



# Guiding Principle 11

## Decarbonization

Update to the Tacoma Public Utility Board

**September 13<sup>th</sup>, 2023**

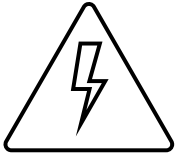


# ●●● Purpose



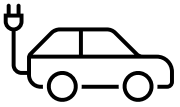
“Tacoma Public Utilities seeks to be a leader in decarbonization of the electric utility system and transportation electrification and to promote Tacoma Power’s renewable and nearly carbon free generation portfolio as a driver of economic development and a competitive advantage for existing customers.”

# ●●● Legislative Focus on Decarbonization



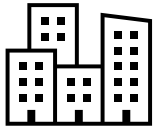
## **Power Generation**

Energy Independence Act (2006)  
Clean Energy Transformation Act (2019)  
Transportation Electrification (2019)



## **Transportation**

Motor Vehicle Emissions Standards/new ZEV standards (2020 and 2022)  
Clean Fuel Standard (2021)



## **Buildings**

Clean Buildings I (2019)  
Clean Buildings II (2022)



## **Economy - wide**

Climate Commitment Act (2021)  
Renewable Hydrogen Development (2019 - 2022)

# ●●● Funding Opportunities



## **Clean Fuels Program**

- Clean fuel providers can generate credits to fund transportation electrification projects and programs

## **Climate Commitment Act**

- Community/Tribal participation (\$65M), Clean Energy Siting (\$55M), Local Climate Planning (\$44M), Energy Utility Bill Assistance (\$35M)

## **Federal Funding**

- Bipartisan Infrastructure Law (2021): \$550B over five years with funding for EV charging, regional hydrogen hubs, clean school buses
- Inflation Reduction Act (2022): \$370B for climate and energy provisions, tax incentives for: Electric vehicles, EV charging, energy efficiency, clean hydrogen production

## **State Budget**

- Tacoma Rail electrification (\$5M), BEV/FCEV Conversion Programs & Incentives (\$50M) Northwest Seaport Alliance Zero Emission drayage demonstration (\$14M), Hydrogen Hub Match (\$20M), Clean Alternative Fuel Vehicle Charging/Refueling Infrastructure (\$34M), Hydrogen Refueling Infrastructure Investments (\$3M), Port electrification grants (\$29M)

# Climate Action Plan (CAP)

- The 2030 CAP lists TPU as responsible for leading 7 actions and supporting 12 more
- Progress tracked and reported to Senior Leadership quarterly, and General Government annually. All leading actions are **on track**.
  1. Support zero emission technology in maritime, trucking, and rail
  2. Seek federal/state funding to support EV and e-bike use in low/very low opportunity areas
  3. Analyze net zero carbon scenario in the Integrated Resource Plan, analyzing ways to upgrade or manage the distribution system to enable electrification
  4. Use data from AMI to inform and educate customers about leaks and repairs
  5. Collaborate with private and public partners to facilitate low carbon retrofit solutions
  6. Support Pierce Transit to develop a zero-emission transit plan and in decarbonization of their operations
  7. Provide green businesses with recognition and technical support in EnviroStar program

# ●●● Planning for decarbonization

## Electrification Futures Study

**Objective:** Produce detailed estimates of how electrification might affect customer demand to inform planning processes.

**In scope:** Conversion to electricity from another fuel source in all major sectors (transportation, buildings, & industrial/Port)

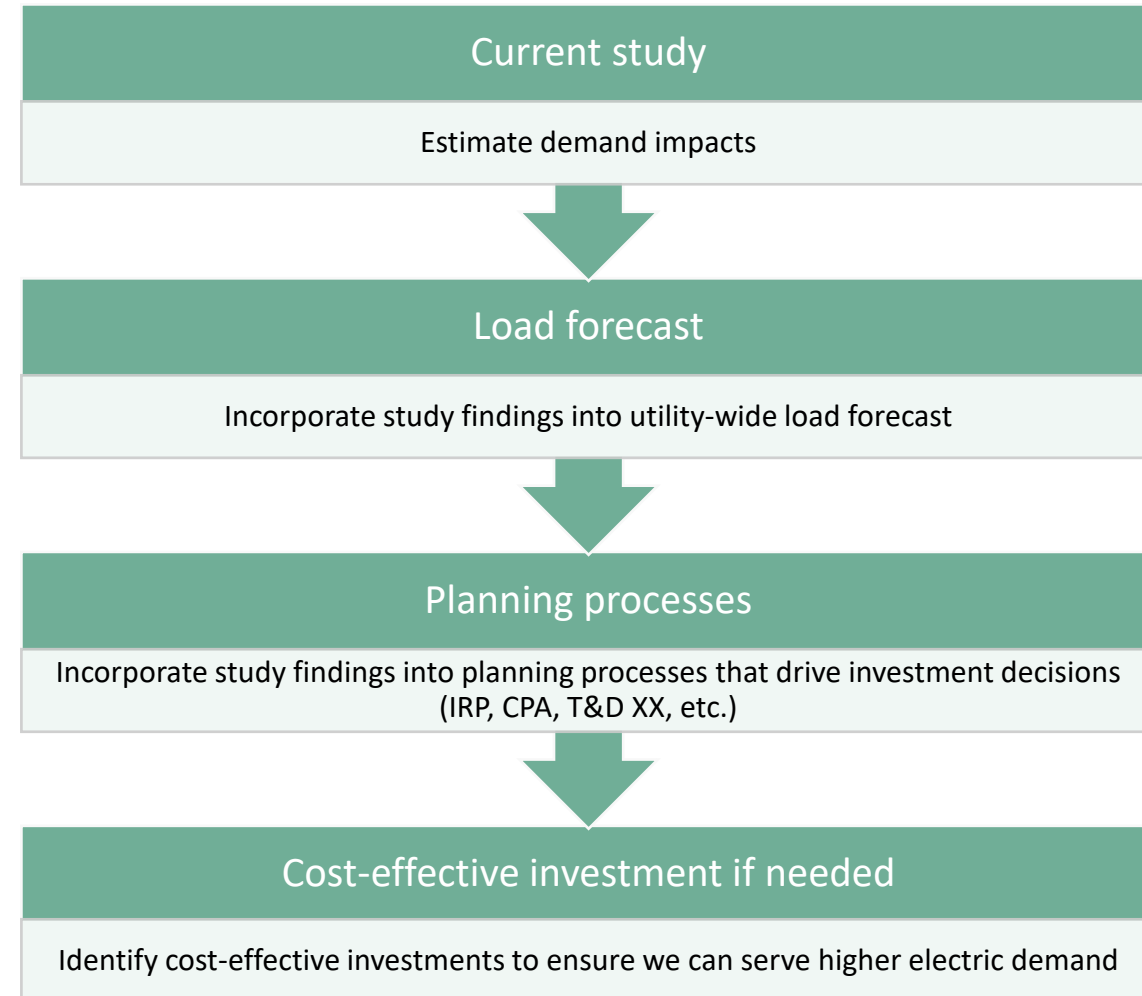
**Scenarios:** Range of plausible scenarios

