



Transportation of Electrification Action Plan

1. Purpose of this document

This document is a companion to the *Transportation Electrification Strategic Plan* and serves to assist the Public Utility Board in their understanding of Tacoma Power's efforts to advance transportation electrification. This report will be updated annually and made available to the Public Utility Board. This report contains three core sections:

Section 2: a report on existing programs

Section 3: general description of project categories - areas of research and program

Section 4: a list of priority strategies the utility plans to execute over the next year

Utility efforts that are described in the *Transportation of Electrification Action Plan* will be consistent with the five guiding principles set for the in the *Transportation Electrification Strategic Plan* and approved by the Public Utility Board.

The five guiding principles are:

1. Seek to understand the technology and the state of the industry
2. Help inform the public through education and outreach
3. Be responsible with utility finances and assets
4. Help customers achieve the benefits of transportation electrification
5. Maintain good governance and process to reduce risk and cost

The need for a Transportation Electrification Action Plan

When dealing with a transformational technology like transportation electrification, it is preferable that the utility retain responsibility for program design and delivery. With decision-making authority over programs, the utility is able to respond quickly and efficiently to changing conditions, such as changes in technology, state or federal policy, the interest and availability of external partners, and funding opportunities that may arrive or change without warning. Utility program flexibility can be an important hedge against misallocation of investment funding and customer dissatisfaction.

A note about existing programs

Tacoma Power has been actively engaged in researching, designing, and launching transportation electrification programs since early 2016. Until 2019, when HB1512 passed into law, Tacoma Power's efforts to engage the public in efforts to promote electric transportation were restricted by legal ambiguity. House Bill 1512 clarified that the legislature sees a role for power utilities to play in

promoting and providing incentives to the public to advance transportation electrification. The reader should consider the legal constraints on utility actions that predated HB 1512 when considering this section on existing programs.

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2. Report on existing programs

The Value of Transportation Electrification Study

In 2016, Energy and Environmental Economics Inc. (E3) in collaboration with seven pacific northwest utilities completed a study to quantify the benefits and costs of transportation electrification. Tacoma Power was one of five utility study cases and actively participated in all aspects of the research and analysis. This report was important because it made several points clear:

- that each utility's experience with transportation electrification would be different based on individual circumstances
- for Tacoma Power, transportation electrification was a good investment from the perspective of the customer, the utility ratepayer, and the environment
- utility costs can be reduced through managed charging and load management systems

Education and Outreach

- Education and outreach is crucial for teaching the public about the benefits of EVs and continues to be an ongoing effort.
- Tacoma Power contracted with ChooseEV.com for website content upgrade, assisted in development and testing of content
- Electric Car Demonstration Events for the Public
 - Tacoma Public Utilities and partners: the City of Tacoma, LeMay – America's Car Museum, Point Defiance Zoo and Aquarium, Forth, Puget Sound Energy, and Cheney Stadium hosted five events since November 2017.
 - Up to 1200 members of the public participated in these events and over 400 rides/drives – providing many members of the public with their first experience in an electric vehicle.
- Electric Car Discount Program – Tacoma Power assisted the City of Tacoma in launching the first program of its type in the State of Washington. In exchange for inclusion in education and outreach efforts, car dealers provided discounts on new electric vehicle sales and leases for a limited time (90 days).
 - Electric car charging equipment companies and electric bicycle companies also participated.
 - Electric car sales attributed to the program is between 2 and 3 dozen.
 - Car dealers and the public were very impressed with this program.

Electric Vehicle Charging Study

- A research project to study the charging and driving behavior of 100 Tacoma Power customers. In exchange for participation in this program and completing all surveys and data collection efforts for two years, customers receive up to \$500 in compensation. The results of this research study will assist Tacoma Power in the design of upcoming transportation electrification programs.
- Contracted with consultant to provide hardware and software.
- Designed and launched a recruitment campaign to sign up 100 customers, currently 95 applicants have joined the program.
- Created and administered surveys of participants.

Commercial Charging Infrastructure Support

- In an effort to remove economic obstacles to charging station investment in the Tacoma Power service territory, Tacoma Power has designed and introduced a new rate tariff: Schedule FC. This tariff temporarily reduces the demand charge from the general rate through an elevated energy charge. This tariff will encourage commercial electric vehicle charging companies to invest in Tacoma. While not a long-term solution, this pilot is expected to promote additional DC fast charging infrastructure will help raise the confidence of potential electric vehicle drivers that there are sufficient charging facilities.
- Tacoma Power has worked cooperatively with customers and charging infrastructure providers including Electrify America, Washington State Department of Transportation, EVgo, Tesla, and Semaconnect. Tacoma Power was able to help bring two DC fast charging stations and five level two workplace charging stations (level 2) to Tacoma.

