DOCKETED	
Docket Number:	21-BUSMTG-01
Project Title:	Business Meeting Agendas, Transcripts, Minutes, and Public Comments
TN #:	239888
Document Title:	Presentation - September 30 2021 Business Meeting
Description:	**********THIS SUPERSEDES TN #239873**********
Filer:	Dorothy Murimi
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	9/30/2021 1:06:34 PM
Docketed Date:	9/30/2021

California Energy Commission
Business Meeting
September 30, 2021
10:00 a.m.

Pledge of Allegiance

I pledge allegiance to the Flag
of the United States of America,
and to the Republic for which it stands,
one Nation under God, indivisible,
with liberty and justice for all.

Get vaccinated. Wear a Mask.

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- To comment:
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When called upon:

- Public Advisor will open your line
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Item 1: Consent Calendar

a. United States Department of Defense (DOD) Office of Local Defense Community Cooperation (OLDCC). Contact: Eli Harland

Item 2: 2022 Update to Title 24, Part 11 - CALGreen, and Parts 2, 2.5, 3, 4, 5

September 30, 2021 Business Meeting

Danuta Drozdowicz, Efficiency Specialist
Danny Tam, Mechanical Engineer
Efficiency Division, Building Standards Office

History, Process & Agency Authority

Nonresidential

Residential

Energy

California Green Building Standards Code - Part 11, Title 24 - CALGreen:

- AB 32 2007 greenhouse gas reduction goals
- Buildings – 2nd largest greenhouse gas producers
- First in the nation green building code
- Mandatory code with voluntary provisions
- Reviewed and updated every 3 years

Hospitals & Institutions

Schools

Energy Efficiency Requirements

Mandatory requirements

- Meet energy code - Part 6

Voluntary requirements

- Choose from menu of prerequisite options
- Meet EDR target for their climate zone (CZ)

Benefits to Californians

CALGreen:

- Readymade template for jurisdictions choosing to exceed Part 6
- Signals future energy code direction
- Supports local jurisdiction greenhouse gas emissions reductions

Overview of Proposed CALGreen 2022 Energy Updates:

Exclusive to Part 11 – Voluntary Residential Appendix (A4) for Single Family Buildings

- Expand prerequisite options menu
- Simplify energy design rating (EDR) requirements

Clarify code language – 'Nonsubstantive Pointers' in Parts 2, 2.5, 3, 4, 5 and clarification in Voluntary Nonresidential Appendix (A5)

Part 11 Updates - Process

- CEC staff worked with a variety of stakeholders
- Comprehensive CASE team report
- Staff proposed residential prerequisite options and revised EDR targets
- July 26 and August 6 lead commissioner public hearings
- 45-Day and15-Day public comment periods

Part 11 Prerequisite Options

Two options to be selected:

Existing:

1) Roof deck insulation or ducts in conditioned space
2) High performance walls
3) Compact hot water distribution system
4) Drain water heat recovery

New:

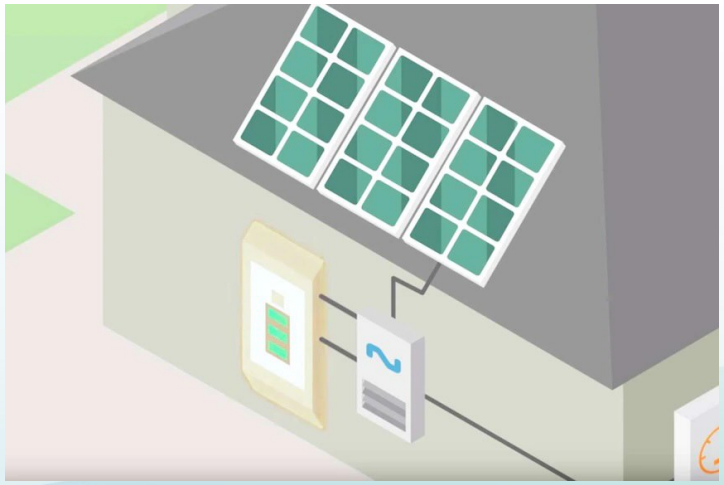
1) High performance vertical fenestration
2) Heat pump water heater demand management
3) Battery storage system controls
4) Heat pump space and water heating