**Level of detail:** Estimate location, time, weather-dependent impacts

### Study timeline:

- **Now:** Modeling work is in progress
- **Early October:** Preliminary results reviewed by staff
- **Late November:** Study complete (data and report)

## How will the study be used?



# ●●● Rail Electrification

## Funding Awarded:

- \$3.6 million CMAQ grant through FHWA & PSCAA
- \$5.0 million funding through Washington State Legislature
- Awaiting official award announcement for \$4.1 million grant through CRISI
- Applying for additional \$3.5 million through WSDOE Volkswagen enforcement action grant

## Working with Power:

- Design and layout options for charging stations
- Exploring charging tariff options (i.e. shore-power, vehicle charging, general)
- Exploring Advanced Clean Fuel Standard credits

Tacoma Rail positioning to be the first short line railroad in the Northwest to have battery electric locomotives.



# ●●● Innovation in Work Groups

## **Grid Modernization**

*Utility Technology Services* is leading a cross-functional team working with consultants to develop a strategic plan and roadmap for future investments.

## **Advanced Distribution System Management**

*Transmission & Distribution (T&D)* collaborated with other groups to apply for an IJIA grant to help fund an Advanced Distribution Management System (ADMS) platform. Important for a smarter grid!

## **Non-wire Study for Ketron Island**

*T&D and Energy Research & Development* passed a phase-one application for funding to study alternatives to undersea cable replacement including island based renewable generation, energy efficiency, and microgrid technologies.

## **Innovative Rebate**

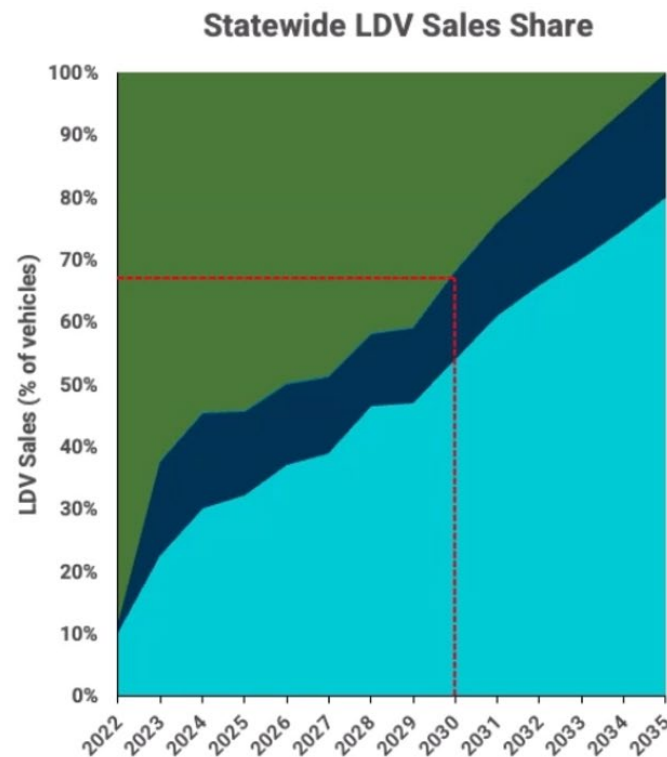
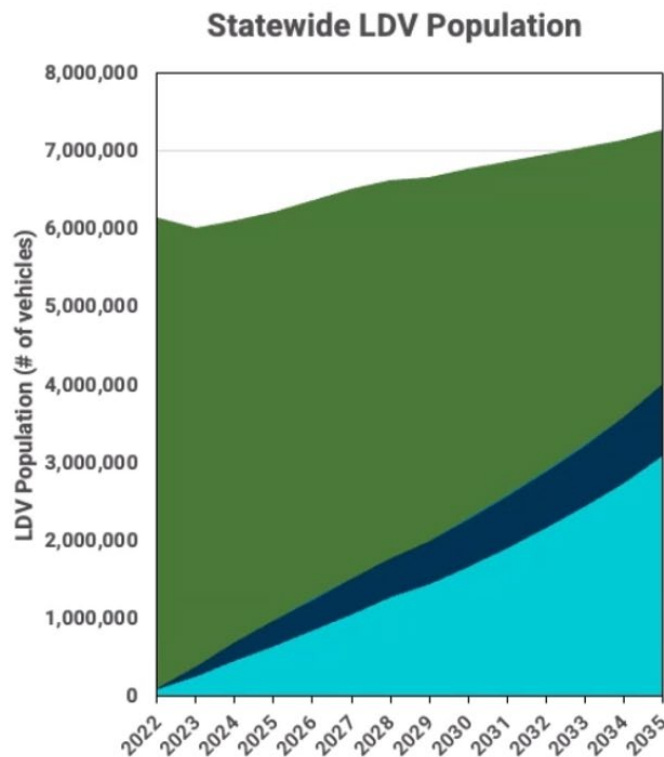
*Customer Energy Programs* is offering a rebate of up to \$2000 for customers with non-electric heat to ensure higher efficiency heat pump installations.