Electric Vanpool

- Tacoma Public Utilities worked with Pierce Transit to transition from eight gasoline commuter vans to plug-in hybrid electric vans. This included analytic work to assist with route selection, installing charging infrastructure, providing driver training and charging account registration.
- Troubleshooting charging problems from hardware incompatibility.

Campus Charging Infrastructure

- Tacoma Power is seeking to expand on-campus electric vehicle charging to accommodate additional plug-in commuter vans, employees and customer charging needs by accessing a grant opportunity.

Electric Schoolbus

- Currently working to assist school districts access a Department of Ecology grant opportunity for Volkswagen Settlement funds. Successful applications will help school districts purchase electric school buses and electric charging equipment.
- Earlier in 2019, Tacoma Power assisted in operational assessment for electric bus route selection.
- Tacoma Power assisted in designing and selecting charging infrastructure.
- Tacoma Public Utilities worked with the Washington State Department of Ecology, TransAlta Board, and Franklin Pierce School District to host a ribbon-cutting event to celebrate the first electric school bus in Washington State.

Transit Electrification

- Tacoma Power staff has engaged with Pierce Transit to understand their electrification goals and to understand their integration issues for the first three battery electric buses into their fleet.
- Tacoma Power has been investigating the need for on-route induction charging infrastructure along Pierce Transit “Bus Rapid Transit” lines.

Shorepower at Port of Tacoma

- Tacoma Power and the Port of Tacoma have been exploring the expansion of electric facilities to accommodate shore-to-ship power connections (i.e. shorepower) for ocean going vessels at berth. This infrastructure would replace the need for on-board generation systems fueled by marine gas oil or heavy fuel oil.

- Tacoma Power has assisted the Port of Tacoma in seeking grant funding opportunities to reduce the cost of the infrastructure to terminal operators, the Port of Tacoma, and Tacoma Power ratepayers.
- Tacoma Power designed and presented a mock power tariff for consideration by the Public Utility Board in 2018. The Public Utility Board's approval of this mock tariff is used to demonstrate cooperation between the Port of Tacoma and Tacoma Power to granting organizations. The rate design makes it possible for the Port of Tacoma to more easily allocate charging costs to docking ships.

Low-Income EV Carshare

- Tacoma Power is working collaboratively with Tacoma Housing Authority, Puget Sound Clean Air Agency, and neighborhood groups to investigate the possibility of a low-income EV carshare program. Residents of low-income housing projects would have the option to rent an on-site electric vehicle at an inexpensive rate. This partnership project would increase clean mobility options for members of the public with few alternatives.

Zero Carbon Fuels Research Group

- While battery electric vehicles have been gaining popularity, it is important to remember that other technologies also support zero emission vehicles. With the majority of carbon emissions coming from the transportation sector, Tacoma Power is researching how it can help.
- Tacoma Power joined the Renewable Hydrogen Alliance
- Tacoma Power wrote a letter in support of federal grant application for a renewable hydrogen project – Tacoma Green Hydrogen and although the grant was not awarded, is continuing to work with the principals on a strategy for future investment.
- Tacoma Power is submitting a letter of support for a company that has proposed a liquid organic hydrogen carrier fuel that could increase fuel cell electric transport without the transport and storage problems that hydrogen fuel faces.

3. General description of projects and programs

This section provides descriptions of project categories for future research and program design.

Education and Outreach

Many members of the public are unaware of or have had limited exposure to the latest electrified transportation technologies. They have questions about technology performance, the costs of installing and operation, the impact of new electrified loads on their utility expenses, equipment and operational safety, permitting requirements, and other areas.

Tacoma Power seeks to be an expert energy advisor to its customers. Tacoma Power has a responsibility to assist customers to see transportation electrification as an option that is worthy of their careful consideration. The utility should be able to provide information about benefits and costs, to respond to basic questions, and to provide outside references to address their concerns.

Now, with clarified legislative authority to promote transportation electrification, Tacoma Power can engage customers to educate and persuade them of the benefits of electrified transportation.

To this goal, Tacoma Power must provide accurate and useful information about transportation electrification where customers seek it. It is important for Tacoma Power to make investments to ensure our website is up to date, that it contains helpful information, and includes interactive features for customers. Our social media and customer communications will include regular messages about transportation electrification - encouraging customers to realize how fun, economical, environmentally friendly these vehicles are.

