

Exhibit to Agenda Item #1

Provide the Board an update on clean utility-scale renewables, storage, and emerging technologies as part of SMUD's **2030 Zero Carbon Plan**, including updates to projects required for the thermal transition.

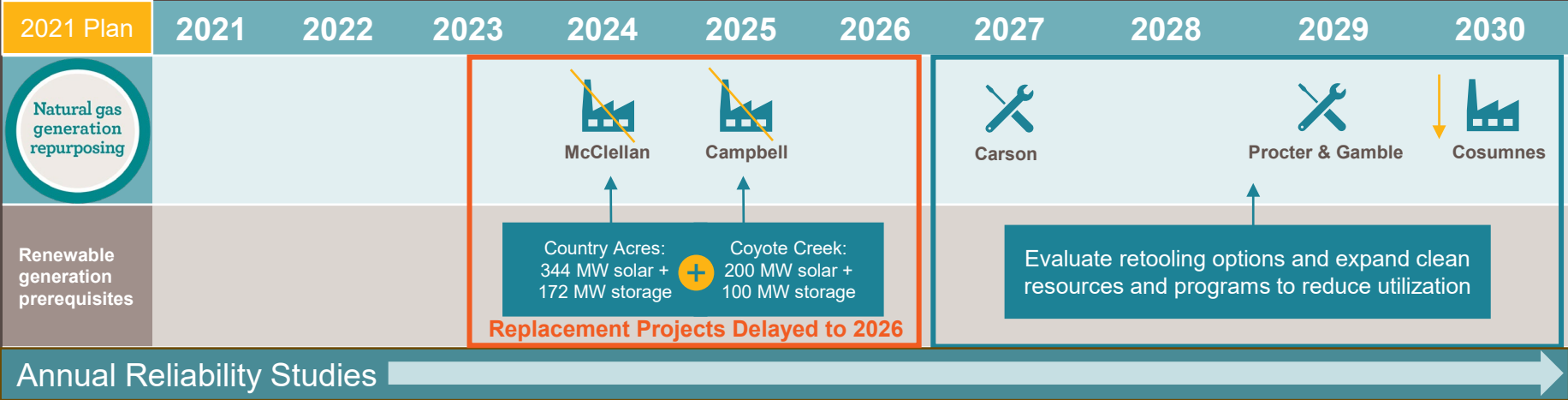
Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting

Tuesday, May 14, 2024, immediately following the Finance & Audit Committee meeting scheduled to begin at 6:00 p.m.

SMUD Headquarters Building, Auditorium

Natural Gas Generation Repurposing Plan Update

The Natural Gas Generation Repurposing pillar is focused on reducing and eliminating greenhouse gas (GHG) emissions at SMUD’s natural gas plants while maintaining reliable service and affordable electricity for customers.



Project Schedule Update:

- Country Acres and Coyote Creek: online dates delayed to late 2026.
 - McClellan and Campbell: transition is delayed since required replacements are delayed.
- New reliability studies are needed given these delays and new resources being evaluated.
- A new schedule will be shared in the 2025 update.

Utility Scale Project Development Update



Solano 4 Wind Project

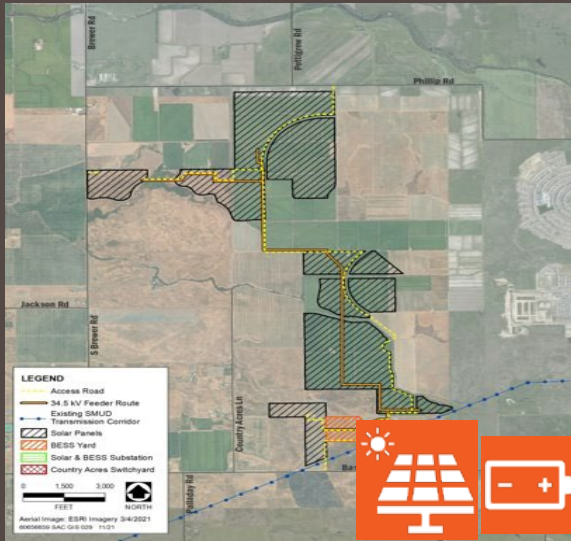
- **Update:** Project is **ONLINE** and generating renewable, carbon-free wind energy
- 19 4.5 MW wind turbines constructed and grid-connected
- 85 MW project generates ~300k MWh annually
 - 10x increase in energy
- Annual GHG Reduction: ~130k metric tons GHG



