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October 8, 2019

## **MEMORANDUM**

**TO: Council Members**

**FROM: Elizabeth Osborne**

**SUBJECT: Presentation by Tacoma Public Utilities on Conservation Programs**

### **BACKGROUND:**

**Presenter:** Chris Robinson, Power Superintendent, Tacoma Power

**Summary:** Chris Robinson will present to the Council on Tacoma Power's operations, with emphasis on the utility's conservation efforts. He will discuss Tacoma Power's experience with administering conservation programs, especially those targeting low-income customers, and the challenges facing the utility in serving hard-to-reach sectors of the population. He will also discuss the trends around avoided costs and changing program focus to pursue different measures in the future.

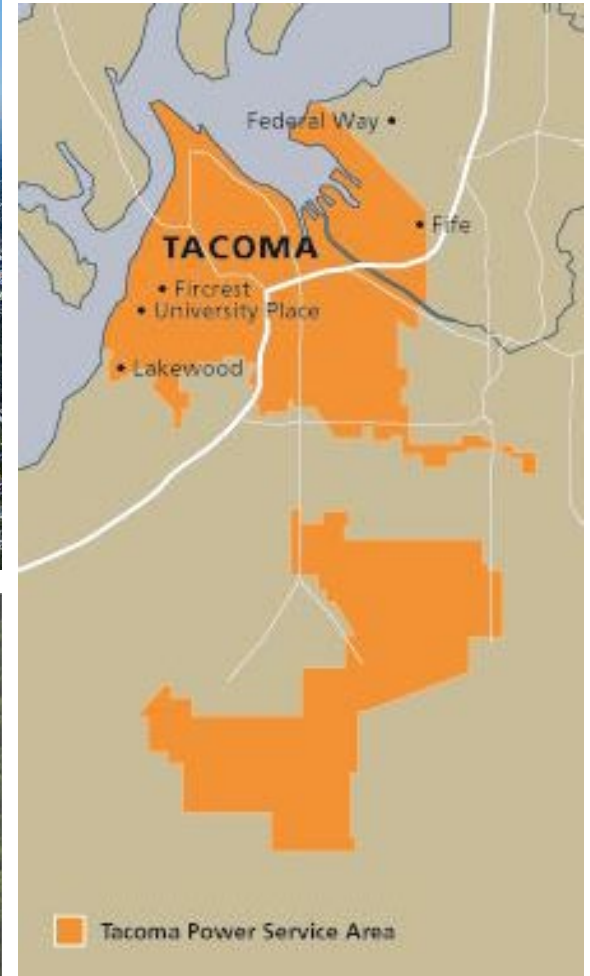
**Background:** Tacoma Power serves around 175,000 customers in and around the city of Tacoma, Washington. The utility has a variety of programs to support clean and renewable energy, conservation, environmental preservation, and provide economic development opportunities.

*Serving our customers*

# Transportation Electrification

**Cam LeHouillier, Manager of Energy R&D**

# Tacoma Power



# A win-win-win situation

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## **DRIVER**

Electricity is less expensive  
EVs need less maintenance

## **ENVIRONMENT**

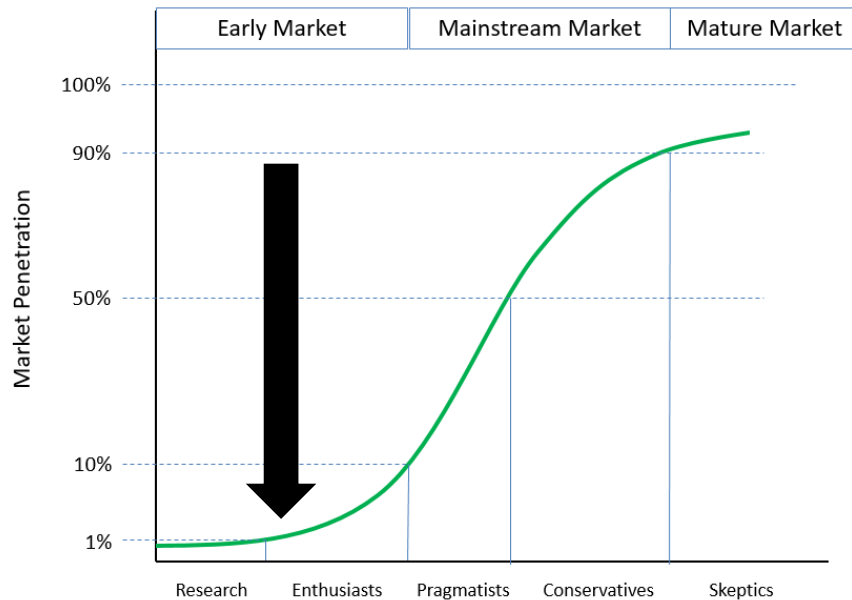
Reduced GHG emissions  
Domestic source of energy  
Improved air quality, less noise

