

ENABLING V2G: POLICY RECOMMENDATIONS FOR NJ

For
New Jersey Retreat on
Advancing Vehicle-to-grid technologies

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JANUARY 22, 2020



UD EV R&D GROUP BACKGROUND

- Patent world's first V2G technology
- Develop relationships with automakers
- Work with regulators on new laws
- Serve on standards committees (e.g., SAE-Society for Automotive Engineers)
- Facilitate partner industries



BARRIERS TO MARKET ENTRY

- TSO rules change slowly
- Placing a storage resource behind a retail meter can generate double tariff, double taxation
- Markets that were designed for slow thermal generation may not allocate full value to very fast-responding resources
- Interconnection and paperwork requirements that are reasonable for a few 500 MW power plants are burdensome for 1,000's of 10 kW resources.
- Fewer markets for distribution system services.

POLICY REQUIREMENTS FOR V2G INTEGRATION

- 1. Defining GLVs and their associated technology**
- 2. Create appropriate interconnection limits and processes**
- 3. Permit EV-specific certification for interconnection**
- 4. Allow for equal credit-for-export**

HOW TO DEFINE THE TECHNOLOGY?

"Grid-integrated electric vehicle" means a battery-run motor vehicle that has the ability for two-way power flow between the vehicle and the electric grid.

"Grid-integrated charging system" means an AC or DC charging station and its associated equipment that have the ability to allow two-way power flow between a grid-integrated electric vehicle and the electric grid, as well as the communications hardware and software that allow for the external control of the vehicle's battery charging and discharging by an electric distribution company, electric power supplier, PJM Interconnection or a distributed resource aggregator.

DEFINING THE TECHNOLOGY – CONT'D

“AC charging station” means site-installed equipment using alternating current to carry power to electric vehicles with on-board charger-inverters.

“DC charging station” means site-installed equipment, including an inverter, used to carry direct current to electric vehicles for charging.

INTERCONNECTION CATEGORIES

- Following FERC Order 792, storage (and thus GIVs) should be included in fast track interconnection categories.
- We suggest raising the upper capacity limit of level 1 interconnection limit from 10 to at least 25 kW, following IREC's 2017 report recommendation.
- Some States already adopted this measure (OR, MA, UT)
 - Others adopted higher limits (CA with 30 kW, MT with 50 kW)
- This would facilitate some fast charging station interconnection, has potential for more cost-effective installations.

CREDIT FOR EXPORT

- To provide grid services, distributed GICS must compete with transmission integrated storage systems.
- We suggest creating a tariff that enables fair competition.
 - Customer receives credit/kWh exported at full retail rate in effect at the time of export.
 - Ensures GICS won't be charged more than non-GICS
- Already in use (since 2009) in Delaware (Title 26, Chapter 10, Amend §1014 of Delaware Code)

- # INTERCONNECTION CERTIFICATION
- Today's certifications for interconnection equipment: IEEE, UL, NEC
 - IEEE 1547
 - UL 1741, which assumes equipment inverter is fixed onsite, not mobile
 - The recent Society of Automotive Engineers (SAE) J3072 provides the appropriate safety certification for this technology
 - Requires compliance with IEEE 1547 and NEC
 - Charging station becomes “gatekeeper” for only certified cars to interconnect
 - Fixed component (charging station or EVSE) can be tested and approved by NRTL to meet UL 2594
 - Testing and compliance of mobile inverter to standard is certified by OEMs
 - Already codified in DE law through SB12
 - Signed into law June 2019

END