Solano 5 Wind Repower Project **(NEW)**

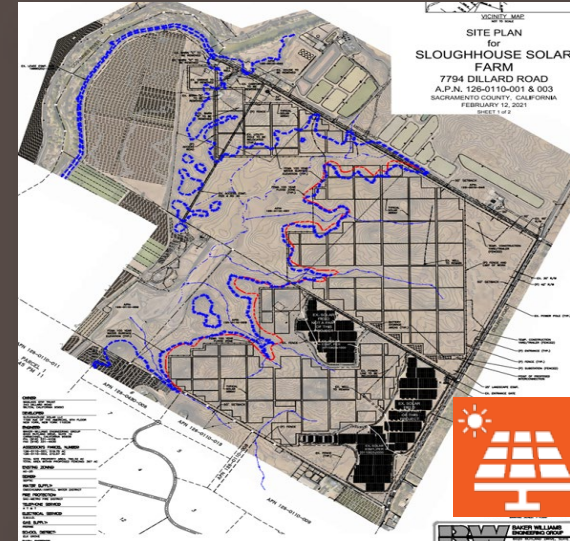
- Solano Phase 2 repower planning work has begun
- Current Capacity: 105 MW
- Repower would increase energy production by ~80%
- 7.2 MW Vestas V162 turbines are being evaluated
- Online Date: ~2029

Utility Scale Project Development Update



Country Acres

- 344 MW Solar + 172 MW Battery Storage
- Location: Placer County
- Online Year: Late 2026
- **Update:** Placer County Board approved the project in March 2024
 - Construction begins Summer 2024



Slough House

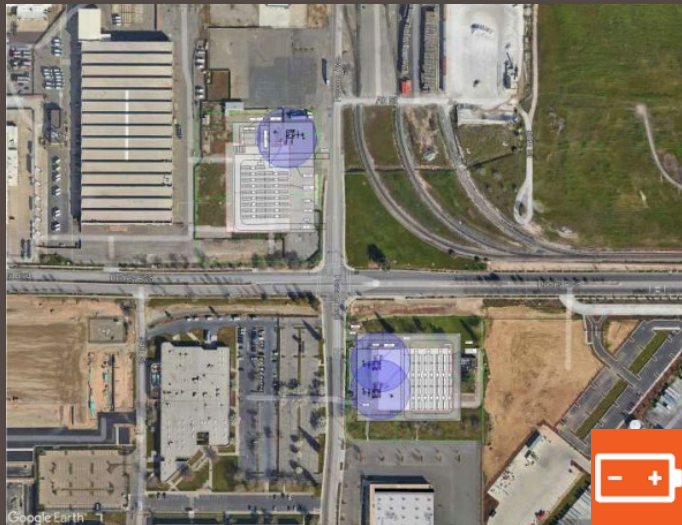
- 50 MW Solar
- Location: Sacramento County
- Online Year: 2025
- **Update:** Sacramento County Board approved the project in January 2024
 - Construction begins Summer 2024

