



Staff Report - Item 02

To: Sonoma Clean Power Authority Community Advisory Committee

**From: Ryan Tracey, Director of Planning & Analytics
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Issue: Receive Geothermal Opportunity Zone Update

Date: July 20, 2023

Background

SCP's Mission includes phasing out reliance on fossil fuel power sources altogether. Out of that desire, SCP began buying geothermal power in 2014 to ensure Sonoma and Mendocino County's robust solar power systems could be backed up with clean power every night and all through the winter instead of relying exclusively on natural gas power plants. EverGreen customers have played an important role in growing our local renewable sources, but the new construction has been limited to solar and battery storage to date.

As California's use of solar and wind has expanded, there is an urgent need to construct more renewable power that can operate through the winter, and regulators and lawmakers have ordered procurement of offshore wind and geothermal energy in response. There is also growing pressure by regulators for California to build new fossil fuel power plants to sustain grid reliability, and SCP is working to demonstrate those new plants are not needed.

The Geothermal Opportunity Zone (GeoZone) was established by the SCP Board of Directors and the Boards of Supervisors in Sonoma and Mendocino Counties to help guide the development of local geothermal power so that local stakeholders can have a voice in the state's process. In addition, SCP's interest is in developing the resources necessary to allow SCP to stop relying on natural gas power plants altogether and to stop paying fossil fuel power plants for grid reliability. Since no fossil fuel power plants are located within SCP territory, and most are located in poor regions of California, the GeoZone is also working toward greatly reducing the air pollution we are causing in communities of concern. To these goals, the GeoZone is

seeking to sustain existing local geothermal production and add 600 MW of new geothermal capacity.

Ongoing updates, information, and materials about the GeoZone can be found at <https://sonomacleanpower.org/geozone>.

Private Partner Activity

As required by their cooperation agreements, GeoZone partners delivered their first quarterly updates to SCP this past month. Below is a summary of the progress each partner has made towards achieving their obligations to deploy their technology in the GeoZone:

Cyrq Energy

Cyrq has selected a candidate technology for deployment at the GeoZone: the ENDURING sand-based system developed by the National Renewable Energy Laboratory (NREL) and optioned by Babcock & Wilcox (B&W). Cyrq selected the technology because of the durability and availability of sand, alignment with the operating specifications for a system at the Geysers, and the ability to domestically source the materials and engineering.

Cyrq has been working on preliminary engineering to understand the compatibility of thermal storage at an existing plant at the Geysers. Cyrq has been in discussions with Calpine to understand the primary engineering and commercial concerns with a demonstration project. SCP hosted a summit between Cyrq, B&W, and Calpine to align on near-term activities to enable a site hosting agreement for a demonstration and scale-up.

Cyrq submitted an application for the Department of Energy Office of Clean Energy Demonstration's Long-Duration Storage grant to partially fund the demonstration project. Cyrq's project team included SCP, NREL, Babcock & Wilcox, and EthosEnergy. Selections for the grant are expected later this year. Cyrq and SCP are anticipating further grant opportunities through the California Energy Commission (CEC) and Department of Energy (DOE).

Chevron New Energies

Chevron has completed a regional resource assessment using publicly available data on geology and temperature. Chevron's technical work is being used to select areas of interest for locating pilots and prioritize the work of Chevron's land team.

Meanwhile, Chevron has discussed interconnection requirements with PG&E and started characterizing the interconnection locations for potential project sites. Also, a third-party vendor has started working with Chevron on a detailed permitting plan for a pilot project and Chevron is evaluating different vendors for well technologies, power plants, and engineering firms.

Chevron applied for a GeoZone project to the Department of Energy's Bipartisan Infrastructure Law Enhanced Geothermal Systems (EGS) Demonstration grant.

Eavor Inc.

Eavor started an internal feasibility study for their GeoZone project, which includes collecting literature and well data and building a 3D geologic model. Eavor has also been on-the-ground meeting with prospective site hosts.

Eavor has also started reviewing transmission infrastructure to inform site selection and met with the California Geologic Energy Management Division (CalGEM) to review permitting requirements. Eavor has also dedicated significant resources to advocating for policy that is supportive of the GeoZone, including participating as panelists in industry conferences and meeting with the local congressional delegation in Washington D.C.

Eavor recently announced the first close of its Series B investment round—a CAD\$50 million investment from OMV. In addition to raising capital, Eavor is proactively monitoring grant funding and other financing opportunities for its work in the GeoZone.

Public Engagement

Staff has selected September 18 for the next public engagement meeting for the GeoZone and is currently working on securing a venue in Cloverdale, which will be more convenient for those likely to be closest to GeoZone projects. Once finalized, SCP will notify everyone registered on its stakeholder roster. All input is welcome and interested parties are encouraged to e-mail GeoZone@sonomacleanpower.org to be added to the roster.

Advocacy

SCP continues to advocate for the GeoZone and the broader potential for renewable sources that can support the closure of fossil-fuel power plants. There are several important initiatives at the California Independent System Operator (CAISO) that could be impactful to GeoZone transmission planning: an updated study on the transmission

constraints impacting statewide resource planning and stakeholder initiatives to enhance the interconnection and deliverability allocation process. SCP is actively engaged in each of these discussions and expects to provide comments on the types of considerations CAISO should consider reducing the risk and burden of interconnecting high-value but locationally constrained resources like those being developed in the GeoZone.

At the end of June 2023, NREL released an update to their Annual Technology Baseline (ATB) that could be very influential in the role geothermal resources play in future resource planning. NREL revised its mid estimate for the cost of near-field Enhanced Geothermal System (EGS) geothermal power, which is indicative of the development envisioned in the GeoZone from \$301/MWh by 2030 to \$145/MWh. Many utilities and public utility commissions (including the California Public Utilities Commission) use NREL's ATB data as the primary source for cost data in optimizing resource portfolios. The decrease in cost—which is well-justified given recent advances in the industry—will raise the profile of geothermal as a commercial source for clean firm power and make it easier to advocate for the importance of supporting it through grant funding and transmission planning.

SCP continues working on building a coalition for supporting geothermal development. In the past month, staff organized meetings with D.C. staffers for Congressman Thompson and Congressman Huffman to share the GeoZone's vision and discuss federal policy opportunities to address potential challenges with grant funding, transmission planning, and permitting. SCP also had an introductory meeting with the Clean Air Task Force, and environmental NGO that shares SCP's vision of advanced geothermal technologies providing an important tool in eliminating emissions from the power sector.