NARUC Summer Policy Summit

Subcommittees on ERE and Rate Design

Future Proofing EV Charger Technology

This session will begin at 11:15 AM



- 1. The regulatory process can be long so that by the time an EV Program or plan is approved , the technology may already be out or date.
- 2. How do Commissions plan for these short-lived assets?
- 3. How do Commissions do EV charger planning when EV owners aren't limited by service territory?
- 4. Would interoperability standards help with getting more standardized technology upgrades?



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Future Proofing EV Charging Technology

NV Energy EV Program Evolution





- **2013** Charging Station Shared Investment Program
- 2015 Nevada Electric Highway Partnership with Governors Office Of Energy – Phase I, Phase II
- 2017 Electric Vehicle Infrastructure Demonstration Program
- 2019 Electric School Bus Program
- **2021** Economic Recovery Transportation Electrification Plan
- 2022 Transportation Electrification Plan

Commission Considerations (Section 40) for Transportation Electrification Plan Evaluation



(a) Whether the **proposed investments, incentives, rate designs, systems and programs** are reasonably expected to achieve **one or more of the following**:

- (1) Improve the efficiency of the electric utility's electrical system, operational flexibility or system utilization during off-peak hours;
- (2) Improve the <u>ability of the electric utility to integrate renewable energy resources</u> which generate electricity on an intermittent basis into the transmission and distribution grid;
- (3) <u>Reduce greenhouse gas emissions and air pollution;</u>
- (4) <u>Improve air quality</u> in communities most affected by air pollution from the transportation sector;
- (5) Support *increased consumer choice* in electric vehicle charging and related infrastructure and services;
- (6) Increase access to the use of electricity as a transportation fuel by low-income users by including investments, incentives or programs for those users, or for entities operating in communities or at locations that will benefit low-income users;
- (7) Foster the investment of private capital in transportation electrification, as defined in section 14 of this act, and the demand for skilled jobs in related services; and
- (8) Provide information and education on the benefits of transportation electrification to customers.
- (b) Whether the proposed investments, incentives, rate designs, systems and programs provide electric services and pricing that customers value.
- (c) Whether the proposed investments, incentives, systems and programs incorporate public reporting requirements which will serve to inform program design and Commission policy.

(d) The cost to the customers of the electric utility to implement the plan

What Does Future Proofing Mean?



Site Profile Standardization



Charging Station Requirements



- Minimum Power Levels: Level 2: 10 kW (19.2 kW preferred); DCFC: 150 kW/ 350 kW per site profile (but can be larger)
- Level 2: At sites where there are only two ports, each should be an independent charger. If there are more than 2 ports, dual port chargers are permitted.
- DCFC: At least one CHAdeMO connector per site. Remaining connectors must be SAE/CCS. Backwards compatibility to CHAdeMO v0.9, SAE JI 772 Oct2012, or CCS type 1 standards.
- Charger Certification: Certified by the Underwriters Laboratories, Inc. ("UL") including, but not limited to, UL 2202, UL 2594, or UL 9741 standards or carry equivalent safety standard and listed by a Nationally Recognized Testing Laboratory ("NRTL").
- Communications Protocols: Support Open Charge Point Protocol 1.6 (2. 0 Preferred).
- **Networking**: Must be able to connect to a network via Wi-Fi or cellular connection using multiple carriers.
- Payment: All public charging stations must accept credit or debit card (magnetic stripe and chip card) payment types without incurring
 additional fees. In addition, payment must meet PCI data security standards (DSS). To ensure redundancy and reliability, each charger must
 individually meet ERTEP's payment requirements.
- **ISO 15118:** EV charging technology must comply with ISO 15118.
- Grid Integration: Ability to be controlled remotely and receive a signal to reduce or stop charging using Open ADR 2.0b, or at least one of the communications protocols required by the version of the IEEE 1547 standard in effect at the time of installation. The current published IEEE 1547-2018 standard requires support for: (1) IEEE 2030.5 ("SEP 2"); (2) IEEE 1815 ("DNP3"); and (3) SunSpec Modbus.





