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**SoCalGas Comments on CEC IEPR Interconnection Distribution
Grid Workshop**

Additional submitted attachment is included below.



Kevin Barker
Senior Manager
Energy and Environmental Policy
555 West 5th Street
Los Angeles, CA 90013
Tel: (916) 492-4252
KBarker@socalgas.com

May 26, 2023

Commissioner Patricia Monahan
California Energy Commission
Docket Unit, MS-4
Docket No. 23-IEPR-05
715 P Street
Sacramento, CA 95814-5512

Subject: Comments on the IEPR Commissioner Workshop on Clean Energy Interconnection – Electric Distribution Grid

Dear Commissioner Monahan:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the May 9, 2023 California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) Commissioner Workshop on Clean Energy Interconnection – Electric Distribution Grid. SoCalGas thanks the CEC for focusing on the important topic of accelerating the interconnection of clean energy resources onto the grid. Working through the many issues related to interconnection, such as safety, permitting, and environmental review, as required by the California Environmental Quality Act (CEQA), is crucial to advance the State’s decarbonization goals as more clean energy resources connect to the grid. While it is important to focus on the electric interconnection process, there are also complementary solutions that can provide additional capacity and support clean transportation goals. **It is in the public interest and supports California’s zero emission vehicle (ZEV) goals for the CEC to consider linear generators using clean fuels as a potential solution to electric distribution grid interconnection challenges.**

Anticipated Load Growth Necessitates Significant Clean Energy Infrastructure Development

An unprecedented growth rate in clean energy is needed to meet the State’s goal of carbon neutrality by 2045, the Senate Bill (SB) 100 goal of 100 percent electric retail sales with renewable energy and zero-carbon resources (expedited through the interim targets set by SB 1020),¹ and the transition to zero emission vehicles. California needs four times the historic average build rates for solar and wind,² eight times that for batteries,³ and 1,700 times growth in green hydrogen.⁴ The State is also moving all sales of vehicles toward zero emissions in a little more than a decade. By 2035, California requires 100 percent of light-duty vehicles sales to be ZEVs through the California Air Resources Board’s (CARB) Advanced Clean Cars II (ACC II) regulation.⁵ The ZEV passenger market has gained considerable steam over the last few years and now represents approximately 21 percent of all new vehicle sales in California (see Figure 1).⁶ By 2045, all medium- and heavy-duty vehicles purchased and operated in California are expected to be transitioned to ZEV through the Advanced Clean Fleets (ACF) regulation, where feasible.⁷ The latest ACF adoption will drive sales for zero-emission medium- and heavy-duty vehicles potentially as early as 2024.⁸

To meet the requirements of SB 100, ACC II and ACF, the State will need dedicated hydrogen pipelines, production and refueling infrastructure, storage, as well as additional electric transmission and distribution infrastructure. Indeed, Governor Edmund G. Brown Jr. recognized this need in Executive Order (EO) B-48-18, which ordered “installation of 200 hydrogen fueling stations and 250,000 zero-emission vehicle chargers” by 2025.⁹ The infrastructure buildout needed to meet California’s energy goals will take many years and require significant investment. A study conducted by Kevala for the California Public Utilities Commission (CPUC) as part of its High Distributed Energy Resources (DERs) Grid Planning Rulemaking¹⁰ found that it could cost California approximately \$50 billion by 2035 to prepare the electric grid for DERs, mainly driven by the electrification of the transportation and building sectors.¹¹ Flexible and clean distributed energy resources have the potential to reduce the costs of the distribution system upgrades.

¹ SB 1020 adds interim targets to the policy framework originally established in SB 100 to require renewable energy and zero-carbon resources to supply 90% of all retail electricity sales by 2035 and 95% of all retail electricity sales by 2040. The inclusion of interim targets ensure that the state makes steady and accountable progress towards the full decarbonization of California’s electricity grid.