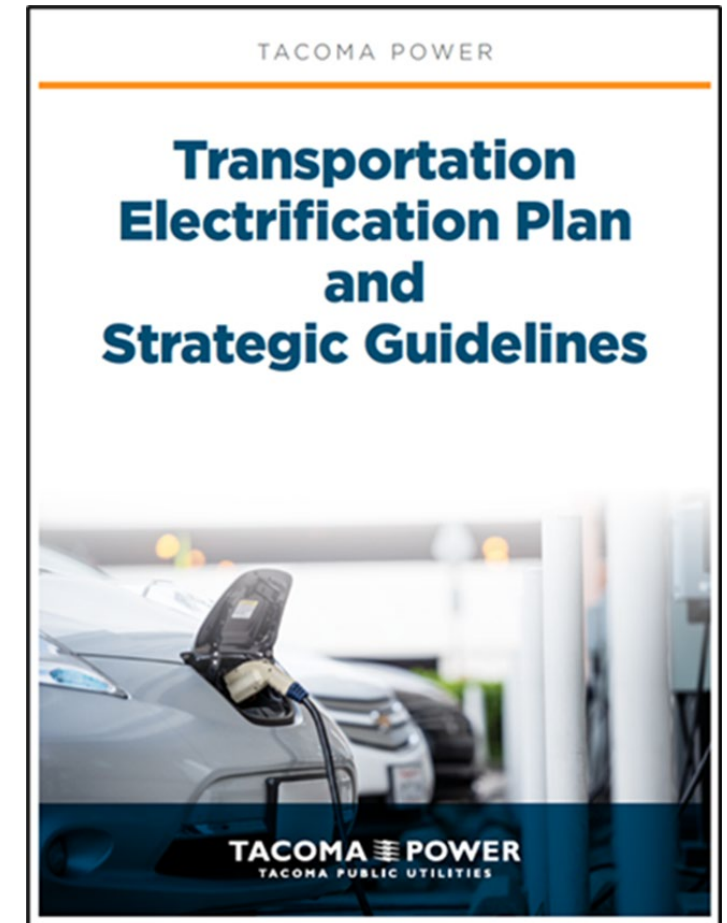
# ●●● Transportation Electrification (TE)

## Why TE is important to decarbonization

- Transportation is an important contributor to GHG accumulation
- Tacoma Power's clean, affordable electricity can be a fuel that reduces carbon, saves money and is produced locally



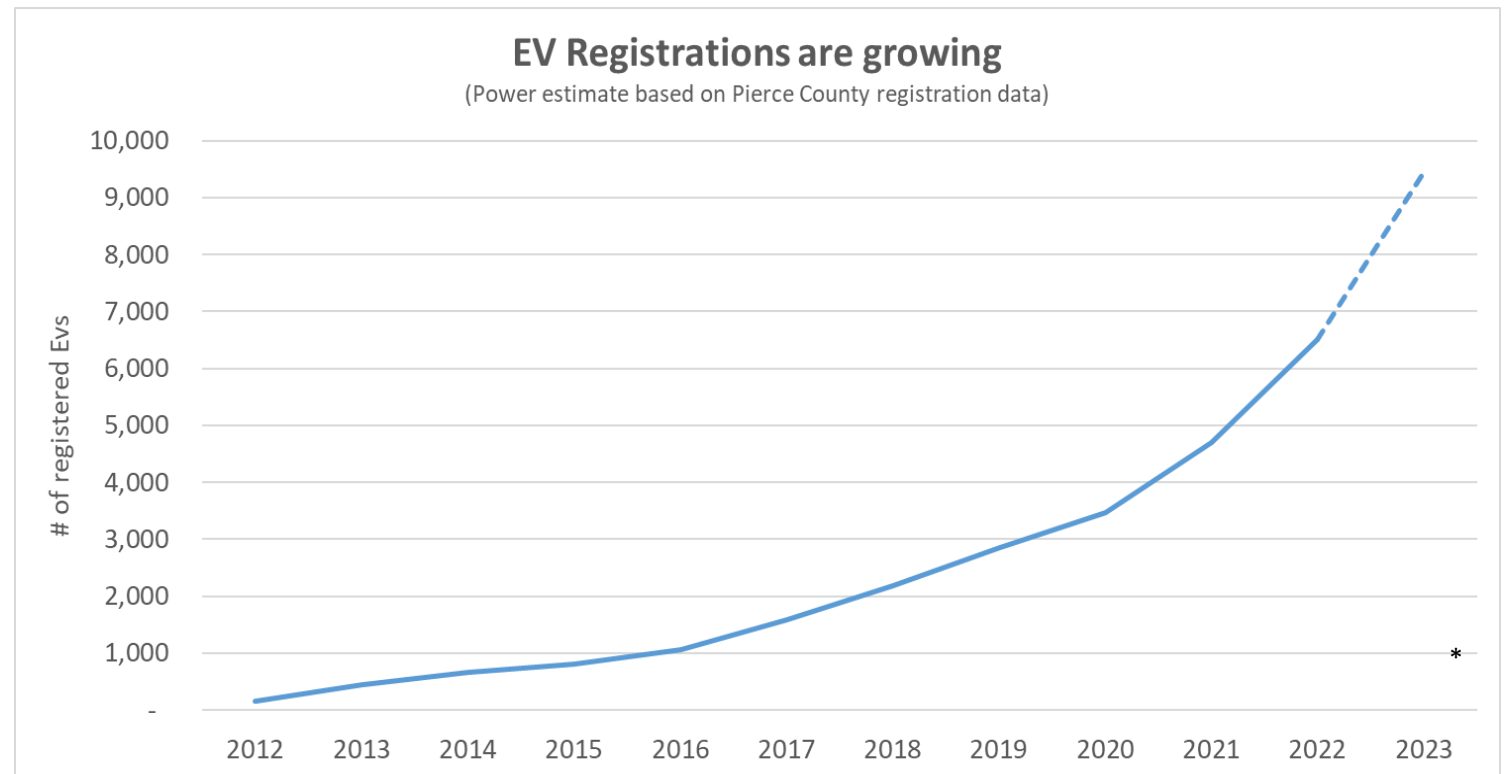
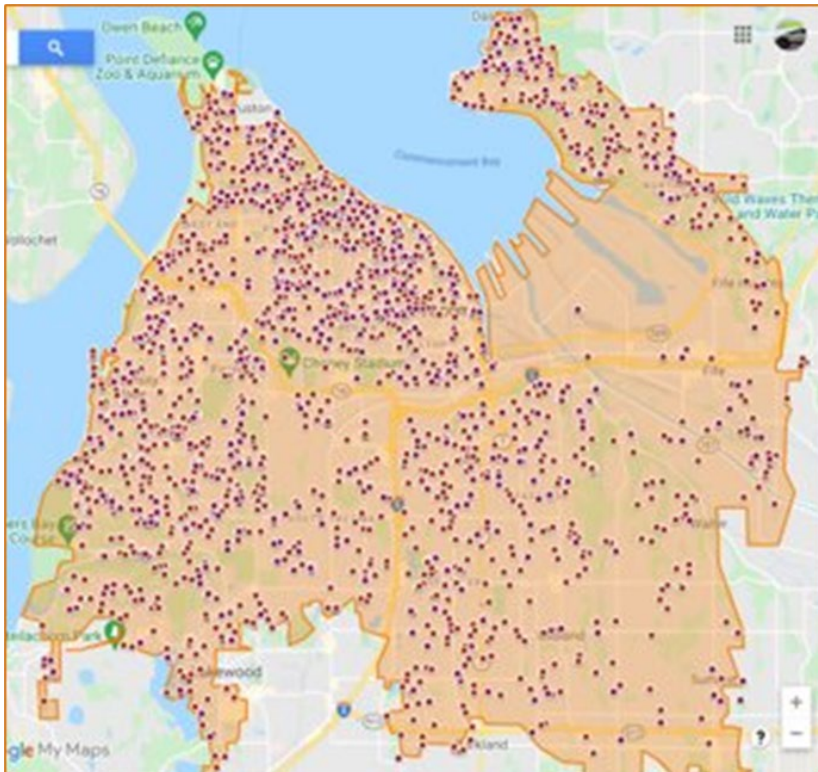
Draft State Transportation Electrification Strategy



