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Comments of VGIC on DSGS Enhancements for Vehicle-to-Everything Systems

Additional submitted attachment is included below.

December 20, 2023

Email to: docket@energy.ca.gov
Docket Number: 22-RENEW-01
Subject: California Energy Commission Demand Side Grid Support Program Guidelines

Re: Comments of the Vehicle Grid Integration Council to Enhance the Demand Side Grid Support Program to Unlock Greater EV Participation

Dear Sir or Madam:

The Vehicle-Grid Integration Council (VGIC)[1] appreciates the opportunity to provide these comments – an informal proposal on the California Energy Commission's (CEC) Demand Side Grid Support (DSGS) Program Guidelines.[2] The DSGS program can unlock significant load reductions and exports to support system reliability, including during extreme weather events, from California's 1.5 million – and counting – EVs. EVs represent a low-cost resource to meet the state's Strategic Reliability Reserves that can be deployed at scale and rapidly relative to other resources. However, to achieve this vision, the DSGS program should be enhanced to address key program design gaps to enable EV customer participation.

Proposal: Establish a new "Option 4" based on Option 3 to Target V2X Discharge.

The CEC has been a national leader in advancing bidirectional charging technologies through several significant grant funding opportunities, developing and maintaining the V2G equipment list, and leading efforts to support interoperability. Yet, programs in other regions offer far more attractive compensation mechanisms for grid-tied bidirectional charging.[3] Meanwhile, DSGS Option 3 offers a compelling and straightforward ongoing compensation mechanism for behind-the-meter stationary energy storage systems that VGIC believes could be easily replicated for bidirectional charging. Bidirectional chargers are *mobile* energy storage systems that are operationally similar to stationary energy storage systems, which means replicating the structure and provisions of Option 3 would be a good fit for V2X solutions.[4] With over 1.5 million EVs sold

[1] The Vehicle Grid Integration Council is a 501(c)(6) membership-based trade association representing over 40 companies focused on accelerating the role of smart electric vehicle ("EV") charging and discharging through policy development, education, outreach, and research. VGIC supports the transition to a decarbonized transportation and electric sector by ensuring the value from flexible EV charging and discharging is recognized and compensated.
[2] CEC DSGS Guidelines, *Demand Side Grid Support Program Guidelines, Second Edition*. July 26, 2023.
[3] For example, the Connected Solutions Program offered by utilities in Massachusetts, Connecticut, and Rhode Island can offer ~$200/kW-season for ~50 events per season lasting 2-3 hours, with some instances of even higher compensation and number of events, depending on the utility. See: https://www.nationalgridus.com/MA-Business/Energy-Saving-Programs/ConnectedSolutions
[4] In 2020, the CPUC confirmed that, for the purposes of interconnection, V2X-DC chargers *are* energy storage.

in California, including 35,000 V2X-capable Nissan LEAFs, tens of thousands of V2X-capable Ford F-150 Lightnings,[5] and hundreds of V2X-capable electric school buses from manufacturers like Blue Bird, Lion Electric, and Thomas Built, the stage is set to tap into an immense amount of latent mobile energy storage capacity. However, this will not happen overnight and will require additional market transition support through both incentives for bidirectional charging equipment and compensation for V2X discharging, including through the DSGS program.

VGIC recommends that the CEC establish a new DSGS "Option 4" closely modeled on Option 3 but open to bidirectional chargers instead of stationary batteries. This "low-hanging fruit" enhancement can squeeze additional emergency net load reduction out of existing and new customer EV energy storage resources without significant program guideline redesign. See Attachment A detailing *DSGS Program Guidelines – Option 3* provisions that would need to be altered in the new Option 4. All other Option 3 provisions not detailed in Attachment A can be copied and pasted into the new Option 4.

Establishing a new "Option 4" would support the independent evaluation of stationary energy storage technologies (i.e., Option 3 resources) and bidirectional charging equipment (i.e., Option 4 resources) and would ensure that any future revisions needed to support bidirectional charger participation can be made easily without interfering with rules for stationary energy storage.

As with stationary energy storage in Option 3, we recommend that the CEC's DSGS administrator (i.e., Olivine) accept device-level data for the new Option 4. This device-level data can come from either the EV or bidirectional charger.[6] The customer/aggregator should elect a single data stream to not seek compensation twice for the same kWh discharged.

Borrowing the core design of Option 3 to establish a new Option 4 specific to bidirectional EVSE is an uncomplicated and high "bang-for-buck" revision to promote greater participation from bidirectional charging resources in DSGS. VGIC looks forward to collaborating with the CEC and other stakeholders on this initiative.

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[5] Note the V2X capability for commercially-available Ford F-150 Lightnings are currently limited to electrically isolated vehicle-to-home backup power configurations.

