Hawaiian Electric

Electric Vehicle (“EV”) Telematics Pilot

Potential project for Innovation Pilot process

August 31, 2022

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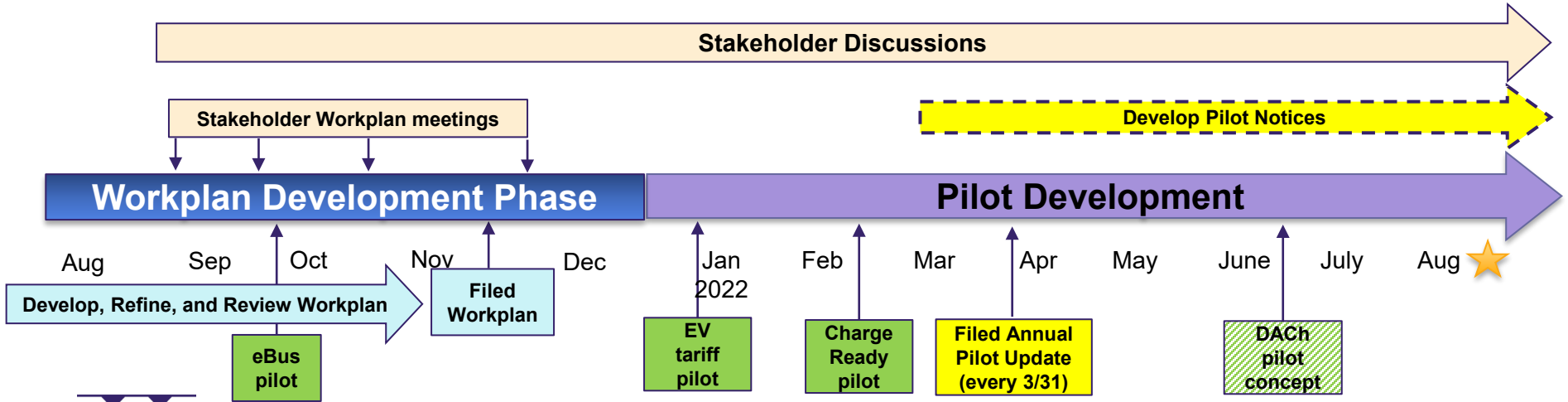
Welcome back!

A "Workplan" is required by the PUC's PBR D&O to *"…identify an initial set of 5-10 areas of collaboration"* that will *"…lead to the development of a portfolio of pilot concepts that may be refined and introduced as specific pilot proposals as part of the Implementation phase."*



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Pilot Development

- Pilots are intended to be flexible and have a goal of reducing uncertainty by trialing solutions and measuring outcomes
- We will continue to reach out to stakeholder groups for specific pilot concepts
- We plan to continue having these types of ad hoc meetings when a pilot concept comes into focus
- We are all still learning together – so please give us feedback

Agenda for today:

- Discussion of EV Telematics concept – feedback welcome!

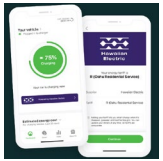
Executive Summary

Overview	• Hawaiian Electric proposes launching EV telematics-based pilot project to incentivize EV driving and to collect data about EV customer charging behavior
Problem	• Hawaiian Electric does not offer an active residential EV pilot project or have analytics related to residential EV usage • Reliance on ‘typical’ EV charge behavior can limit program designs and policies specific to Hawai‘i
Solution	• Partner with EV telematics vendor to deploy digital EV platform for EV driving customers • Collect detailed data and analytics from EV telematics and networked chargers

Executive Summary (cont.)