# ••• Transportation Electrification (TE)

## How is the market transformation going?

- Washington is on track to meet its goal of 100% of light duty zero emission vehicle sales by 2035.
- Planning for this future is important to ensure we can keep power reliable and affordable.



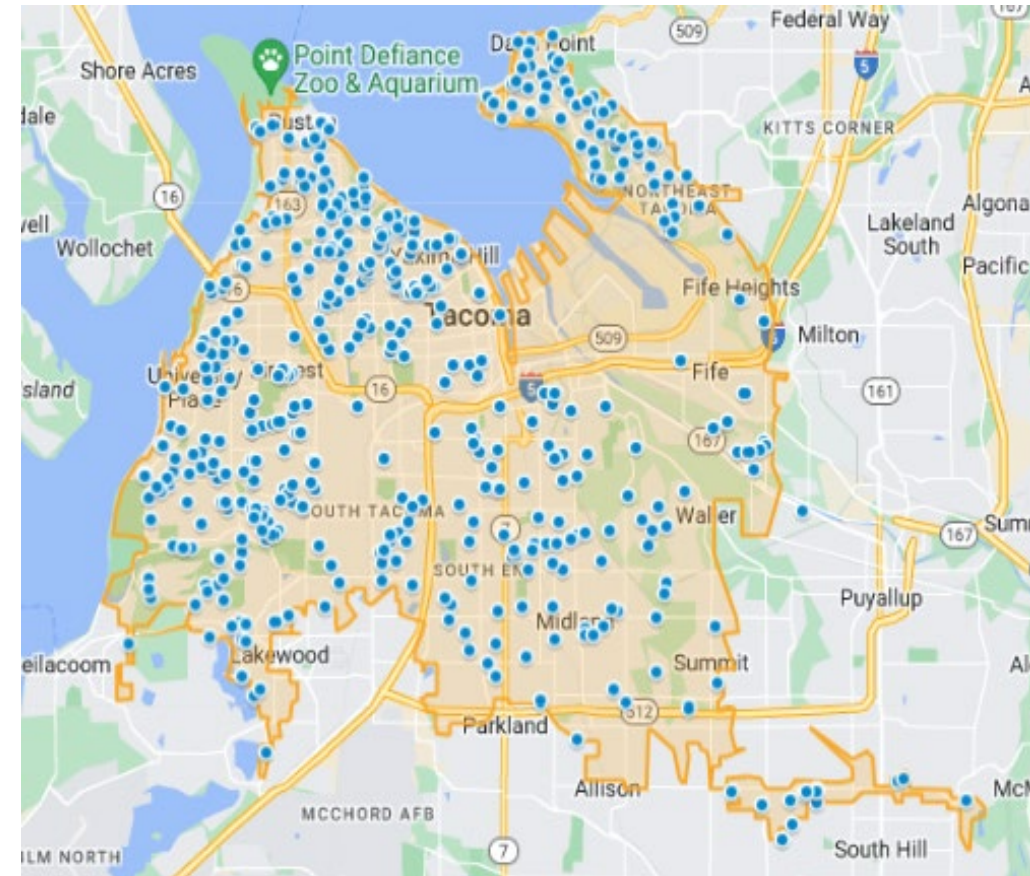
# ●●● Transportation Electrification (TE)

## Charging and the need for Peak Load Management

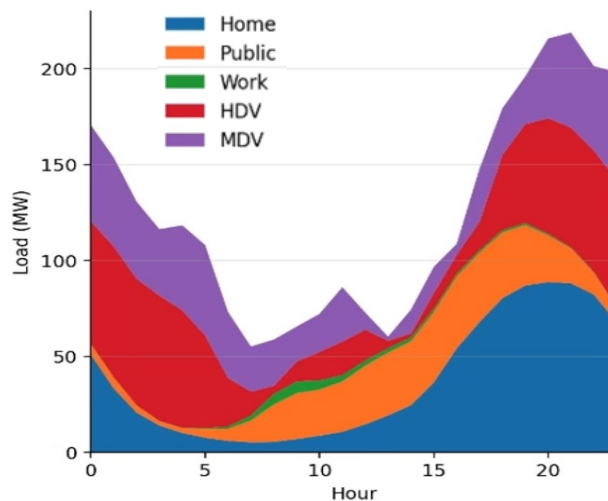
**Home EV Charging pilot** – provides flexible options to help overcome challenges to accessing Level 2 charging. Paves the way to future managed charging programs. Over 600 signed up!

**Smart Water Heater Controller pilot** – a pilot program to test grid benefits of utility managed electric water heaters through a controller. 230 customers are participating.

