

# Exhibit to Agenda Item #1

Board Strategic Development Committee and Special SMUD Board of  
Directors Meeting

Tuesday, September 7, 2021, scheduled to begin at 5:30 p.m.

Virtual Meeting (online)

# 2030 Zero Carbon Plan Perspective

A key element of SMUD's 2030 Zero Carbon Plan included research of several utility-scale technologies that may allow us to reduce or replace use of our current natural gas fleet, including exploring the various carbon capture and sequestration (CCS) technologies available or emerging today.

# Carbon Capture and Sequestration Panel Discussion

## Panelists:

Panelist Name	Title	Company/Organization
Ross Gould	Director, Power Generation	Sacramento Municipal Utility District
Abhoyjit Bhowan (Ph.D.)	Program Manager Advanced Generation & Carbon Capture and Storage	EPRI – Electric Power Research Institute
Dr. Sarah Saltzer (Ph.D.)	Managing Director, Stanford Center for Carbon Storage	Stanford Center for Carbon Storage (Stanford University)
John Thompson	Technology and Markets Director, Clean Air Task Force	Clean Air Task Force (CATF)

# Research Plan: New large-scale technologies

- **Thermal/battery hybrid.** Enables plants to be online without burning fuel. Relatively mature today
- **Biofuels.** Renewable natural gas and biodiesel to be researched as alternative fuel. Partnerships and grants will be critical
- **SMUD pumped storage.** Research, design and potentially develop new pumped storage hydro with existing SMUD hydroelectric assets
- **Long duration storage.** Research and pursue partnerships and grants (electro-thermal energy storage, liquid air energy storage, etc.)
- **Green hydrogen.** Follow development and be ready to invest if costs come down – major grant support or technology breakthrough needed
- **Carbon Capture.** Investigate Carbon Capture and Storage (CCS) - explore technologies and economics

Success with these new technologies will alter the need & timing for other resources

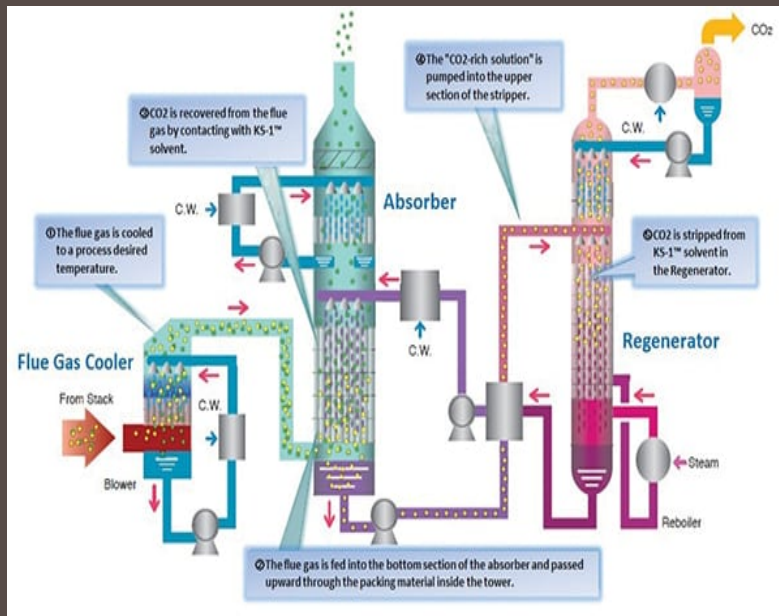
# Cosumnes Power Plant



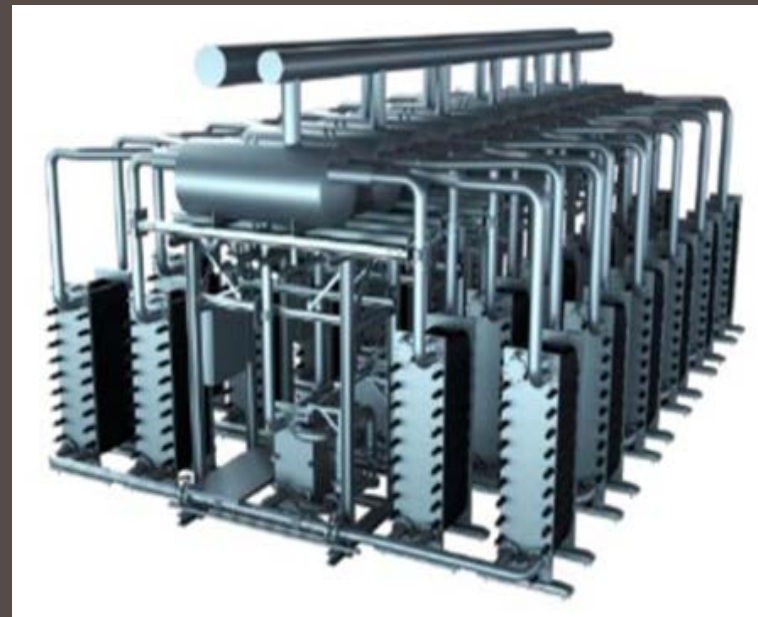
## Cosumnes Power Plant:

- SMUD's most efficient natural gas fired power plant
- 600+MW of reliable power on a 105F summer day.
- Commercial Operation since 2006
- Located at a strategic intersection on BANC's border with CAISO

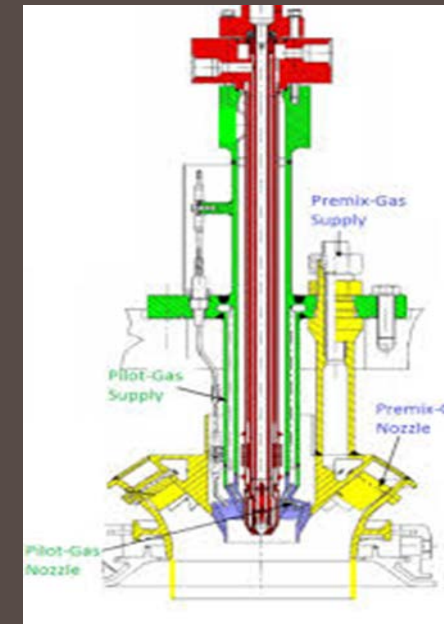
# Cosumnes Conversion Opportunities:



Carbon Capture?



Hydrogen Conversion?



Biofuels?



# Innovation Portal Submission



- Net Power's "Allam Fetsvedt" Cycle Power Plant in La Porte Texas
- Up front Carbon capture, no exhaust stack
- Would need access to carbon storage sink

# Reasons for Continued Interest in CCS:

- Preliminary reliability studies show a continuing need for:
  - Local, dispatchable power
  - Support for import/balancing of energy
  - Hedge against impacts of drought and wildfire
- Technology is viable and advancing
- Federal and State incentives are materializing
- May be economically competitive