*As approved in the final order of ERTEP, a third-party provider is defined as a company that owns and operates a network of nonproprietary DC fast charging electric vehicle charging infrastructure that can demonstrate historical uptime performance of at least 97%

Workforce & Training Requirements



As EV infrastructure and distributed energy resource deployment increases in Nevada, it is vital that the growing electrical workforce is prepared to meet the safety and technical requirements.

Electric Vehicle Infrastructure Training Program (EVITP)

To ensure Nevada's electrical workforce is ready, NV Energy will partner with the Northern Nevada Electric Joint Apprentice and Training Committee (NNEJATC) and the Electrical Joint Apprentice and Training Center of Southern Nevada (EJATCSNV) to strengthen their existing Electric Vehicle Infrastructure Training Program.

These partnerships will enhance recruitment and remove barriers to entry for those within historically underserved communities, increasing access to clean energy jobs.





Per SB448: Any electric vehicle charging infrastructure that is installed as part of a plan which is accepted by the Commission pursuant to this section and which is not installed by employees of the electric utility must be installed by a contractor who holds a valid license in the classification required to perform such work issued by the State Contractors' Board pursuant to regulations adopted by the Board and at least one electrician holding a certification from the Electric Vehicle Infrastructure Training Program.





NARUC 2022 Summer Policy Summit Euture Proofing EV Charging Technology Panel

Suresh Jayanthi Sr. Director Sales & Business Development NextEra Mobility







NextEra is the largest clean energy company in the world, at the forefront of broad-based decarbonization

NextEra Energy (NYSE:NEE)

NextEra Energy Resources (NEER)

#1 North American energy investor

Grid Scale Renewables #1 generator of wind and solar

Distributed Generation #1 distributed generation

> **Emerging Green** Verticals









Data Mobility Residenti Hydroge centers infrastructur al

Florida Power & Light (FPL) Top utility

Shared resources and experience:

- Engineering
- Procurement
- Construction management
- EV infrastructure experience – over 1,000 chargers installed



NEER is a turnkey build-own-operate (BOO) turnkey energy business; EV infrastructure deployment is comparable to a solar PPA





Transportation Electrification: Key Decisions and Challenges

DECISIONS	CHALLENGES		
Justify / Plan fleet conversion Vehicles, chargers, incentives, tariffs,	 Electrification roadmap Technology agnostic 	elQ Fleet Assessments	
power availability, timing	solutions	(Advisory Services)	
Build infrastructure for ZEVs	Financing		
Deployment needs to be on schedule, on budget & resilient	 Faster deployments Reliable, Resilient depots 		
		"as a service"	
Buy & Manage electric fuel	Charging cost predictability	solutions	
Manage fuel / energy costs across charging, buildings, renewables, V2G	Match loads to renewablesScale across utilities		



NEER offers a menu of "as-a-Service" solutions

Solutions	Fleet EV Advisory	Charging- as-a-Service (CaaS)	Electrification- as-a- Service (EaaS)
Fleet Electrification Feasibility Assessment & Strategic Planning	\checkmark	\checkmark	\checkmark
EV Charging Infrastructure		\checkmark	\checkmark
Grid interconnection		\checkmark	\checkmark
Demand Charge Management		\checkmark	\checkmark
Fleet Management Integration		\checkmark	\checkmark
Utility Billing Management		\checkmark	\checkmark
Renewables & Resiliency (optional)			\checkmark



Infrastructure and Energy Solutions for all Fleet Scenarios





NextEra Highway Charging JV with Daimler and Blackrock





Fleet Electrification: Implications for utilities

- **Shared Hubs:** Charging depots may not all be dedicated depots at customer sites
- **eTruck Stops:** Slower timeline, but bigger loads; will often piggy-back on existing truck stops
- **Fleet Choices:** Fleets and developers will pick the locations with the fastest, most affordable interconnection process, most predictable & affordable electricity / grid services markets
- ESG: Fleets want renewable-powered ZEVs
- **Reliability:** Fleets are increasingly focused on depot resiliency; don't want diesel generators