## Home EV Program – 600+ Participants



Weekday EV Charging Profile



Smart Water Heater Controller

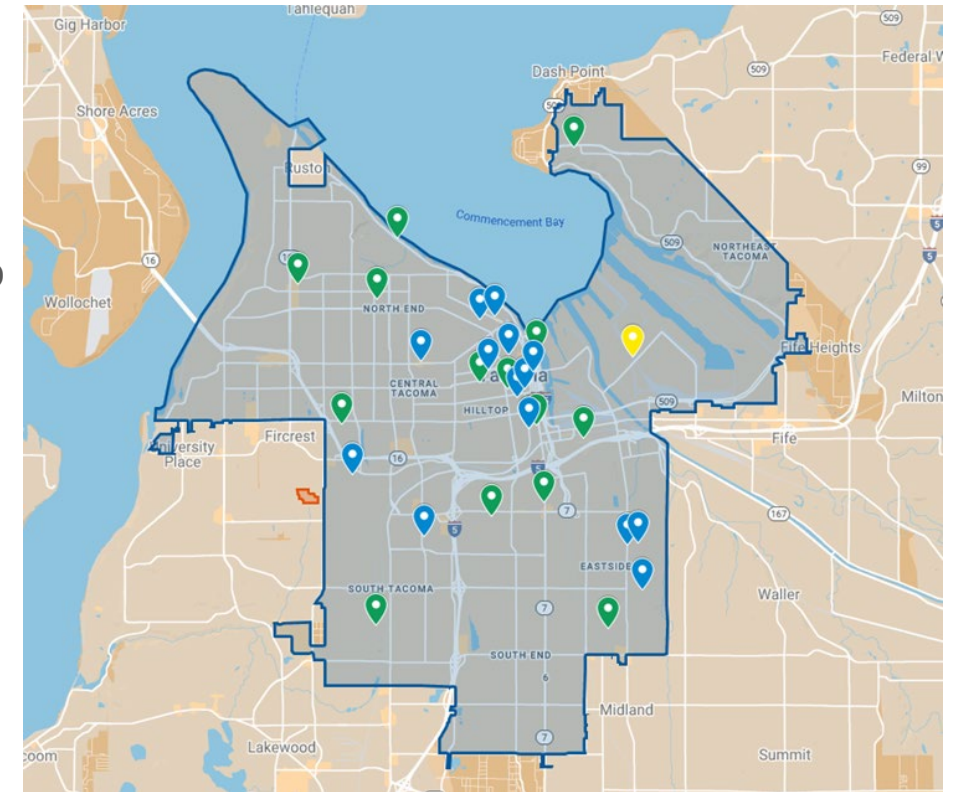
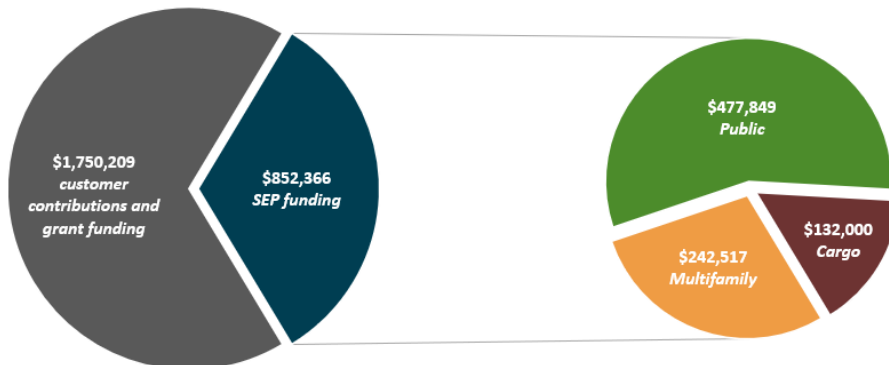


# Transportation Electrification (TE)

## Community EV charging incentives

- Tacoma Power supports customer owned EV charging stations in the community with advice and partial funding of utility make-ready costs, equipment, and networking service fees.
- \$852,000 in granted non-ratepayer funding has already been allocated to 32 projects across the City of Tacoma at grocery stores, parks, museums, medical clinics, and apartment buildings.
- \$1M more in non-ratepayer funding is set to release this quarter.
- Several projects at multifamily properties in low opportunity areas were funded up to 100%.

