EV CHARGING AT CITY LIGHT - OVERVIEW

**EV Planning Findings**
- Net Benefit to Vehicle Charging
- Distribution System Can Handle Load
- Customer Demand

**City Light Supported EV Efforts**
- **Public Pilot**
  - ...also
  - Metro Bus Electrification
  - Electric Avenue (SDOT)
  - SeaPark Garage
  - Residential Pilot
OVERVIEW

City Light Involvement with Transportation Electrification
METRO BUS ELECTRIFICATION

• King County Metro working to electrify significant amount of buses (120 buses by 2020)

• Most of the expansion will run out of Tukwila and likely require significant service upgrades
  - 700 kW in 2018
  - 5 MW in 2020
SDOT “ELECTRIC AVENUE”
SEAPARK GARAGE

• Finance and Admin Services
  o Specifically for Fleet Charging
  o 100+ EV Charging Stations
  o Existing elect capacity limited

• City Light Support
  o Funding EPRI study - How to mitigate capital investments with innovative technology/solutions
RESIDENTIAL PILOT

• Goal
  o Understand City Light’s role in the residential charging market.
  o Should we be in this business?

• Strategy
  o Install Level 2 charging stations in 200 homes
    • Lower initial cost to acquire and install chargers
    • Charge manageable monthly use rates
PUBLIC PILOT
Direct Current Fast Charging (DCFC)
WHY & HOW

• Goal

- Drive Clean Initiative
- Utilize Utility Infrastructure
- Meet Customer Demands
- Influence Market

• Strategy
  - Install 20 DCFC Throughout Seattle
  - 10-15 Locations
LEARNING OBJECTIVES

• Quantify Benefits
  o Carbon Emissions
  o EV Adoption

• Validate Assumptions
  o Cost
  o Utilization
  o Appropriateness of Fee/Fee Structure

• What role should we play in EV Adoption?
LEARNING OBJECTIVES

• 20 stations across **10-15 sites**
• Charge most of a vehicles battery in less than **30 minutes**
• Initially, City Light owned with O&M through 3rd party contract
• Locations
  o Right-of-Way
  o Off street installations
HIGH LEVEL TIME LINE

- **Site 1:** October 2017
- **Sites 2-6:** Ideally This Year
- **Remaining Sites:** 2018
- **Evaluate:** 2019
HIGH LEVEL TIME LINE

Program

- Marketing & Communications
- Engineering & Construction
- Equipment & Software, including data collection
- Fee Development
- Siting
- Evaluation
SITING

Evaluation Attributes

- Apparent physical space
- Electric service availability
- EV chargers within vicinity (RSJI)
- EV owners within the vicinity (RSJI)
- Priority placed on Greater Duwamish and Chinatown/ID (RSJI)
- Geographically distributed
- Willing host
- Transportation hubs and amenities
FEE DEVELOPMENT

• **Financial Planning** is developing fee
• **CES** is informing assumptions

<table>
<thead>
<tr>
<th>Current</th>
<th>Future</th>
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<tbody>
<tr>
<td>Uniform Across Sites</td>
<td>Informed by Market Analysis/Survey</td>
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<tr>
<td>Per Session</td>
<td></td>
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<tr>
<td>Many Assumptions</td>
<td>Informed by Actual Costs &amp; Usage</td>
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• Fee Approval Process
  o DPP – approved by appropriate Directors & filed with clerk for 2-week open comment period
MARKETING PLAN

• **Market Research & Support**
  o Survey and Analysis
  o May inform updates and future design parameters to program

• **Site Specific & Stakeholder Outreach**
  o Community near each site

• **Launch & Operations**
  o Press regarding launch
  o Answers to questions during operation

• **Evaluation**
  o How do evaluate program success
SITE 1
Beacon Hill
SITE 1: BEACON HILL LIGHT RAIL
SITE 1 – BEACON HILL – 16TH & LANDER
TECHNOLOGY OVERVIEW

• DC Fast Chargers
  o 50-70 mile range for 20-minute charge
  o High power requirements

• Other Technologies
  o Level 2 – 10-20 miles for 1-hour charge
  o Level 1 – 2-5 miles for 1-hour charge (typically home charging)