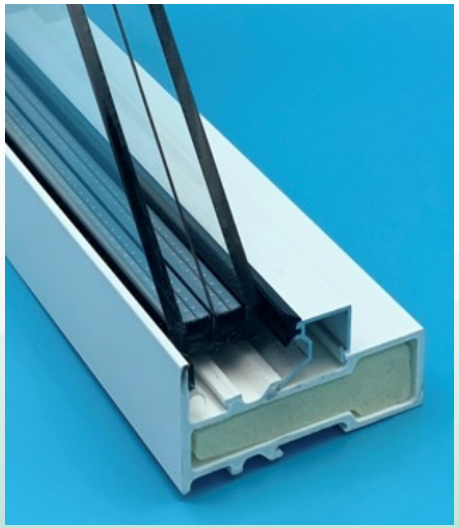
Energy Design Rating (EDR)

- Updated EDR targets for single family to reflect Part 6 changes
- Simplified EDR targets to single Tier instead of separate Tier 1 and Tier 2
- Proposed margins based on hourly source energy

Ways to Meet New EDR Targets

1) Heat pump space heater plus heat pump water heater together
2) Battery storage system
3) Triple pane windows in certain climate zones





Greenhouse Gas Impact

Average CO_2e reduction of 0.20 mTons/yr per single family building beyond 2022 Energy Code

- Equivalent to removing 2,600 cars for first year

Total Part 6 and 11 single family building CO_2e reduction impact:

- Equivalent to removing 8,000 cars for first year

Nonsubstantive Pointers

- Add informative language (“pointers”) to Parts 2 – 5 to building systems and equipment that are also subject to efficiency standards.
- These pointers are not considered substantive because underlying standard applies regardless of informative language.

Staff Recommendation

- Adopt finding that proposed amendments to Title 24, Part 11, Residential Appendix A4 and Nonresidential Appendix A5 of 2022 California Green Building Standards Code, and modifications to Parts 2, 2.5, 3, 4 & 5 are exempt from CEQA
- Adopt Title 24, Part 11, Residential Appendix A4 and Nonresidential Appendix A5 of 2022 California Green Building Standards Code and modifications to Parts 2, 2.5, 3, 4 & 5

Thank You

Efficiency Division:
Amber Beck
Payam Bozorgchami
Christine Collopy
Danuta Drozdowicz
Corrine Fishman
Tajanee Ford-Whelan
Bill Pennington
Mazi Shirakh
Michael Sokol
Peter Strait
Danny Tam
Mary Trojan
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Chief Counsel's Office:
Linda Barrera
Matt Chalmers
Joseph Crosby
Justin Derlacruz
Michael Murza
James Qaqundah

Item 3: California ISO update on major initiatives

September 30, 2021 Business Meeting

Elliott Mainzer
President and Chief Executive Officer
California Independent System Operator (CAISO)

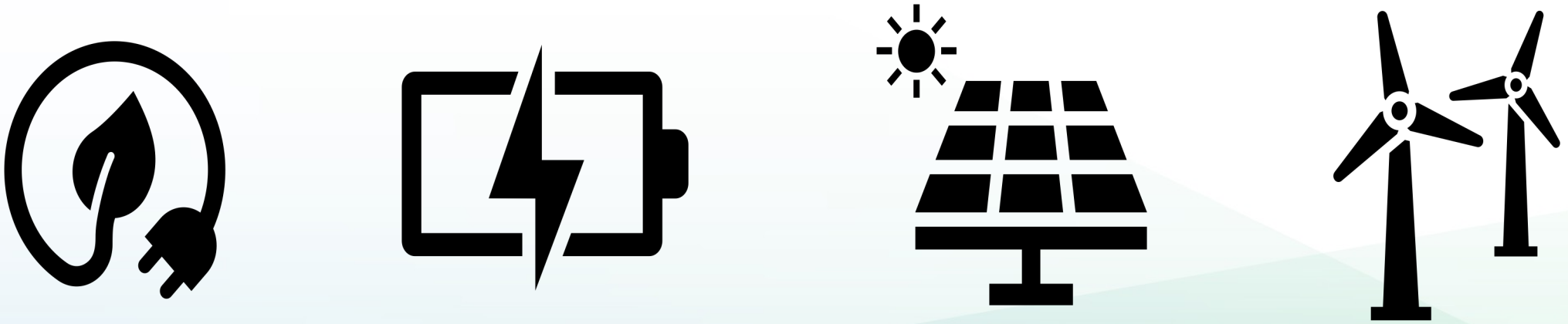
Item 4: Midterm Reliability Analysis

September 30, 2021 Business Meeting

Liz Gill, PhD
Advisor to Vice Chair Gunda

Benefits to Californians

- Supports reliance on clean energy resources for electric reliability.
- Electric reliability is essential to health and safety of Californians and to California economy.



