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Comments on the Workshop for the Zero-Emission Vehicle Infrastructure Program (ZIP)

Additional submitted attachment is included below.

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February 4, 2022

Mark Wenzel, Ph.D.
California Energy Commission
Docket Unit, MS-4
Docket No. 21-TRAN-03
715 P Street
Sacramento, CA 95814-5512

Subject: Comments on the Workshop for the Zero-Emission Vehicle Infrastructure Program (ZIP)

Dear Mr. Wenzel:

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the January 20, 2022 California Energy Commission (CEC) Staff Workshop to gather stakeholder feedback on the Zero-Emission Vehicle (ZEV) Infrastructure Plan (ZIP). We appreciate the thoughtful approach that has led to the development of the ZEV Infrastructure Plan Draft Outline and are very excited to collaborate and contribute to the ZEV Market Development Strategy. In the spirit of collaboration, SoCalGas offers the following comments:

1) SoCalGas recommends using the federal statutory definition of clean hydrogen to improve California's alignment with federal funding opportunities;
2) SoCalGas asks the CEC to consider including facility upgrades in the existing funding structure for hydrogen refueling stations; and
3) Including hydrogen infrastructure at seaports can advance the State's decarbonization goals.

1) **SoCalGas recommends using the federal statutory definition of clean hydrogen to improve California's alignment with federal funding opportunities.**

SoCalGas believes that California can better position itself to achieve its climate goals by aligning with the national strategy that focuses on various hydrogen pathways and leveraging federal funds. Such an approach can create solutions that may be replicated across the nation.

During the January 13, 2022 CEC Business Meeting, Commissioner Monahan stated she would lead an effort to try to direct federal funding from the U.S. Department of Energy (DOE) infrastructure bill towards California's Clean Transportation Program.[1] This is great news and we would be interested in collaborating with the Energy Commission on this activity. It is noteworthy that the federal statutory definition of clean hydrogen is "*hydrogen produced with a carbon intensity equal to or less than 2 kilograms of carbon dioxide-equivalent produced at the site of production per kilogram of hydrogen produced*, (emphasis added)."[2,3] Considering a more inclusive definition of "clean hydrogen," based on carbon intensity (similar to the widely successful low carbon fuel program) instead of color,[4] could make it easier for California to align with the direction of the federal Infrastructure Investment and Jobs Act (IIJA). Federal funding could help to strengthen California's role as the low-carbon hydrogen hub of the United States and possibly the globe. As such, the CEC should be inclusive of clean hydrogen and seek to leverage federal funding to accelerate research, development, demonstration, and deployment of hydrogen from clean energy sources.

In addition to clean hydrogen funding of over $9 billion,[5] an incremental and separate provision of the IIJA specifically allocates over $12 billion[6] to Carbon Capture, Utilization, and Storage (CCUS) opportunities. Additionally, hydrogen produced from renewable fuels, such as renewable natural gas (RNG) sourced from dairies in combination with CCUS, is a viable carbon negative pathway. Alternative clean forms of hydrogen offer opportunities to decarbonize California's transportation system.

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[1] *See* "Meeting of the California Energy Commission," CEC, January 13, 2022, available at: https://www.energy.ca.gov/event/meeting/2022-01/meeting-california-energy-commission.

[2] 42 USC 16166 Sections (a) and (b).

[3] The federal definition of clean hydrogen is subject to the development of an initial standard for the carbon intensity of clean hydrogen production to be developed by the Secretary of Energy in consultation with the U.S. Environmental Protection Agency (EPA) and stakeholders within 180 days of enactment.

[4] The energy industry uses different color codes or nicknames to differentiate between the various types of hydrogen – depending on the type of production process used, different colors are assigned. The industry has not yet reached a consensus on naming conventions and color definitions may change over time.

[5] "Infrastructure Investment and Jobs Act: Accelerating the Deployment of Hydrogen," National Law Review, November 18, 2021, available at: https://www.natlawreview.com/article/infrastructure-investment-and-jobs-act-accelerating-deployment-hydrogen.

[6] *See* "CURC Welcomes House Passage of Infrastructure Investment and Jobs Act," Carbon Utilization Research Council, November 5, 2021, available at: http:/www.curc.net/curc-welcomes-house-passage-of-infrastructure-investment-and-jobs-act.

