

# Near-Term Resource Adequacy Benefits of Retaining Diablo Canyon

## PRESENTED BY

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## PRESENTED TO

The California Senate  
Committee on Energy,  
Utilities and Communications  
*Subcommittee on Clean Energy  
Future*

## PREPARED FOR

Policy Impact on behalf of  
Carbon Free California

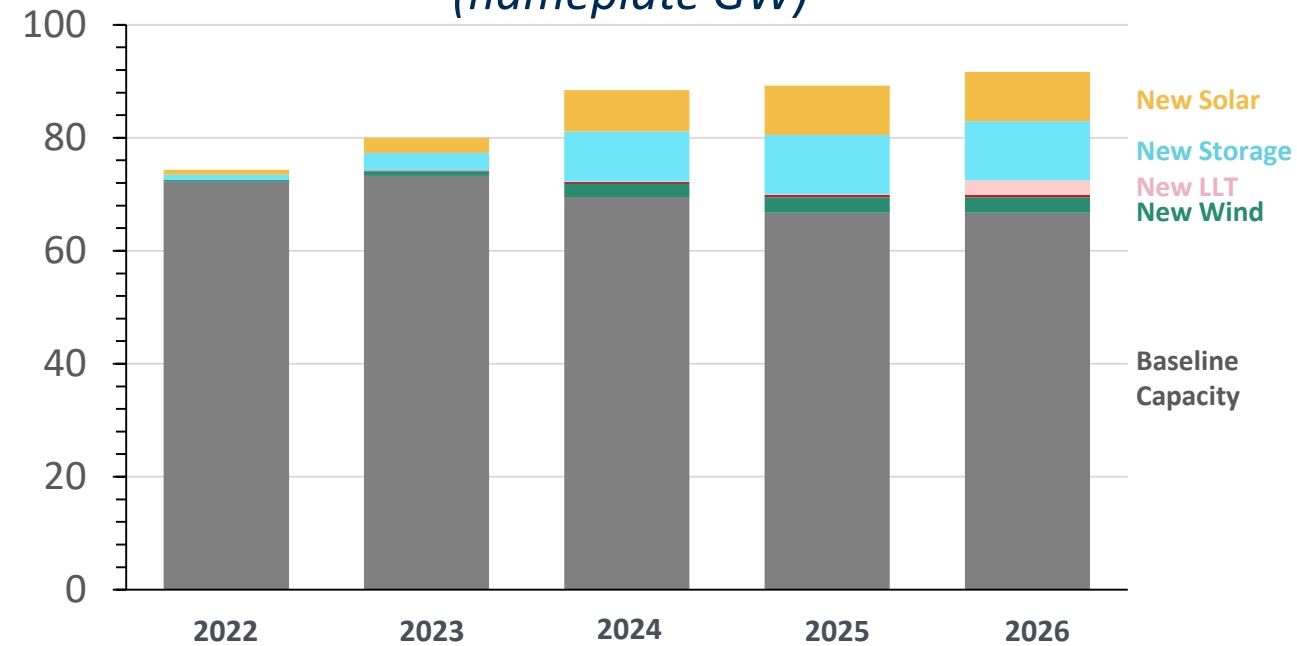
AUGUST 9, 2022



# California Will Need Many New Resources for Reliability

- The CPUC determined that a **22.5% reserve margin is needed** to operate reliably under adverse conditions
- To meet that, they ordered the procurement of **11.5 GW Net Qualifying Capacity (NQC)**
- CEC's Midterm Reliability Analysis translates that into **>20GW of new nameplate capacity** over the next 5 years, of resources consistent with clean energy goals:
  - >8.7 GW Solar by 2025
  - >10 GW of 4-hr Storage by 2025
  - 2 GW of Long-Lead Time Resources by 2026
- Our analysis takes the above as a goal and...
  - Recognizes that deploying so much capacity will require siting and interconnecting resources at unprecedented rates; and supply chain issues may continue
  - Examines the impact of potential deployment delays on the ability to meet the 22.5% RM