Overview

Purpose: Inform midterm reliability needs, including additional fossil fueled resource capacity

Scope:

1) LOLE analysis on
   - current procurement and
   - an alternative resource build with new gas resources.
2) Evaluation of potential constraints of battery resources.
3) Description of thermal capacity potential.

Midterm Reliability Analysis vs Stack Analysis

Stack Analysis

Purpose: Inform need for contingencies

Provides potential of average and extreme:
- High demand days like summer 2020
- Drought impacts on hydro
- Capped imports

Challenge:
- Assumptions designed to capture extreme weather events

LOLE Analysis

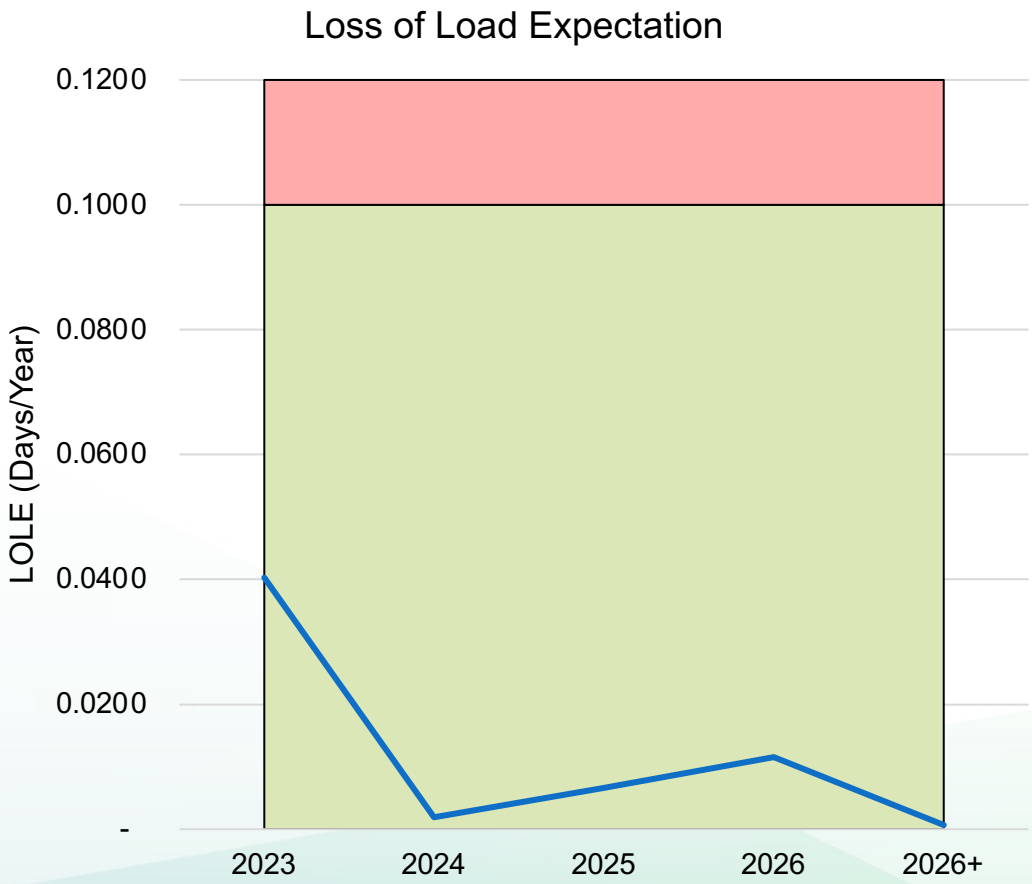
Purpose: Inform procurement need

Uses distributions of conditions
- Demand profiles
- Wind and solar profiles
- Randomized outages