Tacoma Power will consider how to help with the development of a local electric vehicle drivers group. A similar group exists in Seattle, and their members have been very helpful as key stakeholders and advocates in Tacoma Power's current EV program efforts.

When our staff interact directly with customers, they are the face of Tacoma Power, and it is important to provide them with adequate training to deal with customer questions about transportation electrification. Training should include a general understanding of model availability, charging technology, Tacoma Power programs and incentives, government tax credits, and the impact on rates and the environment.

Tacoma Power will continue to lead by example by investing in campus and fleet electric vehicle charging and adding electric vehicles to its fleet where operational possible. Tacoma Power has joined the City of Tacoma in the Green Transportation Pledge - which commits the utility to spending at least 3% of new vehicle acquisition to zero emission vehicles.

To ensure that our programs and messaging is research based and efficient, Tacoma Power will engage in frequent customer studies and market research efforts. By understanding the evolving electric vehicle market and the preferences of our customers, we can avoid costly mistakes in program design and delivery.

Private owned charger program opportunities

Tacoma Power will consider encouraging customers to make "smart" transportation electrification investments by providing a rebate to customers for an approved EV smart charger (and perhaps

installation) with proof of installation. The rebate will help customers with the significant upfront cost of switching to an EV and provide electric charging capabilities for many years.

Tacoma Power will investigate offering a time-of-use rate that will provide an economic incentive to encourage customers to avoid EV charging during costly peak demand periods. In addition, Tacoma Power has launched an EV Charging Study that will provide important data to help us understand charging and EV usage behavior.

Tacoma Power would also like to encourage customers to expand the use of their private charging equipment by facilitating a technology that can make chargers available to others in the community with a peer-to-peer EV charging pilot. Through a third-party mobile phone application, EV drivers will be able to search for and access private EV chargers for a modest fee. The owners of EV chargers can recoup some of their upfront installation investment by making their chargers available when they aren't being used. This business model may encourage customers to invest in charging for themselves and to share with the community.

Residential, commercial and industrial customers are encouraged to make use of these proposed programs.

Car Dealership Engagement

The reason car dealerships hire salespeople is because they are effective at influencing buyers. Making sure salespeople are motivated to sell EVs, and are knowledgeable about the latest EV models, charging options, available incentives, and potential electricity cost impacts could significantly influence EV adoption.

Tacoma Power will investigate a variety of dealer programs which may help salespeople be informed to represent the benefits of electric transportation. Ongoing dealer education and support including fliers that summarize utility offered incentives and government tax credits can help dealerships sell cars. With the most recent information in hand, salespeople can provide the greatest assistance to customers.

Tacoma Power will continue to assist in education and engagement with the public on the benefits of transportation electrification, helping customers curious about EVs become buyers. An important effort for linking interested EV buyers with local car dealerships has been the five Electric Vehicle Ride and Drive Events that Tacoma Power has hosted since 2017. Dealerships, customers, and venue owners have all overwhelmingly appreciated these events where over 400 customers have experienced test rides/drives. Customers were also able to discover electric bikes, EV charging equipment vendors, and were exposed to other utility community programs. Continuing to support local car dealerships with EV focused customer events continues to be a win-win for everyone involved.

In 2018, Tacoma Power and the City of Tacoma partnered to promote Washington State's first "Electric Vehicle Discount Program". Car dealerships were asked to volunteer a significant discount on new electric vehicles in exchange for promotional considerations by the City of Tacoma and Tacoma Public Utilities. Available for only a limited time, the promotion was successful at raising the public's awareness of electric vehicles and encouraging car dealerships that had not sold many EVs to increase their efforts. The program was successful in placing over three dozen vehicles in the limited time offer period and much was learned about how the program could be improved. With newly clarified legislative authority,

Tacoma Power will investigate opportunities to launch a second “Electric Vehicle Discount Program” and possibly combine it with other customer programs to deliver combined benefits.

Heavy-Duty Transportation

Many truck manufacturing companies including Daimler, E-Lion, Tesla Motors, Nikola Motors, Adomani and others are now offering vehicles that range from forklifts, daily delivery (Class 4-6) vehicles, off-road cargo handling equipment, and long haul trucking (Class 7-8). With limited product available for the next few years, they are selectively bringing their trucks to market in territories where local power utilities can be relied on to be good, supportive partners for customers seeking to transition to electric fleets.

