Managing the Grid

• Moderator:
  • Chris Nelder, Manager, Rocky Mountain Institute

• Speakers:
  • David Danner, Chairman, Washington Utilities and Transportation Commission
  • Nancy Ryan, Partner, E3
  • Bryce Yonker, Executive Director, Smart Grid Northwest
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#WeTheStates
Managing the Grid

Nancy Ryan, Partner, E3

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NGA Western States Transportation Electrification Workshop

Seattle, WA
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Nancy E. Ryan, Ph.D.
Partner
Significant progress is needed across all four pillars, with fastest ramp-up between today and 2030.
PEV Grid Integration: Issues

Do we need new power plants or transmission lines to support PEV charging?

What are the opportunities to exploit the latent flexibility in PEV charging load to balance out fluctuations in renewable energy generation?

Will EV charging overload local distribution circuits?
- New upgrades needed?
- Safety/Reliability affected?

Can PEV charging be timed to coincide with rooftop solar generation?
Technologies and policies are developing to support vehicle-grid integration (VGI)

V2H/V2B/V2X capability can enhance PEV value proposition

V2G capability allows PEV to discharge to grid, receive payment for services

'Smart' charging (or 'V1G') through targeted utility tariffs or communication from grid operator to aggregator / vehicle
Grid integration measures: Smart Charging (V1G)

**Rate design:**

- **Time of use (TOU)** rates vary on a fixed schedule and are higher during periods of peak demand on the bulk power system.

- **Dynamic rates** vary from hour to hour with conditions on the bulk system or local grid (SDG&E’s Charge Ready Pilot)

**Demand response:**

- The utility or a third party directly controls when and even where a vehicle charges: PG&E/BMW pilot
- Customer is paid for performance and can over-ride if desired.
- Aggregator may employ stationary battery backup to assure performance.
Virtual TOU: ConEd SmartCharge

+ Incentive program partnership between ConEdison and FleetCarma
  - $150 sign-up bonus for installing FleetCarma tracker
  - $5/month for charging anywhere in ConEd service territory
  - $0.10/kWh incentive for charging off-peak (12AM-8AM, 365)
  - $20/month in summer for completely avoiding charging during peak summer hours (2PM-6PM, June-September)

+ Uses vehicle telematics, but mediated by FleetCarma device
THANK YOU

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