



**Hawaiian
Electric**

Electrification of Transportation Strategic Roadmap 2.0

Proposed Hawaiian Electric EoT Actions

November 16, 2023

Agenda

1 Roadmap 2.0 Update

- Process for compiling & filtering EoT actions
- Resulting proposed Hawaiian Electric actions

2 Breakout Groups

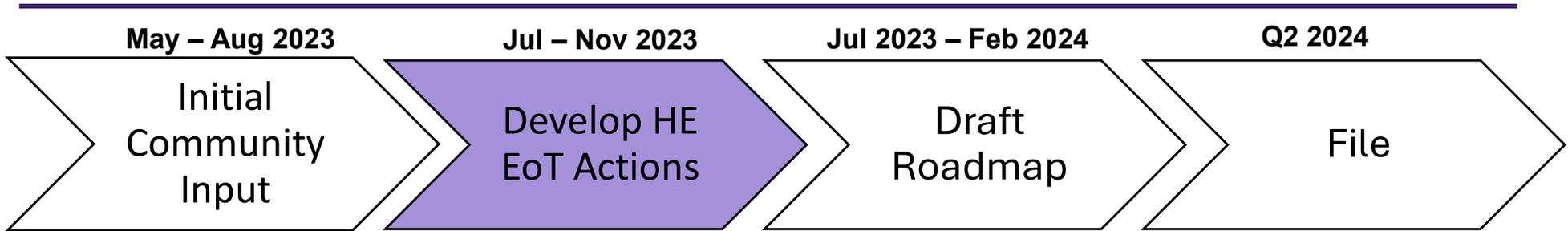
- Seeking feedback on proposed actions

3 Next Steps



We will email this presentation to all invitees after the meeting, along with a recording of the presentation (recording will stop before breakout groups)

EoT Roadmap 2.0 Development



- On-island community workshops & follow-up survey
- Meetings with Hawaiian Electric teams
- Meetings with industry and stakeholders identified at workshops

- Compile potential actions from state plans, stakeholders, national best practices
- Develop and apply selection criteria

YOU ARE HERE
Share Proposed Actions with community for input

- Incorporate feedback
- Summarize existing EoT policies & actions in HI
- Describe where we're headed in national & state policy

- File with PUC

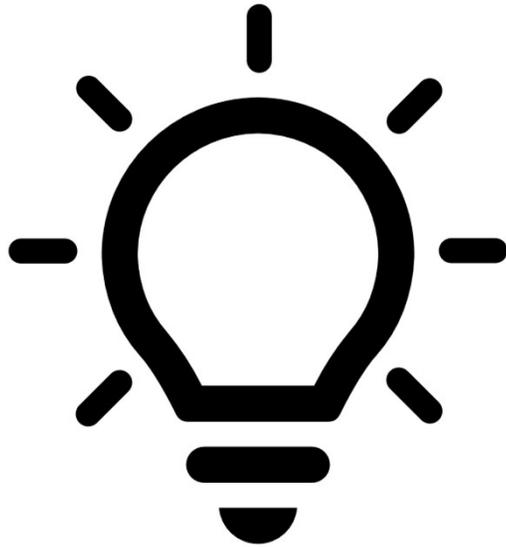




**Hawaiian
Electric**

Process for Developing Proposed Hawaiian Electric Actions on EoT

1. Compile Ideas



Step 2. Define Guiding Principles for EoT

- ◆ ***Electrifying transportation is critical to Hawaii's future.*** We seize opportunities to support customers as they adopt electric vehicles at increasing rates, and to advance and accelerate electric transportation across all sectors. Getting off imported fossil fuels helps address climate change, removes Hawai'i from the volatility of world energy markets and gives future generations a tremendous advantage, while improving air quality in our communities.
- ◆ ***Working together is necessary to our shared success.*** Our actions to eliminate transportation emissions reductions are only one part of the broader energy-transportation nexus. We work collaboratively and in coordination with our partners to each bring our capabilities, funding, and information to achieve systemic change while ensuring efficiency and effectiveness in our actions. We work collaboratively with our customers and communities to consider local plans and challenges and ensure that equity is embedded in our actions.
- ◆ ***The energy transformation must include everyone.*** Electricity and transportation are both essential. Our plans, as well as public policy, should ensure access to affordable electricity and increased transportation options, with special consideration given to low-income households and historically disadvantaged communities. Meaningful community participation must be a key element of transportation electrification planning and the energy transition.



