

Western Interconnection System Inertia

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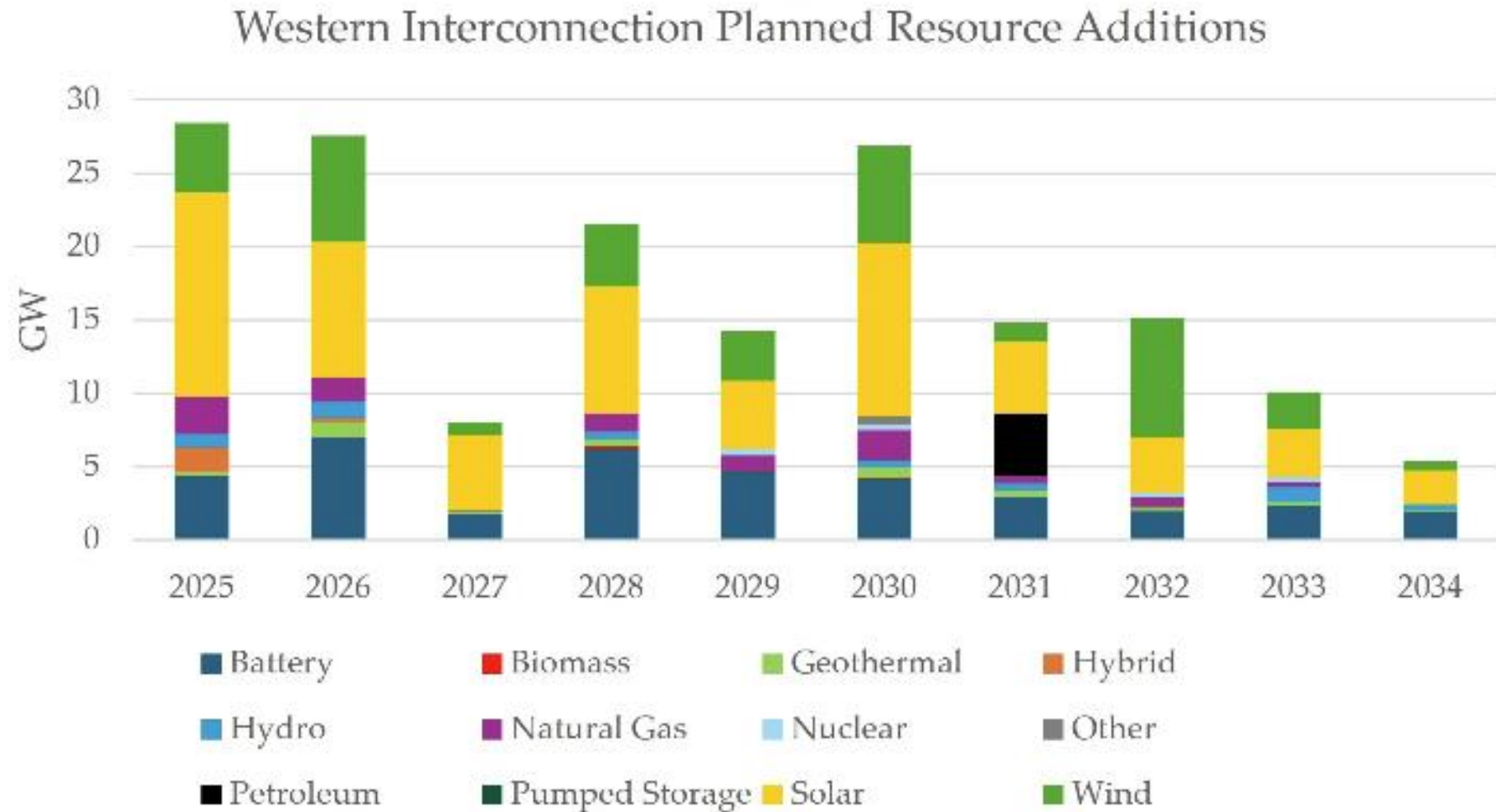
**Electric Reliability
& Security for the West**