Tacoma’s sizeable commercial and industrial customer base provides Tacoma Power with a unique opportunity to lead electrification efforts for heavy-duty applications. With a service territory that contains the Port of Tacoma, a significant railway yard, Joint Base Lewis McChord and is bi-sected by Interstate 5, Tacoma Power can help improve local air quality for the communities it serves while simultaneously fulfilling its role as a provider of low-cost, clean, renewable electricity. The communities Tacoma Power serves combined with our low-cost clean power and recent transportation electrification efforts may make Tacoma a desirable location for start-up companies to test and launch their products.

The Washington State legislature has committed to expanding renewable power generation and curbing carbon emissions. Currently, grant funding opportunities through state agencies and available from the Volkswagen Settlement Fund and TransAlta Coal Transition fund are making projects possible. Piloting new electric trucks is a great way to address air quality issues in the south sound region, particularly for underserved populations that surround transportation corridors.

Accepting this role, Tacoma Power will seek out opportunities to work with commercial and industrial customers through public-private partnerships and use its talents and role in the community to help bring prototype projects to Tacoma without putting ratepayers at risk.

Tacoma Power can help locate and work with customers interested in transforming their fleets to electric or non-carbon fuels by learning the customer’s goals and to committing to help achieve them. Tacoma Power can advise customers in the development of their business case to ensure that all utility program benefits and available government incentives are included, and that all benefits and costs are carefully considered. Tacoma Power can also introduce customers to economic development professionals and related businesses to help customers find helpful partners.

Distribution system impacts from heavy-duty transportation vehicles can be much more significant than for private light-duty vehicles. Tacoma Power can provide advice to customers as they are designing charging infrastructure and should propose alternative designs for consideration that can improve reliability of service and reduce costs to customers.

Tacoma Power should be prepared to assist customers with the financial obstacles of electric transformation by helping customers seek grant funding opportunities, by providing rates designed to remove obstacles to electric vehicle adoption while still recovering all costs, and by sharing the costs of upgrading necessary distribution system infrastructure. To continue as a helpful advisor to customers considering electric fleets, Tacoma Power must continue to research and develop projects and programs in areas of V2G applications, special TOU rates, demand charge reduction pilot rates, and on-bill financing options.

Support Research into Zero Carbon Fuels

Recent developments in lithium-ion battery systems have led to significant cost reductions and performance increases that are appropriate for light duty vehicles. This technology may not be sufficient for most heavy-duty applications. Other technologies may be called upon to electrify trains, ships, transit buses, and other large vehicles that travel long distances or operate for long periods without stopping to refuel.

To this end, Tacoma Power will seek to support public and private sector research and development of zero carbon fuels generated from renewable, carbon free electricity. Hydrogen, formic acid, ammonia, and other alternative zero carbon fuels are in the early prototype phases but may emerge as superior alternatives to battery electric systems for heavy-duty vehicles within a decade.

Including all communities

The benefits of electrified transportation are economically and environmentally significant for the driver and for communities adjacent to transportation corridors. Tacoma Power will make efforts to realize these benefits for all customers through specific actions and programs.

Tacoma Power and partner community organizations are working to investigate opportunities to make electric car share vehicles available at selected housing projects. Residents could enjoy a more convenient and affordable transportation alternative that aligns with their environmental and financial goals. Electric vehicles as a shared resource makes a lot of sense financially - they have a lower fuel cost and need less maintenance than a gasoline powered car – and when your car sits unused over 95% of the time, sharing it with your neighbor makes a lot of sense.

The 2019 State Administrative capital budget set aside over \$1 million to support EV car share programs aimed to assist low-income residents of Washington State. This could be a terrific opportunity to pilot a program and assist people.

In 2019, Pierce Transit took possession of the first three battery electric transit buses in their fleet of over 100 buses and they will have three more within a year. Their long-range plan includes a path toward transitioning to one third of their buses being electric within five years. Having good utility partners to help them to site infrastructure, design charging and electrical support equipment, access grant funding, and develop solutions to avoid significant rate pressures is essential.

Pierce Transit's central bus barn is not located in Tacoma Power's service area, but we can still assist this important community service provider with opportunity charging on selected routes. It might be important for Tacoma Power to help introduce Pierce Transit to renewable hydrogen fuel cell buses as an alternative to battery electric buses that might serve their long term needs better.

There may be other forms of transit - from shuttle buses for tribal communities and nursing homes, to e-scooters and e-bikes that can benefit from Tacoma Power's input and support. We will continue to seek opportunities to work with community partners to bring solutions to our shared customers.

