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24-EVI-01 RFI Ideas and Considerations for Tri-State USDOT CFI

See attachment

Additional submitted attachment is included below.

Project Proposal Ideas and Considerations for California, Oregon, and Washington's Medium- and Heavy-Duty Joint Application for the U.S. Department of Transportation's Charging and Fueling Infrastructure Discretionary Grant Program

Request for Information 24-EVI-01

TRILLIUM RESPONSE

June, 2024

Trillium

INTRODUCTION

Love's/Trillium appreciates the opportunity to respond to California Energy Commission (CEC) in partnership with the California Department of Transportation (Caltrans), the Oregon Department of Transportation (ODOT), and the Washington State Department of Transportation (WSDOT) Request for information (RFI) and to assist with their Charging and Fueling Infrastructure (CFI) Corridor Program application Initiative. As we work to grow and expand the Love's EV charging network, we understand how important the EV experience is for new and current EV drivers.

For almost 60 years, Love's Travel Stops & Country Stores (Love's) has provided professional drivers and motorists with 24-hour access to gasoline, diesel, and Compressed Natural Gas (CNG) fueling with on-site amenities including restaurants, showers, and more. Love's locations serve customers from all parts of the transportation sector, with a wide range of vehicles ranging from light-duty (LD) passenger vehicles to medium-duty and heavy-duty (MD/HD) fleet vehicles. As new fueling technologies enter the market, such as electric vehicle charging, Love's is well positioned to grow as the fueling industry grows.

Again, we appreciate the opportunity to support the CEC, Caltrans, ODOT and WSDOT by submitting our response to the RFI. If you have questions or need more information, please contact Daniela Ismail, Daniela.Ismail@Trilliumenergy.com.

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LOVE'S/TRILLIUM'S EV EXPERIENCE

Love's, with Trillium, began providing EV charging in its network over eight (8) years ago. The EV charging expansion originally began in Texas in 2017, and the network has since grown to accommodate 148 chargers across the country, including locations in Texas, Kansas, Kentucky, California, Utah, Arizona, New Mexico, Oklahoma, New York, Florida, Alabama, Georgia, and Maryland.

Love's/Trillium has gained years of EV experience which has prepared the team to significantly grow the EV charging network. Love's large parking lots and ever-growing national network provides the ability to grow its EV network like very few can. As EV adoption grows, Love's EV network will grow alongside it.

Please see the following projects that Love's/Trillium have developed in addition to NEVI EV stations.

#	Project Title	Project Type (e.g.CaaS, Turnkey, etc.)	Please detail what types of costs are included in the previous two questions.	Brief Project Description	Electric Vehicle Type (e.g. Class 8 Tractor)	# of Vehicles	Charger Type
1	Love's – Electric Vehicle Charging Station Design Build + Solar Design/Build/ Operation/Maintenance	Turnkey	Design, engineering, equipment, construction and commissioning.	Trillium was the design builder for the solar array and the EV charging station at the Love's store in Madera, CA. A description of the EV charging scope is explained in the reference line below. Trillium's scope for the solar array deployment included design, engineering, equipment procurement, construction, electrical system integration and system commissioning. Trillium currently manages and maintains the solar array. Trillium also manages the generation of RECs. The size of the solar array is 747kW.	Class 1 - 3	100	DCFC Level 3
2	EV Connect – Electric Vehicle Charging Station Design/Build	Turnkey	Design, engineering, construction, commissioning, permitting and utility upgrades.	Trillium served as EV Connect's design builder for 3 electric vehicle charging stations in California. Trillium was responsible for design, permitting, utility upgrades, electrical distribution panel procurement, and construction for all 3 stations. Trillium also generates and reports the LCFS credits for these chargers. Each station includes two (2) 150kw DC fast chargers and one (1) level 2 charger. Trillium's design build team worked with EV Connect and the utility to properly size the system for the current configuration and for future upgrades. All three stations were completed in 2020.	Class 1 - 3	100	DCFC Level 3
3	Pinellas Suncoast Transit Authority – St. Petersburg, FL	Turnkey	Installation of 1 electrical panel and 2 transit bus EV chargers.	Trillium installed 80 kW BYD battery electric bus (BEB) chargers for the Pinellas Suncoast Transit Authority (PSTA) at their bus depot in St. Petersburg, Florida in July 2018. This installation included integrating the chargers into the bus depot's existing electrical distribution system, directionally boring electrical conduits between buildings, charger installation and assisting BYD in the commissioning of the chargers. The installation did not cause any interruptions to the Authority's bus operations and was completed ahead of schedule.	Class 4 - 5	4	DCFC Level 3

Table 1: Examples of Love's/Trillium EV Charging Projects

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?**

   Love's - Truck stop operator
   Trillium - Fueling infrastructure provider (installer)

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

   Our organization would be very interested in responding to a future competitive solicitation if the states are awarded a CFI grant. We are committed to supporting the development of fueling infrastructure and look forward to the opportunity to contribute to this initiative. To determine the suitability of the sites for the solicitation, we will thoroughly evaluate various parameters, including station layout, projected demand, energy and power costs, cost of utility upgrades and the number of chargers needed.