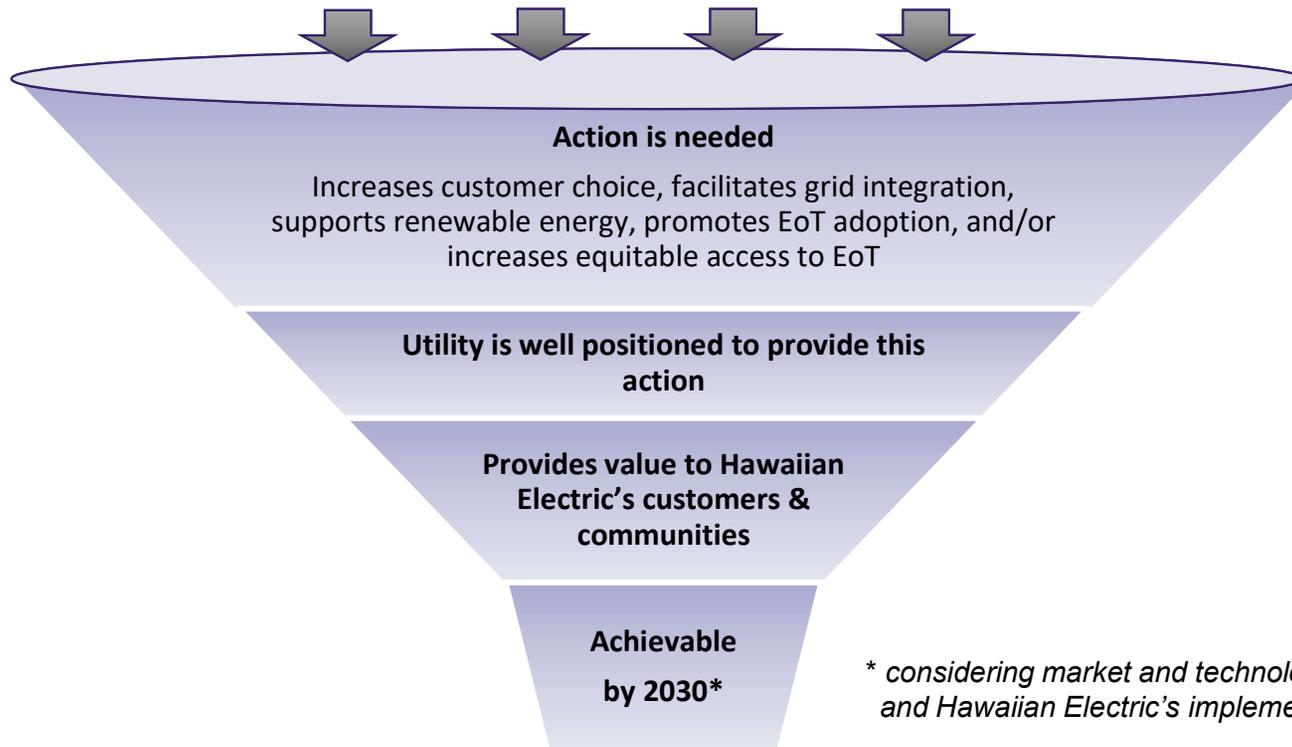
Guiding Principles for EoT

- ◆ ***Transportation is essential.*** Transportation plays a critical role in the lives of our customers, communities, and our island economy. As our customers adopt electric transportation, they need to be sure it will meet their transportation needs. Our plans and work must support our customers by maintaining or enhancing the reliability and resilience of our transportation systems.
- ◆ ***Today's decisions must be open to tomorrow's breakthroughs.*** Our plans keep the door open to developments in the rapidly evolving transportation and energy nexus. We must be able to easily accept new, emerging and breakthrough technologies that are cost-effective and efficient when they become commercially viable.
- ◆ ***Our plans must support modernization of the power grid and our future power supply.*** As our grid modernizes to deliver 100% clean energy and our power supply portfolio evolves to renewable energy, electric transportation must support these efforts by enabling additional renewable energy use and optimizing the use of our distribution system.
- ◆ ***There's no perfect choice.*** No single energy source, technology, or organization can achieve our climate and clean energy goals. We recognize that rapidly attaining our clean energy and climate goals is imperative to our land and natural resources, our economy and our communities. We seek to make the best choices at each decision point by engaging with community members, regulators, policymakers and other stakeholders so that we can all move with purpose and urgency to transition to our clean energy future.



