Grid Strategies

A preliminary review of seasonal capacity supply in NERC's 2025 Long-Term Reliability Assessment

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PRELIMINARY ANALYSIS

Questions arising from reviewing NERC's 2025 Long-Term Reliability Assessment (LTRA)

As NERC's 2025 LTRA highlights, reserve margins—the difference between electricity demand and available supply—are tightening across the country.

The data used in the LTRA differs from other data sources. A comparison of those data sources results in different risk assessments for some regions.

- Notably, generation forecast assumptions used in LTRA appear lower than other forecasts

Initial takeaways from a review of the LTRA report data include:

- Tightening reserve margins are driven primarily by demand growth from large loads, like data centers, as well as electrification and other new uses of electricity.
- Numerous supply-side solutions to tightening margins are currently under development
- Permitting and construction delays of supply-side solutions exacerbate reliability risk

Focus of this analysis

The NERC LTRA assesses each region's ability to meet both its future capacity and energy adequacy needs

NERC's Long-Term Reliability Assessment (LTRA) importantly captures potential reliability issues for a snapshot in time. In its 2025 version, NERC identified several regions as either **High** or **Elevated** risk of not being able to meet their future capacity and energy needs.

Seasonal capacity shortfall risk: MISO, PJM, and SERC-Central*

Extreme event energy shortfall risk: MISO, PJM, New England, New York, SERC-East, Basin, Northwest, and ERCOT.

*NERC did not mark SERC-Central as elevated risk despite showing large seasonal shortfalls, while SPP was marked as elevated risk despite having neither seasonal capacity nor extreme event energy shortfalls.