October 22–23, 2025

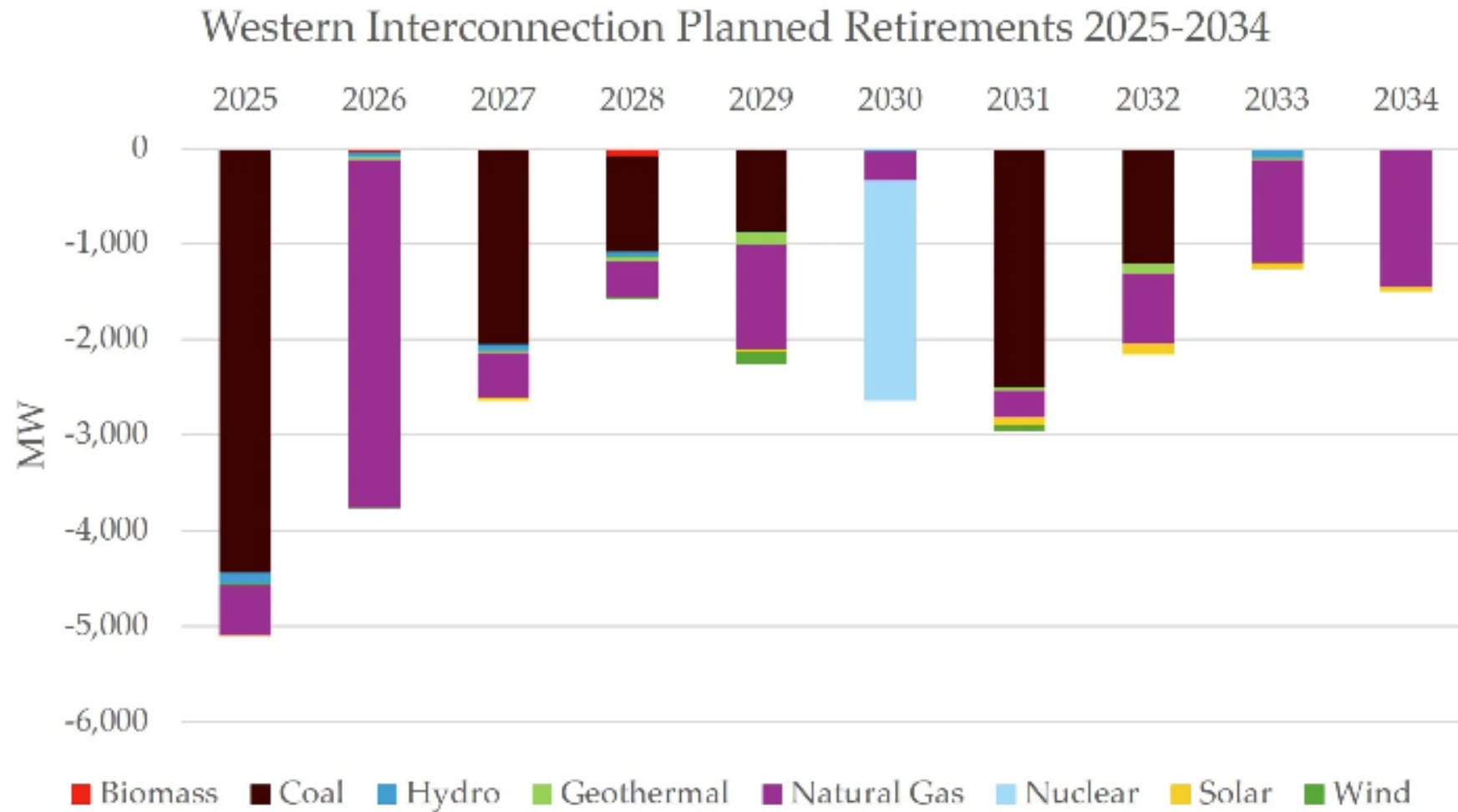
Grid Transformation

- The resource portfolio in the Western Interconnection is in transition
- The current forecasts show a significant shift from synchronous generation to non-synchronous generation in the Western Interconnection from mandates such as Renewable Portfolio Standards, Clean Air Acts, etc.
- Forecasts show in the Western Interconnection substantial retirements for the current synchronous generation fleet (WECC Western Assessment of Resource Adequacy—L&R Data Request)
 - 28.5GW by 2034—which includes baseload generation, such as coal, natural gas, and nuclear
- Forecasts show substantial additions for non-synchronous generation—141 GW (82% of the 172 GW of planned resources in the next 10 years)
 - Solar—35 GW (2023) to 93GW (2034) (increase of 68 GW)
 - Wind—37 GW (2023) to 77GW (2034) (increase of 40GW)
 - Battery Energy Storage System (BESS)—10 GW (2023) to 37 GW (2034)
 - Hybrid—PV/BESS, Wind/BESS

