DOCKETED	
Docket Number:	19-ERDD-01
Project Title:	Research Idea Exchange
TN #:	231447
Document Title:	Schatz Center Response to Request for Comments on DER GFO Concept
Description:	N/A
Filer:	System
Organization:	Schatz Energy Research Center/Arne Jacobson
Submitter Role:	Public
Submission Date:	1/10/2020 2:56:51 PM
Docketed Date:	1/10/2020

Comment Received From: Jerome Carman
Submitted On: 1/10/2020
Docket Number: 19-ERDD-01

Schatz Center Response to Request for Comments on DER GFO Concept

Additional submitted attachment is included below.

Schatz Energy Research Center

Date:	January 10, 2020
To:	California Energy Commission Docket Unit, MS-4
Subject:	Re: Docket No. 19-ERDD-01 – Response to Request for Comments on Grant Funding Opportunity Concept

To Whom This May Concern,

The Schatz Energy Research Center appreciates the opportunity to comment on the proposed Grant Funding Opportunity (GFO) concept. Our comments primarily address parts of Question 1 of the Request for Comments. Below are suggestions regarding the proposed GFO concept.

1) Distribution capacity constraints do present a significant barrier to the deployment of battery electric vehicle (BEV) charging infrastructure. Hence, we agree there is value in coupling deployment of distributed energy resources (DERs) with BEV charging infrastructure deployment under one GFO.
2) We suggest that eligible medium duty and heavy duty (MDHD) BEV vehicle types and use cases not be constrained. We think it is important to focus on the feasibility of the proposed DER strategies rather than on the use cases. It appears that a main objective of this GFO is to explore to what extent an integrated DER strategy can reduce the need for upstream distribution system upgrades while also enhancing resiliency. Therefore, we think the cumulative load profile, coupled with the physical location of loads and DERs, matters more than the vehicle type or use case. In addition, lessons learned in one use case will likely transfer over, at least in part, to other use cases and that fleet operators will benefit from the lessons learned by projects funded under this GFO without constraining the use cases.
3) We recommend not linking replicability to an exclusive use case. Again, load profile and physical location are the critical factors, and these can vary widely across fleets associated with the same use case. While there will be valuable lessons learned about particular vehicle types, use cases and applications, there will also be valuable deliverables and lessons learned that can be replicable regardless of the use case.
4) We suggest specifically defining MDHD, and agree that the scope should be limited to MDHD all-electric vehicles as proposed. However, we recommend not overly constraining vehicle commercial readiness requirements. This could encourage innovation and pilot deployment of new vehicles and upfit packages, which is needed for the MDHD market.

Schatz Energy Research Center
(707) 826-4345
Humboldt State University
serc@humboldt.edu
1 Harpst St. Arcata, CA 95521
www.schatzcenter.org

5) We recommend the fleet total cost of ownership (TCO) be included in the DER business plan and value assessment. Integrated deployment of DER infrastructure along with BEV charging infrastructure will impact the fleet TCO and therefore the overall business case for these integrated technologies. Furthermore, we suggest the overall business case include all potential stacked benefits associated with these integrated technologies. To the extent possible, this would include revenue potential and other monetizable value associated with avoiding grid upgrades, providing grid services, energy and demand charge bill savings, greenhouse gas reduction, and resiliency.
6) There are sufficient commercially available charging infrastructure options to satisfy this GFO. However, commercially available options for MDHD BEVs are extremely limited. This presents a potential barrier. Relaxing constraints on the fleet, such as not specifying use cases and not constraining the commercial readiness of vehicles as recommended above, and emphasizing DER deployment and performance will help mitigate this barrier.
7) Significant development is still needed for behind-the-meter and front-of-the-meter controls and telemetry both for BEV fleet management and for grid interconnection of DERs.
    a) Behind-the-meter controls and fleet management telematics are commercially available but still nascent. Additional development of products and strategies is needed.
    b) Control strategies and telemetry needed for smart grid integration of DERs are not sufficiently developed. In part because of this, standard utility interconnection study practices can be a barrier to the efficient and cost-effective deployment of DERs. As things now stand, required T&D upgrades needed to support the full rated capacity of DERs, both loads and generators, are modeled under worst case scenarios. When DERs include energy storage and smart controls, these features can be used to mitigate the need for upgrades by ensuring the non-mitigated worst-case scenarios are not encountered. Sophisticated control strategies need to be considered as part of the interconnection study process, and to ensure these strategies are fail safe, they can be back-stopped using standard grid interconnection protection relays with appropriate protection settings (i.e., maximum import/export, etc.). In light of this, we recommend this GFO encourage partnership with a utility that explicitly expresses willingness to navigate new methods of assessing interconnection protection strategies and associated utility costs.

Respectfully,

Arne Jacobson, Ph.D.
Director, Schatz Energy Research Center