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.**

   NA

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?**

   In the coming years, we believe that both en route and overnight charging will be crucial for the success of electric vehicle operations.

   En route charging is essential for scenarios where trucks need to travel 200-300 miles, highlighting the importance of building a comprehensive charging network to minimize downtime and keep trucks on the move.

   Overnight charging, on the other hand, offers significant advantages for companies with operations where drivers park their trucks overnight. Slow chargers are particularly suitable in these situations due to their lower cost and the ability to leverage off-peak electricity rates. This approach ensures that trucks are fully charged and operational by morning, while also reducing overall energy expenses.

Anticipate Needing Public Charging Infrastructure

We anticipate needing public charging infrastructure primarily for drayage and long-haul freight operations.

Drayage operations involve transporting goods between ports, rail yards, and nearby warehouses or distribution centers, typically covering distances of 50-100 miles. These operations are usually within urban areas where ports and warehouses are in proximity. While placing chargers at warehouses is a practical solution, many drayage trucks are operated by small companies that may not have enough vehicles to justify the significant investment in charging infrastructure.

Long-haul freight presents a distinct challenge and opportunity due to the extensive routes, often spanning hundreds or thousands of miles. A public charging network, similar to the existing diesel infrastructure, is necessary to support these operations. Given the long distances and high payload capacities required, hydrogen refueling should also be considered.

For last-mile delivery, where goods are moved from distribution centers to end users, public charging infrastructure is generally not necessary. These vehicles can efficiently use low speed overnight charging at warehouses, ensuring they are fully charged and ready for their routes each day.

Overall, each use case needs to be evaluated individually to determine the most effective charging strategy, considering factors such as route lengths, operational patterns, and cost efficiencies.

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?**

Love's/Trillium is open to various models and approaches. Each opportunity needs to be evaluated in detail, but we are eager to continue supporting our clients with any fuel solutions they require.

Please see Question 9. This station size can be referred to as a starting point.

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.**

   Love's/Trillium is open to various models and approaches. Each opportunity needs to be evaluated in detail, but we are eager to continue supporting our clients with any fuel solutions they require.

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.**

   According to the current technology available, we recommend a maximum of 150 miles between each charging station.

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?** N/A.

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. 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.**

   The following solution outlines our proposed HD EV charging stations' site size, design, and characteristics. It includes detailed technical specifications and costs, providing a robust starting point. These specifications are designed for scalability, allowing us to expand from four chargers to over fifty chargers at most sites. This flexibility enables the layout to be replicated multiple times within the available footprint. Additionally, the simultaneous charging speed can be reassessed to optimize performance. However, further research is necessary to ensure that site power is appropriately sized to avoid high utility costs and to confirm that sufficient power is available to support this capacity. This will ensure the stations are both efficient and cost effective.

   Equipment & Labor Scope:

   - Four (4) Single Dispenser
   - Eight (8) Power Block including the Power Modules
   - Electrical Gear and Station Controls System
   - Design, Engineering, Project Management, Commissioning, and Training included.
   - Civil, Mechanical, and Electrical Construction for the station included.

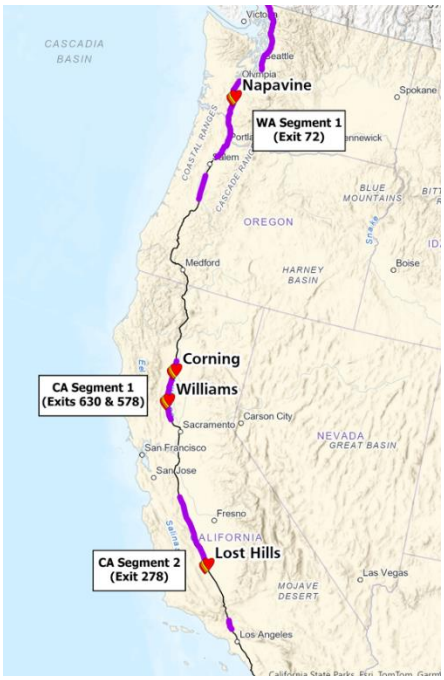
Operation Design:

Number of chargers	4 chargers
Maximum Power (Simultaneous)	350 kW
Charging Time	1 Hour (Battery charging: 350 kWh)

Budgetary CAPEX:

Budgetary CAPEX	**$2,000,000 – $3,000,000**

10. Use the maps under "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)[8]. You my 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 Washingon. 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 location or differs from the information provided in the questions above.



Site Name	Number Of Chargers	Power Levels	Type Of Charging Desired	Vehicle Class
Napavine	4	700-1400 kW Total	En route or Overnight	MD/HD
Corning				
Williams				
Lost Hills				

Figure 1: Love's locations within National Zero-Emissions Freight Corridor Strategy HUBS