Step 3. Use a 'Funnel' to Further Filter Actions

Action ideas aligned with Hawaiian Electric's EoT Guiding Principles

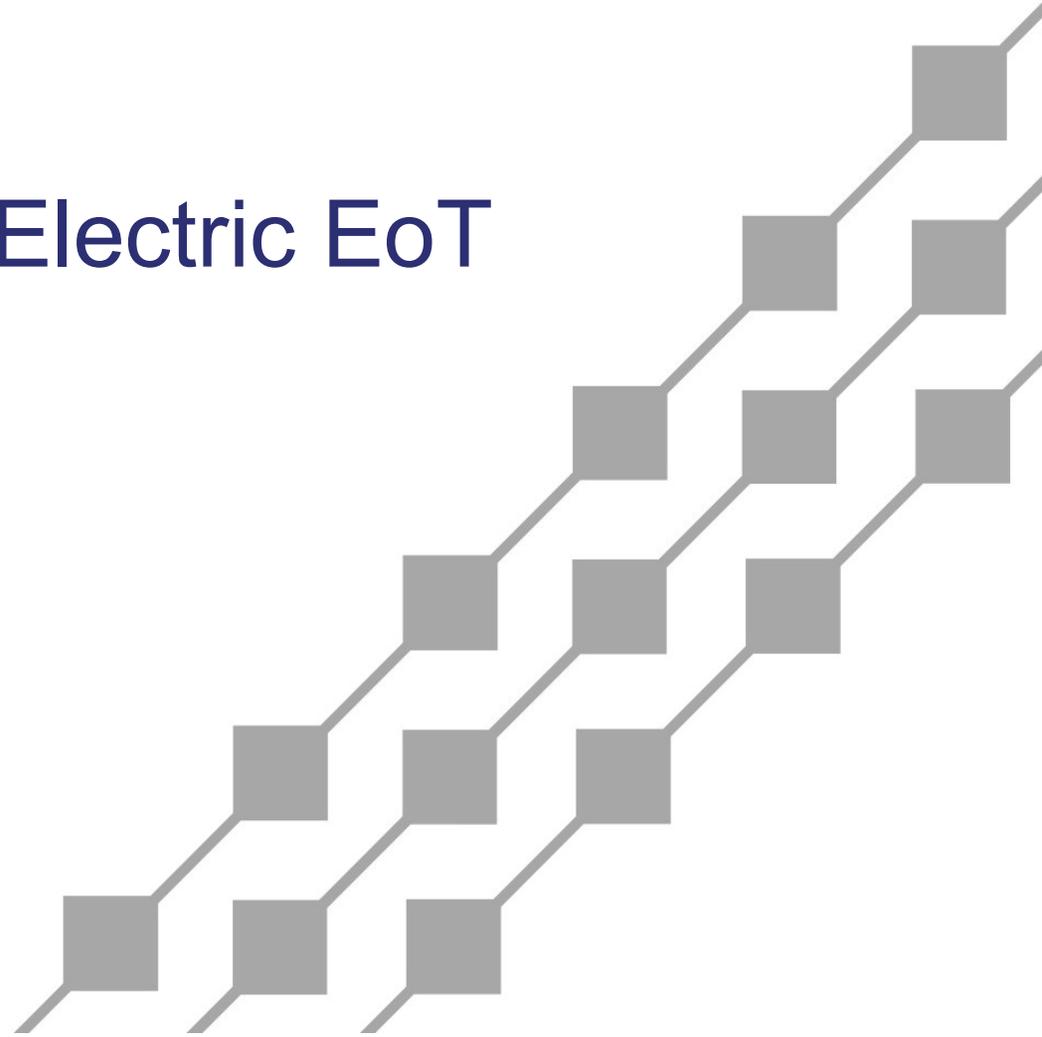


** considering market and technology development and Hawaiian Electric's implementation resources*



Proposed Roadmap Actions

Proposed Hawaiian Electric EoT Actions



Previewing our Questions for You



What actions are you most excited about?

