

DOCKETED

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Gage Zero Response to CEC CFI RFI Docket 24-EV1-01

Additional submitted attachment is included below.



Gage Zero

June 10, 2024

U.S. Department of Transportation's Charging and Fueling Infrastructure Grant Program – Tri-State CFI RFI



Docket Number | 24-EVI-01

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Cover Letter

June 10, 2024

California Energy Commission
Docket Unit, MS 4
Re: Docket No. 24-EVI-01
715 P Street
Sacramento, CA 95814-5512

Dear California Energy Commission Staff,

On behalf of Gage Zero LLC, I am pleased to submit our response to the Request for Information (RFI) for Ideas and Considerations for the Tri-State USDOT CFI (docket number 24-EVI-01). Our team is committed to a future where zero-emission fleets are the norm, contributing to a cleaner planet for future generations.

At Gage Zero, we specialize in deploying reliable infrastructure and crafting cost-effective solutions that are pivotal in accelerating the transition to zero-emission fleets, thereby benefiting communities and supporting sustainability goals. With over 20 years of collective experience in large-scale utility, renewable energy, and transportation projects, our team has been instrumental in deploying over \$10 billion in capital, showcasing our deep commitment and capability in this sector.

Our mission is to build a future-oriented, equitable, diverse, and sustainable organization, capable of addressing the challenges of one of the world's most vital industries – commercial transportation. With a strong financial backbone, supported by a \$300 million equity commitment from ARC Financial, Gage Zero is well-positioned to expand electric charging infrastructure across the United States. This aligns perfectly with the objectives of the U.S. Department of Transportation's Charging and Fueling Infrastructure Grant Program, where we aim to contribute our expertise and experience. In 2024, we announced our first two multi-fleet charging hubs in Fontana, California and AllianceTexas.

We are excited about the opportunity to partner with the State of California, State of Washington, and State of Oregon on this ambitious project. Our response details our approach to developing medium- and heavy-duty vehicle charging to meet the present and future demands of zero-emission transportation. We believe that our proven track record, combined with our innovative solutions, positions us as an ideal partner in realizing the vision for a sustainable transportation future.

We look forward to collaborating with the California Energy Commission on this transformative initiative.

Sincerely,



Zeina El-Azzi
Co-Founder & Chief Executive Officer
Gage Zero LLC

Responses to RFI Questions

- 1. Please disclose your business type and vehicle class, if applicable. Are you a driver, fleet operator, truck stop operator, installer, manufacturer, utility, public agency, or other? Are you part of a small, veteran-owned, woman-owned, or minority-owned business?**

Gage Zero is a women-led team of clean energy and transportation experts with more than \$10 billion in combined infrastructure and transportation experience who have come together to develop, own, and operate reliable, multi-fleet electric truck charging hubs nationwide, including in California, Oregon, and Washington. These multi-fleet charging hubs will be conveniently located for customers and eliminate upfront costs for fleets related to the build-out of charging infrastructure – which is a key barrier to electrification. Gage Zero’s multi-fleet charging hub model supports the rapid acceleration of zero-emission trucking by (a) allowing fleets to rapidly electrify without having to expend capital to construct the necessary charging infrastructure, and (b) allowing for opportunity charging to support the electrification of fleets of all sizes and use cases.

Gage Zero offers a turnkey package including the charging hub site, the utility infrastructure and any upgrades required, on-site infrastructure including chargers and distributed energy resources such as solar and battery storage, energy and fleet management systems, uptime guarantees, and on-site technical and security staff. We provide charging as a service with a simple payment model based on a \$/kWh fee for opportunity charging or a monthly reservation fee for contracted charging stalls that includes energy for charging.

- 2. Would you consider applying for CFI grant funding for site development if the tri-state agencies are awarded funding?**

Gage Zero would be thrilled to partner with the tri-state agencies on funding awarded by the U.S. Department of Transportation’s Charging and Fueling Infrastructure Grant Program. Our national build-out strategy includes multiple sites in California, Washington, and Oregon and CFI grant funding would greatly expedite the energization of our planned charging hubs through the added capital investment.