## **UTILITY**

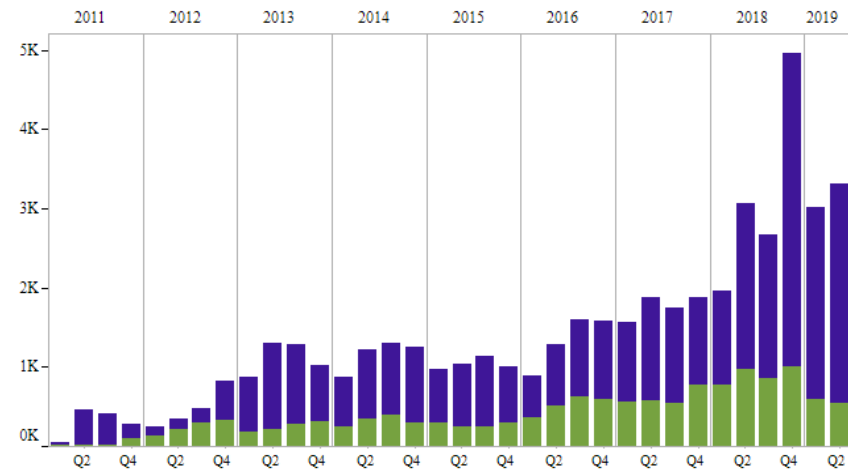
Increased utility revenues

# Current market and the utility role

- Early adoption stage (<3% of new cars)
- Outlook is good – low cost, clean, renewable power, battery cost
- Public education, incentive programs are needed
- A period of innovation – best practices have not been set
- Utility should provide leadership but beware misinvestment
- Help our customers meet their goals and see benefits