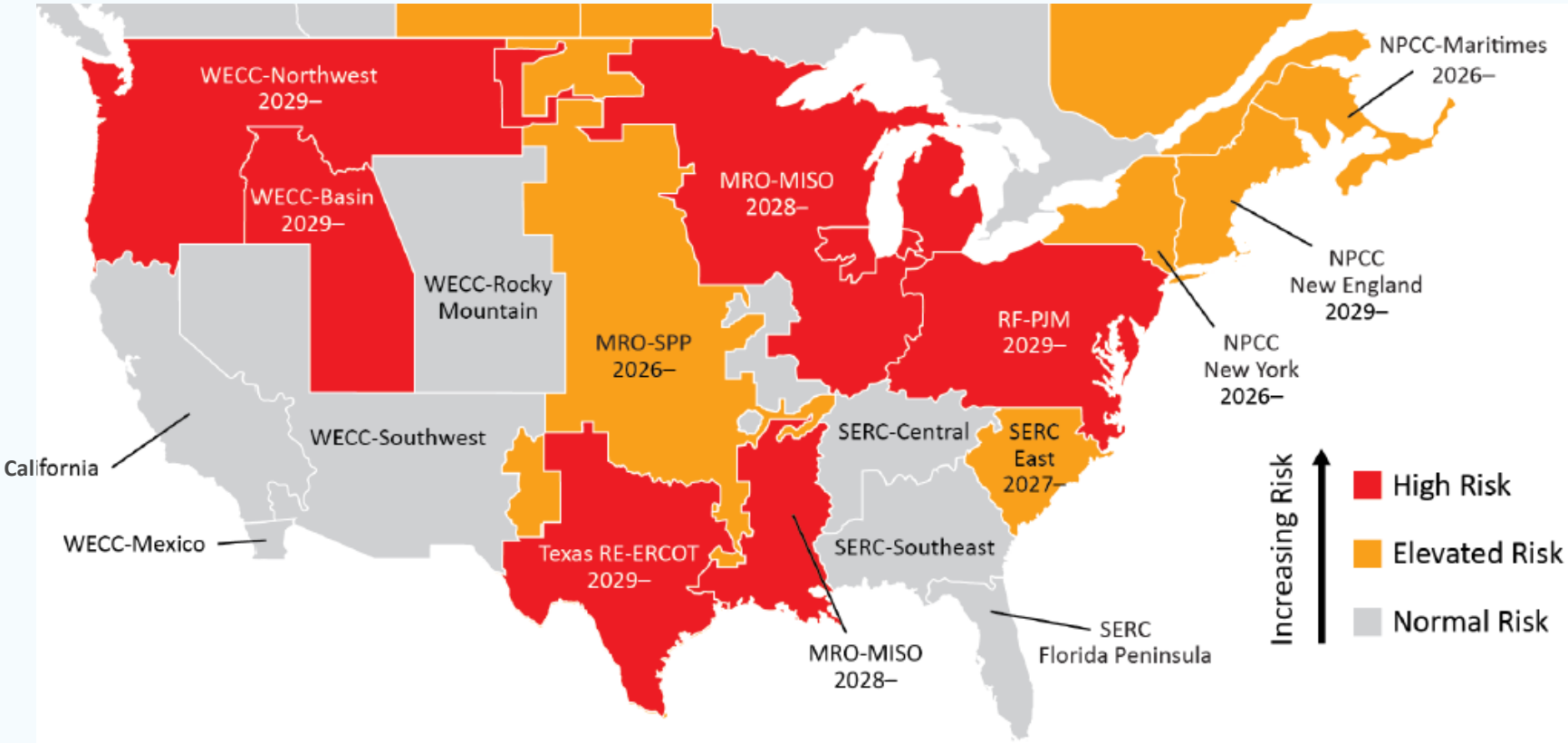


Figure 1: Risk Area Summary 2026–2030
Shows highest risk classification that occurs in the first 5 years and states initial year of occurrence