Utility Scale Project Development Update



ESS Iron Flow Long Duration Energy Storage

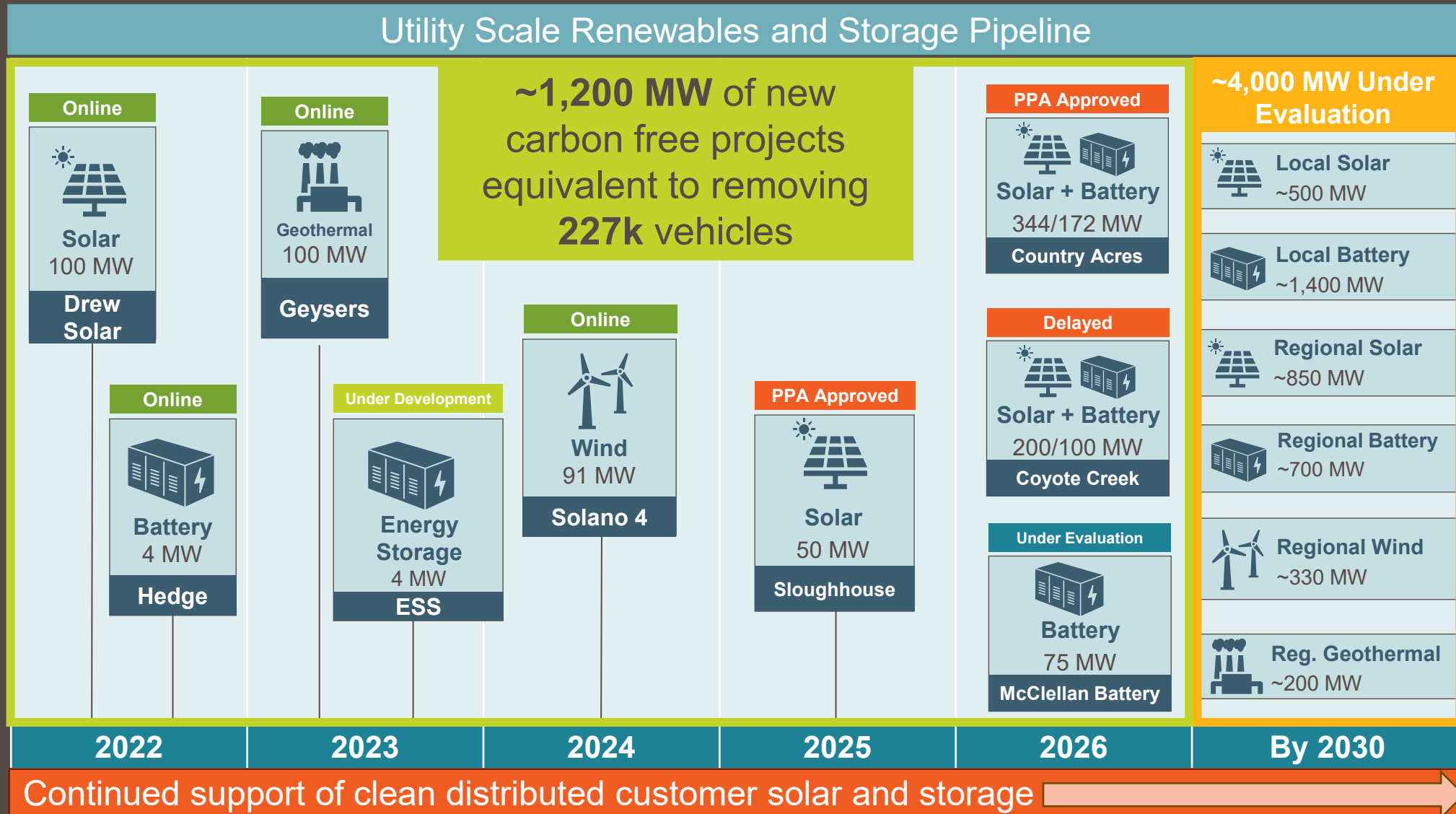
- Total Phase 1 targets 4 MW / 6-8 Hour Storage
- Phase 1a Progress to Date:
 - Six Energy Warehouses installed at Hedge Power Academy (~0.5 MW and ~2.5 MWh)
 - Site acceptance testing complete
 - Distribution System Operations (DSO) connection established and finalizing Battery Energy Storage System (BESS) for commissioning testing



McClellan Battery Storage

- 75 MW / 4-hour Storage (300 MWh)
- Online Year: 2026/2027
- SMUD project team is evaluating interconnection and ownership options
- Project site is previously disturbed land, CEQA process has started, expecting a January 2025 Board Notice of Determination
- Land option needs to be exercised by September 2025

Renewable and Storage Pipeline Progress



New Technology Update

Sutter Carbon Capture and Sequestration Project

- **Update:** Calpine was awarded up to \$270 million in Q4 2023 by the U.S. Department of Energy to add carbon capture and storage (CCS) technology to the existing Sutter Energy Center.
- SMUD's interest is to potentially purchase clean energy under a power purchase agreement (PPA).
- Up to 1.7 million metric tons of GHG stored annually.
- Calpine is working to complete the Front End Engineering Design (FEED) study which will inform PPA pricing.
- **Next Steps:** SMUD to discuss a potential PPA with the Board in 2025.