[6] Upon initial review of Olivine's Option 3 *Meter Data Format Requirements,* it is not immediately clear that revisions would need to be made to accommodate bidirectional chargers in the new Option 4. However, VGIC is available to collaborate with stakeholders to better understand what revisions may be required. https://dsgs.olivineinc.com/wp-content/uploads/sites/13/2023/10/Olivine-Technical-Guide-Interval-Data-Format-v2.2-DSGS-Annotations.docx

Important Note on Available Equipment and Request for CEC Coordination with CPUC.

Since vehicle-to-grid (V2G) exports would be encouraged under the above proposal, the CEC should consider the interactions between DSGS, Rule 21 smart inverter requirements, and available UL-certified bidirectional chargers. There are currently no bidirectional chargers certified to UL 1741 SB, which is required by Rule 21 as of August 29, 2023. Based on our discussions with manufacturers, UL 1741 SB certification for bidirectional chargers is – optimistically – over 18 months away. As a result, the CPUC has exempted bidirectional chargers participating in ELRP and, by extension, PG&E's VGI Pilots from all UL 1741 SA, SB, and any subsequent smart inverter requirements that the CPUC may set. We urge the CEC to coordinate, to the extent feasible, with the CPUC to extend this treatment to bidirectional chargers participating in DSGS, including Option 1 or any new Options that would deem V2G exports eligible. Without this exemption, many bidirectional EVSE will become stranded assets when they are most needed and available to provide grid flexibility services. DSGS represents a significant near-term opportunity to demonstrate the potential for VGI to provide grid services at scale and be compensated for doing so, particularly for customers of POUs and municipal utilities that are not eligible to participate in ELRP Subgroup A.5/VGI Aggregators. We therefore urge the CEC to make note of the current state of the bidirectional charger market and waive the UL1741-SB requirement and allow customers with UL 1741 and UL1741-SA certified V2G bidirectional chargers to participate in the DSGS program.

Conclusion.

VGIC appreciates the opportunity to provide these comments and looks forward to collaborating with the CEC and other stakeholders in this docket.

Respectfully submitted,

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Attachment A:

All Option 3 provisions can be simply "copied-and-pasted" into a new Program Guidelines Chapter for a new Option 4, except for the sections detailed below. VGIC has provided redlines to these sections to demonstrate what the language could look like in a new Chapter dedicated to a new Option 4: "V2X VPP".

At Pg 7 – 2.D.1.e, a new 2.D.1.f would be created, copying all elements from 2.D.1.e except for:

- "Information on each participating site, including a unique identification number, legal name of participant, contact name and title (if contact name is different from participant name), service account address, phone number, UDC, nominal ~~battery~~ electric vehicle supply equipment (EVSE) power rating (kW), nominal storage energy capacity (kWh), and nominated duration (hours).

At Pg 21 – CHAPTER 5, all elements can be copied directly for the new Option 4 except for:

5.A:

- "Third-party ~~battery~~ V2X service providers, POUs, and CCAs are eligible to serve as VPP aggregators."
- "A V2X VPP may consist of bidirectional EVSE ~~storage~~ paired with net-energy metering (NEM) solar or stand-alone ~~storage~~ bidirectional EVSE deployed with residential (bundled or unbundled) or nonresidential (bundled or unbundled) customers or both."
- "At a minimum, each individual customer site participating in a DSGS ~~BTM storage~~ V2X VPP must:"
    - "Have an operational ~~stationary battery system capable of discharging at least 1 kW for at least 2 hours~~ bidirectional EVSE system capable of discharging at least 1 kW for at least 2 hours."

Pg 22:

- "At a minimum, to participate in DSGS as a BTM ~~storage~~ V2X VPP, each aggregation must:"
- "Consist of ~~storage~~ V2X assets nominated for the same duration (number of hours, see following section for details)."

C:

- Incentive payments shall be made to VPP aggregators based on the demonstrated ~~battery~~ V2X capacity of an aggregated VPP. VPP aggregators shall allocate incentive payments between the VPP aggregator and its participants pursuant to the terms and conditions agreed to between the VPP aggregator and participant. Different levels of incentives for capacity (kW) are available for VPPs of varying durations (hours). VPP aggregators shall be eligible for a payment for demonstrated capacity at the rates defined in Table 2 based on the capacity (kW) and duration (hours) demonstrated by the VPP aggregator in each month.

Pg 24:

E:

- Hourly ~~battery~~ EVSE performance shall be determined by submeter or inverter-level measured ~~battery~~ EVSE discharge, regardless of whether the energy serves BTM load or is exported to the grid. ~~For battery resources receiving self-generation incentive program (SGIP) funding or with a host utility permission-to-operate date before July 1, 2023, an hourly prescriptive baseline shall be applied to battery discharge:~~

Pg 25

- For all ~~other batteries~~ EVSE, the baseline is defined as zero kW.

Where … is the metered ~~battery~~ EVSE discharge (kW), … is the baseline, and …is the day-ahead LMP, all in hour h.