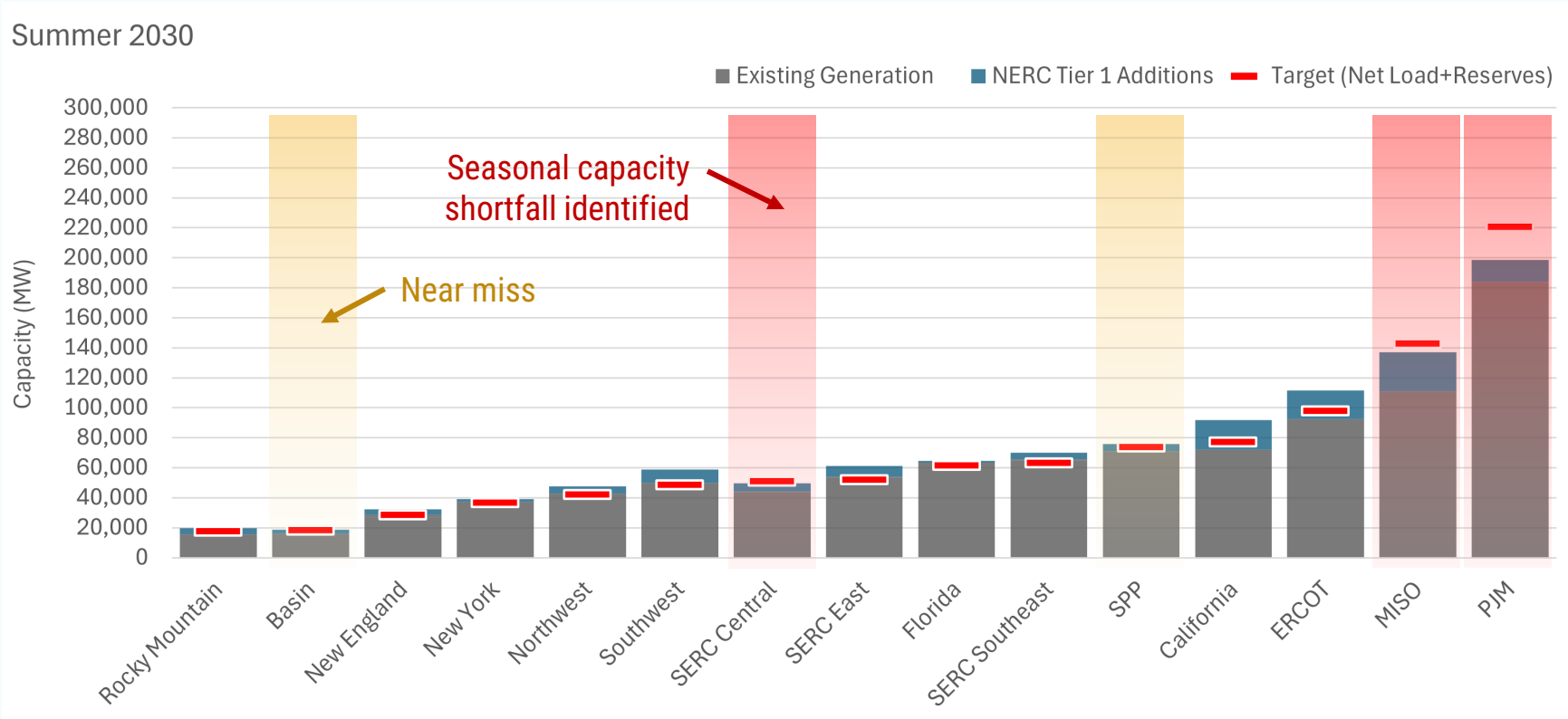
Source: NERC (Jan. 2026) "2025 Electricity Supply & Demand" https://www.nerc.com/programs/reliability-assessment--performance-analysis/electricity-supply--demand