Tacoma Power is very interested in assisting school districts' transition away from diesel school buses to ones that operate exclusively on electricity. Franklin Pierce School District, a Tacoma Power customer, is the owner of the State's first electric school bus. Tacoma Power has been a helpful partner in designing the charging infrastructure and hopes to expand the number of buses in the district very soon. Electric school buses provide an interesting opportunity to explore V2G technology, where the large onboard

battery systems can be deployed by the utility (with the school districts permission) to assist in peak shaving or grid balancing services. In exchange, the school district is compensated by the utility for this service through a carefully designed rate. By connecting several buses together with V2G-capable chargers, load management software, solar panels, and building electrical systems, a micro-grid can be formed that adds resiliency to school operations, provides additional funding to the district, and helps the utility maintain system reliability.

Port Electrification

The Port of Tacoma is an important economic engine for Tacoma and the South Sound region. Tacoma Power can help by making it possible to continue operations with cleaner technology. Tacoma Power and the Port of Tacoma are seeking additional funding for capital infrastructure expansion to allow ships at berth to plug into the Tacoma Power system instead of running on-board diesel generators. This project will increase Tacoma Power revenues and be largely funded through grant programs so no additional cost will be borne by ratepayers. Tacoma Power has proposed a tariff that provides a power rate that removes economic obstacles for terminal operators and shipping lines. Tacoma Power will continue to make efforts to finalize this project and to look for other opportunities for shorepower expansion and other forms of transportation electrification. These efforts could include electrification of cargo handling equipment, pool cars, and drayage. Tacoma Power will also continue to conduct research and work with groups interested in using zero carbon fuels in marine and rail transport.

4. Priority Strategies

This is a list of ten priority strategies for 2020-2021 to increase transportation electrification. Tacoma Power may adjust this priority list based on changes in the expected outcome, resources available, the existence of partnerships, and the state of the market.

Action 1: [Educate customers on the benefits of transportation electrification.](#)

Desired outcome: The utility in its role as a trusted energy provider will provide important information that will help inform customers about the benefits and costs of transportation electrification to improve their next transportation investment decision.

Methods:

- i. invest in up-to-date and accurate website information
- ii. train customer facing staff to provide accurate information to customers in an easy to understand way
- iii. conduct market research and customer analysis to understand what customers want and the barriers that exist to them
- iv. continue to host electric vehicle events and information sessions for customers
- v. in conjunction with dealerships, offer a second electric car discount program

Action 2: [Support DC fast charging infrastructure investments](#)

Desired outcome: DC fast charging infrastructure is an expensive and somewhat risky investment that the utility would have difficulty funding under “gift of public funds” prohibitions. The utility will provide the best customer service to public and private investors seeking to locate infrastructure for our customers and may assist in providing some electrical infrastructure upgrades to help attract private investment.

Methods:

- i. Tacoma Power will work with local land owners to seek and apply for grant funding opportunities
- ii. provide concierge level service with utility operations and permitting
- iii. has already provided a pilot rate that supports the economics of EVSE investments to promote third party investments
- iv. in certain situations, if the economics of the site and funding restrictions allow, the utility may offer “make ready” investments at its own expense

Action 3: [Expand campus charging and continue fleet transition](#)

Tacoma Power will “walk the talk” by demonstrating to customers that the benefits to electric transportation are achievable here and now.

Methods:

- i. seek opportunities to prototype and expand the Tacoma Power fleet to include models that are hybrid electric, battery electric, fuel cell electric, or run on other low-carbon and zero-carbon fuels
- ii. Tacoma Power will uphold its West Coast Green Fleet Pledge to spend at least 3% of new fleet acquisition spending on zero-emission vehicles, be they battery electric or non-carbon fuels
- iii. seek grant funding to expand campus employee and customer charging
- iv. review current retail charging fees at campus charging stations and explore the cost recovery options of different fee designs
- v. explore options to expand charging infrastructure to locations outside of Tacoma, including the hydro projects and Tacoma Power parks

Action 4: [Launch an electric vehicle charger pilot](#)

Desired outcome: By providing low cost or free level 2 charging equipment for customers to install at their homes and places of business, Tacoma Power has an opportunity to specify smart EV charging options that will further enable the utility to offer customers a managed charging program to incentivize off-peak charging behavior.

