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TeraWatt Infrastructure Charge Yard Comments

Additional submitted attachment is included below.



California Energy Commission
715 P Street
Sacramento, CA 95814

May 24, 2023

TeraWatt Infrastructure Comments on CEC Docket Number 22-EVI-06 – Charging Interoperability and Collaboration Year Funding Concept

Dear Commission Staff,

TeraWatt Infrastructure, Inc. (TeraWatt) appreciates the opportunity to submit comments to the CEC on the Charging Interoperability and Collaboration Yard funding concept. TeraWatt is a project developer and long term owner of high powered EV charging infrastructure for light, medium and heavy duty commercial fleets.

TeraWatt is interested in developing charging centers for all classes of commercial vehicles in California and is supportive of the proposed funding program concept and offers comments on program design considerations from the May 5, 2023 staff workshop:

1. Should CEC specify minimum square footage and/or electrical capabilities? If Interoperability is the focus, does lower power suffice (say, 50 kW)? What about testing at higher powers (≥ 150 kW)?

TeraWatt would recommend a large range of EVSE manufacturers with a large range of models and power levels, including levels above 150 to 350 kW. As for the minimum site requirements, Terawatt would recommend at least 5 MW of power with ideally 10 MW of power available. The locations should be able to accommodate all types of electric vehicles, including medium duty, semi trucks, buses and light duty passenger vehicles.

The space should include both space for a covered indoor facility to accommodate private testing events with prototype vehicles and outdoor vehicles. The outdoor space should include the ability for bobtail semi truck cabs to easily maneuver.

For electrical equipment, 480V service and related switchgear would be ideal. However, since the concept is supposed to support 3-4 years, the site should also have an easy pathway to upgrade to medium voltage to support MCS and higher power.

2. Is CharIN CCS Extended the appropriate certification to require? Are there other



certifications for ISO 15118 CEC should consider instead?

TeraWatt does believe a well accepted certification process would be a good standard for the industry. We believe that one of the valuable use cases for a Charge Yard would be to help support the certification process and drive adoption of the certification programs. Any testing should adhere strictly to standard organization specifications.

3. Should CEC require certification testing services to be offered? This would be a commercial service, which may exclude certain entity types from applying.

TeraWatt does believe a well accepted certification process would be a good standard for the industry. However, to make the process equitable and not stifle innovation due to pay per use, possibly the CEC or others could provide a small separate grant to companies who would not otherwise afford the certification process.

Additionally, industry experts at the Charge Yard could possibly offer technical services to help companies through the preparation for the certification process. This approach could help accelerate the adoption of the certification process and related technologies.

4. How can Charge Yard become a permanent and self-sustaining facility (cost recovery structure)?

For sustainable operating model, TeraWatt could envision 3 different types of ways Charge Yard could support different types of companies and needs:

1. Pay to play: Companies rent the space and all testing information is private.
2. Open: Anybody can use the lab as long as they share data, results, findings, etc. publicly and include CMS and/or EVSEs in the test plan.
3. Special test events: Price distributed across participating companies. Specific interoperability type testing where a few parties come together for interoperability testing with some specific focus. This type of event would be separate from Charge Lab community events or VOLTS. Testing is carried out and anonymized results are published, but detailed results are kept confidential.

5. Is accelerated development of ISO 15118-2 certification needed or appropriate? CEC notes the current lack of ISO 15118-2 certification testing procedures for AC chargers. Should this include vehicle side certification too?



The accelerated development of a certification process for ISO 15118-2 is both needed and appropriate on all parts of the EV charging ecosystem.

6. Is accelerated development of ISO 15118-20 certification needed or appropriate? No ISO 15118-20 certifications exist today.

The accelerated development of a certification process for ISO 15118-20 is both needed and appropriate on all parts of the EV charging ecosystem.

7. Will industry feel confident using Charge Yard if data is anonymously collected?

If the data remains anonymous for usage purposes for improving the reliability and interoperability for the betterment of the industry.

8. Is an anonymized dashboard needed or appropriate? The dashboard can help identify which protocol versions and use cases are currently widely implemented.

Yes TeraWatt believes this dashboard would be helpful to provide transparency and accountability to the industry the current adoption and certification of the

9. Is requiring three onsite events per year needed or appropriate? Are there other requirements CEC should include to foster industry collaboration?

TeraWatt believes that 3 events a year are appropriate. This would allow for the VOLTS events to continue as well and not dilute the existing value created by CHARIN.

10. Is a coalition the most sensible and effective setup for Charge Yard? Or should Charge Yard be hosted by a non industry (more neutral?) entity?

Terawatt would like Charge Yard for private entities in the EV charging to be eligible to host the facility in addition to national labs and other Non Profits. By allowing private entities to build out the Charge Yard, this provides a path to allow the facility to continue to operate at the end of the program to help continue to advance the industry. However, the agreement for the award would have to limit a private entity to operate the facility for zero profit to ensure the inclusive community intent.

11. Should Charge Yard specify minimum coalition requirements? For example, minimum one automaker, one utility, one test tool developer, one charger manufacturer, and so on.



A coalition should include CPOs, OEMs, and Test Equipment Manufacturers. TeraWatt also believes the site design should include EVSE quick connects to allow the ability to swap in and out different EVSE and testing equipment providers quickly. This would provide the most flexibility, widest variety of and the ability to create an inclusive, community feel. It would also provide different testing configurations on a more temporary basis.

12. What is the most effective applicant type to ensure learnings from Charge Yard are disseminated across industry, to utilities, and incorporated into products and policy?

TeraWatt believes one of the national laboratories would probably be the best method of distributing the learnings.

13. Should Charge Yard prohibit certain types of entities from applying / participating?

TeraWatt does not recommend that any entity in the EV industry be prohibited from applying or participating in Charge Yard. However, we believe the main entity would probably be an organization who is used to operating a high powered charging center site and understands the complexity of all of the moving parts, especially for space requirements for medium and heavy duty trucks.

14. Are there notable costs that should be eligible not shown on slide 27?

TeraWatt would also recommend the solicitation to clear up operating costs elements including electricity, real estate costs.

15. Is \$3M in CEC funding enough funding to kick off Charge Yard? Is this too much?

TeraWatt believes \$3-4 million would be enough funding. The major component to consider is the operating cost for the facility which could include security, high electricity cost and the construction build out. The award structure would probably work out best with a private match for the host entity to ensure the quality of the facility.

16. Is 25 percent match appropriate? Too high or too low?

TeraWatt would recommend a higher match. The cost of the real estate in California and interconnect costs for a multiple MegaWatt site makes the project realistic and warrants the



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higher match.

17. Is a 4 year project term appropriate?

Yes a 4 year project term seems appropriate. Additional funding will be needed to keep the facility operational, but the funding will need to be self sustainable, industry led, and not depend on government support.

Sincerely,

Greg Svitak
VP, Technology