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Terawatt Infrastructure Response to the CEC Drayage CFI RFI

Please see attached document for Terawatt Infrastructure RFI

Additional submitted attachment is included below.

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June 28, 2024

California Energy Commission
715 P Street
Sacramento, California 95814

Re: Considerations for the California Energy Commission Zero-Emission Medium- and Heavy-Duty Drayage Infrastructure Application for the U.S. Department of Transportation's Charging and Fueling Infrastructure Discretionary Grant Program

Introduction

Thank you for the opportunity to submit information to assist the California Energy Commission with its Zero-Emission Medium- and Heavy-Duty Drayage Infrastructure Application for the U.S. Department of Transportation's Charging and Fueling Infrastructure Discretionary Grant Program.

Terawatt Infrastructure (Terawatt) is a California-based company building a nationwide network of charging solutions for light-, medium-, and heavy-duty fleet vehicles. Terawatt provides convenient, reliable charging infrastructure that keeps fleets running efficiently. We own, develop, operate, and maintain charging sites and operational solutions that form the backbone of commercial EV transport in the U.S., and have raised more than \$1 billion to deliver our national network.

With a purpose-built platform that combines a robust portfolio of property assets, capital, asset financing capabilities, and energy and project development expertise, Terawatt is filling the multi-trillion dollar investment gap in fleet EV infrastructure and leading the way in this pivotal moment in the transition to a zero-emission transportation sector and clean energy economy. The company develops, operates, and finances EV charging solutions which can ease grid congestion, and help customers manage demand charges and reduce peak load, while ensuring reliable, resilient energy supply for vehicle charging. Terawatt's unique infrastructure and real estate strategy lowers cost and risk for partners, while providing asset-backed downside protection and capital efficiency through institutional capital backing, as well as additional upside potential with the layering on of Terawatt's capabilities in energy infrastructure and management.

Terawatt's mission is to power electrified fleets with the most reliable network of charging centers. The company was founded, in the absence of anything like it, to be the nation's reliable, long-term partner providing solutions for the large scale electric vehicle charging infrastructure required to meet the transformative shift to all-electric transportation for commercial fleets. Terawatt's business model is to develop large scale charging centers to serve medium- and heavy-duty trucking customers. Terawatt matches the expected



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site build to the region's expected charging demand, over time and in phases. The development of a Terawatt Charging Center provides significant incentive for trucking fleets to electrify, and Terawatt is highly engaged with fleets to ensure charging solutions are sufficient to enable their electrification. We're a diverse team with backgrounds in real estate development and construction, data centers, clean energy, and mobility. Playing our part to reduce carbon emissions at scale is what gets us out of bed in the morning, and we're excited to collaborate with people, governments and companies that share our ambitions.

We provide these comments informed by our experience developing and deploying charging infrastructure for fleets in California, where we have 11 sites under development and a large portfolio of existing properties and planned site acquisitions along the I-5 corridor. Additionally, Terawatt in partnership with the New Mexico Department of Transportation was awarded the largest MHD EV charging award in the first round of the CFI Program.

For more information, please contact:

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RFI Response

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?

Terawatt Infrastructure is a charging provider for commercial fleet vehicles. Terawatt works with MHD commercial fleets to meet their demand for charging in electrified last mile, drayage, short-, medium-, and long-haul vehicle use cases.

2. The purpose of this RFI is to help inform the CEC's application to the Federal Highway Administration (FHWA) for federal funding. If awarded, the CEC will release a competitive grant funding solicitation to provide funding to end recipients who would develop and construct the zero-emission MDHD infrastructure. Would you consider applying for CFI grant funding for site development if the CEC is awarded funding?

Yes, Terawatt would apply for CFI grant funding for site development if the CEC is awarded funding.

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.

Not applicable.

4. For drayage fleet operators and drivers:

Not applicable.

5. For EV charging and hydrogen fueling providers, describe:

a. Your organization's business model for public charging and/or hydrogen fueling offerings.

As stated above, Terawatt owns, develops, operates, and maintains charging sites and operational solutions for commercial fleets.

b. Mechanisms your organization might leverage to provide affordable charging and fueling services to drayage fleet operators.