This federal funding may also result in accelerated advancement of other promising technologies that, once scaled, could favorably impact hydrogen development and decarbonization efforts. For example, two promising solutions[7] include:

- Pyrolysis: a high-temperature process wherein methane can be converted into hydrogen and solid carbon (biochar), which can act as a soil amendment and store the carbon in the ground, preventing it from being released into the environment.
- Autothermal reforming (ATR): a process that converts traditional natural gas to syngas, a combination of hydrogen and carbon monoxide. Syngas can then be separated to produce pure hydrogen. The resulting carbon can be captured and stored.

SoCalGas' expressed commitment to the development and deployment of clean fuels, such as RNG, synthetic natural gas, and biofuels, will contribute to the State's energy transition to carbon neutrality by 2045.[8] As expressed in the 2021 Draft IEPR, electric utilities are investing in hybrid power plants that utilize natural gas and hydrogen to generate power.[9] Opportunities likewise exist for fuel cells that can operate using traditional gas, biomethane and/or hydrogen. Fuel cells can also be used to serve areas at high risk of public safety power shutoffs (PSPS) and, thus, reduce the rapidly increasing reliance on diesel backup generators during outages. In SoCalGas comments on the CPUC-CEC En Banc Meeting on the EPIC 4 Investment Plan[10], we explain that fuel cells running on hydrogen, renewable natural gas, or natural gas can complement existing systems and reduce harmful emissions emitted by secondary backup diesel generators.[11] Fuel cells can provide customers with a reliable and resilient electricity source - an approach that serves public health and welfare.

2) SoCalGas asks that the CEC consider including facility upgrades in the existing funding structure for hydrogen refueling stations.

During the public comment period of the workshop, Jaimie Levin of the Center for Transportation and the Environment (CTE) Berkeley raised an important concern regarding the structure of existing CEC funding for hydrogen refueling stations.[12] Specifically, Mr. Levin stated that "[i]t's

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[7] *See* SoCalGas' The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net Zero Climate Goal Report, last modified November 9, 2021, p. 50, available at: https://www.socalgas.com/sites/default/files/2021-10/Roles_Clean_Fuels_Full_Report.pdf.

[8] *Ibid.*

[9] *See* 2021 Draft IEPR, Volume III, p. 73.

[10] *See* SoCalGas Comments on the CEC-CPUC En Banc Meeting on the EPIC 4 Investment Plan, Docket 20-EPIC-01, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=240079&DocumentContentId=73536

[11] SoCalGas also filed a Petition for Modification of CPUC Decision (D.)15-10-049 in CPUC Application (A.)14-08-007, relating to its Distributed Energy Resources Services Tariff. The petition seeks to expand eligibility of the tariff to meet the reliability and resiliency needs of critical customers and decrease greenhouse gas emissions and reducing reliance on diesel backup generation.

[12] *See* Zoom recording of the Zero-Emission Infrastructure Plan (ZIP) Workshop, California Energy Commission, January 20, 2022, at 00:14, available at: https://energy.zoom.us/rec/play/tvxlp1H2biHPG4pHqpYb9Ro9Lm9EqHROR98pkt28GMoR2IRtp7xd5qL2N_GUAe7Lnerl-BSVHWQQ8dsD.B9f-IgbGkKC9olZG?continueMode=true&_x_zm_rtaid=hf94e_GGQtGUjs8J2ECx2w.1643736222792.7e2d2d657d3f63

not enough to build out [hydrogen] fueling stations for medium, heavy-duty applications, we also need help in funding upgrades to facilities, which includes mechanical [electrical] upgrades…also the installation of gas and flame detectors and alarm systems…"[13] To this end, SoCalGas agrees with the concern raised regarding the structure of existing CEC funding for hydrogen refueling stations and recommends that the CEC expand existing funding mechanisms for refueling stations to include facility upgrades.

3) Including hydrogen infrastructure at seaports can advance the State's decarbonization goals.

According to CARB, major seaports in California are experiencing a substantial increase in cargo imports and significant rates of congestion at terminals and surrounding areas.[14] This, in turn, is impacting emissions from freight-related sources, which can negatively impact the air quality of neighboring communities.[15] As of March 2021, the increased cargo and congestion resulted in overall emissions increases of "14.5 tons per day (tpd) of oxides of nitrogen (NOx) and 0.27 tpd of particulate matter (PM) in the South Coast Air basin relative to average pre-pandemic baseline levels."[16] One pathway to advance the decarbonization of the State's seaports is the inclusion of hydrogen infrastructure, which in the long-term can be used for green shipping corridors.[17]

In SoCalGas' comments on the Fiscal Year 2022-2023 Gas R&D Research Initiatives,[18] SoCalGas highlighted a variety of end uses that benefit from a clustered and interconnected hydrogen system across port complexes. A cluster allows the facilitation of partners across the value chain to ensure supply from these end uses balances with potential production at the ports, as well as supply brought in from elsewhere. Seaport hydrogen infrastructure can be coordinated with fueling stations and pipelines across the broader region covered by the cluster to efficiently buildout at the lowest cost while also creating a seamless experience for manufacturing and shipping companies connected to the ports through clean transport corridors. This integrated energy system ultimately allows for end-to-end green shipping channels, speeding up the timeline of decarbonization, and providing a business opportunity for companies routing through the port via premium low-carbon products.

