Rule 21 WG #3 Issue #23

V2G Interconnection Issue Proposal Follow-Up

January 17, 2019

CESA
CALIFORNIA ENERGY STORAGE ALLIANCE

Presentation Overview

- **Proposal Concepts:**
  - Establish applicability of Rule 21 only when bi-directional capabilities are activated and utilized
  - Authorize V2G DC interconnections and make the appropriate modifications to the Rule 21 tariff and portal
  - Direct a sub-group within Working Group #4 in this proceeding (R.17-07-007) to more deeply address V2G AC interconnection issues
  - Clarify a pathway for parties to interconnect V2G AC systems on a timely basis for experimental and/or temporary use

Proposal #1: Applicability

- **CESA recommends that applicability of the Rule 21 tariff specifically call out the non-applicability of V1G and V2G systems when V2G capabilities are activated**
- **CESA proposes the following redline changes:**

> 4. Interaction with Other Tariffs for Storage or Vehicle-to-Grid Charging Load Treatment
>
> For retail customers interconnecting energy storage devices pursuant to this Rule, the load aspects of the storage devices will be treated pursuant to Rules 2, 3, 15, and 16 just like other load, using the incremental net load for non-residential customers, if any, of the storage devices.
>
> For retail customers activating vehicle-to-grid devices to interconnect to the distribution grid, the load aspects of the vehicle-to-grid devices will be treated pursuant to Rules 15 and 16 just like other load, using the incremental net load for customers, if any, of the vehicle-to-grid devices. This Rule only applies to vehicle-to-grid devices that operate as a Generating Facilities for retail customers seeking to activate vehicle-to-grid capabilities. Vehicle-to-grid devices should otherwise not be applicable to this Rule and should be only applicable to Rules 15 and 16.

Proposal #1: Applicability

- **CESA raises the possibility of defining "vehicle-to-grid" and how to define "activation" of V2G capabilities, as it would clarify applicability questions for V2G systems – *i.e.*, when V2G systems should be treated as Load Facilities versus Generating Facilities**

- **CESA proposes the following redline changes to Section C:**

  Vehicle-to-grid devices: Electric vehicles or electric vehicle supply equipment that have the capability of bi-directional electrical energy flow between the electric vehicles or electric vehicle supply equipment and the host customer load or grid

  Activate; activation: The act or condition of Load Facilities modifying inverter or equivalent controls to operate and be treated as Generating Facilities

Proposal #2: V2G DC Interconnections

- **Authorize V2G DC interconnections and make the appropriate modifications to the Rule 21 tariff and portal:**
  - Modify interconnection portal (Issue #22) to accommodate EVSEs in Rule 21 application
    - This can be addressed in Issue #22
  - Streamline study processes (Section N expedited process for non-export storage)
    - No major changes needed, including on requiring UL-1741 certified smart inverter in Section N
    - What is the status of continuing Section N processes?
    - Additional policy questions that may not be addressed here but should be considered broadly:

      Can threshold and multiple generator provision be reassessed given EV fleets?

      Can we strike the provisions around control systems ensuring that there is no increase in a customer's existing peak load demand?

      What is the status of continuing Section N processes?

Proposal #2: V2G DC Interconnections

- **CESA proposes the following redline modifications to the Rule 21 tariff Section D (General Rules, Rights, and Obligations):**

  14. Special Provisions Applicable to Non-Export Energy Storage Generating Facilities

  Applicants with Non-Export Energy Storage Generating Facilities, including direct current vehicle-to-grid energy storage systems, that meet the criteria listed in Section N shall be eligible to elect to have their Interconnection Requests processed in an expedited timeframe, subject to the terms and conditions of Section N.

- **Similarly, the opening applicability paragraph of Section N would need to be modified:**

  Upon implementation by Distribution Provider, Applicants with Interconnection Requests for Non-Export Energy Storage Generating Facilities, including direct current vehicle-to-grid energy storage systems, who meet the requirements outlined below are eligible for expedited interconnection, as provided herein, in accordance with the Fast Track Process technical review requirements of Section F.2. Applicants with Non-Export AC/DC Converters that meet the requirements outlined in Section O below are also eligible.

Proposal #2: V2G DC Interconnections

- **Authorize V2G DC interconnections and make the appropriate modifications to the Rule 21 tariff and portal:**
  - Create expedited interconnection process similar to NEM generating facilities for the exporting use cases
- **Alternatively, a new sub-section of Section N and Section B.5 could be created for V2G DC systems and broadly for V2G systems in general, thus teeing up future consideration of V2G AC interconnections:**
  - As opposed to lumping them in with BTM energy storage

Proposal #3: V2G AC Interconnection Discussions

- **Direct a sub-group within Working Group #4 in this proceeding (R.17-07-007) to more deeply address V2G AC interconnection issues:**
  - More time is needed
  - Are there ways to break this issue out for more immediate sub-group attention?
    - Do we have to wait until WG #3 report is completed, commented on, and decided?
    - Stakeholders are locked and ready to put in the time to develop proposal
  - How can we initiate more deeper understanding of SAE J3072 (more applicable standard)?
  - Can the definition of “smart inverter” be broadened to not be limited to a ‘box’ but allow smart inverter functionalities, including communication capabilities, encompass the combination of the EVSE and EV?

Proposal #4: V2G AC Interconnection Pilot Approval

- **Clarify a pathway for parties to interconnect V2G AC systems on a timely basis for experimental and/or temporary use:**
  - The IOUs should clarify a path for some temporary allowance for pilots and experimentation and not hinder pilot deployments due to interconnection issues
    - Key learning opportunities would be deterred
    - They may have *de minimis* impact and are overseen by CPUC/CEC
  - Temporary exemption from Rule 21 smart inverter requirements at limited levels appears to be worthy of consideration at this time while being supplemented by SAE J3072 certification
    - Key learning opportunities would be deterred

Key Conclusions

- **V2G has great potential and supports the state's goals but face interconnection barriers and uncertainties**
- **Automotive OEMs and EVSE providers need a regulatory signal that applicable V2G systems have a clear path to interconnection**
- **Customer experience should be an important factor that should be taken into account in these Rule 21 working group discussions**
- **V2G use case applicability should be clarified**
- **V2G DC systems should be authorized (not much change needed) and some V2G AC systems should be allowed for learning purposes**
- **V2G AC interconnection discussions should continue in a forum that allows for deeper and more technical discussions to work toward longer-term solutions**

Thank You

Jin Noh

Policy Manager
California Energy Storage Alliance (CESA)
jnoh@storagealliance.org
703-507-8809