Terawatt would work with various drayage fleet operators to lower the cost of charging by assisting fleets in identifying all applicable grants, incentives, and tax credits that could lower the overall cost of vehicles and operation. In addition, through the use of solar installations and stationary energy storage and other approaches, Terawatt works to mitigate potentially variable costs of charging.



c. The scope of services, facilities and amenities provided at your recharging/refueling locations.

Terawatt offers amenities including drivers lounges, wifi, and food and beverage services at sites. However, Terawatt does not offer the amenities found at diesel truck stops such as showers or multiple restaurants. Terawatt's sites are often located in close proximity to full service diesel truck stops or other locations that can offer those amenities to drivers.

d. The anticipated site size, parking configuration (e.g., pull-through), total number of charging stalls capable of simultaneous charging, and total number of truck parking spaces that are not dedicated to charging or refueling.

Site sizes will vary based on utilization. For drayage charging applications, the majority of charging stalls at stations should be pull-through as the majority of trucks on the road will be hauling a trailer at any given time. Pull-in or bobtail parking can be used for overnight charging or at a fleet's central depot location, but are less suited for drayage sites compared to pull-through stalls that can accommodate trucks with and without a tractor.

The total number of truck parking spaces not dedicated to charging should be minimized, as land is at a premium at sites intended for drayage use, and must be focused on fast charging to turn over stalls as quickly as possible.

e. How your organization approaches right-sizing infrastructure for nearterm market demand and future-proofs infrastructure to be responsive to evolving needs.

Terawatt only develops and operates high-powered charging infrastructure, and recommends requiring sites to offer high-powered charging in excess of 350 kW, with a commitment to upgrading EVSE to 1 MW chargers once sufficient energy capacity is available at the site. Fleets operate on tight margins, and require the fastest charging speeds available for corridor travel to ensure that goods can be delivered as fast as possible.

6. What distance should separate stations to support zero-emission drayage truck activities around California ports? Provide a description of a 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.

Terawatt recommends sites in proximity to identified freight corridors but outside the port itself for drayage trucks.

7. If possible, provide any general cost estimates for MDHD charging and/or hydrogen fueling stations you have designed, built, or have experience with, including charger power levels and number of stations installed. Please provide a range of public cost-share as a percentage of the total project cost necessary to support more public

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charging stations to serve zero-emission trucks along drayage corridors. For example, should the publicly funded cost share be 50% CEC/federal and 50% private/other?

Site costs can vary significantly, especially when located in dense urban locations like those often needed for drayage corridor purchases. Terawatt is able to share its existing experience with CFI sites it is currently building in New Mexico.

Terawatt in partnership with the New Mexico Department of Transportation was awarded \$63.8M of CFI funding to build two MHD charging centers in Vado and Lordsburg, NM along Interstate 10. In addition to this funding, Terawatt is contributing almost \$17M in non-federal matching funds, bringing the total project size to \$80M. This funding covers multiple phases of the charging center's development.

MHD charging sites are very capital intensive and require significant utility upgrades, battery energy storage systems, and onsite generation where feasible. They also must scale up over time, as it is not common to have a shovel-ready project location that has secured significant amounts of power in advance of demand. Terawatt recommends funding at least two phases of site expansion during this project's lifecycle as more power becomes available at the sites.

California should consider a non-federal match that is greater than 20% to boost the overall project size, or contribute other title 23 formula funding such as funding from the National Electric Vehicle Infrastructure Program, Carbon Reduction Program, or Congestion Mitigation and Air Quality Improvement Program (for sites in non-attainment areas).

8. Use the maps in the "Corridor Segments" section to identify areas where you expect to need zero-emission truck infrastructure in the next three years (2024-2027). These Corridors have been selected to align with the National Zero-Emission Freight Corridor Strategy, the California Transportation Commission's SB 671 Clean Freight Assessment and to complement California, Washington and Oregon's Tri-state application.

Terawatt supports the alignments proposed on the Corridor Segments map, as these are aligned with the aforementioned plans and strategies.

9. If you represent a utility:

Not applicable.