Challenge:
- Dependent on historic weather patterns which may not fully reflect climate change

Analysis Indicates Sufficient Capacity Has Been Ordered for 2023-6

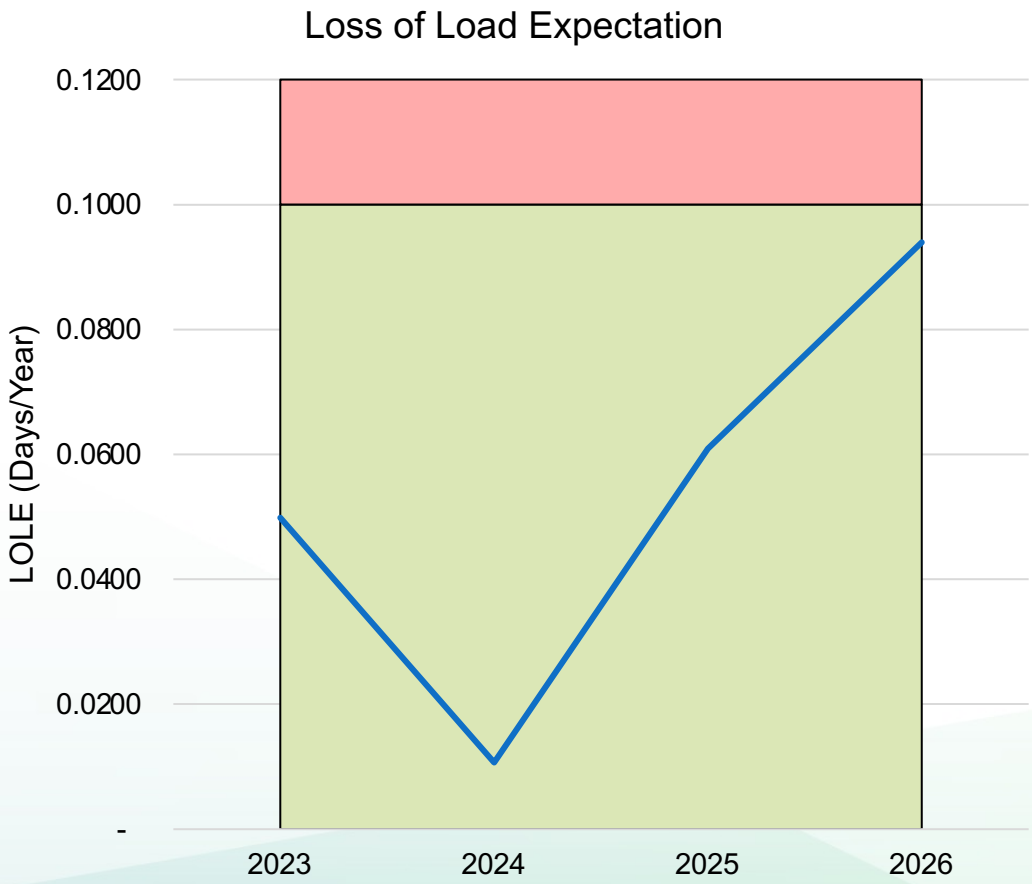
- CPUC Midterm Procurement Order: 11.5 GW NQC by 2026
- Estimated Nameplate Capacities by 2026:
  - Battery Storage (4-hr): 10 GW
  - Solar: 8.3 GW
  - Wind: 2.5 GW
  - Geothermal*: 1.2 GW
  - Long duration storage (8-hr)*: 1 GW
- LOLE for 2023-6 indicates a reliable system