NERC only considers generators with interconnection agreements when determining shortfall risk

All generators must undergo system impact studies to ensure their interconnection will not negatively impact the grid. Generators wait in "interconnection queues" while these studies are performed. Construction can only begin if and when an interconnection agreement (IA) is executed.

NERC considers any generator that has an executed IA as "**Tier 1**" resources.

To be resource adequate, a region must have enough capacity and imports to meet future net load and reserves.



Source: NERC (Jan. 2026) "2025 Electricity Supply & Demand" https://www.nerc.com/programs/reliability-assessment--performance-analysis/electricity-supply--demand

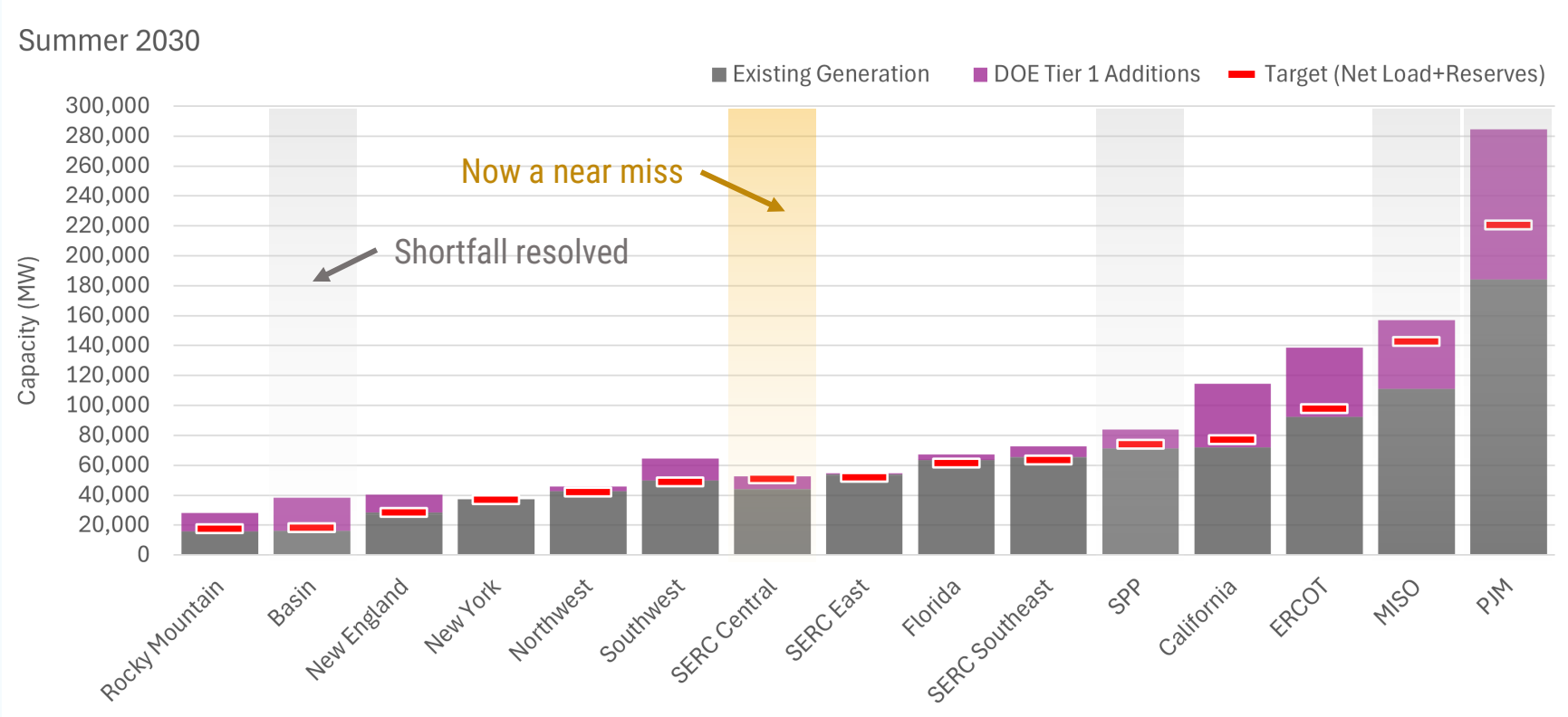
The amount of generation with signed interconnection agreements reported to NERC is lower than that compiled by the U.S. Department of Energy

The Department of Energy (DOE) also tracks interconnection queue data for the entire United States.

The DOE interconnection queue data suggests more **Tier 1** generation capacity is available than is recorded in the NERC LTRA.

According to the DOE data, **there is enough Tier 1 generation capacity to make up the seasonal shortfalls** projected in the 2025 LTRA.

Note: Additional analysis will be done to understand the differences in interconnection queue data reported to NERC vs. that compiled by the DOE.



Existing generation, load, and target reserve data from NERC LTRA. New generation addition data from DOE against the NERC reported targets.

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Source: NERC (Jan. 2026) "2025 Electricity Supply & Demand"; Rand, J. et al. (Aug. 2025) "Interconnection Queue Dataset & Summarized Data Files, through 2024" https://emp.lbl.gov/queues