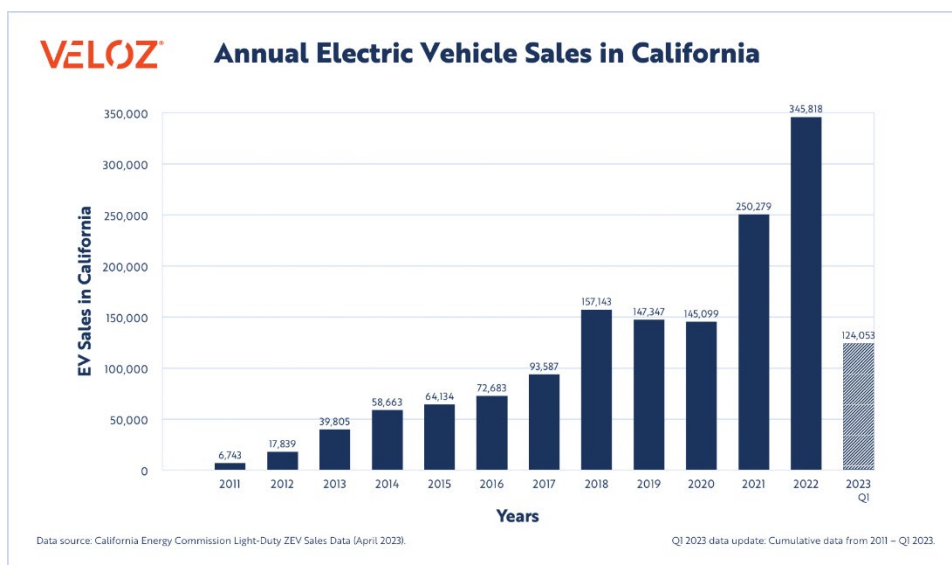
² See “2022 Scoping Plan for Achieving Carbon Neutrality”, CARB, November 16, 2022, p. 9, available at: <https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf>.

³ See “2021 SB 100 Joint Agency Report Summary Achieving 100% Clean Electricity in California”, CEC, September 3, 2021, Docket Number 19-SB-100, TN# 239588, p. 11, available at: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=239588&DocumentContentId=73021>.

⁴ *Ibid.*

⁵ See “California moves to accelerate to 100% new zero-emission vehicle sales by 2035”, CARB, Release Number: 22-30, August 25, 2022, available at: <https://ww2.arb.ca.gov/news/california-moves-accelerate-100-new-zero-emission-vehicle-sales-2035>.

Figure 1: Annual Electric Vehicle Sales in California¹²



Expedited Interconnection Critical to Achieving State Goals

Delays in the interconnection process present challenges for stakeholders looking to connect excess capacity for clean energy technologies such as battery electric vehicle (BEV) charging. Delays can be exacerbated when the EV project site falls in an area with capacity constraints. The CEC’s report on Implementation of Assembly Bill (AB) 2127 Electric Vehicle Charging Infrastructure Assessments uses the electric vehicle supply equipment (EVSE) Deployment and Grid Evaluation (EDGE)¹³ system to conduct an evaluation of areas of potential additional EV charging capacity.¹⁴ Preliminary EDGE results (see Figure 2 below) “based on IOU Integration Capacity Analysis (ICA) maps show large areas of the grid with little to no excess capacity. They

⁶ See “Record-Shattering EV Sales Continue in Q1 2023 as California Reaches the 1.5 Million EVs Sold Milestone Two Years Ahead of Schedule”, Veloz, April 21, 2023, available at: <https://www.veloz.org/record-shattering-ev-sales-continue-california-reaches-1-5-million-evs-sold/>.

⁷ See “Advanced Clean Fleets Regulation Summary: Accelerating Zero-Emission Truck Markets”, CARB, May 17, 2023, available at: <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary>.

⁸ *Ibid.*

⁹ See “Governor Brown Takes Action to Increase Zero-Emission Vehicles, Fund New Climate Investments”, Jan 26, 2018, available at: <https://www.ca.gov/archive/gov39/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/index.html>.

¹⁰ See High Distributed Energy Resources (DERs) Grid Planning Rulemaking R.21-06-017

¹¹ See Balaraman, K., “California could face \$50B price tag by 2035 to prepare grid for DERs, study finds”, May 16, 2023, available at: <https://www.utilitydive.com/news/california-50b-2035-grid-ders/650242/>.

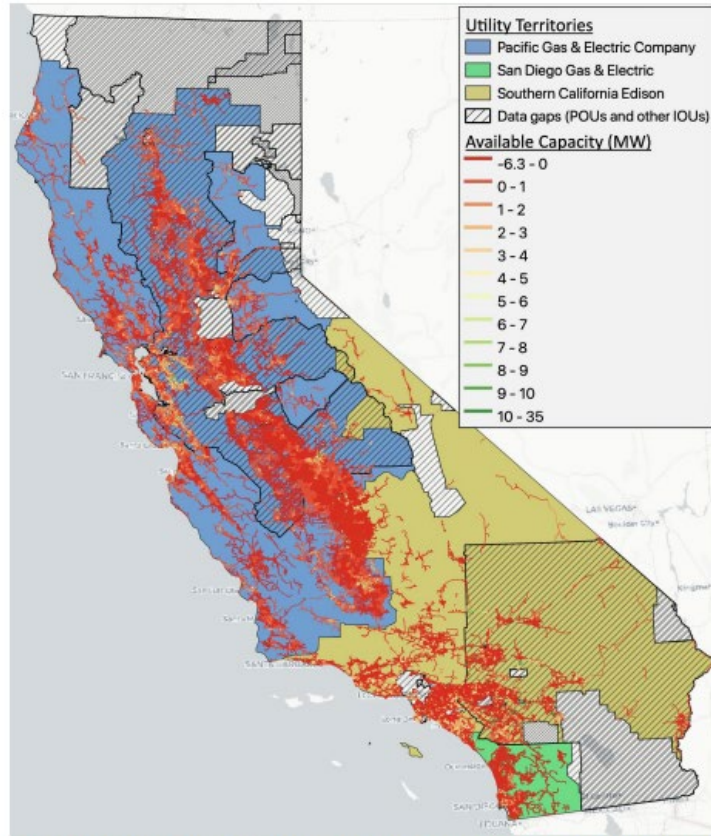
¹² *Ibid.*, Veloz.