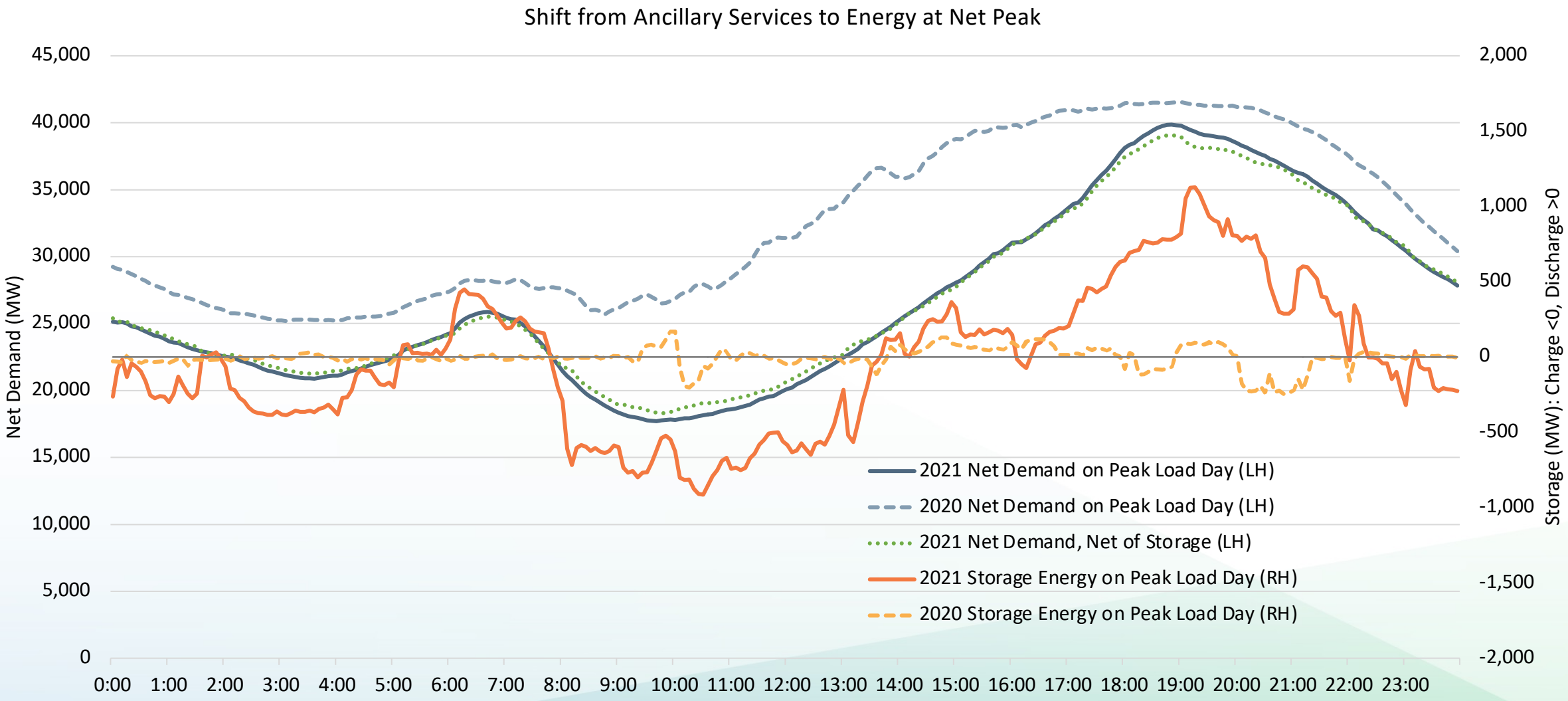
Gas and Zero Emitting Resources can Provide System Reliability

- 1:1 NQC basis replacement of zero-emitting resources with gas resources
- Gas resource counting methodology does not account for outages, resulting in a slightly higher LOLE.

