DOCKETED	
Docket Number:	19-TRAN-02
Project Title:	Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure
TN #:	258215
Document Title:	Southern California Gas Company - SoCalGas Comments on CEC MDHD ZEV Infrastructure Solicitation Concepts
Description:	N/A
Filer:	System
Organization:	Southern California Gas Company
Submitter Role:	Public
Submission Date:	7/30/2024 4:28:41 PM
Docketed Date:	7/30/2024

Comment Received From: Southern California Gas Company
Submitted On: 7/30/2024
Docket Number: 19-TRAN-02

SoCalGas Comments on CEC MDHD ZEV Infrastructure Solicitation Concepts

Additional submitted attachment is included below.

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July 30, 2024

Hannon Rasool
Director, Fuels and Transportation Division
California Energy Commission
Docket Unit, MS-4
Docket No. 19-TRAN-02
715 P Street
Sacramento, CA 95814-5512

Subject: Comments on the CEC Staff Workshop for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure Solicitation Concepts

Dear Mr. Rasool,

Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the July 16, 2024, California Energy Commission (CEC) Staff Workshop for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure Solicitation Concepts. SoCalGas commends the CEC for its efforts to develop funding opportunities that are tailored to fill the gaps in medium- and heavy-duty (MD/HD) zero emission vehicle (ZEV) infrastructure development. These funding opportunities will play an integral role in the implementation of the California Air Resources Board's (CARB) Advanced Clean Fleets (ACF) rule requirements[1] for public and private MD/HD vehicle fleets to begin transitioning toward zero emissions starting in 2024 with a goal of being 100 percent ZEVs by 2045,[2] where feasible.

SoCalGas' comments focus on the following topics: 1) Linear generators offer a suitable technology for Concepts 1 and 2[3]; 2) Tri-Generation (Tri-Gen) systems provide a viable

[1] ACF includes Drayage Truck Requirements for drayage trucks transporting cargo to and from California's intermodal seaports and railyards. The ACF Drayage Truck Requirements helps to meet the directive of Executive Order (EO) N-79-20, which set a goal for 100 percent zero-emission drayage trucks in the State by 2035.
[2] *See* CARB, Advanced Clean Fleets, accessed June 18, 2024, available at: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets.
[3] Concept 1 refers to Charging and Refueling Infrastructure for Transport in California Provided Along Targeted High Segments 2.0 proposed solicitation which supports installation of MD/HD hydrogen refueling and EV charging in the form of Direct Current Fast Chargers (DCFC).

technology solution for Concepts 3 and 4; and, 3) SoCalGas provides responses to questions about Concepts 1-3 that the CEC posed during workshops.

1) Linear generators offer a suitable technology for Concepts 1 and 2.

As the CEC develops its MD/HD ZEV infrastructure solicitations, SoCalGas proposes two types of technologies for the CEC to consider: linear generators for concepts regarding MD/HD EV charging and hydrogen refueling stations along designated freight corridors; and fuel cell Tri-Generation systems for on-site power generation and hydrogen refueling at farms, construction sites, and ports.

Linear generators may be a suitable technology for Concepts 1 and 2 which focus on publicly available charging infrastructure for MD/HD battery electric vehicles (BEVs) and hydrogen refueling stations for MD/HD fuel cell electric vehicles (FCEVs) along designated freight corridors. Linear generators can be installed quickly and begin operation through interconnecting with local, existing gas infrastructure. The linear generators can then be used to supply electricity for MD/HD ZEV trucks. The use of linear generators can speed up the process of installing and operationalizing EV chargers as electric interconnection can take years. An example of this multi-technology solution is at the Torrance Prologis, Inc. facility, where the company has installed a HD EV charging depot powered by the Prologis Denker microgrid which supports 96 charging stalls.[4] The microgrid uses 2.75 MW of fuel-flexible, hydrogen-ready linear generators paired with 18 MWh of batteries to provide up to 9 MW of charging capacity.[5]

2) Tri-Gen systems provide a viable technology solution for Concepts 3 and 4.

