



ECOS Transportation, Air Quality & Climate Change Committee

Thursday, May 7, 2020, 5:45 p.m.

Videoconference, hosted by Zoom

Meeting Notes

5:45 p.m. – Social time -- meet and greet

6:00 p.m. – Welcome, Introductions, Check-Ins, and Changes to Agenda

Attendance: Susan Herre (ECOS), Robert Meagher (ECOS), Nancy Hughett (ECOS), Jeffery Tardaguila (SacTRU), Dan Allison (STAR), Dale Paige (Citizens' Climate Lobby), Bill Magavern (Coalition for Clean Air), Karen Jacques (STAR), Oscar Balaguer (350 Sac), Pat Ferris (350 Sac), - Janet Koster (CA Native Plant Society), Michael Garabedian (Placer County Tomorrow), Alexandra Reagan (ECOS staff), Ralph Propper (ECOS Pres.), Lynne Goldsmith (co-chair), John Deeter (co-chair).

Guest: Rick Codina (350 Sac).

6:15 p.m. – SMUD's Greenhouse Gas and Renewable Power Goals

- Rick Codina (350 Sacramento, former SMUD staff)

Rick was an energy analyst with SMUD for 30 years. His presentation was accompanied with a [slide show](#).

***Codina:** SMUD's Integrated Resource Plan (IRP)¹ is updated every 5 years (the last time in 2018) to document how they will meet future load requirements. It was approved for filing with the California Energy Commission (CEC) in April 2019, and SMUD staff issues a progress report each September.*

Regulatory goals for SMUD:

1. SB-100: 60% eligible renewable sources by 2030; net zero² by 2045
2. SB-350: 80% reduction of greenhouse gas (GHG) by 2050
3. Besides utility emissions, state goals assume major reductions from building electrification (100% heat pump sales by 2040) & electric vehicles (100% of new sales by 2035)
4. AB-2514 requires investor owned utilities to install 1,300 MW of battery storage by 2024. SMUD "considers this cost prohibitive until 2025" and plans pilot projects with 12 MW by 2030, ramping up to 560 MW by 2040 (net zero).

SMUD's survey of potential new renewable sources found that the most expensive would be geothermal³ generation from the Northwest, followed by wind from Wyoming and New Mexico. Enhancing and expanding California wind farms are less costly in the near term, but the least

expensive new renewables will be photovoltaic (PV) generation, both locally and from other California sites.⁴

The IRP presented alternative trajectories for lowering SMUD's greenhouse gas (GHG) emissions from its gas power plants. The Board chose to keep to its decade-old plan that would result in 1 million metric tons (MMT) of carbon dioxide equivalent gases (CO₂e) by 2040. The Board passed on other viable alternatives which would reduce emissions to as low as 350,000 metric tons by that year.

The IRP, however, committed SMUD to \$1.7 billion in rebates and other support for assisting in the community-wide goals of GHG reduction through building electrification (heat pumps, cooking, clothes drying, space heating and electric vehicles). SMUD staff calculated this investment will directly counter the 1 MMT CO₂e from the gas plants, resulting in "carbon zero" by 2040.

New solar projects for the near term are rated at 636 MW. Solar credits that exceed regulatory requirements will be banked as excess (2024-2027). Required generation is expected to increase in the next 20 years, with the addition of sources from gas plants and solar farms (1,400 MW outside contracts and 1,000 MW local PV on 80,000 acres. SMUD uses the following criteria for local PV siting:

- *Parcels on low-grade agricultural, industrial or otherwise disturbed land,*
- *Minimum 100 contiguous acres,*
- *Five miles from a high voltage transmission line.*
- *Subject to the California Environmental Quality Act (CEQA).*

350 Sacramento and other environmental activists lobbied for the scenario resulting in 350,000 MT CO₂e in 2040.⁸ This remains a good target and is more in line with the state's ultimate goal of actual carbon-zero by 2045. It would also result in a relatively modest rate increase of 4.5% as estimated in the IRP report. But absolute carbon-zero by 2040 is not a realistic option as it means shutting down all gas-powered plants prematurely, and these plants are currently essential for meeting loads during non-solar hours including cloudy days.

SMUD's four major gas plants (including the Cosumnes plant) are combined cycle generators, a generally very efficient design. The cogeneration plants⁶ are comparatively less efficient and operate fewer hours. Cosumnes is still needed for backup even as more inefficient plants retire. It had a \$56 million turbine upgrade in 2016, the outstanding bond debt will be paid off by 2030, and the plant will be depreciated to zero in 2036. The financials also favor closing the Cogen plants early, since their bonds have already been retired and they will reach the end of their depreciated book-life by the mid 2020s.

Across the state, 19 gas plants are being retired from 2010 to 2024. Cosumnes can export power to grid⁷ when needed while still supporting more renewable supply for SMUD.

Wind turbine generation is problematic, due to a lack of new sites and transmission challenges. Battery storage will be cost prohibitive for at least five more years, but research and development is underway. SMUD wants operational control of solar for efficiency.