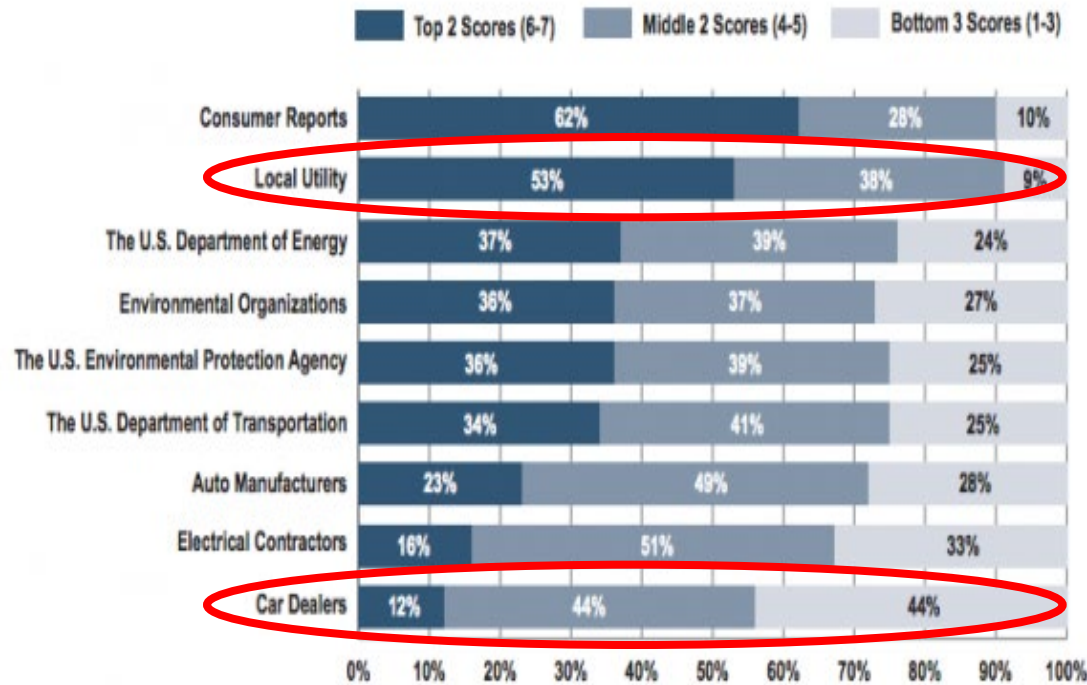


## EV Car Sales in WA State (Qtrly)



# Why should utilities get involved?

- People trust utilities - these are our customers already
- Utilities are brand agnostic, not biased
- Answers about charging infrastructure and rate impacts
- Promote awareness of carbon free power



Source: Provided by a Member Utility

# Bill 1512 Clarified Utility Role

*“The Legislature finds that legislative clarity is important for utilities to offer programs and services, including incentives, in the electrification of transportation...”*

## Gift of Public Funds Prohibitions

- Each program must still adhere to the constitutional prohibitions against “gifts of public funds” as interpreted in case law to not be a donative act (except in cases of “poor and infirm”)
- Satisfied by a Ratepayer Impact Measure (RIM) test

## Established a cost test

*“...utility outreach and investment in the electrification of transportation infrastructure does not increase net costs to ratepayers in excess of one-quarter of one percent.”*

- Interpreted to mean the sum of program costs plus general expenses explicitly used for programs must not exceed 0.25% of operating expenses for the biennium.

# Tacoma power process

- Transportation electrification cuts across all parts of utility operations
- Company wide strategic initiative
- Cross-functional project teams facilitated by Energy Research and Development group
- Project management tools to get results
- Steering committee provides strategic guidance and helps set project priority





# Transportation Electrification Projects



# Customer Education and Outreach

- EV 101: Public workshop on EV benefits
- In person Q&A with EV experts
- Piloted ChooseEV.com webportal

The screenshot shows the Tacoma Public Utilities website. The top navigation bar includes links for About TPU, MyAccount, Contact, Careers, and a search icon. Below the navigation bar are five main categories: PAYMENT & BILLING, OUTAGES & SAFETY, WAYS TO SAVE, COMMUNITY & ENVIRONMENT, and CUSTOMER SERVICE. The breadcrumb trail reads: Community & Environment > Clean & Renewable Energy > Electric Vehicles (EVs). The main content area features a sidebar with a list of links: Electric Vehicles (EVs), EV Charging Study, EV Events, EV Benefits, EV FAQs, EV Savings Calculator, Carbon Reduction, EV Tax Credits & Exemptions, and Find a Charger. The main content area has a heading "Electric Vehicles (EVs)" and a photograph of a white electric car being charged at a station. Below the photo, the text reads: "Electric vehicles are a clean alternative to traditional vehicles – especially when the electricity that fuels them comes from renewables like the hydroelectricity we provide our customers. Be part of our customer feedback group!"

The graphic features a large orange lightning bolt on a blue background. At the top, it says "BETTER TRANSPORTATION for OUR COMMUNITY". Below the lightning bolt, the text reads: "Put clean, renewable hydropower in charge. When charging an electric vehicle with our electricity, you get a 'hydroelectric' vehicle." To the left, there is an illustration of a blue electric car being charged by a charging station. At the bottom, the logos for "MyTPU.org/EV" and "TACOMA POWER TACOMA PUBLIC UTILITIES" are displayed.

# EV Ride and Drives

**EV Ride and Drive** events allow individuals to test ride and/or drive multiple electric vehicles

Held 5 events in the last 3 years. 2,000 people attended and over 400 drove EVs!

Customers, car dealers, and EV enthusiasts love these events!