- 3. Do you already operate or are you planning to use zero-emission battery electric MDHD vehicles in the next five years? Please use a 1-5 rating scale where 1= least likely and 5= most likely. Please add additional information regarding your (planned) use of zero-emission battery electric MDHD vehicles as desired.**

Gage Zero does not itself own any zero-emission battery electric MDHD vehicles but we work closely with fleet operators to electrify their vehicle portfolio. Our team also works to connect fleet customers with vehicle manufacturers, and we provide access to EV fleet leasing companies, in addition to supporting fleet operators in assessing the available federal, state, local, and utility incentives and rebates to make the transition to electric more affordable.

- 4. What type of MDHD ZEV public charging do you anticipate being most important in the next three years (2024-2027) – en route or overnight charging? For what purposes do you anticipate needing public charging infrastructure – drayage, last-mile, delivery, long-haul**

freight, other?

The type of MDHD ZEV public charging needed depends on use case. For long-haul freight, en-route charging is important because these vehicles do not follow a return-to-base duty cycle, and hence will need to charge along their route. In contrast, last-mile, delivery, and drayage typically follow return-to-base duty cycles and hence can charge at centralized locations – whether overnight or during the day, depending on what time of day driving occurs.

In a charging network designed to support long-haul freight, the commercial success of any one charging station in the network is partly dependent on the degree to which the whole en-route network is built out. And the number of customers, and hence the charger utilization percentage, is a little less predictable than for other return-to-base market segments. For these reasons, it is important that a portion of public funding, such as CFI program funds, be used to support the build-out of long-haul networks.

5. From 2024-2027, what is your first priority for power level and number of charging ports for public en route charging at a station? For public overnight charging? Do you have a second or third configuration preference?

Charging is most cost-effective if it's slower and occurs during off-peak utility pricing hours. Thus, for return-to-base duty cycles with overnight (or longer-dwell) charging periods, we can calculate the minimum charging capacity. For example, a class 8 truck with a 500 kWh battery dwelling for 10 hours overnight can charge more cost-effectively at 50 kW (= 500 kWh / 10 hr). Or, a medium-duty van with a 250 kWh battery with a 10 hour dwell time can charge even more slowly, at 25 kW (= 250 kWh / 10 hrs). In reality there may be occasions when dwell times are shorter, so power levels should be at least somewhat higher to accommodate those situations.

For en-route opportunity charging for long-haul freight, the need to keep the freight moving may outweigh the fleet's cost considerations, i.e. faster charging is better for this duty cycle. Thus, 150 kW, 350 kW, or eventually 1+ MW per port will be needed to get freight back on the road as quickly as possible.

The number of ports depends on the expected number of customers / vehicles that will use the site. We expect many of Gage Zero's sites to be built out in phases to match the ramp-up in demand from fleet customers. Thus, a site might start with 10-20 stalls but grow to 50-100 stalls (or more) over time as customer demand increases, assuming enough land and utility power is available.

6. Please identify the percentage of pull-in or pull through parking preferred and other desired station configurations at a given site. Describe the vehicle class and vocation considered when making this recommendation if it differs from the information provided in question 1.

Many fleets, especially those using class 7 and 8 tractor + trailers, prefer pull-through stalls to minimize turning and backing up. That being said, pull-through stalls that can accommodate trailers take up significantly more space than pull-in stalls. Gage Zero typically designs its

charging sites with a mix of pull-in and pull-through stalls depending on the land area and utility power available, with a greater percentage of pull-in stalls, in order to maximize the number of stalls and optimize the use of utility power, while also making sure that we can accommodate our customers who in some cases may prefer or require only pull-through stalls.