\$2,602,575 combined investment in EV charging

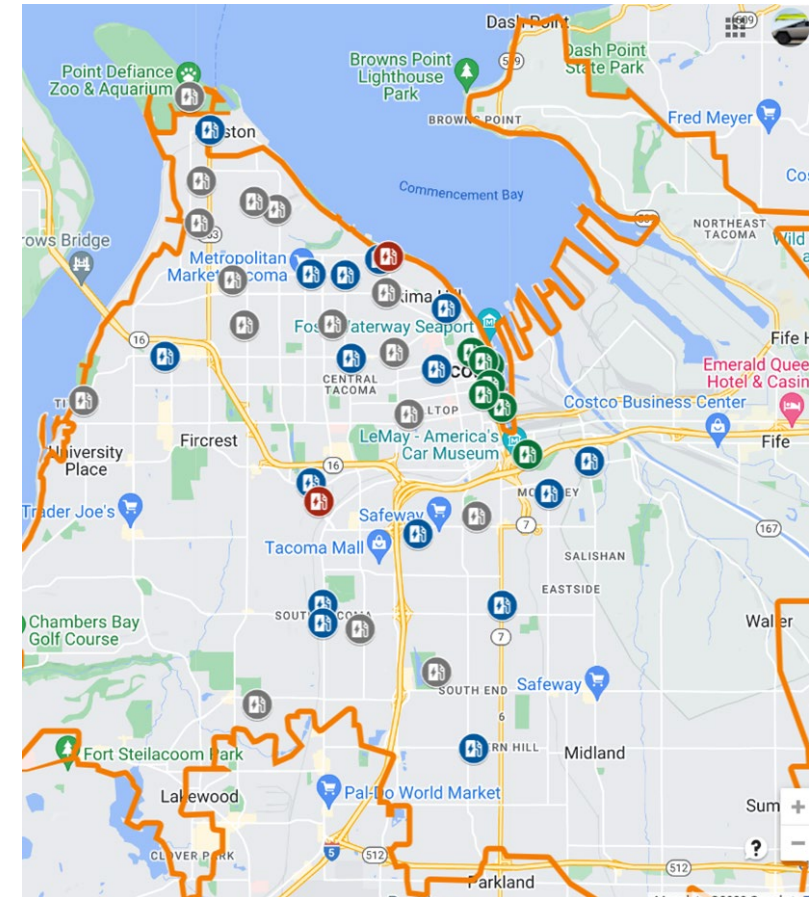


- Public Charging
- Multifamily Charging
- Cargo/Material Handling Charging

# Transportation Electrification (TE)

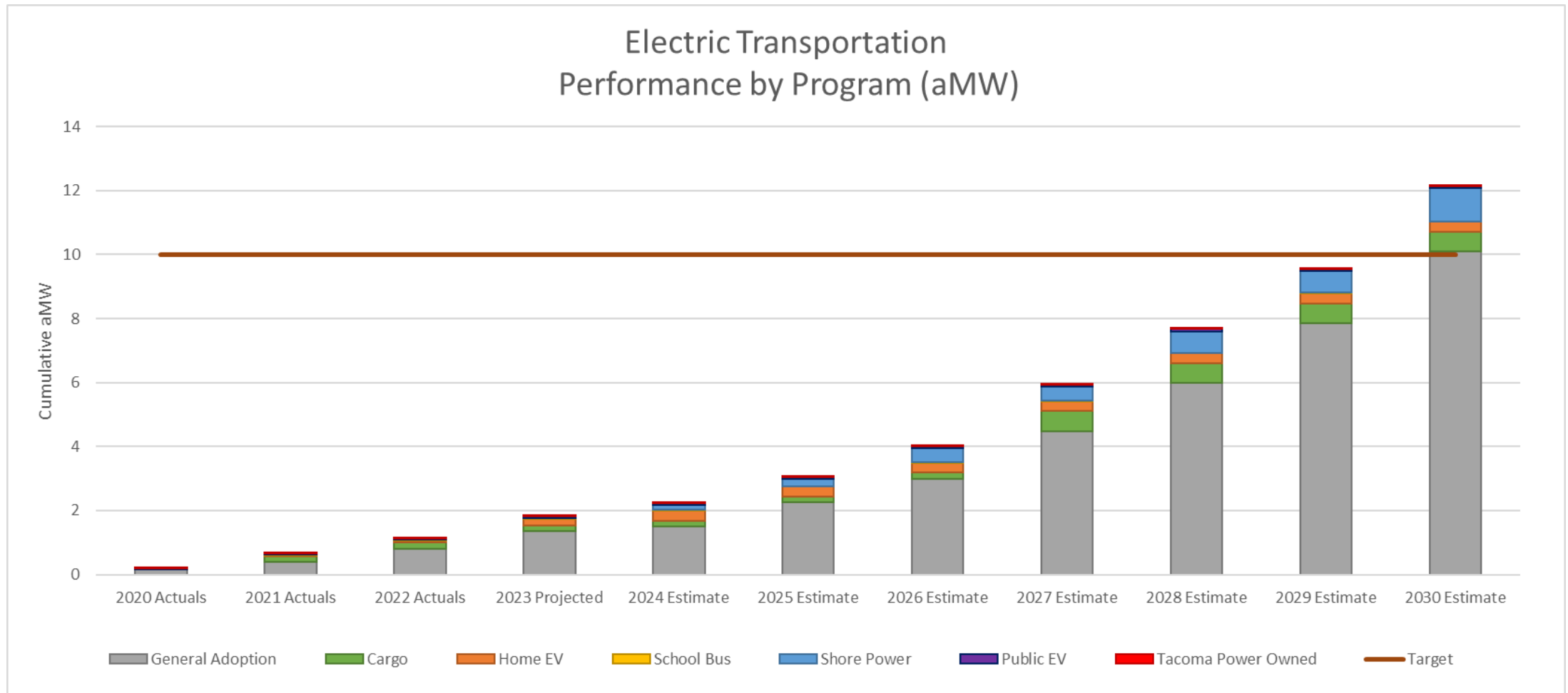
## Tacoma Power owned Public EV Chargers

- Commercial EV charging companies tend not to provide charging opportunities to all parts of our community.
- Tacoma Power has accessed grant funding specific to local governments and utilities. This has enabled the construction and operation of EV charging stations.
- Soon Tacoma Power will be operating over 110+ chargers in 30+ locations at City of Tacoma owned parking lots and streetlight poles.



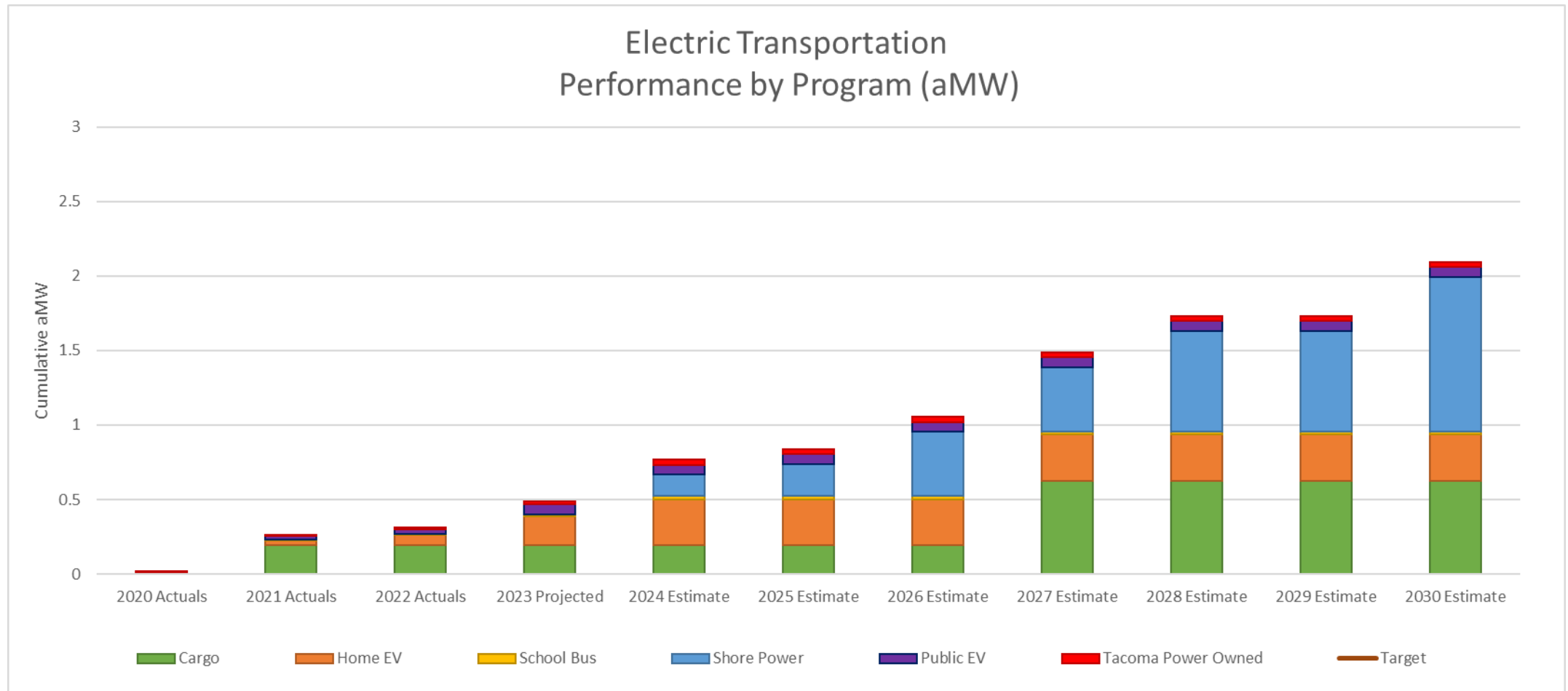
# ●●● Transportation Electrification (TE)