Benefits	• Customers receive $100 incentive and insights into their charging patterns through vendor's app • Foundation of a possible future permanent customer-centric EV program that will help develop further Electrification of Transportation related projects and programs • Hawaiian Electric and stakeholders gain visibility into EV customer charging behavior
Timeline	• 18-month pilot (project estimated to start in Q4 2022)
Preliminary Budget	• $822,000 of Innovation Pilot Framework ("IPF") funding

1. Drivers are already opted into data share arrangement via original equipment manufacturer's ("OEM") terms and conditions

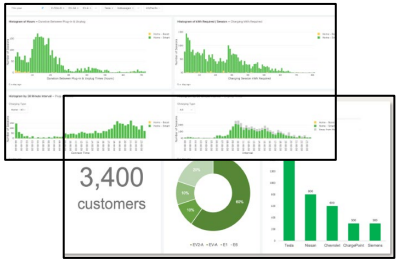


4. Vendor/partner provides customer app where drivers can view charging and Pilot details

ev.energy

2. OEMs enabled to share EV telematics data with third parties

3. Vendor/partner collects telematics by 'scraping' from OEM APIs and through direct relationships



5. Hawaiian Electric accesses dashboards and telematics data hosted on vendor's cloud-based portal

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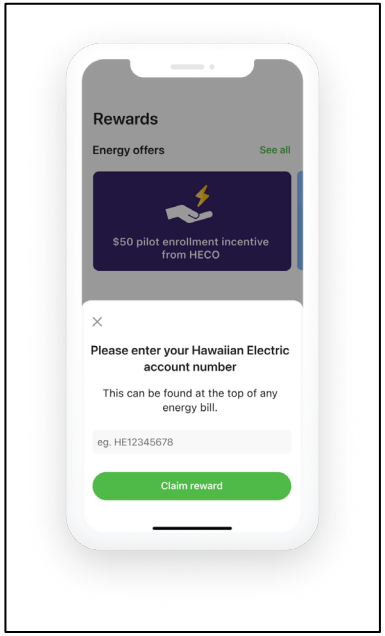
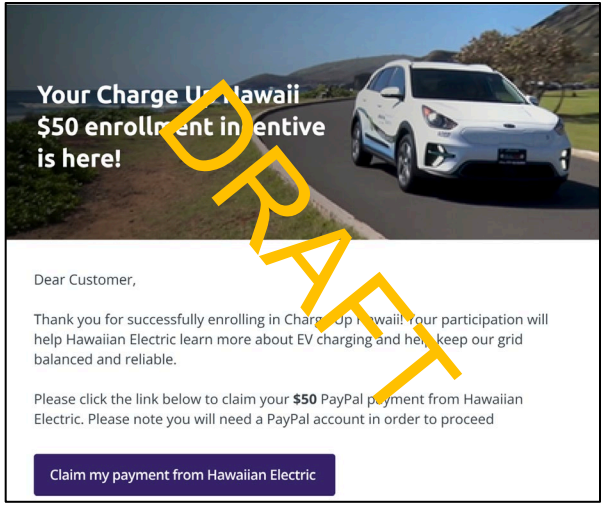
EV Driver Journey

