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**Greenlane Infrastructure Response to the CEC Drayage CFI Round
2 RFI**

Additional submitted attachment is included below.



CALIFORNIA ENERGY COMMISSION
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Response to: Request for Information

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

Docket #24-EVI-01

This Request for Information (RFI) seeks feedback on the following 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?

Greenlane Infrastructure, LLC (Greenlane), was created in 2022 as an independent joint venture (JV) between Daimler Truck North America, LLC (DTNA), NextEra Energy Resources, LLC (NEER), and BlackRock Climate Infrastructure (BlackRock) to design, develop, install, and operate a nationwide, high-performance public charging and hydrogen refueling network for medium- and heavy-duty zero emission battery-electric and hydrogen fuel cell vehicles (MDHD ZEV). Each JV partner has committed \$225 million in capital (totaling \$675 million), leadership and staff with expertise in MDHD ZEV manufacturing and operations, utility engagement, electric charging station technology and design, and fleet engagement.

Greenlane's partners provide invaluable access to data and extensive prior project development experience, ensuring that Greenlane projects are designed, built, and operated with world-class expertise encompassing MDHD ZEV technology, freight patterns, customer use cases, and infrastructure deployment and operation. This unique combination of knowledge, resources, and dedication positions Greenlane to effectively deploy MDHD ZEV infrastructure at scale while successfully navigating the numerous complex challenges and risks associated with this complex endeavor.

Greenlane is committed to supporting diversity throughout the transportation industry and believes that fostering partnerships with diverse businesses can create a more equitable and resilient transportation sector. Greenlane actively seeks opportunities to collaborate with and support small, veteran-owned, woman-owned, and minority-owned businesses including supply chain, contractor relationships, workforce development, and community engagement. Greenlane recognizes the value that these businesses provide and the company fosters an inclusive environment that encourages their participation and growth.

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?

Greenlane would strongly consider applying for CFI grant funding for site development in California if the CEC is awarded funding. CFI grant funding would support Greenlane's site development efforts and allow private funding to go further. Specifically, CFI funds would enable the company to design, build, operate, and maintain state-of-the-art public MDHD ZEV infrastructure. By leveraging this funding, Greenlane will expedite the critical mission of creating a robust network of reliable, convenient, and accessible MDHD ZEV infrastructure for drayage truck activities in California.

Collaborating with the CEC presents a significant opportunity to establish a critical ZEV fueling corridor for freight movement along the west coast, forge strong partnerships with key stakeholders, facilitate the exchange of expertise, resources, and best practices to enhance the effectiveness and impact of the CEC's MDHD ZEV goals.

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.

While Greenlane does not own or operate MDHD ZEVs, the company's dedication to creating a nationwide network of reliable, convenient, and accessible electric charging and hydrogen refueling stations specifically designed for MDHD ZEVs is critical to enabling the transition over the next five years and beyond. Greenlane will begin providing public MDHD ZEV charging and hydrogen refueling stations on critical freight corridors across the U.S. Our first publicly announced corridor is on Interstate-15 (I-15) with three locations in Colton, Barstow, and Baker, CA. In order to effectively serve drayage routes, charging must be installed along key freight corridors where trucks travel, instead of focusing solely on sites in close proximity to the ports.

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

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

Greenlane's approach to charging infrastructure is to design, develop, install, and operate a nationwide, high-performance public charging and hydrogen refueling network for MDHD ZEVs. Greenlane will provide fleets with a variety of options to access their publicly accessible infrastructure, with opportunities to reserve chargers in advance of the charging events or just drive up and charge with no subscriptions or RFID card required. Greenlane has made significant multi-million-dollar investments in MHD charging infrastructure in the last two years. In addition to the I-15 corridor from Los Angeles to Las Vegas, Greenlane will continue to invest in its portfolio of MHD ZEV charging hubs across key freight corridors to support drayage and other commercial operations, with additional site and corridor announcements in the coming months.