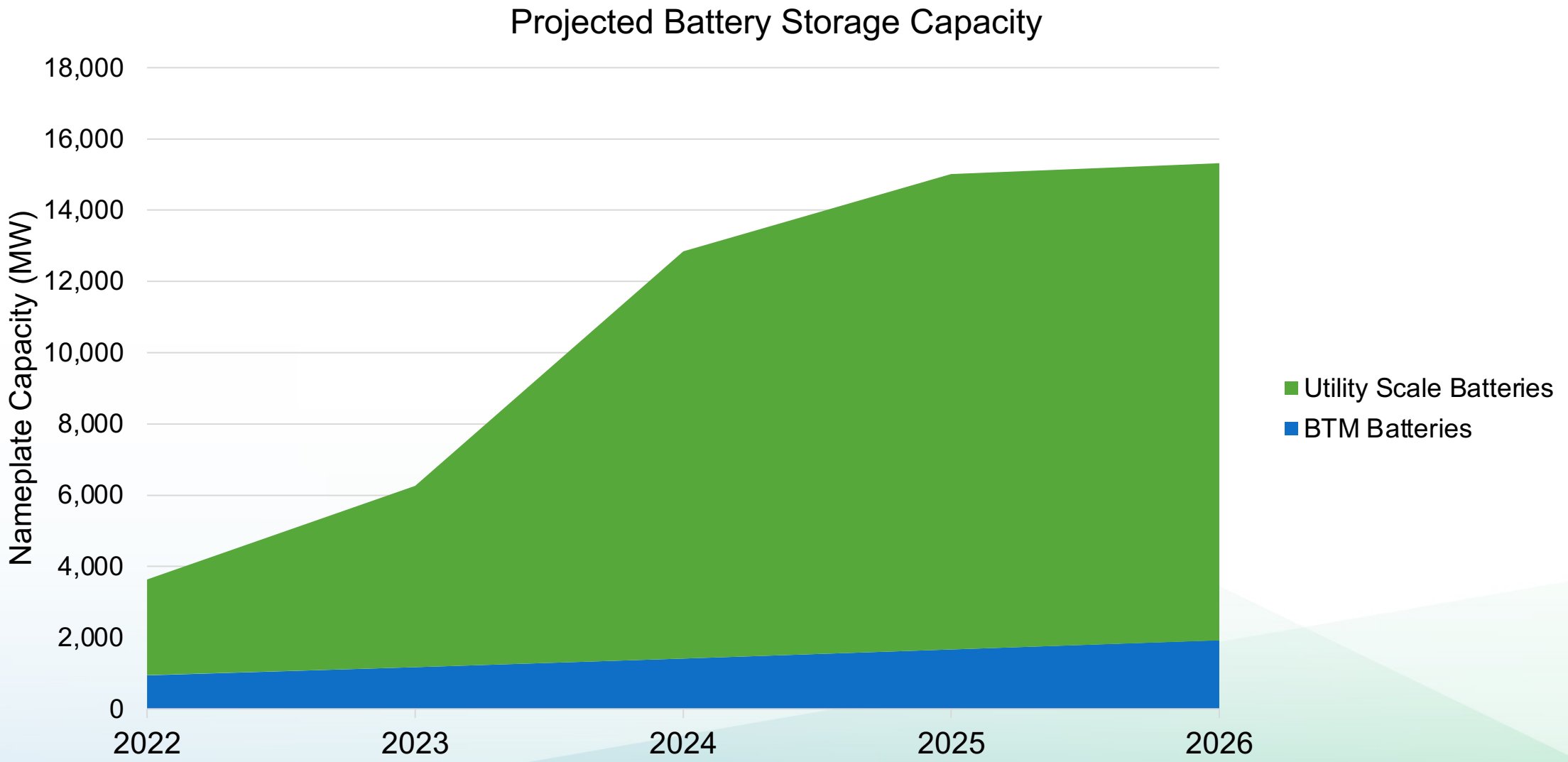
- A portfolio of zero-emitting resources or gas resources can provide system reliability.