*These events give customers a chance to experience EVs without the pressure of a dealership environment*



# Electric Car Discount Program

- First program of its kind in WA State – pre Bill 1512
- Partnership between the City of Tacoma and Tacoma Power
- Dealers provide a limited time discount in exchange for City supported events and media promotion
- Included EV charging equipment and e-bikes
- Great way to get car dealership engagement



# EV Charging Study

- FleetCarma provides hardware and data logging software
- Help the utility understand customers usage and charging behavior to inform future program design
- Participants compensated for up to \$250/year for 2 years in exchange for providing data and answering surveys
- Study is fully subscribed but we may expand soon!



# Low Income EV Carshare

- Provides residents of low-income communities access to electric cars and convenient mobility
- Similar programs have launched in CA
- Low operating costs (fuel, maintenance) = low per hour rate
- WA State has set aside grant funds for programs in 2020
- Working with partners on Transportation Needs Assessment



# Leading by Example

- TPU fleet has been an early adopter of EVs (2002)
- West Coast Electric Fleet Pledge
- First public charging stations in 2011
- Deployed 8 PHEV commuter vans



# Partnership with local transit agencies

- Pierce Transit has included 3 battery electric buses in their fleet with 3 more on the way
- Tacoma Power continues to advise on charger design and is examining locations for opportunity charging stations





# EV Charging Infrastructure

- Two L3 plus five L2 stations (30 dual head) installed
- EVIPP, Electrify America provided funding
- Minimal Tacoma Power investment (<5% install costs)
- Supportive of Low Carbon Fuel Standard

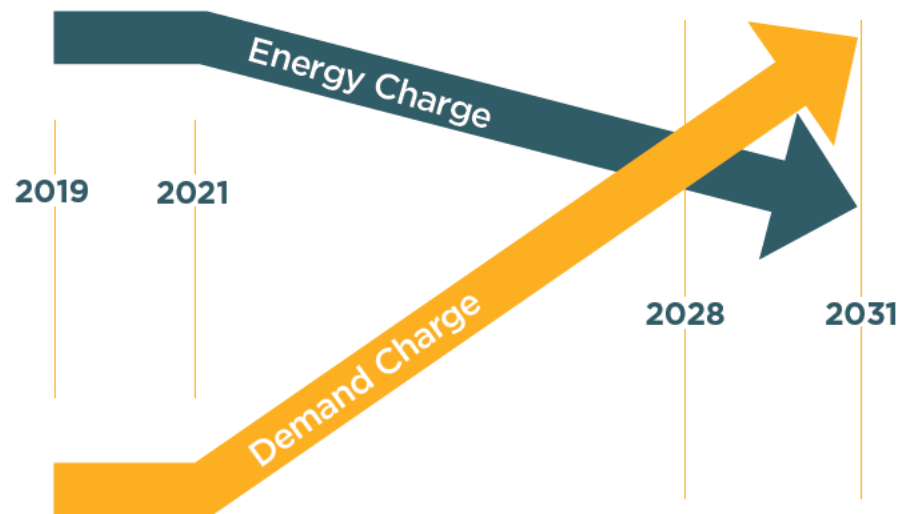


# Supporting with rate design: Schedule FC

- To encourage companies to invest in public DC Fast Charging stations in Tacoma
- Removes demand charge for 2 years, adds back over time
- Increased energy charge for cost recovery
- Improves economics at low adoption levels



## How energy charge and demand charge transition over 13 years



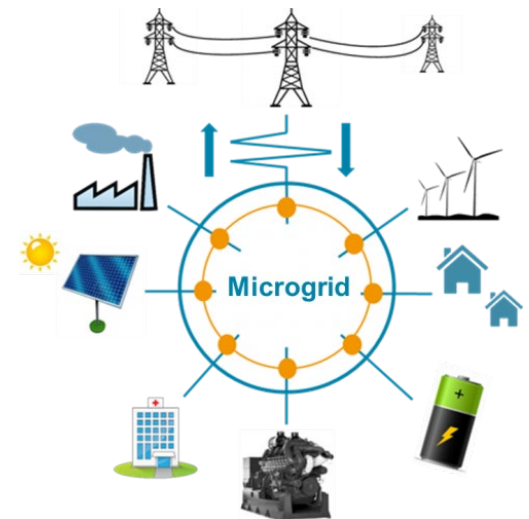
# Electric school buses

- Diesel emission exposure in children has been shown to significantly increase health risk
- Help achieve a lower total cost of ownership through increased deployment
- Tacoma Power assisted with route selection, charger design and installation