Tri-Gen systems may be suitable for Concept 3 Agriculture and Construction and Concept 4 ZEV Port Infrastructure. Tri-Generation systems are fuel cells units that convert natural gas or renewable natural gas (RNG) to hydrogen, electricity, and water as part of the power generation process. Hydrogen production is driven by waste energy from the fuel cell process, rather than the conventional burning of fuel. The Tri-Gen system is suitable to be sited near industrial hydrogen users such as ports and hydrogen refueling stations supplying hydrogen to FCEVs. As the Tri-Gen unit can run on natural gas or RNG, the system can also be sited near renewable fuel sources, such as wastewater treatment plants and farms, to produce renewable hydrogen. The Toyota Tri-Gen

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Concept 2 refers to Implementation of MD/HD ZEV Infrastructure Blueprints 2.0 proposed solicitation which supports installation of MD/HD ZEV hydrogen refueling and charging projects and 12 months of data collection.
Concept 3 refers to the Agriculture and Construction Infrastructure proposed solicitation which will fund deployment of ZEC charging or refueling infrastructure at agriculture and construction sites, as well as build out reliability through construction of on-site generation.
Concept 4 refers to ZEV Port Infrastructure proposed solicitation which will fund MD/HD ZEV hydrogen refueling or charging infrastructure for California ports, focus on building out grid capacity and onsite generation.

[4] "North America's Largest Heavy-Duty EV Charging Hub Powered by Microgrid," Prologis Essentials, May 2024, available at: https://www.prologis.com/insights/success-stories/north-americas-largest-heavy-duty-ev-charging-hub-powered-microgrid.

[5] *Ibid.*, Prologis.

unit at the Port of Long Beach uses directed renewable biogas to produce up to 2.3 MW of renewable power to meet Toyota's power needs and 1,200 kg/day of renewable hydrogen which is used to fuel imported Mirai FCEVs that are received at the port.[6]

3) SoCalGas provides responses to questions about Concepts 1-3 that the CEC posed during workshops.

Our answers to the questions CEC posed to the public during the workshop[7] are as follows:

Concept 1 - Charging and Refueling Infrastructure for Transport in California Provided Along Targeted Highway Segments (CRITICAL PATHS) 2.0

1. *Is the proposed increased minimum power output per charger from >150kW to >350kW reasonable?*

   350kW requirement does seem reasonable as long as the project meets the minimum requirement of at least 10-350kW chargers. Allowing for additional 150kW chargers as part of the project would provide additional opportunities at the location for more chargers, less impact to the electric grid, and different charging use cases. The additional 150 kW chargers should be eligible for grant funding as well. Further, MD trucks may not need the high capacity charging as much as HD trucks. Allowing for more economical lower capacity charging will allow more vehicles to charge simultaneously.

2. *What are the greatest barriers to developing public MD/HD charging/refueling sites at this time? Electrification, permitting, land availability, others?*

   SoCalGas offers no comment.

3. *Did certain requirements in the first CRITICAL PATHS (GFO-23- 602) prevent potential applicants from submitting projects that would have achieved the goal of public MD/HD ZEV infrastructure on priority corridors? Please elaborate.*

   The fact that investor-owned utilities (IOUs) were ineligible for the solicitation could have prevented some potential hydrogen refueling projects from applying. The intended purpose behind making IOUs ineligible for the solicitation is unclear given the potential benefits that such projects could provide. For instance, as IOUs comply with the ACF regulations, utility bases have the potential to be hubs for ZEVs, and if available to the general public, would promote adequate customer usage as the public MD/HD ZEV fleets ramp up. Furthermore, requiring two sites per project is also a limiting factor, especially for projects targeting MD ZEVs with limited range, because the typical duty cycle may keep the service

[6] "FuelCell Energy 2023 Sustainability Report," FuelCell Energy, 2024, p. 18, available at: https://go.fuelcellenergy.com/hubfs/fuelcell-energy-2023-sustainability-report.pdf.