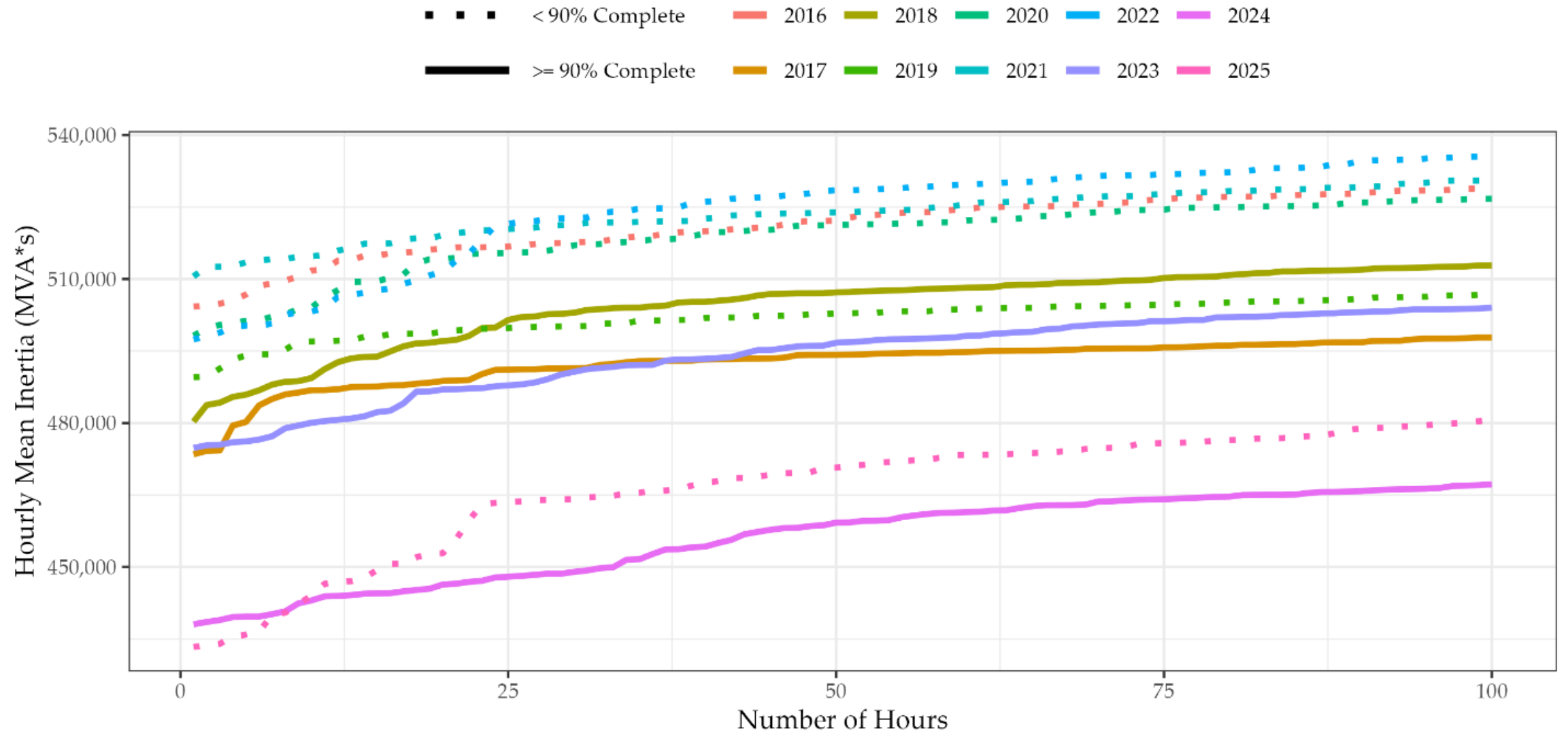
Grid Transformation—Resource Additions



