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SECURING AMERICA'S FUTURE ENERGY (SAFE)

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Nevada Policy Bootcamp

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SAFE/EC Overview

• SAFE: Works to enhance the nation’s energy security by advancing transformative transportation and mobility technologies.

• Also aims to ensure that the U.S. secures key aspects of the technology supply chain to maintain its strategic advantage.

• Federal policy focus.

• SAFE’s sister organization, the Electrification Coalition: Works on transportation electrification state and local policy development and project implementation.
Vehicle-to-Grid (V2G) Illustration

Source: idealenergysolar.com
Vehicle-to-Grid (V2G) Functionality

- Scheduled charge and discharge windows
- Rule-based control strategy
- Set minimum discharge-level of vehicles

Proterra APEX Cloud Energy Management

- Command or Schedule Charge/Discharge
- Charge Session Metrics
- Available Discharge Energy
- Distributed Energy Management System (DERMS)

Vehicle Telemetry Metrics

- Vehicle-to-Charger Communications
- Discharge/Charge DC Electricity

Proterra 60kW Plug-in Chargers

- Bidirectional AC Electricity
- Power Flow/Grid Support

Proterra Powered Vehicle Mobile Battery Storage

Electrical Grid

Control command flow
Control feedback flow
POWER TO THE PEOPLE
NISSAN’S VISION FOR THE ENERGY GRID PUTS THE POWER IN YOUR HANDS

VEHICLE-TO-GRID
The smart integration of electric vehicles in the grid will radically change the energy landscape, allowing each Nissan EV owner to actively contribute to the stability of their national grid and the further penetration of renewable energy sources.

BETTER GRID STABILITY
2 DAYS OF HOUSEHOLD ELECTRICITY

DAY
SOLAR POWER
DAYTIME
During the day solar energy can be used to power the home

HOME

EVENING
SOLAR POWER
DISRUPTION
When an event is disrupting the production of solar energy the Nissan LEAF can help even out peak load and stabilise the frequency to maintain grid stability

HOME
I. V2G Policies in the Bipartisan Infrastructure Law
   • Surface Transportation Block Grant Program (Section 11109)
   • Charging and Fueling Infrastructure Grants (Section 11401)
   • Smart Grid Investment Grants (Section 40107)
   • Codes and Standards Study for Use of Energy Storage (Section 40111)
   • National Electric Vehicle Formula Program
   • Joint Office of Energy and Transportation

II. V2G Policy in Pending Federal Legislation
   • Alternative Fuel and Refueling Property (Section 30C) Tax Credit
Example School Bus Projects

Franklin-McKinley SD

Torrance Unified SD

Con Edison V2G Pilot

Time of Use

Demand Charge Management

Demand Response

Charge off-peak

Charge at night

Discharge at peak

Discharge with utility signal
The Path Forward: Summary of V2G Policy Recommendations

Federal:

• Extend and expand the “Alternative Fuel Refueling Property” tax credit.
• Develop a V2G Roadmap.
• Convene a cross-disciplinary group to advance V2G policies and deployment.
• Incorporate V2G into emergency planning and preparedness efforts.
• Help “future proof” policies and incorporate infrastructure “make-ready” capabilities.
• Facilitate development of uniform federal technical standards.
• Update the treatment of V2G for its grid resources in policies and regulations.
Summary of V2G Policy Recommendations (cont'd.)

Regional Transmission Organizations (RTOs):
• Develop/implement roadmaps that incorporate V2G more fully.
• Develop/revise RTO requirements to facilitate V2G deployment.
• Conduct V2G grid impact studies.
• Conduct inclusive and transparent V2G stakeholder processes.

States:
• Incent V2G.
• Streamline interconnection standards.
• Compensate V2G grid resources; design or apply appropriate rate structures for V2G.
• Conduct demonstrations; share lessons learned and best practices.
Thank you!

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