DOCKETED	
Docket Number:	19-ERDD-01
Project Title:	Research Idea Exchange
TN #:	231339
Document Title:	Smarter Grid Solutions Comments - General comments on CEC-posed qustions in draft RFO concept
Description:	N/A
Filer:	System
Organization:	Smarter Grid Solutions
Submitter Role:	Public
Submission Date:	12/30/2019 12:02:53 PM
Docketed Date:	12/30/2019

Comment Received From: Smarter Grid Solutions
Submitted On: 12/30/2019
Docket Number: 19-ERDD-01

General comments on CEC-posed qustions in draft RFO concept

Please see attached document.

Additional submitted attachment is included below.

December 30, 2019

California Energy Commission

IN THE MATTER OF:
Request for Comments on Grant Funding Opportunity Concept
Docket No. 19-ERDD-01
REQUEST FOR COMMENTS RE: DER Strategies for MDHD BEV Charging Infrastructure
REQUEST FOR COMMENTS ON GRANT FUNDING OPPORTUNITY CONCEPT

Peter Maltbaek of Mountain View, California, General Manager of Smarter Grid Solutions Inc. (SGS), respectfully presents the following comments in response to the questions posed to interested stakeholders by the CEC staff:

1. Of the candidate use-cases and vehicle types listed above, which ones should we prioritize in this solicitation and why?
   a. Will distribution capacity constraints be a major barrier to the deployment of the charging infrastructure needed for that use-case in the short- to medium term?

   SGS Comment: This is highly dependent on location. However it is our experience from other jurisdictions that capacity constraints are a common issue, particularly for larger charging locations.

   b. Will vehicles and charging equipment be readily commercially available in the short- to medium-term?

   SGS Comment: We expect the answer to this to be yes, generally. They are both readily available now for many types.

   c. Are there market and policy influences driving electrification in the use-case now?

   SGS Comment: If we understand the question correctly, there are a large number of state and local policy influences driving electricfication, and the market has been in place for some time for certain types of MDHD vehicles and is rapidly gaining traction for other kinds.

   d. Are there use-cases that would particularly benefit from the reliability and resiliency value of the DER strategy?

   SGS Comment: Yes, there is a long list of benefits, such as speed to adoption and deployment, optimization of the use case and minimization of operational costs, and increases in reliability and resiliency that would especially apply to remote communities / locations and tenuously-connected areas of the grid.

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e. Are there vehicle types that are particularly suited to providing reliability services to the grid or to individual buildings during an outage?

SGS Comment: We have not considered this question in detail, however, it would seem that we should consider vehicles that operate to a particular schedule, so that availability requirements can be known in advance, or those which would not necessarily be needed during an outage.

f. What incentive or funding mechanisms already exist to support MDHD fleet operators looking to electrify?

SGS Comment: SGS does not have a comment here.

g. What is the total potential market size in California for the use-case?

SGS Comment: We have not attempted to quantify, so have no particular comment, other than to say in a state of the physical and economic size of California, this must be substantial.

h. Which use-cases have the most potential to replicate the DER package and achieve a meaningful scale?

SGS Comment: SGS (and other vendors) provides DER control systems that amongst other things manage DER interconnections to maintain safe operation of the distribution system in the presence of gird capacity constraints; operate micro-grids, and optimizes the use of multiple DER connected to any particular location. Usually the objective is cost-minimization, but can be other cases such as grid resiliency. The systems scale from a single location / feeder up through an entire utility control area, to provide the scaling required. The system integrates into the existing utility control infrastructure, and was specifically designed for the Use Cases discussed in this GFO.

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?

a. What metrics should be used to evaluate the cost and performance of the baseline incumbent technology? Metrics currently under consideration include: i. Itemized balance of system costs considering both site host costs and utility costs, ii. Carbon intensity, iii. Cost of delays associated with upgrading upstream distribution systems/substations, and iv. Risks associated with long-term investments in permanent upgrades.

SGS Comment: SGS agrees with the suggested metrics. There are additional items, for example management of the interconnection sequence – what happens to the second, third and so on connections to a capacity-constrained location and how are any curtailment or charge management programs adopted to be fair to all users as the system expands.

b. What information about existing grid infrastructure, beyond the Integration Capacity Analysis (ICA) maps, is needed to evaluate capacity constraints that could limit deployment of MDHD BEV charging infrastructure?

SGS Comment: This would generally be all that is required, however, the CA (ICA) maps tend to take a very conservative approach to ensure that conditions that might only occur very infrequently (less than one instance per year for instance) are handled. A “managed” interconnect may perform much better and completely safely without the large expense in grid upgrades that the un-

managed, highly conservative approach must take. Communications (DER and charge station operational performance visibility) is also generally needs to be available or installed as part of the project.

3. How does the target technology need to improve?

a. What are the current balance of system costs associated with deploying DERs as a non-wires solution for integrating MDHD BEV charging equipment?

SGS Comment: This is too general a question for SGS to answer in a brief way.

b. What publicly available resources provide visibility into these costs?

SGS Comment: There are many publically-available reports on physical asset costs (batteries, solar panels, vehicles, etc.) The costs of DER management systems are typically proprietary, but generally depend on the scale of operation and use cases covered by the deployment.

c. What types of costs can be further reduced through innovation and require demonstration (e.g., soft costs, software, design, hardware, permitting, interconnection, etc.)?

SGS Comment: All of the items mentioned benefit from pilot or demonstration systems since these can be used to identify design issues and establish best practices, after which replication costs (particularly for software, but less so for physical asset and installation expenses) can be reduced.

d. What is the revenue-generation potential and business model for the targeted technology (e.g., customer bill savings, low carbon fuel standard, wholesale market participation, distribution grid services, resiliency, etc.)?

SGS Comment: In general, the cost savings associated with avoidance or deferral of expensive grid upgrades, speed-to-deployment, and then the stacked values of DER use optimization and combination within the power markets while also providing distribution grid services to the utility (for instance, in emergency situations) will all combine to create the total revenue-generating potential. This is a complex overall formula, that demonstration system can be (and have been) used to evaluate.

e. What metrics can be used to evaluate cost and performance attributes of the targeted technology?

SGS Comment: The usual capacity and load factor, etc., metrics can apply, but need to be combined with the other cost/performance benefits listed.

f. How can those metrics be normalized across different use-cases and project sizes (e.g., ratio of PV size to stationary energy storage size, ratio of soft costs to hardware costs, load factor on the utility distribution system, resiliency/reliability metrics)?

SGS Comment: This is a question for economists rather than a technology provider such as SGS, however, we would note that in our experience this can be quite a difficult question to answer

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since there are many factors involved (as listed), which can have many situational and locational dependencies.

g. How well can the targeted technology meet the operational requirements of the priority use cases?

SGS Comment: SGS would offer that our technology has been deployed to many similar projects globally over the last 10 years, and so we are confident that the CEC will find the technology available will meet the operational requirements very well.

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

a. What size of a project should we be targeting (MW, MWhs, number of charging ports, number of vehicles, etc.)?

SGS Comment: We would only say that generally, the larger the scope the better (up to a point), and also it may be useful to consider multiple sites / locations around the state to create a meaningful profile of results.

b. What portion of the DER equipment costs should be covered by EPIC in order to appropriately incentivize site host participation?

SGS Comment: SGS declines to comment on this.

SGS looks forward to further participating in this exciting initiative.

Please contact me at pmaltbaek@smartergridsolutions.com if you require any clarifications.

Sincerely,

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