Near-Term Reliability Benefits of Retaining Diablo Canyon

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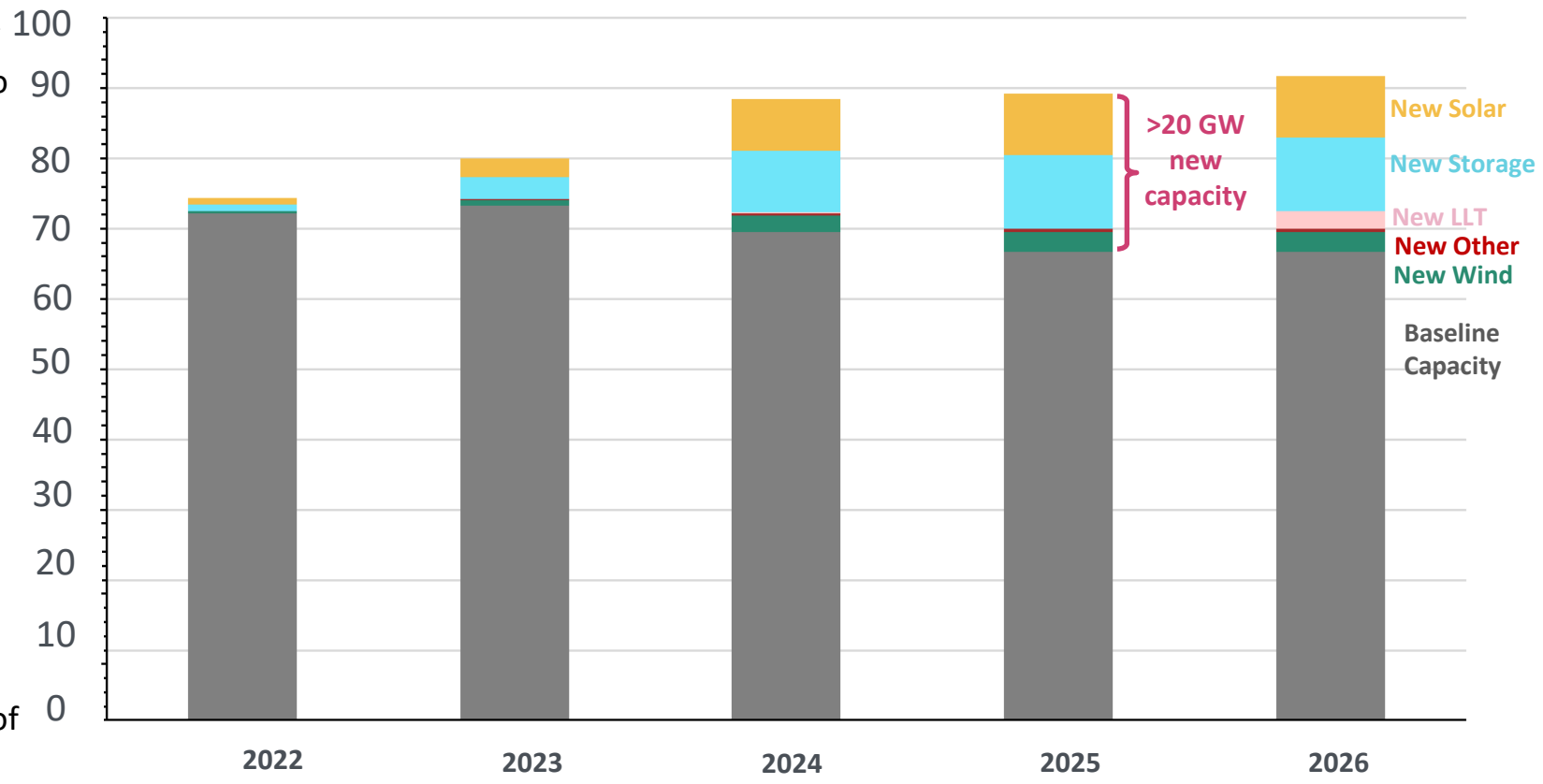
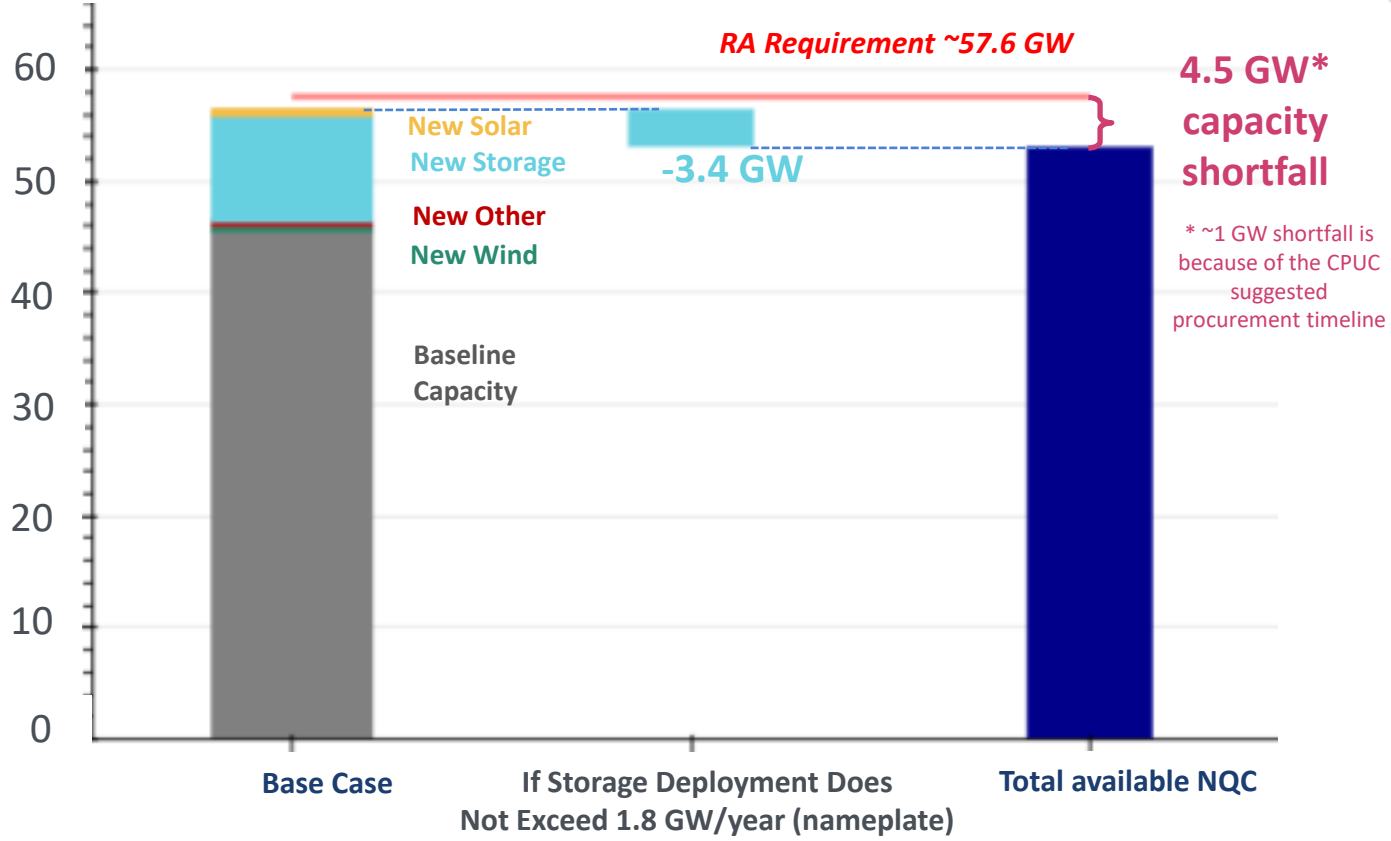
New Resources Needed for Reliability (in nameplate GW)