New Technology Update

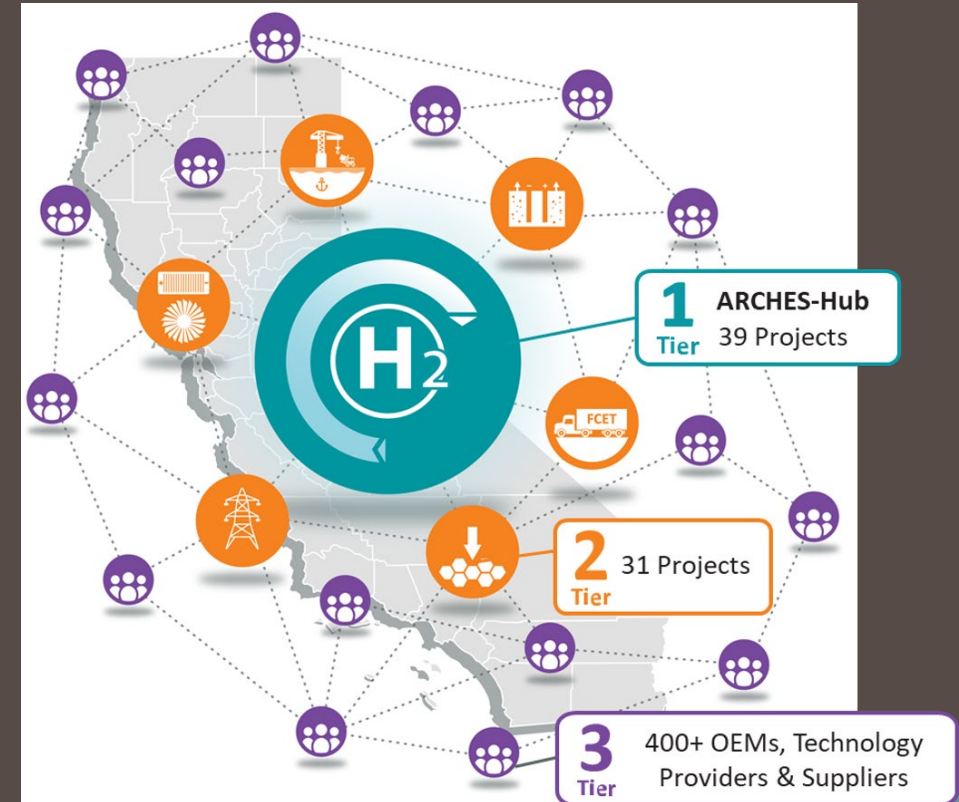
Hydrogen Grants through ARCHES*

Concept 1: Electrolytic Hydrogen Production

- Partnership with Air Products and Chemical, Inc, Sacramento Metropolitan Air Quality Management District (SMAQMD), and ARCHES.
- **Focus:** demonstrate & deploy hydrogen production for use at CPP.
- Continue to participate in ARCHES stakeholder meeting to represent SMUD's interest and prepare Tier 1 project detail requirements.
- Perform Feasibility Study to establish a high-level overview of technical and economic viability including a Pre-Front End Engineering Design Study (FEED).

Concept 2: Thermochemical Biomass Gasification to Hydrogen

- Partnership with Mote, Inc., SMAQMD, and El Dorado Forest Working Group.
- **Focus:** convert wood waste to hydrogen fuel and carbon sequestration producing ~60 TPD of hydrogen fuel, and annual carbon reduction of up to 400k tons. SMUD would be off-taker of hydrogen fuel.
- Site Locations being explored.
- Continue to participate in stakeholder meeting in ARCHES to represent SMUD's interest and prepare Tier 1 project detail requirements.



*ARCHES: Alliance for Renewable Clean Hydrogen Energy Systems

Questions?