¹³ EDGE acts as an early warning system in regional grid planning. Initial EDGE modeling focused on the grid conditions domain, and future iterations will incorporate air quality, travel demand, and equity domains.

¹⁴ See “Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment Analyzing Charging Needs to Support ZEVs in 2030”, CEC, July 14, 2021, Docket Number: 19-AB-2127, TN# 238853, p. 51, available at: <https://efiling.energy.ca.gov/getdocument.aspx?tn=238853>

also show significant gaps in available utility grid data, largely in publicly owned utility (POU) territories.”

Figure 2: EDGE Capacity Analysis and Data Gaps¹⁵



Red lines indicate areas where the grid cannot accommodate additional load without any thermal or voltage violations. Grey hatched areas indicate regions where gaps in utility grid data exist (mostly in POU service areas). Colored lines, keyed in the legend, indicate the available circuit capacity in megawatts.

Source: CEC

Linear Generators Offer a Charging Solution

The Prologis representative on the panel gave an overview of the company’s near-zero and zero emissions electric generation solutions using Mainspring’s linear generators to charge commercial BEV fleets.¹⁶ With support from the CEC, this type of solution could help with interconnecting high numbers of BEV chargers quickly. This solution is especially pertinent to accelerate the decarbonization of medium duty/heavy duty (MD/HD) truck fleets, which tend to emit the highest levels of nitrogen oxide (NOx) emissions.¹⁷ The linear generators are interconnected to the existing gas infrastructure, which allows for timelier electric generation while using technology resulting

¹⁵ *Ibid.*, p. 53.

¹⁶ *Ibid.*, CEC IEPR Interconnection Distribution Grid Workshop.

¹⁷ According to CARB, about 50 percent of California’s greenhouse gas (GHG) emissions comes from the transportation sector. 80% of NOx emissions come from transportation and 90% of diesel particulate matter pollution comes from transportation and *See* Core Responsibility Fact Sheet: Transforming Transportation, CARB, available at: <https://www.energy.ca.gov/about/core-responsibility-fact-sheets/transforming-transportation#:~:text=California's%20transportation%20sector%20accounts%20for,of%20diesel%20particulate%20matter%20pollution.>

in low NO_x emissions. The linear generators provide a feasible path towards using 100 percent renewable natural gas (RNG) with the potential for integrating clean hydrogen in the future. According to Prologis, the linear generators would provide temporary power and eventually be able to provide backup power to support grid resiliency once electric utility services are in place. The linear generator solution could also help bolster the State's energy resiliency and reliability as well as help the State meet ACF and ACC II rules.

The use of linear generators as a complementary resource that can provide quick access to incremental electric capacity would only be one component of the State's network of clean energy infrastructure. Linear generations should be seen as complementing the traditional electric interconnection route because of the unprecedented need for additional zero carbon resources the State has identified. The time remaining for the State to meet decarbonization and clean transportation goals emphasizes that IEPR policy recommendations on interconnection should consider the available pathways that can help meet energy demand and State policy goals.

Conclusion

We offer these comments to contribute to the CEC's efforts towards achieving California's decarbonization goals while maintaining reliability, resiliency, and affordability of our energy system. The unprecedented need to connect clean energy resources to the electric grid, while solving for dispatchability and reliability concerns, and with the speed with which this needs to be done compels a flexible approach that considers all available options on the market. The CEC should consider pathways that enable quick access to additional capacity supported by clean fuels in its policy recommendations regarding accelerating and deploying the interconnection of clean energy resources to the electric grid. Thank you for your consideration of our comments.

Respectfully,

/s/ Kevin Barker

Kevin Barker
Senior Manager
Energy and Environmental Policy