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

Greenlane will utilize all possible options and opportunities to provide the best in class, affordable, and comfortable charging and fueling services and experiences to drayage fleet operators. We are conducting targeted outreach to drayage fleet operators to raise awareness of future projects and are creating a first in class software application that will seamlessly integrate into existing telematics and fleet management platforms. All Greenlane sites will include amenities for driver comfort and distributed energy resources that will provide several benefits including mitigating impacts to the grid, providing site resiliency as well as opportunities for lower energy costs to customers.

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

Greenlane's sites will include a variety of services, facilities, and on-site amenities to support drayage MHD ZEV drivers, including but not limited to:

- **Charging station placement:** Conveniently located and easily accessible for each vehicle class and vocation, considering factors including cable reach, parking stall dimensions, and overall site layout. This includes multiple pull through lanes and ingress/egress designed for class 8 tractor trailer trucks.
- **Amenities:** To enhance the overall charging experience, Greenlane will offer first class amenities with the commercial driver in mind. This includes restrooms, food and beverage options, comfortable seating areas, Wi-Fi, and some locations will include gyms and showers.
- **Safety features:** Well-lit and safe lots, clear signage, and designated pedestrian walkways to provide a secure and efficient charging environment for all drivers.
- **Customer Service:** The ability to reach a local, English and Spanish speaking, customer service representative by phone or text, and the ability of that person to either provide immediate assistance or call for assistance will ensure the highest quality of driver care.

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.

Greenlane's sites are designed to specifically serve the needs of class 6 - 8 commercial vehicles. The recommended percentage of pull-in and pull-through parking stalls, as well as other desired station configurations, will depend on the space available at individual sites. Most sites will be 5-10+ acres in size, although some smaller sites can be as little as two acres. On a daily basis, high powered pull-through lanes will serve a larger volume of vehicles than lower powered charging in parking stalls designed for longer dwell times. Greenlane will maximize each site footprint to offer a range of charging options but will likely have more pull-through lanes than parking stalls with chargers. As every site is different, it is difficult to state a range as some sites will be primarily pull-throughs with little to no charging for trailers or bobtails, while others will have several dozen longer-dwell charging stalls. Similar estimates are difficult to provide for site sizes, total number of charging stalls capable of simultaneous charging, and total number of truck parking spaces that are not dedicated to charging and refueling MHD ZEVs.

As stated earlier, Greenlane recently released the plans for its first commercial EV charging corridor along I-15 in California. The announced sites include Colton, Barstow, and Baker, California; between these three sites more than 100 chargers will be installed alongside modern amenities, solar panels, and battery energy storage systems (BESS). Greenlane is targeting to open the inaugural flagship location in Colton, California in late 2024 with the other two sites coming online in 2025-2026. The Colton charging hub will offer a variety of EV charging infrastructure to service light-, medium-, and heavy-duty vehicles, with a total of 53 charging ports for truck charging and 10 charging ports for passenger vehicle charging. The MHD ZEVs chargers at Colton are a combination of pull-through and bobtail configurations.

Generally speaking, each Greenlane site will provide 6-12 high powered (400kWh+ upgradable to MW charging) pull through lanes with dual port chargers, some sites will have 10-25 lower powered (200 kWh) single port parking stalls for trailers and bobtail trucks, and 6-10 chargers (200 kWh+) for passenger vehicles. Select sites will also include hydrogen refueling stations.

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

Greenlane understands the importance of providing EV charging infrastructure that can meet the needs of today's commercial MHD ZEV commercial drivers while planning for the next generation of MHD ZEVs and

associated charging and hydrogen refueling infrastructure. Greenlane's data driven approach to site selection and design, alongside the insights from JV partners, DTNA and NEER, allow Greenlane to appropriately develop sites to meet today's demand while planning for tomorrow's infrastructure through futureproofing. All sites will be built in phases to grow as more MHD ZEVs are deployed in the marketplace and/or as more power capacity becomes available. For example, the Colton charging hub at full build out will include over 60 chargers. Greenlane is working with the local electric utility to utilize the current available capacity for the initial build out and to make necessary upgrades to bring additional MW to energize additional higher-powered chargers, including Megawatt Charging Systems (MCS), over the next two years. Electrical conduit and other equipment are future proofed to accommodate the full build out of each site, using a "dig once" approach. Another important aspect is planning for the appropriate life cycle of current charging equipment to ensure that hardware is replaced on an appropriate timeline and technology does not become obsolete or a barrier to maintaining uptimes above NEVI standards, which is Greenlane's goal for all sites in the network.

