Transportation Electrification

Rendall Farley, P.E.
Manager, Electric Transportation
Public Power Forum, 3 Rivers Convention Center, Kennewick
October 28, 2016
Delivering reliable energy service and the choices that matter most to our customers.
Electric Transportation

The movement of people and goods using electricity as a transportation fuel
Drivers & Benefits

• Technology Advances
• Emission Reductions
• Energy Independence
• Operational Cost Savings
• Economic Growth
• High Customer Satisfaction
Adoption Barriers

- Low Awareness & Misperceptions
- Upfront Cost
- Limited Vehicle Choices
- Range Anxiety
- Low Infrastructure Investment

Average miles driven per day

- 50% Up to 15 miles
- 14% 15 to 30 miles
- 28% 30 to 45 miles
- 8% 45 or more miles
EV Charging Pyramid

80%

15%

5%

Home

Workplace

Public
Future Power Requirements

Current State

1,638 MW peak required load

Extreme Future Scenario

• 500,000 EVs on Avista’s system
• 20kW simultaneous demand per EV
• 10,000 MW peak load

A Less Extreme Scenario . . .

• 30 miles/day average distance travelled = 9 kW-hr energy per day, per EV
• 500,000 EVs = 4,500 MW-hr/day
• Evenly spread over 18 hrs system off-peak = 250 MW peak load
Rate Impacts - Benchmark Comparison
(California Transportation Electrification Assessment)

Figure 2. Utility Customer Benefits: Present Value of Revenue and Costs per Vehicle
(Ratepayer Impact Measure Cost-test)
EVSE Pilot Design

- 120 AC Level 2 at Home
- 100 AC Level 2 at Work/Fleet/MUDs
- 45 AC Level 2 in Public
- 7 DC Fast Chargers

Integrated Network

User Web Portal

Utility Web Portal
EV Experience Project

- Drive one of 3 EVs for a week
- 6-9 month internal test to help develop a proposal for customers
- Is it the right fit for your life? Now you can test it out, no risk
- Test before and after perceptions, purchase decisions
Future Electrification Initiatives

- Education & Outreach
- Bus Electrification
- Forklifts
- Commercial EV Fleets
- Airport Ground Support Equip.
- Truck Stops, Refrigerated Trailers

Concept | Plan | Launch
Thank You!

Photo: Huntington Park, Spokane, Wash.
Chelan PUD and EV’s

-Roadmap to Success
What was Chelan PUD doing?

- Following EV news and watching trends

- 2015-2019 Strategic Plan Provided funding for charging stations at PUD facilities
  - Show support for Electric Vehicles
  - Provides a chance to gather data to inform future EV strategies
Early in the Adoption Cycle - We Have Time

We are here

How are we using this time?

• Installing 5 chargers at Chelan PUD facilities
  – Partnering with local EV Advocacy group

• Participant in a EV Benefit/Impact study

• Participating in a NW Utility EV Collaborative
Fitting the Pieces Together

EV Charger Installation
EV Impact Study
EV Collaborative
- Best Practices
- Information sharing
- Potential legislation synergies

Data Collection
Benefit/Cost Information
Ongoing Information Exchange

EV Strategy
- Policies
- Rates
- Legislation
- Programs
- Interaction with Carbon Policy
In Parting

• Chelan PUD supports our customers choice to choose electric vehicles as their transportation option.

• Chelan PUD is very interested in how EV’s work which is one of the reasons for supporting the installation of charging stations.

• Chelan PUD continues to work on the challenge of how we incorporate EV opportunities into Chelan PUD’s business model that puts a high value on energy efficiency and conservation.

• From a energy and emissions perspective, what options are available to bridge the gap of EV’s societal benefits with the impact to Chelan PUD customers.
Questions?