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Capstone Turbine comments on DER Technologies for MDHD BEV Charging Infrastructure

Additional submitted attachment is included below.

California Energy Commission
Docket # 19-ERDD-01
Research Idea Exchange

Subject: Comments on 19-ERDD-01

Capstone Turbine Corporation has a large installed base of MicroTurbine systems in many microgrid applications. Each installation was developed as a single entity based upon the technologies installed and the customer requirements. As such, control methods are also unique for each installation. From Capstone's experience, the ability to create a replicable microgrid solution with significant CHP/CCHP capacity integrated with solar, energy storage, and high capacity DC charging is well suited for the final grant solicitation.

In response to the questions:

1. **Of the candidate use-cases and vehicle types listed above, which ones should we prioritize in this solicitation and why?**

Initial focus should be on use-cases where a central overnight recharging for an entire fleet can easily be accomplished. Installation of a significant charging infrastructure and associated DER package can be financially justified by an accompanying end-user commitment to a minimum number of BEV fleet vehicles. Target use-cases should represent situations where the vehicles return to a central facility for the bulk of their recharging. Such vehicle types would include Transit Buses, Delivery Vehicles, Refuse Trucks, Drayage and other short haul trucks.

Distributed charging stations throughout California, to enable recharging while in-transit, would be counter to the objectives of drivers. The current state of battery and charging technology does not support quick turnarounds for drivers on long distance routes. While the central facility DER package may not directly include consideration of distribution capacity constraints, the additional on-site capacity will free up existing distribution for future installation of smaller, more diverse recharging facilities.

2. **What is the best way to characterize the grid impacts and other costs associated with deploying MDHD BEV charging infrastructure without a managed charging/DER strategy?**

It is suggested that the initial study consideration include cost versus risk assessments. The impact on existing utility distribution capacity must ultimately be considered, however any DER package should inherently be capable of addressing this concern.

3. How does the target technology need to improve?

This question should include not only how the target technology could improve, but how it can address the cost/risk/benefit associated with the target use-case. Current microgrids solutions are very diverse. Technology development would include control systems to seamlessly integrate the various DER systems while maximizing the microgrid effectiveness and cost payback for the customers.

4. What level of investment would be needed from EPIC to make a meaningful difference on this issue?

The level of EPIC investment should be in proportion to the kWh of actual expected charging, since the societal benefit would therefore be directly related to criteria pollutant and greenhouse gas reductions. To this end, incentives for investment may need to include both commitment to BEV fleet vehicle purchase as well as DER package and charging infrastructure costs.

Sincerely,

Don Ayers
Director of Engineering and Quality
Capstone Turbine Corporation