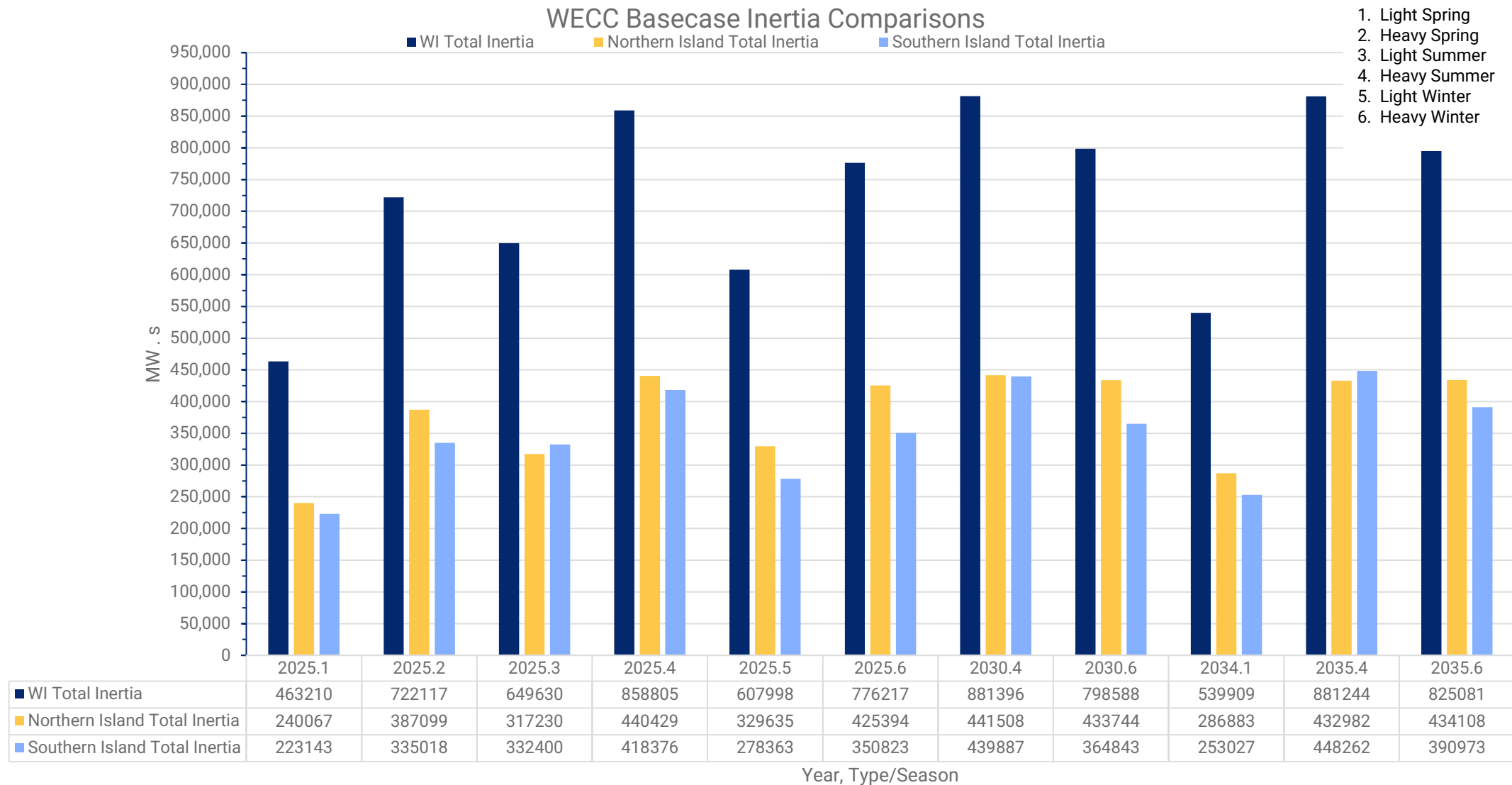
Grid Transformation—Resource Retirements