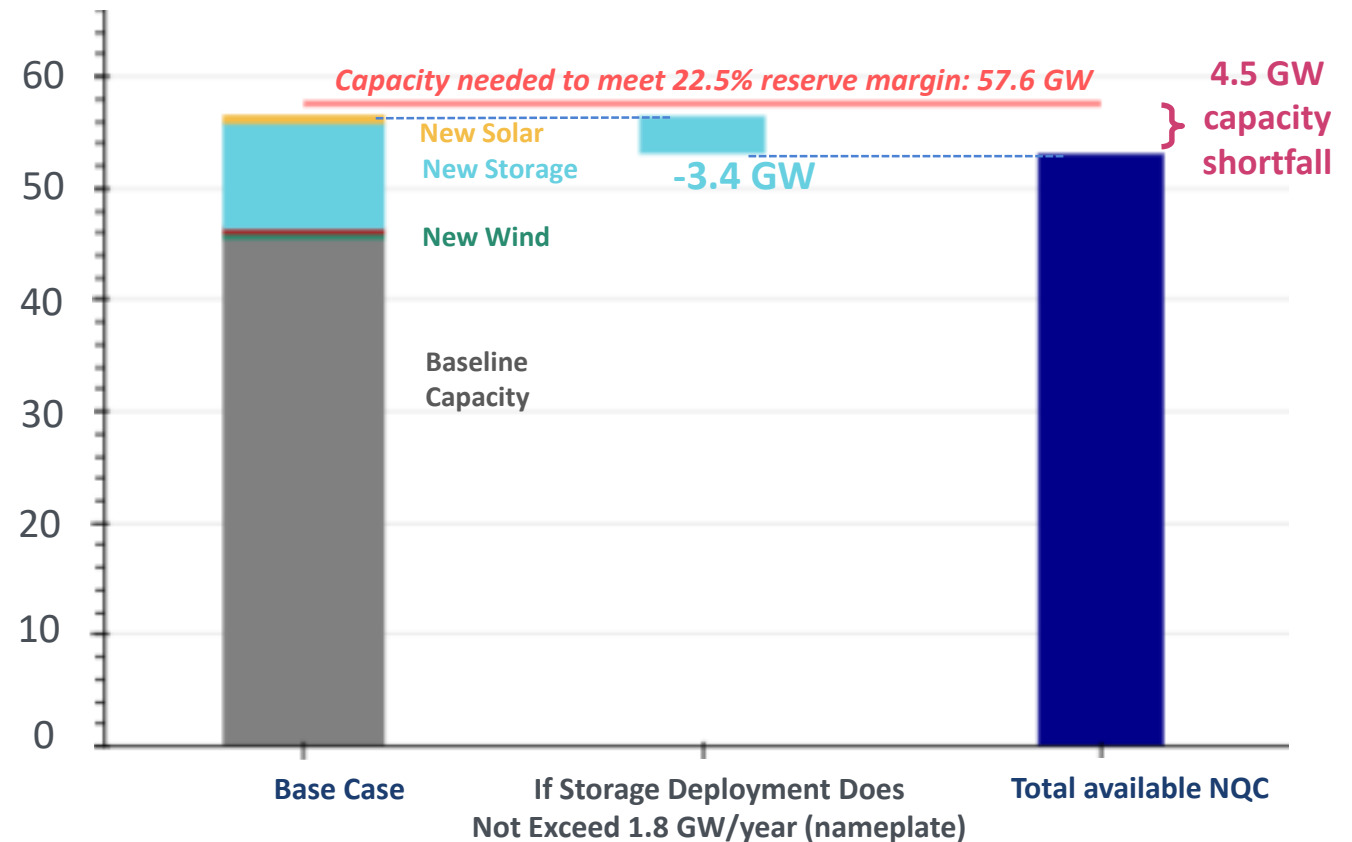
**New Resources Needed for Resource Adequacy**  
(nameplate GW)



# But Possible Delays in Storage Deployment Could Expose the State to Shortages in 2025 that Diablo Could Mitigate

- **Adequacy depends on adding > 10 GW storage** (nameplate capacity)
  - With max build rate of 6 GW/yr in 2023
  - But the max historical rate was 1.8 GW in 2021
  - Even this may be optimistic with tight supply chains
- If no more than 1.8 GW/yr materializes, a **4.5 GW NQC shortfall** could occur by 2025
  - This could risk rolling blackouts in extreme weather
  - Could be worse if some events exceed 4 hours
  - Could be worse if PV deployment is limited to recent rate of 1 GW; would reduce the value of storage
- **Retaining Diablo could reduce the gap by 2.2 GW**
  - For the September peak (Base Case assumes the Diablo unit retires by August 26th, 2025 as planned)