As the leading MHD ZEV manufacturer in North America, DTNA recognizes the importance of understanding and gathering experience on how MHD ZEVs charge and the development of charging infrastructure. In April 2021, through a partnership with the local utility, Portland General Electric (PGE), DTNA opened Electric Island in Portland, Oregon, the first publicly accessible high power MHD charging site in the country. The site was opened after two years of planning, permitting, engineering, and construction. To be successful, Electric Island required the existing electrical infrastructure be upgraded in collaboration with PGE as the original capacity was designed for a quick-serve restaurant. The project team incorporated innovative electrical and civil infrastructure features to future proof the site for additional charging stations to be installed without extensive civil and electrical rework. Electric Island is a dynamic project that continues to see new EV charging equipment installed to be tested vigorously by the DNTA team and used by the public. The knowledge DTNA has gained demonstrates verifiable experience working with Authorities Having Jurisdiction (AHJ) and utility personnel to overcome permitting and planning barriers, and such expertise flows into Greenlane and the proposed project.

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.

Greenlane knows public MDHD ZEV infrastructure is the key to accelerating the rollout of ZE drayage transportation. MDHD ZEVs can't be deployed at scale until there is a robust and reliable public fueling network to service drayage trucks along their routes and near their destinations. Greenlane's goal is to provide public MDHD ZEV charging stations every 100 miles on freight corridors across the country, starting in priority markets where commercial ZEV fleets are operating, and to provide denser charging stations to service California's drayage industry. However, to maximize impact of the second round of CFI funding for drayage truck activities, Greenlane recommends that the CEC's application not place strict minimum or maximum distance requirements for sites as they could unintentionally disqualify what could be ideal projects from eligibility. There are not an unlimited number of sites along drayage routes in California that meet the needs of commercial ZEV drivers, have a reasonable timeline to energization, are within 5 miles of an Alternative Fuel Corridor, and also fit into strict minimum and/or maximum distance requirements. The CEC should prioritize flexibility in evaluating sites. Locations should be prioritized on individual merit alongside proximity to other charging infrastructure locations. Also, it should be noted that drayage routes are diverse and extend beyond an arbitrary threshold a fixed distance from a given port. As such, all key freight corridors with substantial drayage traffic should be eligible for funding. Funding sites further out from the Port will enable longer distance travel with MHD ZEVs, rather than limiting ZEV routes to return to base operations, as seen today.

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 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?

Publicly accessible MDHD ZEV charging stations can range greatly in total project costs based on the number and power level of chargers installed in addition to other project components such as BESS and on-site solar panels. MDHD ZEV stations with a combination of pull-through lanes and parking stalls can vary widely anywhere from \$7 million to \$30 million or more. These costs would include charging equipment, site preparation, permitting, design and engineering, utility upgrades, site construction and installation, distributed energy resources, storage, and amenities. These costs can fluctuate depending on if the site has already been paved or is a greenfield location. When considering other technologies like BESS and carport or ground mounted solar, costs per site can increase by millions of dollars. These costs do not include the cost to acquire the land which, depending on the location, can range from under a \$1 million to tens of millions.

Public cost share should range from 50-75% to attract the most competitive projects and to stretch private investment dollars further to construct more sites. This range follows other grant and incentive opportunities such as the CEC's CRITICAL PATHs (50%), California Air Resources Board's Carl Moyer Program (60% for public access projects), and California Transportation Commission's Trader Corridor Enhancement Program (70-100%).

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.

Greenlane's goal is to provide public MDHD ZEV charging stations every 100 miles on freight corridors across the country and denser charging stations to service key priority drayage truck markets along the West Coast. Greenlane is interested in pursuing all corridor segments highlighted in the CEC's RFI. Sites near ports with high volumes of freight traffic will be prioritized to ensure a certain threshold of utilization is met in early years, which is paramount for viable long-term financial performance.