[7] "CEC Staff Workshop for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure Solicitation Concepts," CEC, July 16, 2024, available at: https://www.energy.ca.gov/event/workshop/2024-07/staff-workshop-medium-and-heavy-duty-zero-emission-vehicle-infrastructure.

routes near and around the operational parameter of one refueling station. To address the potential for such use cases, if the solicitation includes the minimum requirement of three hydrogen refueling stations, the solicitation should likewise be open to locate the refueling stations at one or more sites.

Concept 2 - Implementation of MD/HD ZEV Infrastructure Blueprints 2.0

1. *What is missing from this concept that should be included?*

   SoCalGas offers no comment.

2. *Is the list of "Eligible Applicants" adequate?*

   SoCalGas offers no comment.

3. *Should there be caps on how much CEC pays per charger?*

   SoCalGas offers no comment.

4. *Should the solicitation request minimum charger levels and/or minimum number of dispensers and/or ports/nozzles?*

   SoCalGas offers no comment.

5. *Should Applicants be allowed to propose sites that are not included in their original blueprint?*

   Yes. Many of the original blueprints limited locations based on electricity distribution capacity, and a limiting factor was whether or not distribution capacity upgrades were in the planning or implementation phase for the electric utilities. The eligibility of microgrid components for funding from this grant solicitation allows for more optimal charging locations suitable for the transportation duty cycle needs. As long as the locations meet the other needs and requirements of the blueprints, the geographic locations should be expanded beyond the limiting electric capacity constraints.

6. *Should there be caps on microgrid components?*

   There should not be caps on the microgrid components. In order to expeditiously deploy HD chargers at the locations most valuable for goods movement, specific locations must be at transportation distribution hubs and/or routes. These locations may or may not be located at ideal sites for the electric system, so microgrids will be essential for the HD charging necessary.

7. *How do we ensure that microgrid(s) is/are dedicated to the vehicles and sized appropriately?*

   The easiest way to make sure microgrids are dedicated to the vehicles and sized appropriately is to mandate full islanding for a minimum length of the deployment. For example, this could be the first year of the project. Many of the sites may not have the ability to interconnect to the electric grid, so such a requirement could encourage the projects to be deployed ahead of utility interconnection queues. Doing so would provide a pathway forward for interconnection in which microgrids play an important role for grid reliability by providing power to the grid during peak and emergency events.

8. *What is the best way to ensure that CARB and CEC coordinate funding?*

   SoCalGas offers no comment.

Concept 3 – Agriculture and Construction Infrastructure

1. *Is fund stacking eligible?*

   Fund stacking should be eligible, especially for agriculture sites, as much of the capital expenditures of the projects may be necessary for collection and processing of the agricultural waste to create the feedstocks for hydrogen or electricity production. Projects should be allowed to pursue additional incentives for the infrastructure components associated with this piece of the project.

2. *Is minimum award reasonable?*

   SoCalGas offers no comment.

3. *What is missing from this concept that should be included?*

   Similar to the response to the fund stacking question, chargers and hydrogen refueling may not be the most cost-prohibitive components of the project. Allowing for onsite energy production (hydrogen and/or electricity) through existing waste streams should be eligible for funding and will have significant GHG reduction benefits, as well as air quality and water quality benefits.

4. *What are barriers to entry that should be considered in off-road projects?*

   SoCalGas offers no comment.

Conclusion

SoCalGas appreciates the opportunity to provide comments on the CEC's development of future funding opportunities for MD/HD ZEV infrastructure. We recommend the CEC consider linear generators and fuel cell Tri-Gen systems as eligible technologies under these solicitations, given that these technologies may meet the needs of the targeted industries with greater flexibility of installation sites, their short deployment times, and ability to deliver air quality benefits in a timely manner. Linear generators are also fuel flexible and can easily change between different fuel sources such as natural gas and RNG to hydrogen or blended hydrogen. These technologies could play a pivotal role in supporting the State's clean transportation and decarbonization goals. Thank you for your consideration of our comments.

Respectfully,

/s/ Kevin Barker

Kevin Barker
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Energy and Environmental Policy