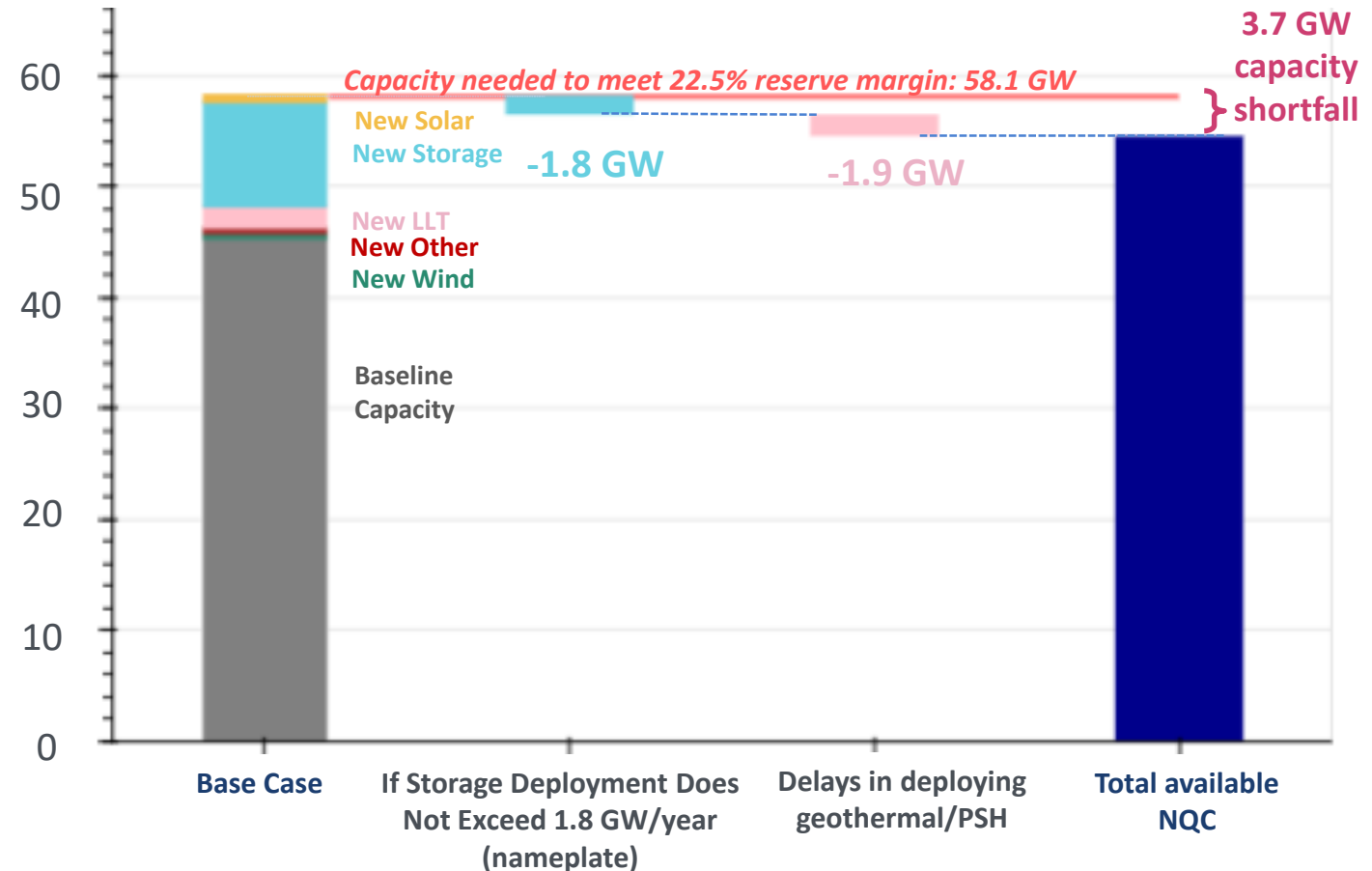
**2025 Net Qualifying Capacity (GW)**



# Retaining Diablo Could also Mitigate Shortages in 2026 from Possible Delays in Deploying Geothermal and Pumped Storage

- **Adequacy in 2026 further depends on 1 GW each of new geothermal and pumped storage**
  - Extremely optimistic given permitting challenges and construction timelines for pumped storage
  - No large geo projects are in the queue or under development; would take several years to develop
- If these fail to materialize by 2026 and batteries are limited to 1.8 GW/yr, **a shortfall of 3.7 GW** could occur (or 2 GW if only one of these occurs)
- **Retaining Diablo could cut the shortfall in half**
  - Or eliminate it if only one of the two issues occur
  - Diablo will also help California reliably meet its long-term clean energy goals, reduce cumulative CO<sub>2</sub> emissions by 40 MMT through 2032, and save over \$4 billion NPV through 2045<sup>1</sup>

## 2026 Net Qualifying Capacity (GW)



<sup>1</sup>S. Newell, W. Chang, D. Murphy and R. Sreenath, [Retaining Diablo Canyon: Economic, Carbon, and Reliability Implications](#), on behalf of Carbon Free California, June 9 2022

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