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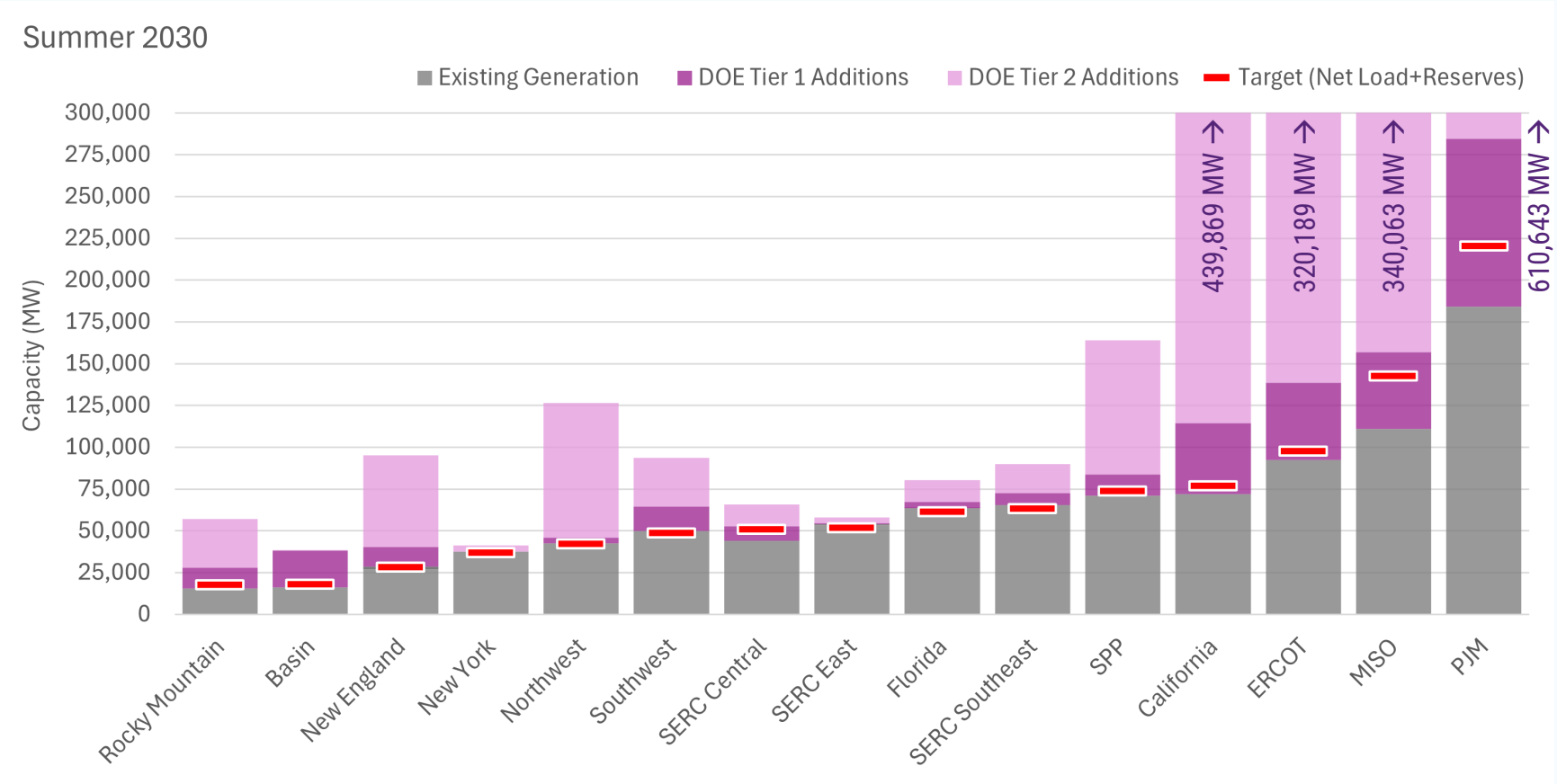
Generation capacity currently being evaluated in the interconnection queues

NERC considers any generator that has begun system studies, but has not yet completed them, to be "**Tier 2**" resources.

According to the DOE, there is more than four times the Tier 2 generation capacity than Tier 1 capacity with planned in-service dates by 2030, nationwide.

Generation currently being studied in the interconnection queues exceeds 2030 net load and reserve targets in each region.