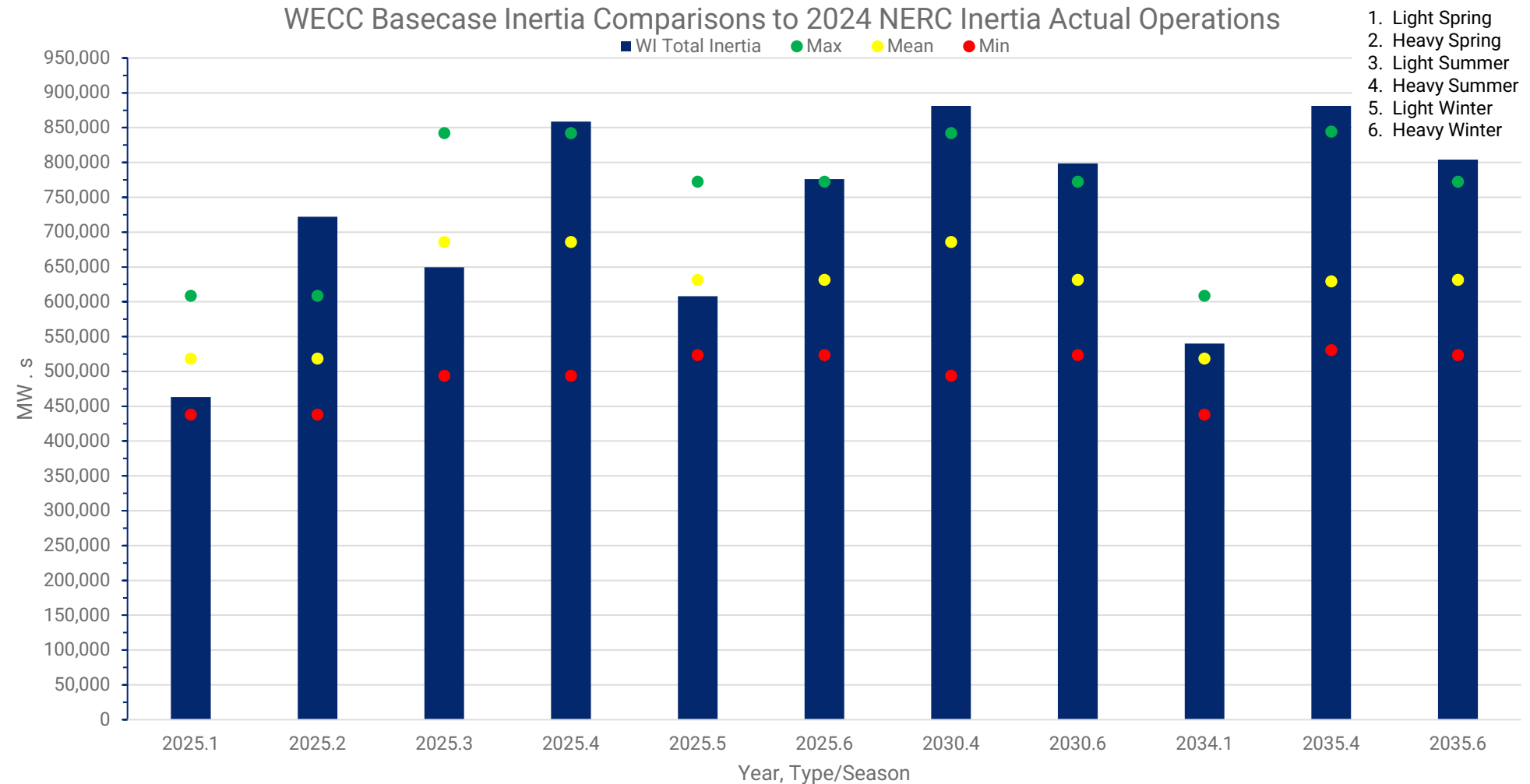
Historical Inertia Levels



Inertia Base case Analysis



Base case comparison to actual Operations

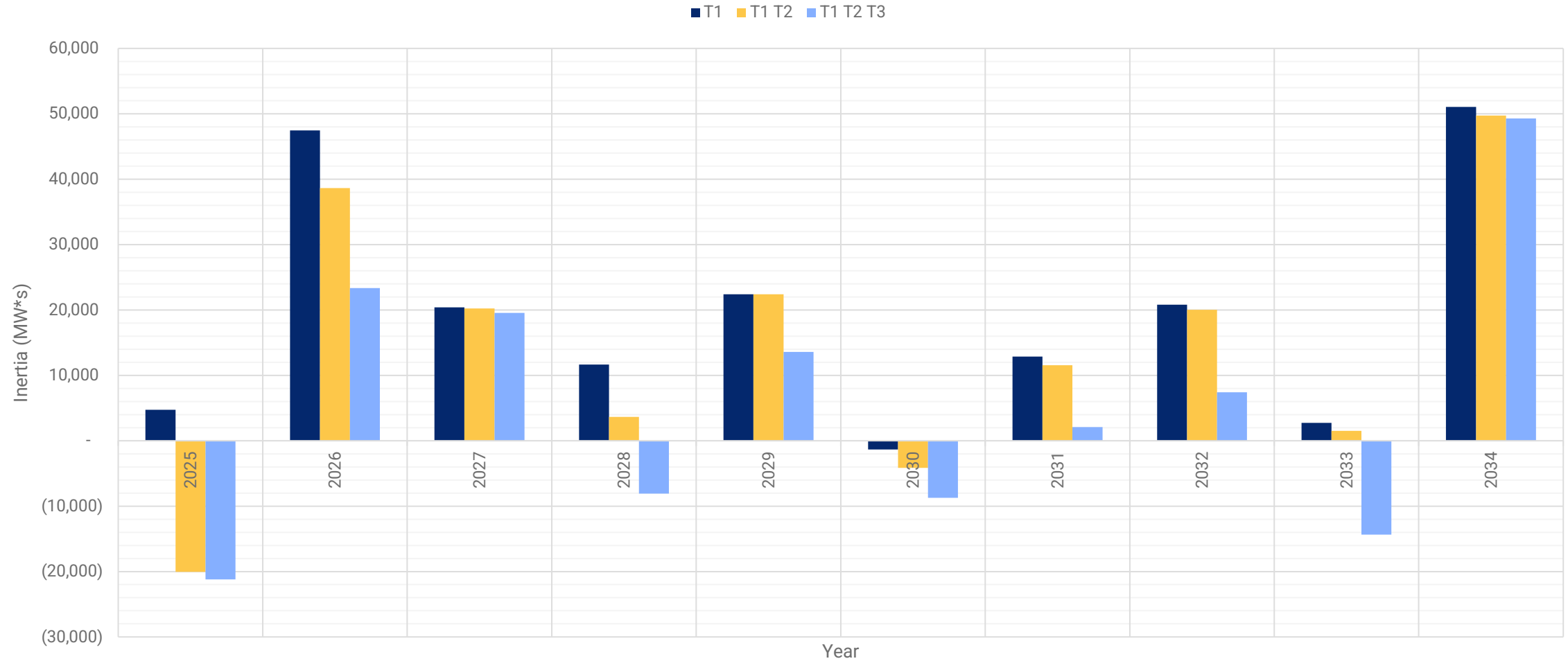


Resource Tier Additions Assumptions

- **Tier 1:** Resources that are under construction and expected to be complete and available for the year being studied.
- **Tier 2:** Resources that are under contract but have yet to begin construction. These resources may be operational by the year being studied.
- **Tier 3 Generic:** Generic placeholder resources that an entity has less certainty about.
- **Tier 3 Specified:** These Tier 3 resources may include capacity, type, and location information, but other unit characteristics and specific commission date are not known, and the project hasn't been started.