7. What distance should separate charging stations to support zero-emission trucks along the I-5 corridor? Provide description of typical route or use-case considered when making this recommendation. Describe the vehicle class and vocation if it differs from the information provided in question 1.

Our recommendation is to primarily focus on strategic locations that serve both regional long-haul/corridor traffic and return-to-base charging for inland ports, logistics areas, and last-mile delivery staging areas rather than the distance between sites. This strategy aligns with the Joint Office of Energy and Transportation's National Zero-Emission Freight Corridor Strategy Phase 1 goal (2024-2027) to first establish hubs, then utilize subsequent funding to connect hubs for increased regional freight movement in Phase 2 (2027-2030), and finally completing the network by 2040 to support local, regional, and long-haul travel. In addition, these multi-use sites that serve various duty cycles would effectively maximize CFI grant funding required for these time-intensive and capital expense-heavy projects that necessarily require multi-MW utility upgrades and extensive construction.

8. What amenities are you seeking at a charging facility? Is there a desire for additional parking at a facility beyond charging stalls? Is there a desire for reservation options?

We typically construct a driver amenity building that contains amenities including restrooms, showers, a lounge with healthy food options and refreshments, Wi-Fi, and cell phone charging.

9. If possible, provide any general cost estimates for MDHD charging stations you have designed, built, or have experience with, including charger power levels and number of chargers installed.

While build-out costs for multi-fleet charging hubs greatly vary by the underlying power capacity available from the local utility, the underlying rebates/incentives available to bring down the capital costs in each region, the amount of charging predicated by the regional fleet demand, and even the actual site conditions upon which the hub is being built itself, our team at Gage Zero can provide representative costs for consideration.

Location	# of ports	# of charging stalls	MW per site	# of 350 kW dual-port chargers	# of 180 kW dual-port chargers	# of 120 kW dual-port chargers	Estimated "All In" Build Cost from Site Acquisition to Energization
Los Angeles, CA	34	34	5.1	12	5	0	\$19,200,000
Oakland, CA	34	34	5.1	12	5	0	\$15,700,000
Tacoma, WA	60	60	5.0	10	10	10	\$15,800,000

10. Please provide a range of public cost share as a percentage of total project cost that

would be necessary to support more public charging stations to serve zero-emission trucks along freight corridors.

A 60% public funding / 40% private match funding split would best support the rapid build-out of the necessary charging infrastructure to quickly and equitably electrify medium and heavy-duty trucking. Unlike light duty vehicle charging projects, which are most often built by bringing in additional power to existing sites, medium- and heavy-duty charging sites require far more extensive development cycles from site acquisition to site energization.

- 11. Use the maps under the “Corridor Segments” section below to identify locations within the National Zero-Emission Freight Corridor Strategy hubs along I-5 (identified in the map segments below) you anticipate needing EV charging in the next three years (2024-2027). You may identify sites where you plan to or would be interested in building charging stations or where you would like to see charging as a consumer. Please detail preferred locations across California, Oregon, and Washington. For each location, please provide desired site characteristics including number of chargers, power levels, type of charging desired (overnight or en route), and vehicle class and vocation if the information differs across locations or differs from the information provided in the questions above.**

As described above, we suggest prioritizing sites on the identified sections of the I-5 which serve return-to-base charging as well as regional/long-haul corridor trafficking. In addition, multiple levels of power suiting the various duty cycles as previously stated would best maximize CFI funding. By state, the following locations would successfully achieve this dual-purpose strategy:

Washington	Oregon	California
International Border Tacoma, WA Vancouver, WA	Eugene, OR Medford, OR	Redding, CA Sacramento, CA Stockton, CA Coalinga, CA Castaic, CA

Conclusion

Our team at Gage Zero greatly appreciates the opportunity to provide feedback to the tri-state agencies and look forward to collaborating with you to build out this critical charging infrastructure along the West Coast. We invite further conversation on any of the answers provided above and urge you to contact us with any other information that will help support a successful CFI award.