11 October 2017

Electrification in Context

Electrifying Transportation: Overcoming the Barriers to Adoption
2017 CLEAResult Energy Forum
Austin, TX

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Electrification is Already Happening

Figure 1: Annual global light duty vehicle sales

Source: Bloomberg New Energy Finance

Photo credits: Nest and Dennis Schroder, NREL
...It’s All About Load Growth, Right?

- “Utility Sales could nearly double by 2050”!
Consider the Fundamentals: The Economy Has Decoupled from Energy (& Carbon)

Source: Energy in Context, 15 March 2015
Not All Electrification is Created Equal: *Beneficial* Electrification (BE) Offers Utilities a “LEG Up”

1. Saves Customers Money Long-Term; New Services
2. Reduces Environmental Impacts
3. Enables Better Grid Management
The "Duck Curve" and Workplace EV Charging

Source: Jim Lazar, RAP
Rate Design Matters: Eversource Impedes Workplace Charging in Large Commercial

NCP Demand Charge: $13.75/kW
Energy Charge: ~$0.12/kWh

6.6 kW charger, 200 kWh/month:
$90 Demand + $24 energy = $114 =
= $0.57/kWh or $5.70/gallon equivalent

Source: Jim Lazar, RAP
Rate Design Matters: SMUD Encourages Workplace Charging in Large Commercial

NCP Demand Charge: $2.82/kW
CP Demand: (2 – 8 PM, summer): $6.91/kW

Energy Charges:
Off-Peak: $0.10
Mid-Peak: $0.13
On-Peak (2 – 8 PM, Summer): $0.19

6.6 kW charger, 200 kWh/month:
$18.61 Demand + $23 energy = $42
= $0.21/kWh or $2.10/gallon equivalent

Source: Jim Lazar, RAP
The Grid is Getting Much Cleaner; BE Devices “Get Cleaner” With the Grid
Overall, BE Can Buy Time; Offer a “Window of Opportunity”

- Get closer to customers
  - Segmentation, new services
  - Focus on EE, DERs, EVs
- Decouple revenue from kWh sales
- Rethink rate design
  - **Not** fixed charges!
- Get going on EVs & heat pumps, distribution system planning, transactive energy, analytics, management of demand, etc.
Building on BE to Secure Your Future: Disruptive Forces Transforming Electricity

Source: Chandu Visweswariah, Utopus Insights Inc.
About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org