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Summary of Dec. 2, 2020 Natural Gas Incremental Efficiency Improvements for Reliability Workshop

Presenter: Shawn Pittard, Deputy Director, Siting, Transmission and Environmental Protection Division

Date: February 19, 2021



2020 Extreme Heat Events

- Unexpected, unprecedented, and extreme
- Energy demand exceeded supply AND planning targets
- Multiple active wildfires raged across California and the Western U.S.
- Heat and wildfires significantly impacted energy generation and transmission
- Smoke from wildfires decreased solar output
- Highlighted that our SB100 transition must be carefully planned with stakeholders across many sectors



12/2/2020 Lead Commissioner Workshop

- Explore technology options to increase the efficiency and flexibility of the existing natural gas powerplant fleet
- Support electric system reliability, enhance resiliency, and improve the integration of intermittent renewable resources
- Provide insurance against extreme weather, fire, or climate-related events
- Support longer-term transition to renewable and zero-carbon resources
- Attended by CEC, CPUC, CAISO, Air Districts, IOUs and POUs, Plant Owner/Operators, Equipment Suppliers, Stakeholders



Panel 1 - Incremental Technology Improvements and Benefits

Vendors and owners presented information on potential and deployed incremental improvements:

- Existing natural gas generation
 - ✓ Increased peak output
 - ✓ Improved to ramp rate, turndown, efficiency
 - ✓ Reduced start-times
 - ✓ Payback periods of <2 years
- Storage / combustion turbine hybrids
 - ✓ Increased flexibility
 - ✓ Reduction in natural gas operations and emissions
- Some incremental upgrades and storage projects already in design and permitting, but
 - ✓ Equipment lead time may present problems
 - ✓ Some upgrades require more extensive planning and design



Panel 2 - Opportunities, Challenges, and Process Modifications

- Opportunities exist to gain additional MW and efficiency out of a diverse generation portfolio
- The regulatory process can be managed with planning, but
 - ✓ Improvements targeted for 2021 are challenging;
 - ✓ Some project owners and regulators voiced concerns about schedule if the permits were opened;
 - ✓ Planning should not be limited to 2021 and 2022;
 - ✓ Procurement through postponed retirements easier than new construction/permitting.
- Air Districts highlighted that their regulated processes and comment periods can take time. Early outreach, clear project descriptions and requesting expediting can optimize review.
- CEC process improvements, pre-file meetings, clear project descriptions have improved permit evaluations.



Panel 3 - Discussion of Finance and Governance Opportunities

- CPUC identified new OIR for Summer 2021 Reliability, 20-11-003
 - ✓ Purpose: to increase energy supply or decrease demand during peak and net-peak hours
- Resource mix continues to change, impacting system needs
 - ✓ Planned retirements of OTC gas-fired and Diablo Canyon nuclear
 - ✓ Continued addition of renewables
- Some procurement only addresses retirements, not new peak or dispatchable generation
- Clear procurement signals and regulatory certainty are critical for market stability
- Concerns over ongoing air quality, community impacts, and cost-effectiveness over the long-term planning horizon



Summary of Written Comments

- Opportunities exist to upgrade existing NG plants
 - ✓ For peak MWs for summer of 2021 and 2022
 - ✓ Improved flexibility through improvements in efficiency, turndown, ramp rate and start times
- Additional opportunities exist for natural gas / storage hybrids
- Batteries, grid connected or internal loads only
 - ✓ Liquid salt thermal storage
 - ✓ Synchronous condensers
 - ✓ Green Hydrogen
- The NG system can be part of the energy storage and dispatch optimization.
- Concerns that new gas procurement “would further damage the climate and public health”
- And that incremental gas capacity “would not advance the state’s longer-term climate and equity goals” and “multiple better options exist to meet reliability”



Next Steps

- Potential for additional workshops in future
 - ✓ Other states also face reliability challenges
 - ✓ Extreme weather events not limited to summer
 - ✓ Continue to evaluate technologies to meet SB100 goals