1. Driver signs up for an account with vendor partner.

2. EV telematics are synced with participant's account with vendor partner.

3. Driver receives sign-up incentive.

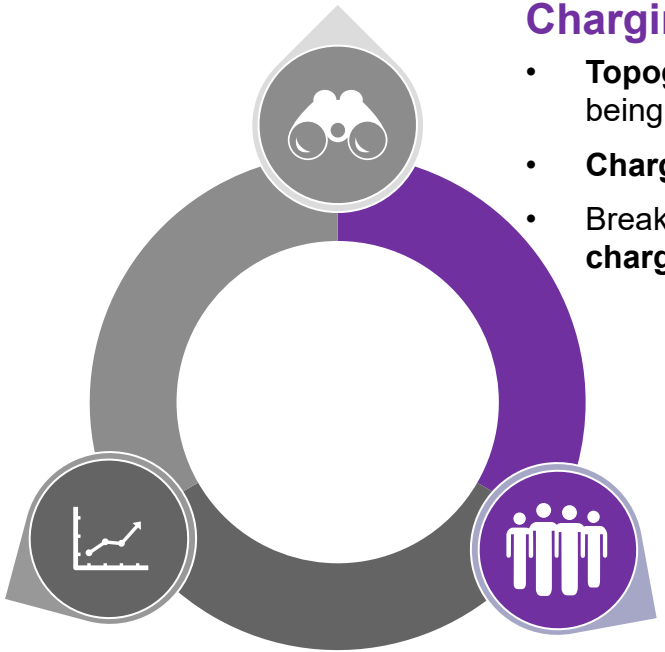




Pilot Objectives and Success Criteria

Enrollment

- **Target 2,000 EV driver sign-ups** across Hawaiian Electric's service area (minimum 300 per county)
- Represents **statistically meaningful sample** of ~20,000 EVs



Charging Visibility

- **Topographic 'heatmap'** of where EVs are being charged
- **Charging behavior insights**
- Breakdown of customer **vehicle and charging equipment types**

Customer Experience

- Customer **feedback scores**
- Qualitative insights related to **EV charging pain points**
- **EV customer archetypes**

Alignment with IPF Workplan

Customer Resources and Services

- Improve customer experience and choice with a high-technology solution that rewards EV adoption.
- Increase customer engagement and expand utilization of customer resources.

Decarbonization and Beneficial Electrification

- Mitigation of climate change through sustainable electric transportation.
- Reduction of vehicle carbon emissions is a critical step to meeting Hawai‘i’s 2045 zero emissions goal.

Data Sharing, Access, and Analytics

- Curated and aggregated EV charging data can be shared upon request with stakeholders.
- EV charging analytics will enable Hawaiian Electric and other stakeholders to operate more effectively.

Technology Innovations

- Transform existing process and deliver new insights tied to improved customer service.
- Visibility and ability to manage EV impact on grid provides greater flexibility to Hawaiian Electric.

Pilot Feedback

Pilot Administration

- Opportunities for cost-sharing?
- Letters of support.

Data Collection and Sharing

- What type of information is useful to stakeholders? (e.g., heatmaps, charge behavior, participant tracking etc.)
- Frequency of Pilot updates?

Pilot Incentive and Marketing

- Appropriate sign-up bonus?
- Meaningful participant sample size?
- Opportunities to promote Pilot?

Customer Engagement

- Type of feedback to seek in semi-annual customer feedback surveys and focus group interviews?

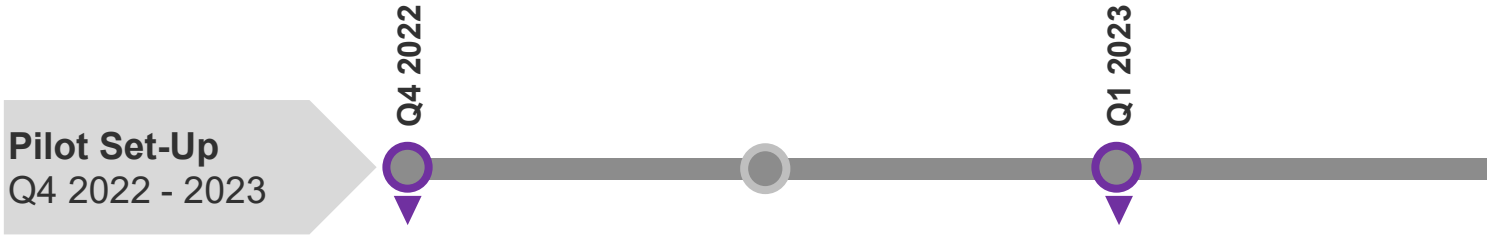
Next Steps

- Incorporate stakeholder feedback
- Finalize Notice of Intent (“NOI”) for filing with PUC

Open Discussion

Appendix

I - Pilot Timeline (Preliminary)