# Vehicle to grid opportunity

- Seeking to provide a significant deployment to serve as a model to others
- Organize knowledge sharing between local school districts
- Assist with grant applications
- Exploring development of a microgrid that includes bi-directional bus charging (V2G)
- Summer peak load savings and rate design could provide a revenue stream for the school
- Operational resiliency in case of outage



# Shore Power at the Port of Tacoma

- Install shore power infrastructure at Husky Terminal
- Funding from Tacoma Power, TransAlta Coal Transition Fund, Port of Tacoma, and EPA DERA
- Tacoma Power has proposed a special rate without demand charges that is less than the equivalent cost of Marine Gas Oil and provides cost recovery through increased energy charge
- Estimated CO2 reductions of 4,400 tons/year



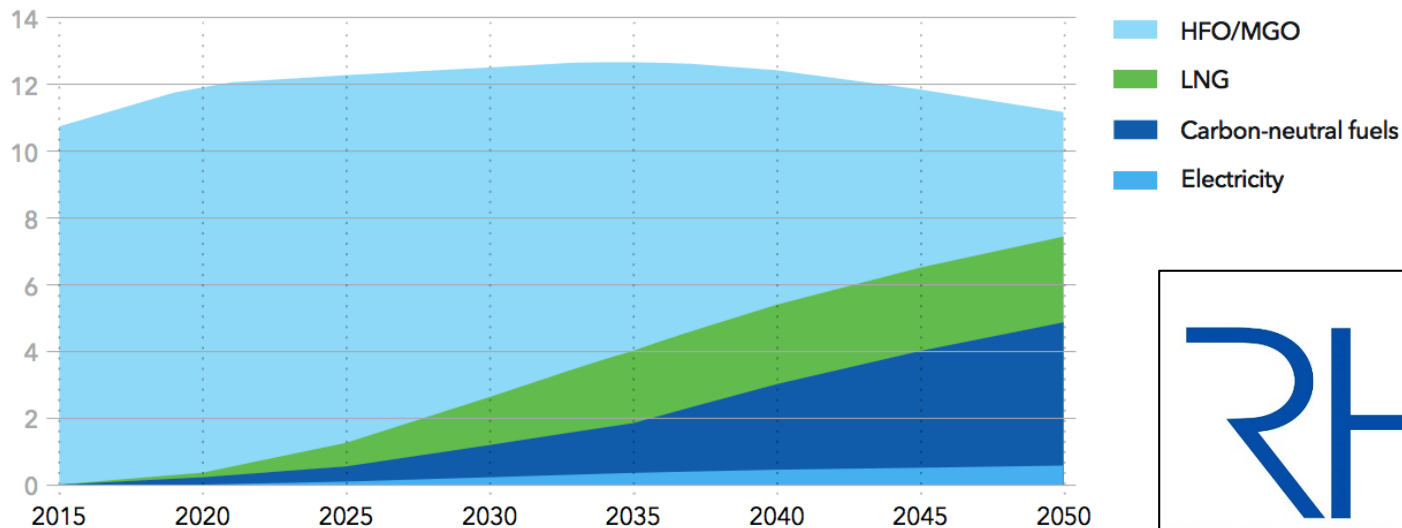
# Exploring Zero Carbon Fuels

- Battery electric may not suit Heavy Duty Vehicles (transit, marine, rail, aviation, trucking)
- Flexible production of renewable zero carbon fuels can help integrate renewable generation
- Renewable H2 can be used as natural gas replacement

**FIGURE 6.3.1**

Shipping energy mix

Units: EJ/yr



# EV Charger Program

Researching customer needs and behaviors to offer a program and fee structures that will:

- Encourage managed charging to reduce utility cost
- Eliminate dual incentive problem
- Apply to residential, commercial, multi-family, right-of-way



# Next Steps

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- Plan to provide first draft to the Public Utility Board – Oct 23
- Presentation to Infrastructure, Planning, and Sustainability Committee meeting - Nov 6
- Adoption by Public Utility Board



# Thank You!