## How do we compare to the 2030 goal?



# ●●● Transportation Electrification (TE)

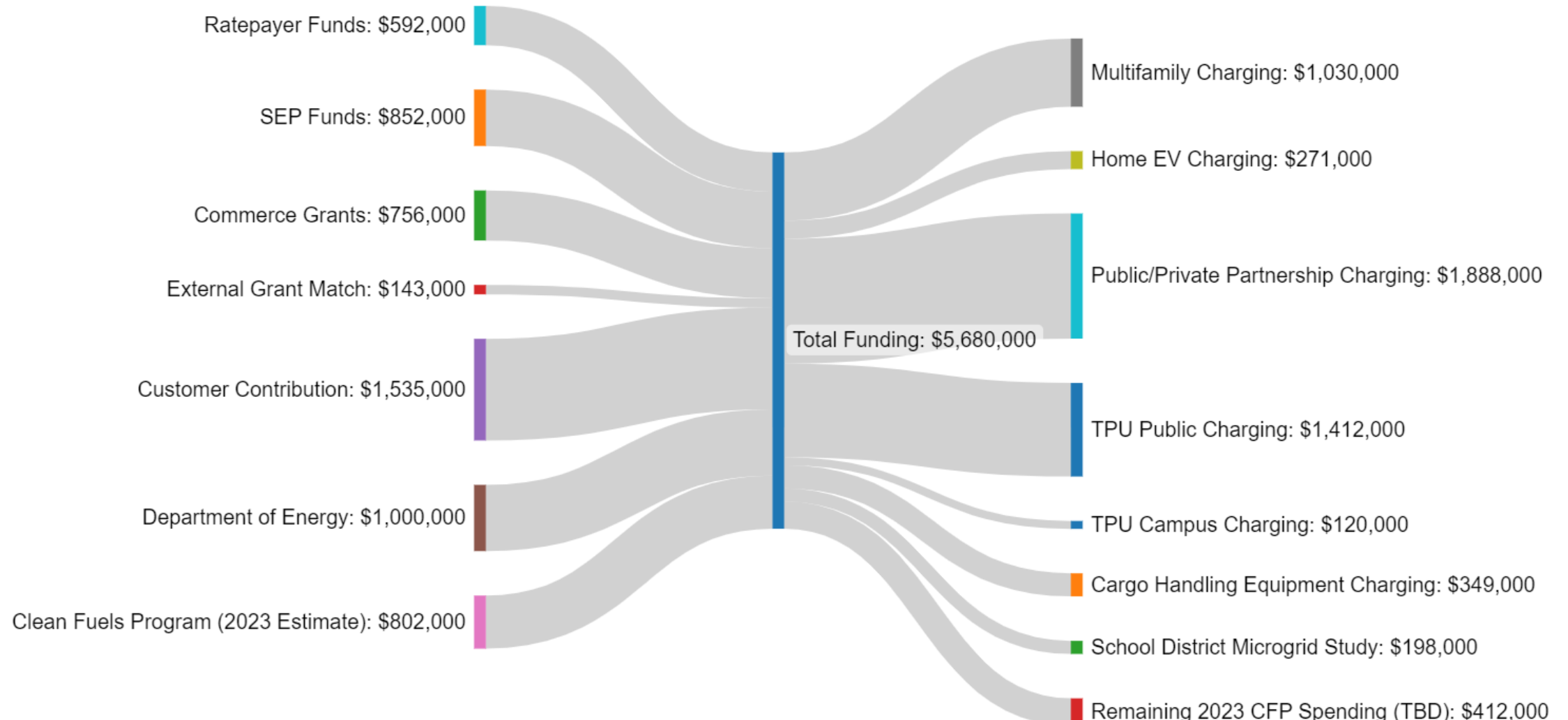
How do we compare to the 2030 goal?



# Transportation Electrification (TE)

## Sources of funding

## Uses of funding



# ●●● Transportation Electrification (TE)

## Current Projects

- Completion of school bus electrification microgrid study at FPHS!
- Launch of ZEV Co-op carshare program at two Tacoma locations (Park Plaza North and Salishan)!
- Investigating need to add DCFC rate (\$/kWh) to existing tariff
- Clean Fuel Standard credit revenue budgeting
- Re-launch of Community EV charging program!