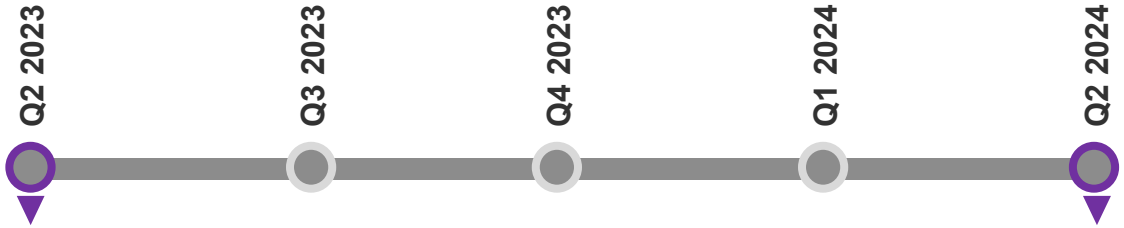


- Design, build and launch Pilot webpage
- Design and distribute Pilot outreach emails
- Integrate Hawaiian Electric tariffs into vendor's mobile app
- Build web-based data portal for authorized Hawaiian Electric team
- Design and plan paid digital and print customer recruitment campaigns

Note: Pilot timeline is dependent upon approval of NOI. Start date can be delayed if necessary.

I - Pilot Timeline (cont.)

Customer Enrollment & Data Collection
2023 - 2024



- On-board EV customers and process incentive payments
- Collect driver charging data
- Conduct pre-Pilot focus group

- Engage customers through push notifications and periodic charging reporting
- Ongoing front-line customer support to Pilot participants
- Continuous digital and print marketing to reach 2,000 driver target
- Conduct semi-annual customer feedback surveys

- Conduct post-Pilot focus group
- Project close-out: debriefing, in-depth review of data analytics

II - Leading Practices for Utility Residential EV Incentives

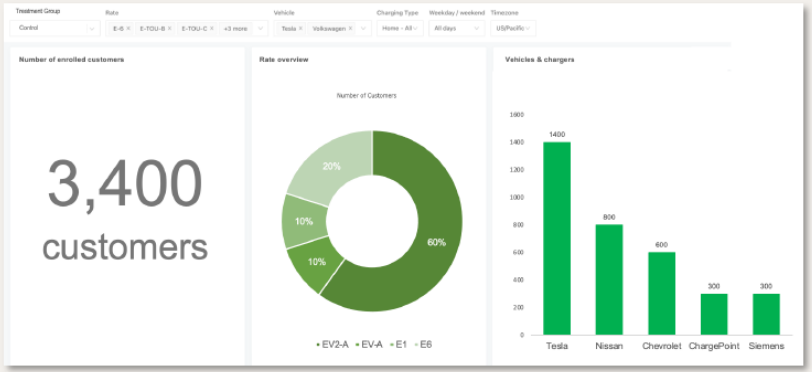
Utility	Incentive 1	Details	Incentive 2	Details
Baltimore Gas & Electric	$200	EV Telematics		
Consolidated Edison	$150	EV Telematics		
Consumers Energy	$500	EV Charger		
Dominion Energy	$125 on install ($40 annually)	EV Charger		
DTE Energy	$500	EV Charger		
Duke Energy	$1,000	EV Charger		
Pacific Power	$1,000	EV Charger		
PG&E	$750	EV Purchase	$1000 - $4500	Pre-owned EV
Portland General Electric	$500	EV Charger	$50	EV Telematics
San Diego Gas & Electric	$750	EV Purchase	$2,000	New EV
Southern California Edison	$750	EV Purchase	$1000 - $4500	Pre-owned EV
Xcel Energy	$500	EV Charger		

