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Terawatt Feedback for Pre-Solicitation Concepts for MHD Zero-Emission Vehicle Infrastructure

Additional submitted attachment is included below.

Terawatt
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July 29, 2024

California Energy Commission
715 P Street
Sacramento, California 95814

Re: **Feedback for Workshop on Pre-Solicitation Concepts for Medium-and Heavy-Duty Zero-Emission Vehicle Infrastructure**

Introduction

Thank you for the opportunity to submit information to assist the California Energy Commission following the Workshop on **Pre-Solicitation Concepts for Medium-and Heavy-Duty Zero-Emission Vehicle Infrastructure.**

This workshop solicited feedback and answers to questions regarding Pre-Solicitation Concepts for Medium-and Heavy-Duty Zero-Emission Vehicle Infrastructure. Terawatt is providing feedback on the following concepts:

1) Charging and Refueling Infrastructure for Transport in CALifornia Provided Along Targeted Highway Segments (CRITICAL PATHS) 2.0
2) ZEV Port Infrastructure

CRITICAL PATHS 2.0

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

Yes. Terawatt 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.

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

Land availability and cost, particularly in heavily populated areas such as Southern California is a significant barrier. Local and county permitting requirements, when not aligned and streamlined with state and federal requirements, can also create barriers to expeditious deployments.

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 MDHD ZEV infrastructure on priority corridors?
The requirements in the first CRITICAL PATHS (GFO-23-602) were for full public access to MHD charging sites. While there is significant demand in the long-term for charging at these sites, demand in the near-term is likely to be at lower levels, especially with zero-emission MHD vehicle adoption rates unclear with the uncertainty surrounding California's Advanced Clean Truck and Advanced Clean Fleet rules, due to near-term national political dynamics.

While the light-duty consumer market has been structured around fully open and accessible charging stations, the specific needs of medium and heavy duty commercial carriers and suppliers requires guaranteed and time-sensitive availability of charging infrastructure. Full public access requirements on subsequent GFOs (like CRITICAL PATHS 2.0) at this time would result in underutilized sites and not provide the certainty in charging availability needed by commercial MHD fleet operators to convert to zero-emission vehicles.

Terawatt suggests providing a requirement for shared use at these sites, such as defining publicly accessible as *'an authorized commercial motor vehicle operators from more than one Company'*, language derived from the federal NEVI legislation.

This approach is also consistent with the 'shared depot' model noted in the SB 671 Clean Freight Corridor Efficiency Assessment authored by the California Transportation Commission (https://catc.ca.gov/-/media/ctc-media/documents/ctc-meetings/2023/2023-12/14-4-4.pdf) where they note:

> *"multiple fleets and independent owner-operators will be able to use a shared depot facility, these sites could be considered publicly accessible. A significant portion of medium-duty and heavy-duty trucks may rely on the shared depot model to serve as a central fueling hub, or hub-and spoke model, and may also rely on opportunity charging infrastructure along their routes. Contracting with a third-party fueling provider can sometimes be more cost effective for fleets than developing their own zero-emission depot. If fleets can save money on infrastructure, it will allow them to invest more in zero-emission trucks."*

Secondly, the requirement in the previous GFO for a site to be within one mile of an off-ramp may also constrain the number of potential sites that could be funded under this project. While there may be ample potential sites in rural locations of California, heavily urbanized and population dense areas may have fewer locations that are large enough to support significant MHD vehicle charging and that are also less than a mile from a freeway off-ramp. While sites should be close to freeway exits, Terawatt suggests that

some flexibility be extended in site distance (perhaps on a case-by-case basis) in the upcoming GFO.

ZEV Port Infrastructure

Do the requirements for minimum chargers/dispensers align with the funding amounts offered?

The proposed requirements require a minimum number of chargers/dispensers (20 for ports with less than 5 million tons of cargo transported annually, and 30 for ports with over 5 million tons of cargo transported annually), but do not specify a specific power level. Terawatt suggests flexibility in the number of chargers required, as fewer chargers could be proposed if the chargers have a higher base power level. For example, 350kW chargers (or future megawatt chargers) will be able to fully charge far more vehicles than a lower powered charger, and will make much better use of scarce real estate near port locations. A requirement for a large number of proposed minimum requirements regarding number of chargers may limit the eligibility of some sites.

Does this concept capture projects that will assist ports in meeting their zero-emission goals?

With the current program design adjusted to allow flexibility in number of chargers, this concept does appear to capture projects that would assist ports in meeting zero-emission mandates. GFOs typically issued by the California Energy Commission often contain a significant number of project design requirements as well as equipment specifications. The CEC should solicit additional feedback once project design is more fully developed.

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