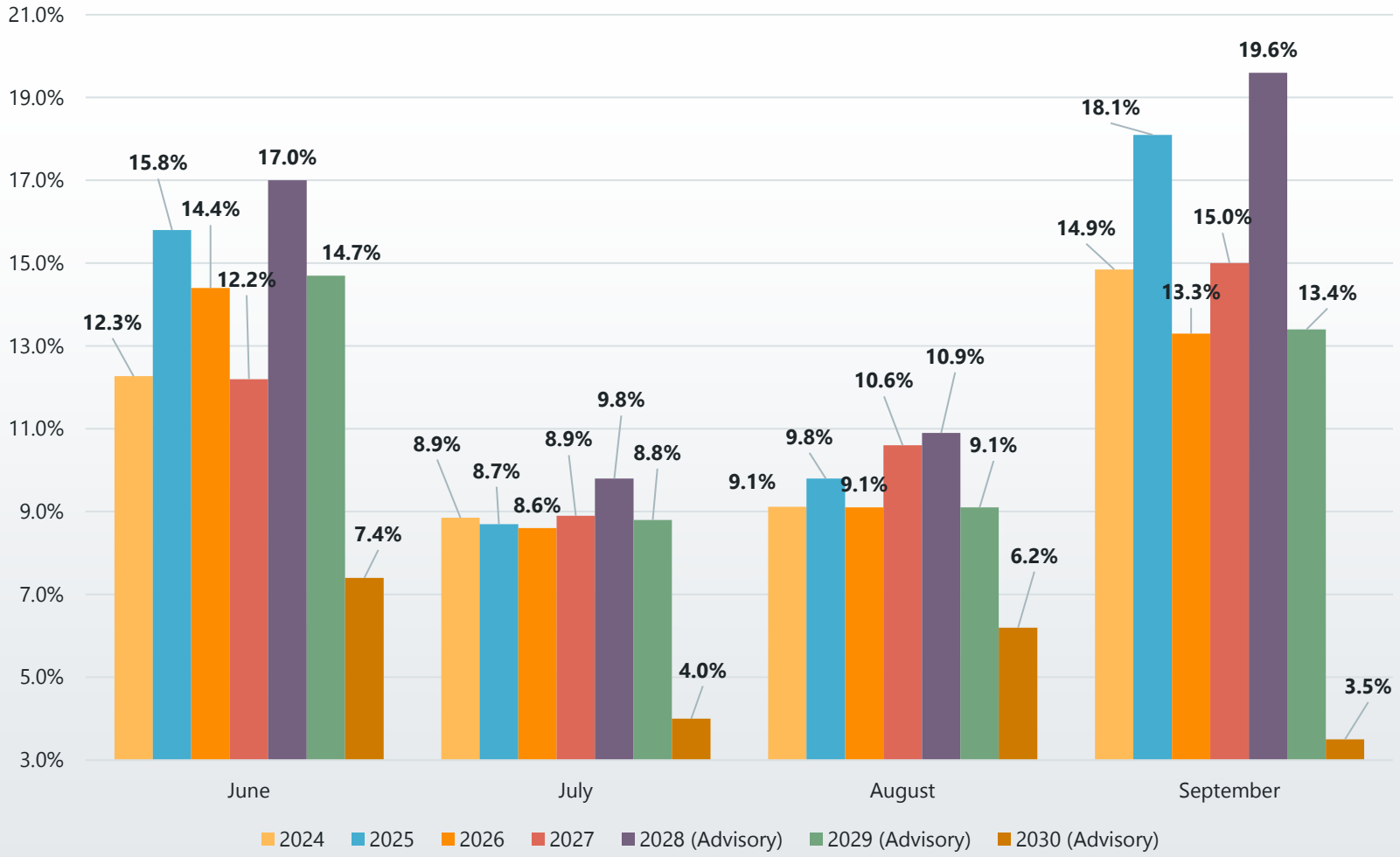
2024 study was done in 2022 with a slightly different footprint and different methodology

PRMs – SWEDE Subregion



- 2024 study was done in 2022 with a slightly different footprint and different methodology
- 2026, 2027, 2029 advisory and 2030 advisory included 500MW of assumed diversity sharing

PRMs – WRAP Region



2024 study was done in 2022 with a slightly different footprint and different methodology