Storage Has Performed as Expected in 2021

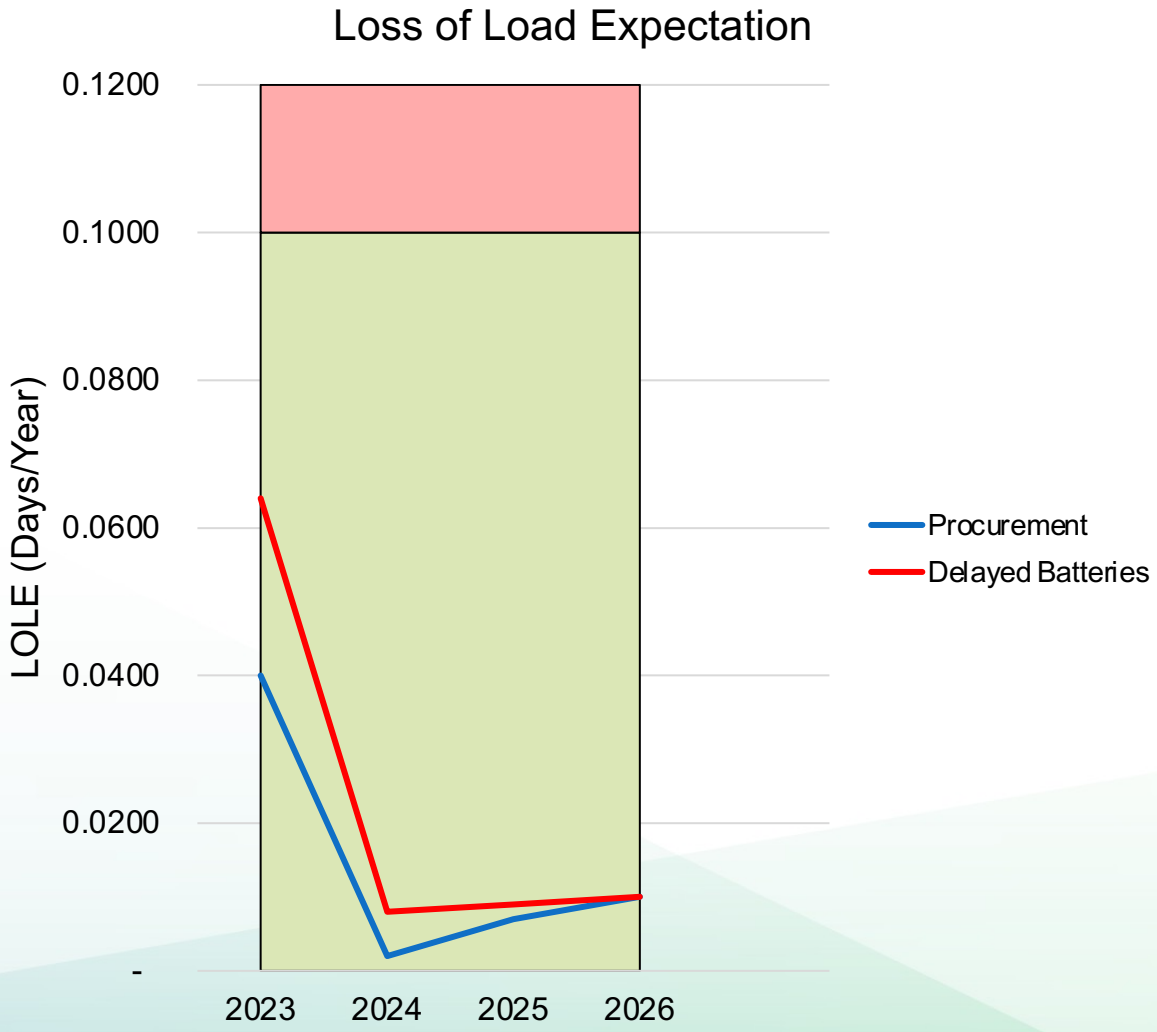


Projected Battery Capacity



Storage Delays Would Not Likely Impact System Reliability

- Concerns have been raised that the battery storage supply chain may not support the magnitude of batteries needed for midterm reliability.
- Applied a 1-year delay to 20% of new battery resources
- A 1-year delay to 20% of new battery storage does not result in an unreliable system.



Energy Sufficiency Will Not Limit Battery Performance

- Identify what energy limitations could lead to an inability to charge battery storage:
  - Limit imports to 5,600 MW
  - Limit hydro to average minimum generation during non-peak hours
  - Reduce solar generation by 15-45%
- Energy insufficiency does not occur until imports are limited and total solar generation is reduced by 30-45%.

2026	LOLE	1-in-10 Shortfall
Procurement Scenario	0.011	--
Limited Imports+Hydro	0.011	--
+Reduced Solar 15%	0.014	--
+Reduced Solar 30%	0.026	--
+Reduced Solar 45%	0.169	1,848 MW

Permitted and Potential Capacity Additions

2022–2023 Potential Efficiency and Equipment Upgrades (50–200 MW)

New and Expanded Battery Energy Storage Systems (200–1000 MW)

Power Plant Projects Permitted But Not Yet Built (1200 MW)

Conclusions

- Current procurements orders result in system reliability for 2023-6. Limitations include:
  - Additional retirements.
  - Further CEC demand forecast enhancements to better capture extreme climate impacts
- Procurement of zero-emitting resources can provide system.
  - Continue to monitor battery performance

Staff Recommendation

- Adopt Midterm Reliability Analysis