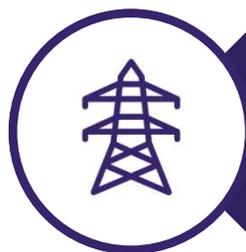


What Hawaiian Electric EoT actions are missing?



Where does Hawaiian Electric need to provide more detail or explanation?

Proposed EoT Actions Fall Into 6 Categories



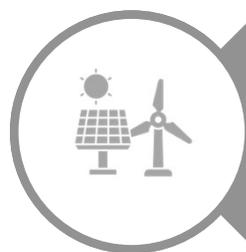
Plan for EoT on the grid



Facilitate equitable access & community resiliency



Enable charging for personal vehicles



Encourage managed charging



Enable charging for commercial vehicles



Support workforce development

For each Action Category, Hawaiian Electric plans to describe:

The need being addressed

Potential partners

Plans to support equitable outcomes through these actions

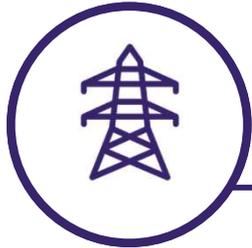
How Hawaiian Electric is well positioned to provide these actions

Value proposition for Hawaiian Electric's customers

Factors enabling these actions by 2030

Examples of these actions from other jurisdictions





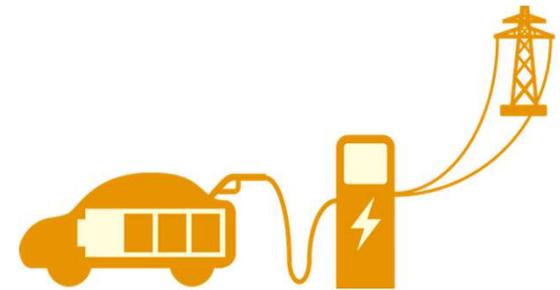
Plan for EoT on the Grid

Objective: Anticipate and incorporate future electricity demand from vehicles into grid planning

Proposed Hawaiian Electric actions:

Continue expanding electrical load forecasting methods to:

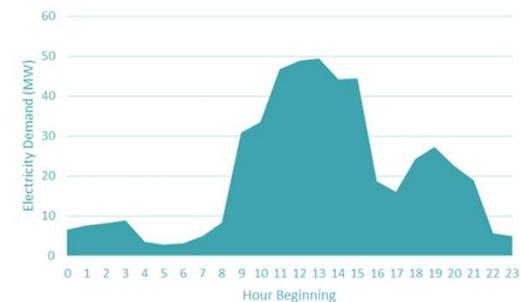
1. Incorporate all transportation use cases
2. Be updated on Hawaiian Electric's Integrated Grid Planning process cycle
3. Incorporate data from utility programs, fleets, charging locations





Encourage Managed Charging

Objective: Encourage vehicle owners to charge during off-peak and high-renewables hours to reduce customer bills, enable more renewables, and limit needed grid upgrades



Source: 2018 Roadmap Smart Charging case

Proposed Hawaiian Electric actions:

Expand vehicle telematics program to capture behavioral data

Continue toward time-varying residential rates & load control programs

Develop successor rates for commercial EoT customers

Pilot charge management technologies

Develop roadmap for vehicle-to-grid technologies

Pilot off-peak subscription charging rate





Enable Charging for Personal Mobility

Objective: Enable charging for micromobility, personal cars, taxis, transportation network companies (Lyft, Uber)

Proposed Hawaiian Electric actions:

Continue to reduce charger install & energize timelines, in coordination w/ state & county agencies

Continue improvements in maintenance & repair of utility-owned public charging

Investigate siting public charging at transit-focused hub/s, in conversation with local communities

Collaborate with state and local agencies to ensure a robust public charging network

