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Energy Research Cooperative MDHD BEV Comments

Additional submitted attachment is included below.

Energy Research Cooperative
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Re: Docket No. 19-ERDD-01

DER Strategies of MDHD BEV Charging Infrastructure

Comments on selected questions

1. Use-Cases and Vehicle Types

Of the target use-cases identified, those MDHD BEV that are the most mature include Transit and School Buses as well as Delivery Vehicles. These are fairly generic vehicle types that are similar in many respects. Many of the other use-cases are specialized and while there will be ongoing developments in these areas, selecting use-cases with more common and developed technologies would allow the CEC to meet the overall objectives in this GFO (e.g. DER integration, grid investment deferral, charging infrastructure optimization, commercial development business model, and integrated planning processes to maximize DER/BEV deployment).

While there are several current incentives to BEV adoption, many of these incentives are unique and specific to particular uses (e.g. electric utility programs). While this targeted approach helps these specific areas, there remains the need to address BEV and DER adoption more holistically. The various stakeholders - developers, employers/employees, suppliers, local jurisdictions, transit authorities, and electric utilities – all have various operating models that create barriers to developing this more holistic approach. Concepts like the DER Tariff discussed in the CPUC's Integrated Distributed Energy Resources (IDER) proceeding (R.14-10-003) may be one approach to consolidate incentives and align various stakeholders.

The ability to scale a particular use-case will require the above-mentioned stakeholder coordination and a compromise between specific requirements enforced by the various governance organizations (i.e. Local Jurisdictions, Electric Utilities, Transit Authorities) and the desire of system builders to have well-understood and streamlined interconnection methods (i.e. Large-Scale Developers, DER/Charging Infrastructure Suppliers). Further complicating this balance is that the Electric Utilities and to smaller extent the Transit Authorities and Local Jurisdictions have a role in building their own infrastructure. For a particular use case to be replicable and generate the most potential for accelerated DER/BEV adoption, standardized but agile requirements will need to be defined. Energy Research Cooperative has interacted with these stakeholders and believe there are ample opportunities to improve the coordination and develop a replicable model with a sound business case that would fulfill the CEC's objective in this GFO.

2. Managed Charging

While there are purpose driven charging infrastructure implementations that are not managed (e.g. Tesla Supercharger Stations), most charging implementations should have some managed

charging features. This becomes critical if these charging implementations are to provide deferral or other grid services to the Electric Utility. Since MDHD BEV charging infrastructure necessarily requires significant electric demand, these installations will provide significant opportunities for managed charging. Similar to the balance between governance and streamlining, the grid need should be balanced with the criticality of the MDHD charging profile.

The metrics listed in the Request for Comments are appropriate. The host and utility costs address this necessary balance and coordination. Theoretically the carbon intensity could be monetized along with delay costs and the significant question of risk assumption and responsibilities associated with mitigating the risk.

While the Integration Capacity Analysis is a useful tool and has progressed significantly over the last several years, the overall Distribution Investment Deferral Framework (DIDF) has timing and participation barriers that appear substantial. Increased forward planning amongst utilities, developers, cities, and transit agencies is necessary to optimize the overall deployment of charging infrastructure and DERs.

3. Target Technology Improvements

The economics of non-wire solutions are inconclusive at this time. There have been demonstrations through the Distribution Resource Plan (DRP) and the IDER proceedings as well as solicitations through the DIDF process. These have been informative to improving DER integration and locational value, but it is still unclear the capability of DERs to mitigate grid infrastructure upgrades. As mentioned above, Energy Research Cooperative thinks the barriers are not so much in improved technology as the need for improved coordination and incentive alignment. The GFO targeting the revenue-generation potential and business model is critical to the success of MDHD BEV adoption. The cost and performance metrics should be the underlying basis for the business case and is likely to be driven by in-build development in urban settings where MDHD transportation electrification seems to have the best near to mid-term opportunity. One of the key targeted technologies will be local control systems (both for the charging infrastructure and associated DERs) integrating with the electric utility control systems. While there has been significant work in this area, there is a need to coordinate these control system interfaces with the overall solution to effectively manage charging, DER optimization, and grid deferral performance requirements.

4. EPIC Investment

The size of the project is not as critical as the scalability of the solution. As GFO focus section indicates, "follow-on commercial deployments" should be a key consideration. While large scale demonstrations are good, smaller, focused demonstrations may prove more valuable and better able to develop the framework for successful wide scale deployment. Since DER equipment is substantially commercially available, the GFO should focus on funding resources to solve the coordination issues described throughout these comments. Control system integration continues to be a challenge and worthwhile for GFO funds to be used in this area. The bulk of the DER equipment should be funded through the demonstration effort as the ability to monetize these technologies is fairly mature. The site and utility control interaction to dispatch the resources (DERs and Managed Charging), determination of the resource value, structuring

the cost/benefit/risk economic allocation, and the coordination of activities across the key stakeholders are likely to be those items that the GFO should target their funding to best achieve their objectives.