\$1M in federal funding secured to extend public and multifamily EV charging programs

Address the dozens of waitlisted projects first

Continue to prioritize projects in low-opportunity areas as identified by Pierce County Equity Index Map

Extend programs to applicants outside the City of Tacoma



# ●●● Transportation Electrification (TE)

## What's next?

- Development of a commercial fleet electrification program
- Study the potential of home and commercial fleet managed charging programs
- Exploring the expansion of residential demand response pilot to include programmable thermostats, managed charging, home battery systems to help with Peak Load Management
- Participate in regional efforts to promote the production and use of green electrolytic hydrogen for heavy-duty vehicle decarbonization
- Working with the Port of Tacoma on planning efforts and seeking opportunities to electrify cargo equipment, drayage, and shorepower
- Demonstration of a Portable Clean Energy Generator



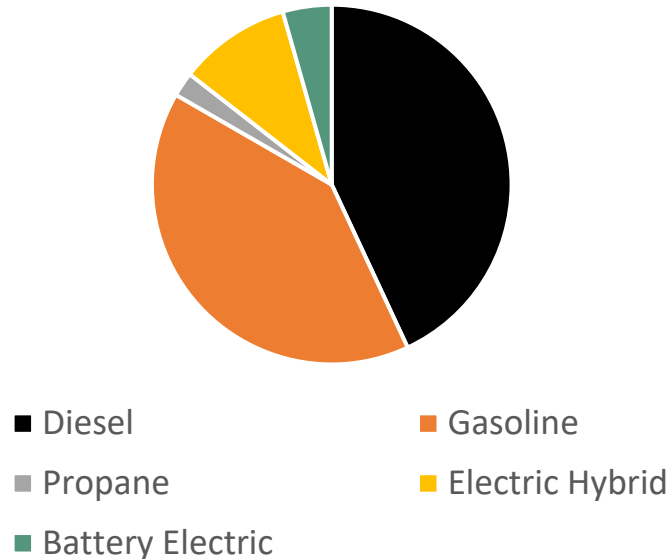
# TPU Fleet Decarbonization

- Full-time supply of R99 renewable diesel with fuel depots at both South Service Center and McMillian water facility.
- Renewable Diesel represents about 35% of non dyed diesel use at TPU.

## 2023 ZEV purchases

- 6 Mitsubishi Outlander PHEV
- 4 F-150 Hybrid
- 1 F-150 Lightning BEV

TPU Vehicles by Fuel Type



# Community Outreach

- Outreach to businesses, school districts, transit agencies, HOAs, libraries, parks, and municipalities to talk about their climate goals and potential electrification projects
- Public events allow staff to talk to customers about programs, new technologies, and Tacoma Power's role as a clean energy provider. We learn a lot from talking to customers!
- Participated in 15+ public events leading to 1200 conversations including:

2023 Seattle Auto Show

Sustainability Expo

Tacoma Remodeling Expo

TPU Night at Cheney Stadium

BECU Ride and Drive Event

Green Transportation Summit and Expo

Tacoma Home and Garden Show

National Drive Electric Week



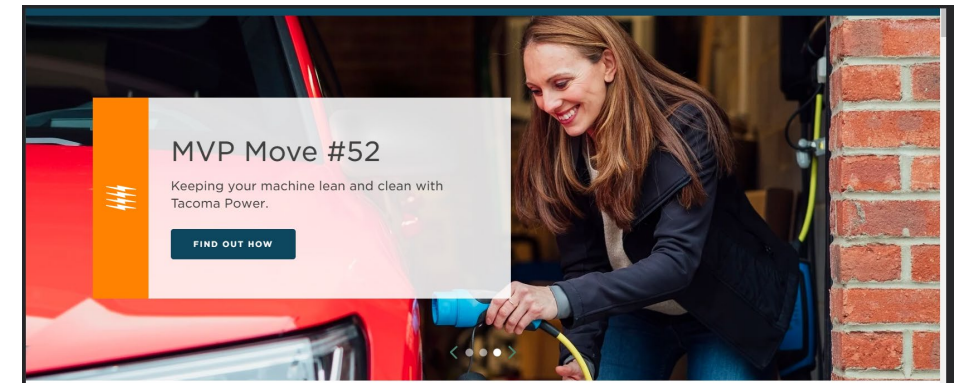
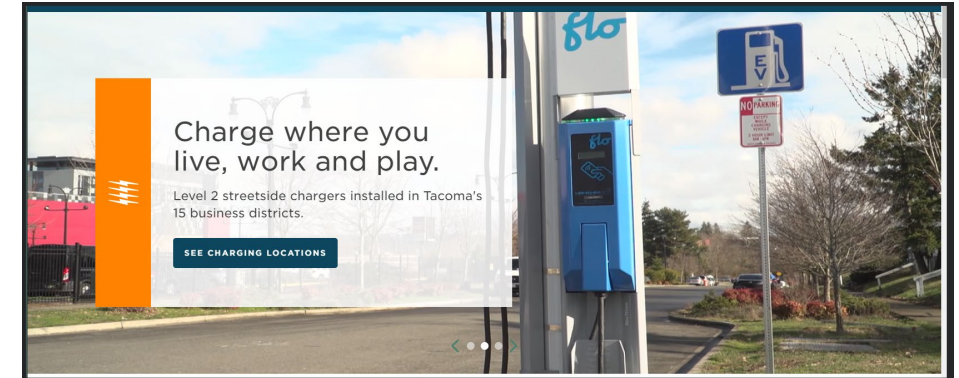
# Communication Activities

## Channels Featuring EV Info in 2023:

- MyTPU.org
- MyAccount
- Monthly Residential eNewsletter
- TPU Social Media
- Tacoma Rainiers Advertising Campaign
- U\* Quarterly Print Newsletter
- Media Coverage

## Topics:

- New EV Rate
- Green Transportation Sponsorship
- EV Charging Rebate
- Streetside Chargers



# Communication Activities

## Awareness of decarbonization efforts and milestones



## Power Up: What to Know About EV Home Charging

Joanna Kresge Jul 10, 2023 Updated Jul 10, 2023

f t e p b l in



# QUESTIONS



# Appendix

# ●●● Federal Legislation Passed

## **Bipartisan Infrastructure Law** (Nov. 2021)

- New spending - \$550 billion
- Over five years - FY22-26
- \$7.5 billion for alternative fuel and charging infrastructure
- \$8 billion for regional hydrogen hubs
- \$5 billion for clean school buses

## **Inflation Reduction Act** (Aug. 2022)

- Nearly \$370 billion to climate and energy provisions
- Tax incentives for
  - Electric vehicles
  - EV charging
  - Energy efficiency
  - Clean hydrogen production

# State Budget

- Transportation Budget
- \$5 million for Tacoma Rail zero emission locomotives and charging infrastructure
- \$14 million for the Northwest Seaport Alliance Shorepower Demonstration Project
- \$29 million for Port Electrification Grants
- \$408,000 loan for Tacoma Rail Blair Peninsula
- \$1.6 million loan for Tacoma Rail Annie Tracks Switch and Curve Upgrade