In fact, the SoCalGas Clean Fuels Report highlights the potential benefits of hydrogen refueling stations strategically placed along key transit corridors to provide clean fuels to long-haul trucks supported by hydrogen pipelines or on-site hydrogen production.[19] All pathways should be

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e2dea995d20872e052&_x_zm_rhtaid=836. Transcriptions of workshop statements in this comment letter should be considered unofficial and are based on the publicly web-provided workshop video.

[13] *Ibid*

[14] *See* "Emissions Impact of Recent Congestion at California Ports," California Air Resources Board, September 13, 2021, available at: https://ww2.arb.ca.gov/sites/default/files/2021-09/port_congestion_anchorage_locomotives_truck_emissions_final_%28002%29.pdf.

[15] *Ibid*

[16] *Ibid*

[17] *See* the "Advancing U.S. and Chinese Subnational Climate Action. Day Two", Discussion starting at 35:00, available at: https://www.youtube.com/watch?app=desktop&v=Srin1fdETxE&feature=youtu.be

[18] *See* SoCalGas Comments on the Gas R&D Workshop, California Energy Commission Docket 16-PIER-01, TN# 241348, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=241348&DocumentContentId=75302

[19] *See* SoCalGas' The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net Zero Climate Goal Report, p. 44.

considered and discussed within the ZIP Draft Outline, especially considering that 40% of total greenhouse gas (GHG) emissions in California today come from the transportation sector – the single largest emissions contributor.[20] The 2021-2023 Investment Plan update for the Clean Transportation Program states that "[i]n some off-road applications such as construction or agriculture, access to the grid may be nonexistent, and mobile or other emerging charging solutions will need to be deployed."[21] Strategically placed hydrogen fueling stations near major trucking corridors can help the State provide a solution to grid access for off-road applications such as construction or agriculture.

In addition to on-road trucking, the rail sector serves a significant percentage of goods movement in and out of the ports. According to Sierra Northern Railway, "[m]ost switcher locomotives in California consume an average of 50,000gal/y per switcher...."[22] As such, the rail sector can also benefit from hydrogen infrastructure, as fuel cell engines for switcher locomotives can help to eliminate related emissions, improve local air quality, and reduce associated noise and odor. We are excited to partner with Sierra Northern Railway and Gas Technology Institute (GTI) on a CEC grant (GFO-20-604) to develop and test a zero-emission hydrogen fuel-cell engine for a switcher locomotive. Through the $4 Million in secured funding from the CEC, the new zero-emissions switcher locomotive will displace up to 10,000 gallons of conventional diesel fuel per year by using hydrogen fuel, providing the capacity to eliminate more than 100 metric tons of carbon dioxide (CO_2)—more than that produced by driving a car 250,000 miles. [23]

Conclusion

In closing, we commend the CEC's continued determination to advance clean transportation goals statewide. We look forward to continuing to work with CEC staff in efforts to develop a ZIP that will positively benefit all Californians.

Respectfully,

/s/ Kevin Barker

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[20] *See* Current California GHG Emission Inventory Data Webpage, California Air Resources Board, available at: https://ww2.arb.ca.gov/ghg-inventory-data.
[21] *See* "2021-2023 Investment Plan Update for the Clean Transportation Program," California Energy Commission, December 2021, p. 51, available at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=240977.
[22] *See* "Sierra Northern Railway and GTI Receive $4m for hydrogen switcher locomotive," Railway Technology, March 19, 2021, available at: https://www.railway-technology.com/news/sierra-northern-railway-gti-locomotive/.
[23] *See* SoCalGas Partners with Sierra Northern Railway to Fund Development of Hydrogen Fuel Cell Switcher Rail Locomotive, FuelCellsWorks, July 29, 2021, available at: https://fuelcellsworks.com/news/socalgas-partners-with-sierra-northern-railway-to-fund-development-of-hydrogen-fuel-cell-switcher-rail-locomotive/