Methods:

- i. Utilizing the customer, usage, and charging behavior data collected in the 2019 EV Charging Study and comparing it to system load data, Tacoma Power will investigate the potential benefits of a time-of-use rate tariff to incentivize customers to set their charging to off-peak periods
- ii. Invite the customers to participate in future EV pilots and programs
- iii. Seek opportunities to assist customers who are interested in sourcing and installing charging equipment for public, or fleet applications

Action 5: [Solve the split incentive problem](#)

Desired outcome: There often exists a split incentive problem where a property owner is not the user of EV charging infrastructure, but a tenant is. This problem can result in a lack of EV charging infrastructure investment that discourages some customers from purchasing electric vehicles. Tacoma Power will seek opportunities to work with private and public industry partners to solve this problem and expand EV charging by means of private investment.

Methods:

- i. identify situations where property owners and EV charging infrastructure users are not the same and this is a cause for lack of charger investment
- ii. work with private application developers to use peer-to-peer sharing technology as a way to bridge this economic gap
- iii. Research methods of funding electric vehicle charging equipment allows for retail customers to use chargers provided by property owners that compensates

- both the utility for power services and the property owner for their capital investment at a rate that is economical to the consumer
- iv. design a program to extend this service to homeowners, multi-family building owners, retail businesses, and employers
- v. assist landowners curious about the program in the design and implementation of charging infrastructure

Action 6: [Expand transportation electrification at the Port of Tacoma](#)

Desired outcome: Tacoma Power seeks to assist businesses in the Port of Tacoma in attaining their environmental sustainability goals by finding opportunities to replace the use of carbon emitting fuels with clean, renewable hydropower.

Methods:

- i. Work cooperatively with the Northwest Seaport Alliance, the Port of Tacoma, terminal operators, shipping lines, businesses, and logistics providers that operate in the Port area.
- ii. Seek opportunities for grant funding to reduce the cost and barriers to all partners engaged in further electrification
- iii. Seek to design and implement rate tariffs that support electrification of ships at berth

Action 7: [Assist School Districts in electrifying school bus fleets](#)

Desired outcome: Tacoma Power seeks to assist school districts we serve in taking a significant step toward school bus fleet electrification and to advise them with infrastructure design.

Methods:

- i. Assist school districts in acquiring financing for electric school buses through grant funding applications and locating other financial incentives.
- ii. Assist in designing infrastructure to support the school bus duty cycle.
- iii. Organize and operate a workgroup of school districts to share information about initial research and ongoing operational data so other non-participant school districts can make informed decisions about their future fleet investment decisions.
- iv. Seek opportunities to learn about vehicle to grid charging applications and how they can support school microgrids.

Action 8: [Assist with transit electrification projects in communities served by Tacoma Power](#)

Desired outcome: Tacoma Power seeks to be a collaborative partner to transit agencies serving our customers reach their electrification goals.

Methods:

- i. Work collaboratively on site selection and charging infrastructure design to support opportunity charging on transit routes within Tacoma Power service area.
- ii. Propose innovative ideas to reduce obstacles to further electric transportation adoption. This may include seeking grant funding, the deployment of battery

storage infrastructure or load management software, and be a partner with other electric charging uses.

- iii. Collaboratively research and explore the use of fuel cell transit buses fueled with renewable hydrogen produced with Tacoma Power's clean, renewable, carbon free electricity.

Action 9: Explore the production of synthetic fuels including hydrogen, formic acid, and other non-carbon compounds as a way to convert heavy-duty vehicles into zero emission vehicles
Methods:

- i. Identify and understand the benefits, costs, and risks of the production, storage, distribution, and use of non-carbon fuels to end-users, the utility ratepayer, and the environment.
- ii. Work cooperatively with transportation end-users, local community leaders, non-carbon fuel producers, and others to identify obstacles and find solutions that are mutually beneficial to achieve the benefits, reduce the costs, and mitigate the risks of non-carbon fuel production, storage and use.
- iii. Host a prototype fuel cell project to test capabilities, and to calculate and estimate both benefits and costs for a larger scale application of this technology

Action 10: Identify potential commercial and industrial end-users of electrified transportation and seek opportunities to understand and address their obstacles toward adoption.
Methods:

- i. Investigate current electric transportation options for trucking, marine, rail, forklifts and other material handling equipment to find specific applications where electrified transport provides a reduced total cost of ownership over non-electric alternatives.
- ii. Develop programs to incentivize commercial and industrial customers to transition to electric transportation options that are not donative and does not harm non-participants.
- iii. Develop customer outreach and education programs to highlight the benefits of transitioning to electrified transportation options.

5. Public Input Process Findings

Tacoma Power values public feedback. With the help of stakeholders and the general public

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