Yearly Inertia Reductions

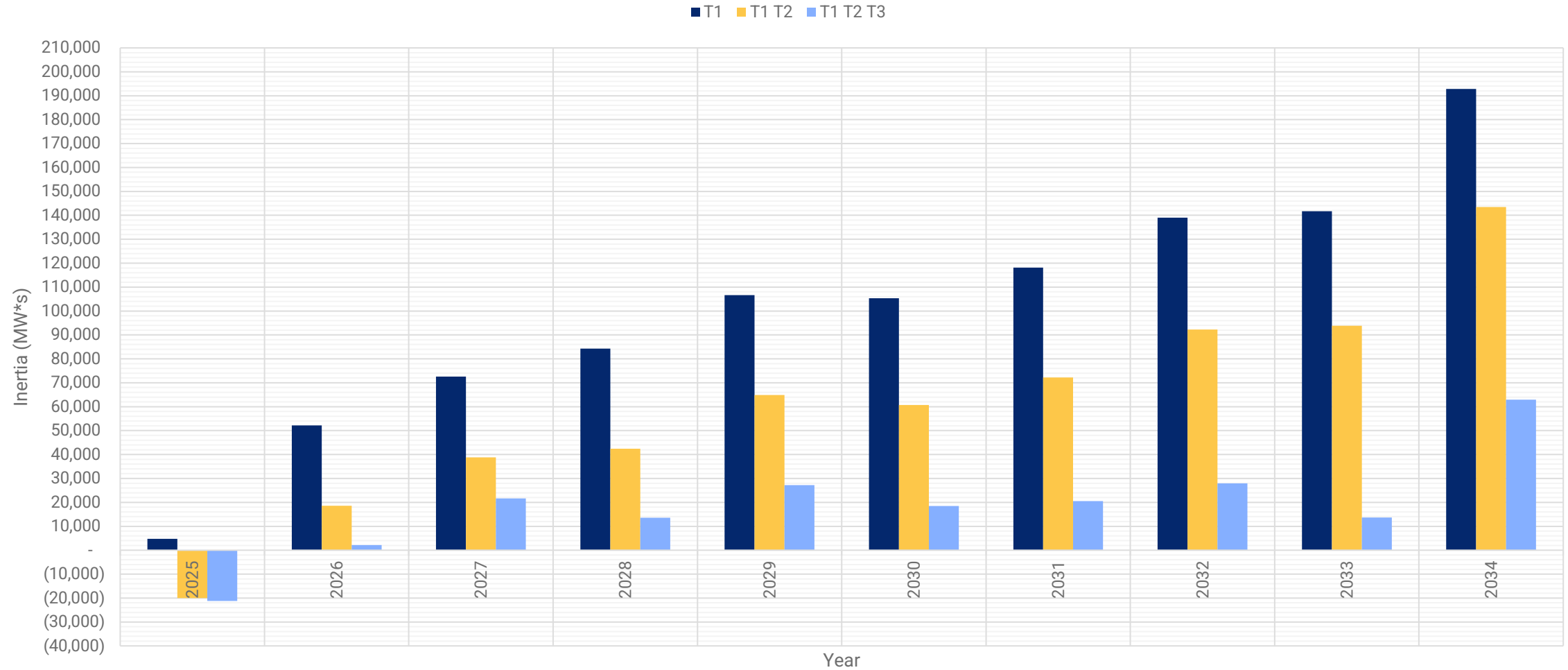
2025–2034 WI Yearly Inertia **Reductions** Based on Forecast Resource Additions & Retirements
(2024 Data Collection)





Yearly Cumulative Inertia Reductions

2025–2034 WI Cumulative Inertia **Reductions** Based on Forecast Resource Additions & Retirements
(2024 Data Collection)



Going Forward

- Proposed RAC Questions:
 - The following questions are for the RAC members:
 - Is this potentially a reliability issue shared by entities?
 - If so, what are the reliability concerns?
 - Do Base Case Modelers work with Resource Planning (L&R Data Submitters)?
 - If not, should they?
 - Should the Resource Planning forecasts match what is submitted in the Base Case?
 - If not, why shouldn't they?
 - What is the approach for representing new resources in Base Cases?
- Follow-up with an email request for responses
- Summary report out at the February 2026 RAC meeting

Thank you

I would be happy to answer any questions or have further discussion.

Reference Documents

- [NERC Fast Frequency Paper](#)
- [PNNL Study on Spinning Machines](#)
- [WECC Grid Strength Study Program Overview](#)
- [WECC's Inertia Study \(2021\)](#)
- [WECC's UFLSRG Study \(2022\)](#)
- [ERCOT Paper on Inertia](#)
- [Spain Paper on PODs](#)



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