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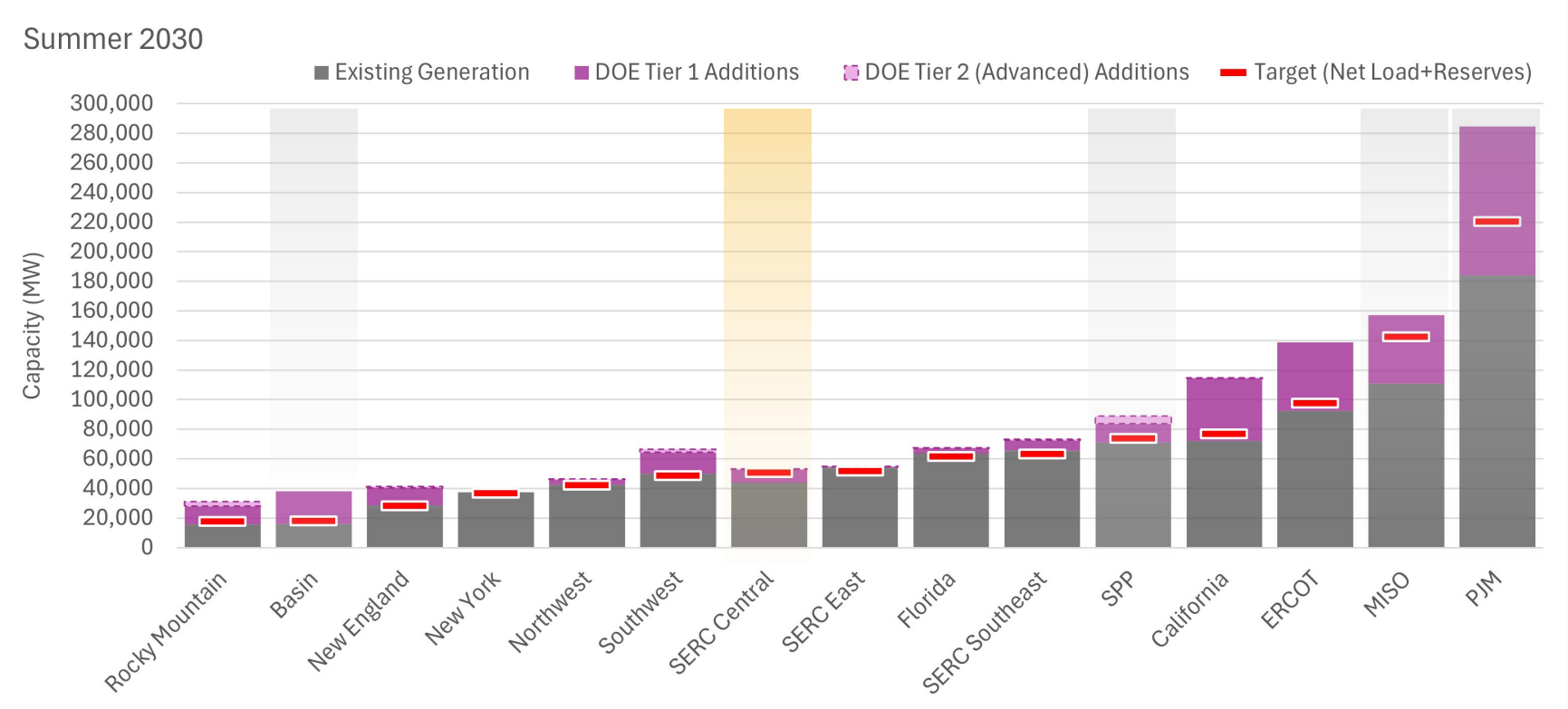
Of course, not all generators currently under evaluation will be constructed. Even so, plenty of Tier 2 generation is likely to be placed in-service by 2030.

Generators in "**advanced**" stages of interconnection queue processes include those undergoing their final facility study or those that have pending, not-yet-signed interconnection agreements.

The combination of Tier 1 and advanced Tier 2 generators provide an extra margin of security against resource inadequacy.

DOE data used here are seasonal accredited (e.g., effective load carrying capability, ELCC) additions. By using accredited capacity, **the additions shown here will help support both seasonal capacity and extreme event energy adequacy**.



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The results of this analysis should not be taken for granted; securing a resource adequate future requires action.
Several options exist to combat the tightening reserve margins:

1. Update demand forecasts to account for realistic analyses of data center growth.
2. Require interconnection queue reforms that accelerate the study processes; shortening the time to interconnection for all resources.
3. Remove unnecessary permitting and construction obstacles for generation resources.
4. Enact and implement reforms—such as FERC Order No. 1920—which require the transmission system to be planned around generation interconnection bottlenecks.
5. Adopt NERC's Interregional Transfer Capability Study recommendations to increase the ability of regions to import excess energy during extreme weather events.