- The state has analyzed how much capacity is needed to operate reliably under adverse weather scenarios. They determined that a 22.5% reserve margin is needed, and ordered the procurement of **11.5 GW NQC** in the **Mid Term Reliability Report** to meet that need.
- CEC's Midterm Reliability Analysis translates that into **>20GW of new nameplate capacity** over the next 5 years, of resources that are consistent with clean energy goals and can provide that much NQC (net of intermittency and energy limits). This includes
  - >8.7 GW Solar by 2025
  - >10 GW of 4-hr Storage by 2025
  - 2 GW of Long-Lead Time Resources by 2026
- Deploying so much capacity will require siting and interconnecting resources at unprecedented rates, while being challenged by supply chain issues
- The following analysis takes the CEC's assessment of reliability needs and their assumed portfolio to meet that need as a starting point; then examines the impact of potential capacity deployment delays on possible shortages relative to the CEC's assessed need (in NQC terms)



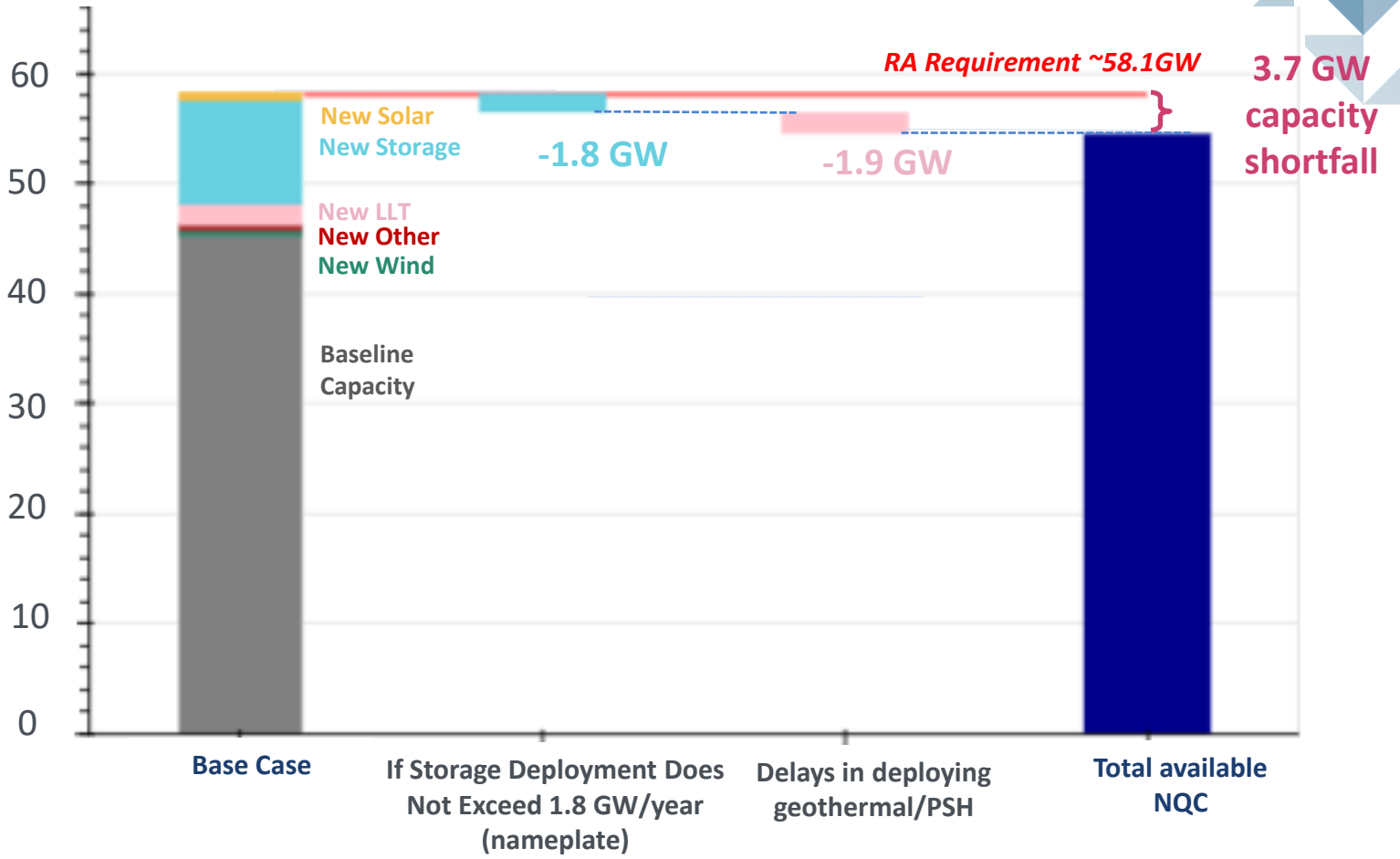
2025 Net Qualifying Capacity (NQC) Supply (in GW)

- **Adequacy depends on adding > 10 GW storage** (nameplate)
  - With max build rate of 6 GW/yr nameplate in 2023
  - But the max historical rate was 1.8 GW in 2021
  - Even this may be optimistic about supply chains
- If no more than 1.8 GW/yr materializes, a **3.4 GW NQC shortfall** could occur
  - This would subject the state to the risk of rolling blackouts in extreme weather (as in August 2020)
  - Could be worse if some events exceed 4 hours
  - Could be worse if PV deployment is limited to recent historical rate of 1 GW; not a large direct effect on NQC but would reduce the value of storage
- Retaining Diablo could reduce the gap by **~2.2 GW**
  - During the September peak (Base Case assumes both units of Diablo retire by August 26th, 2025 as planned)



2026 Net Qualifying Capacity (NQC) Supply (in GW)

- **Achieving adequacy in 2026** further assumes **1 GW each** of geothermal and pumped storage
  - Having 1 GW new PSH online by 2026 is extremely optimistic given permitting challenges and construction timelines
  - No large geothermal projects are yet in the CAISO queue or under development, and would take several years to develop
- If these do not materialize by 2026 and battery deployment is limited to 1.8 GW/yr, **a shortfall of 3.7 GW** could occur; if only one of them materializes, the state faces a shortfall of approximately 2 GW
- Retaining Diablo could cut the shortfall **in half** and could eliminate it entirely, if only one of the two issues occur
  - This does not account for additional capacity that could be retained or added via the recently established strategic electricity reliability reserve fund at a cost; thus retaining Diablo would help maintain reliability even if it is not be the *only* way to maintain reliability
  - But retaining Diablo provides additional benefits of helping California reliably meet its long-term clean energy goals, while reducing cumulative emissions by 40 MMT through 2032 and of saving over $4 billion through 2045.[1]
  - *Note:* the MTR discusses possible extensions to 2028 for Geo and PSH resources, but the state would suffer reserve margins below the 22.5% target in the meantime, that Diablo could fill



[1]S. Newell, W. Chang, D. Murphy and R. Sreenath, *Retaining Diablo Canyon: Economic, Carbon, and Reliability Implications*, presented to Carbon Free California, June 9 2022