Codina *advocated the following next steps:*

1. *Respond to SMUD staff report this fall 2020.*

2. *Monitor next IRP cycle starting in 2022, for 2024 implementation.*
3. *Climate crisis is too dire to wait for SMUD to minimally meet state regulatory levels for GHG.*
4. *At minimum, target 350,000 metric tons of emissions – not one million – by 2040.*
5. *Call for a detailed plan to ramp down cogeneration and Cosumnes natural gas plants.*
6. *Support electrification with local building ordinances and continued rebates.*
7. *SMUD's Neighborhood Solar Shares has been approved by the California Energy Commission and offers developers and builders the option to use SMUD's solar farm production rather than on-site solar in new construction. GHG savings should be equivalent, but fear is that the option will discourage on-site battery storage which would normally be coupled with on-site solar generation.*

7:30 p.m. – Updates, reports and discussion of other current topics

- Measure A-plus (Sacramento County transportation sales tax)

Propper: *All jurisdictions in Sacramento County have approved the Transportation Expenditure Plan (TEP) for Measure A-plus, and the Governing Board of Sacramento Transportation Authority is scheduled to adopt an ordinance authorizing the County Board of Supervisors to place the measure on the November ballot at its meeting next week. [Editor note: The STA Board voted 11-5 to approve the ordinance, which included the TEP.] The BOS is expected to act by the end of July. The action to place an STA measure on the ballot is usually pro forma, but considering all the uncertainties this year, the BOS has the option of refusing to do so. The SacMoves/SMART coalition has not endorsed Measure A-plus, and may not, leaving it up to coalition members to take a position individually.*

- Mayors' Commission on Climate Change
- Climate Emergency Declarations
- Elk Grove City and Sacramento County Climate Action Plans
- Sacramento Slow Streets initiative

Propper: *Late last month (April) WALKS Sacramento and Sacramento Area Bicycle Advocates (SABA) jointly requested the City of Sacramento to partially or fully close streets in order to keep residents safe from COVID-19, create more local public space, and continue providing safe access to essential businesses and services. The City has responded rapidly to this request, and ECOS is exploring the possibility of having people from the City and/or the two advocacy organizations report on this initiative at the ECOS Board meeting later this month (May 26).*

7:40 p.m. – Other business and announcements / Topics for future meetings

7:45 p.m. (approx.) – Adjourn

Next TAQCC meeting: Thurs., June 4, 5:45 p.m., video conference

Other upcoming events of interest:

May 9, 1 pm -- Sac TRU, Transit at Sac. Valley Station (videoconference)

May 13, 4 pm - Mayors' Commission on Climate Change (virtual meeting)

May 26, 6 pm -- ECOS Board, topic Sacramento Slow Streets (videoconference)

For information about joining this meeting, contact John Deeter <jdeeter@gmail.com>

Printable TAQCC agendas and minutes are available on the ECOS [Web site](#).

Endnotes for Rick Codina's presentation:

1. IRP - Senate Bill 350 (De León, Chapter 547, Statutes of 2015), (Public Utilities Code Section 9621) requires the California Energy Commission (CEC) to review the integrated resource plans of identified publicly owned utilities to ensure they meet various requirements specified in the law, including greenhouse gas emission reduction targets and renewable energy procurement requirements. Source: <<https://ww2.energy.ca.gov/>>
2. Net zero means that any carbon dioxide released into the atmosphere from the company's activities is balanced by an equivalent amount being removed. The next step – becoming carbon negative – requires a company to remove more carbon dioxide from the atmosphere than it emits. Mar 12, 2020. Source: Google
3. Geothermal energy is heat derived within the sub-surface of the earth. Water and/or steam carry the geothermal energy to the Earth's surface. Depending on its characteristics, geothermal energy can be used for heating and cooling purposes or be harnessed to generate clean electricity. Source: Google (Per Rick, "not local and costly.")
4. Photovoltaics are known as a method for generating electric power by using solar cells to convert energy from the sun into a flow of electrons by the photovoltaic effect. Solar cells produce direct current electricity from sunlight which can be used to power equipment or to recharge a battery. Source: Wikipedia
5. Cosumnes Combined Cycle Power Plant, February 24, 2006 on line and producing power - A gas turbine produces primary power, exhaust heat is recovered to secondary steam turbine for additional generation, and steam turbine can also produce process steam used by Procter & Gamble. A combined-cycle power plant uses both a gas and a steam turbine together to produce up to 50 percent more electricity from the same fuel than a traditional simple-cycle plant. The waste heat from the gas turbine is routed to the nearby steam turbine, which generates extra power. Source: Slides and CEC site.
6. Cogeneration—also known as combined heat and power, distributed generation, or recycled energy—is the simultaneous production of two or more forms of energy from a single fuel source. Source: <https://www.scientificamerican.com/podcast/> The main initial 'disadvantages' of a combined heat and power system is that it is capital intensive and that it is not seen as a "true" sustainable energy source (being predominantly fueled by natural gas) Source: Google
7. California Independent System Operator (CAISO) is a non-profit Independent System Operator (ISO) serving California. It oversees the operation of California's bulk electric power system, transmission lines, and electricity market generated and transmitted by its member utilities.
8. SMUD'S 2018 Power Sources (Smud.org/SMUDPCL)
 - 20% Renewables (biomass & biowaste 8%, geothermal 2%, eligible hydroelectric 1%, solar 2%, wind 7%)
 - 26% Large hydroelectric
 - 54% Natural gas (35% CA Power Mix, based on CEC power estimate of electricity generated in California)

Natural Gas Plants

Campbells	Combined Cycle Cogeneration
Carson	Combined Cycle Cogeneration
Cosumnes	Combined Cycle Natural Gas Facility
McClellan	Gas Turbine
Procter Gamble	Combined Cycle Cogeneration