Solicit input from TNCs & taxis on locations for public charging

Develop toolkit of charging best practices in multi-family housing & commercial properties

Investigate opportunities for innovative public charging in rights-of-way, e.g. streetlights

Expand make-ready charging programs, potentially w/ enhanced support for disadvantaged communities



Enable Charging for Commercial Vehicles

Objective: Enable charging for fleets, rental cars, transit buses, school buses, tourist buses, seaports, airports

Proposed Hawaiian Electric actions:

Use fleet data to site/design public charging locations that support light- & medium-duty fleets

Develop materials & advisory services to provide guidance on charging, resiliency, rates for fleets seeking to electrify

Support electrification plans across Department of Defense facilities

Expand make-ready programs to support additional light-, medium-, & heavy-duty fleet charging

Continue electrifying Hawaiian Electric's vehicle fleet; incorporate learnings across actions

Investigate need for en-route charging for tourist bus fleets

Support seaports/airports in their development of long-range electrification plans



Facilitate Equitable Access & Community Resiliency

Objective: Support equitable access to electric transportation choices & benefits, avoid disbenefits, & develop community-centered resiliency solutions

Proposed Hawaiian Electric actions:

Create a community-based Transportation Development Fund

Examples of projects funded through this type of community-led program in WA & OR:

- Community-based carshare, with focus on disadvantaged communities
- Ride-and-drives or vehicle trial program for personal cars and e-bikes
- Vehicle finance loan backstop fund
- E-tractor pilots

Site public chargers with focus on & in conversation with underserved communities

Seek Charge Up Commercial program customers in underserved communities

Investigate vehicle-to-home / vehicle-to-building pilots to support resiliency at customer sites

Seek funding to pilot microgrid community resiliency hub e.g. at transit center, school, disaster preparedness site

Develop toolkit of vehicle availability, incentives, charging specific to TNC drivers, in collaboration with partners



Support Workforce Development

Objective: Help grow the EoT workforce in HI. Support standardized charging system designs to help make installation skills and processes transferable.

Proposed Hawaiian Electric actions:

Develop charger & vehicle maintenance curriculum, in partnership with educational institutions, other local training programs, & manufacturers

Offer internships & job pathways informed by the Company's programs

Develop standardized charging system designs to support charging site development, in partnership with local design & electrical installation firms

Specify standardized utility engineering, operations, & material standards for each island to ease charging installation by Hawaiian Electric & customers

Actions Best Led by Groups Other Than Hawaiian Electric



Direct rebates on vehicles & chargers



Mass marketing / education campaigns on EVs



Owning & operating vehicles, beyond utility fleet





What do you think?

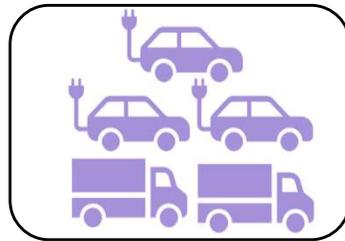


Breakout Groups

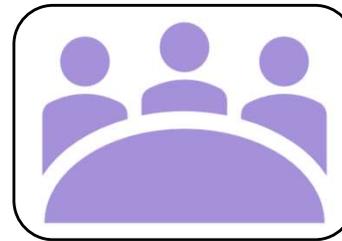
Please pick the group that best suits you:



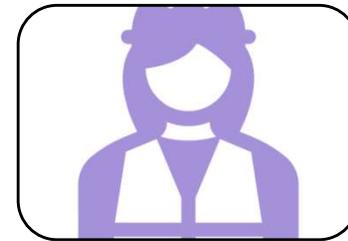
1. Enable charging for personal mobility



2. Enable charging for commercial vehicles



3. Facilitate equitable access & community resiliency



4. Support workforce development

At today's breakouts: We'll collect initial verbal feedback & provide link to a web form for written comments

After today's meeting: We'll email presentation materials & web form to collect any final comments

We will reconvene the full group at **11:25am**

Next steps

- ◆ We will email all invitees with:
 - This deck
 - Link to recorded presentation on Hawaiian Electric's website
 - Feedback form, for those who want to add additional feedback or comment on additional action categories