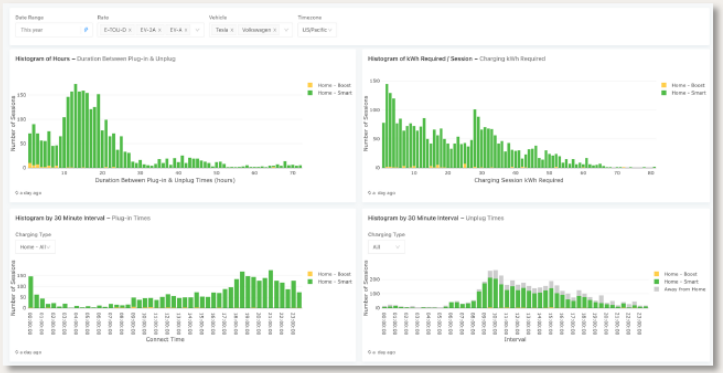
III – Project Budget (Preliminary)

Workstream	Budget
Pilot setup and customer engagement (pending final scope and duration): • Web storage and secure data-reporting dashboards • Pilot webpage, outreach emails, execution and customer acquisition through digital and physical channels • EV charging data collection from pilot participants • Dedicated support for Pilot participants • Ongoing Customer Engagement (nudging, surveys/interviews, and program marketing)	~$ 510,000
Customer Incentives (assuming 2,000 customer at $100)	$ 200,000
Project Management: Pilot administration	$ 112,000
Total	**$ 822,000**

Data reporting

Customer charging data will be reported in real time via our web-based dashboards; visible and downloadable data





Pilot participants tracker

- Number of customers enrolled
- Breakdown by vehicle & charger makes
- Breakdown by rate plan
- Option to group customers e.g. by island

Charging behaviors

- Plug in & unplug times
- Plugged-in durations
- Number of hours per charging session
- % of charging at home vs. away

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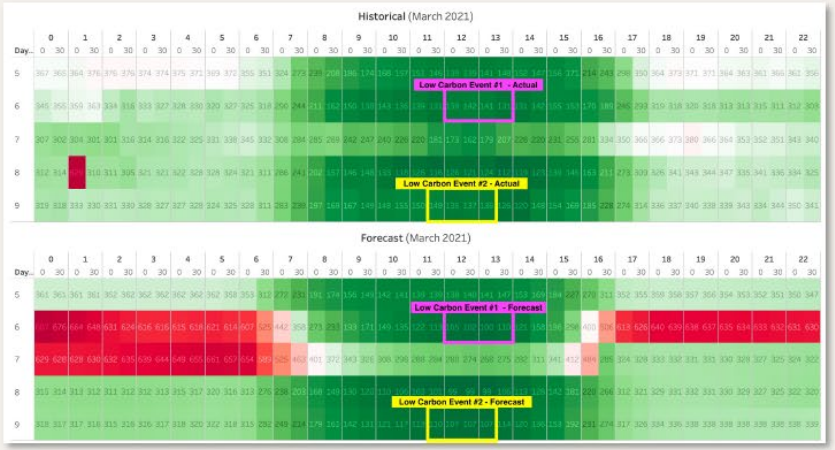
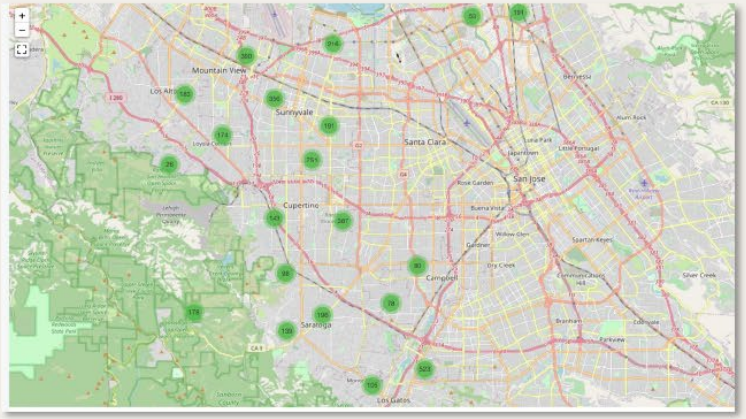


CO_2 emissions

- Ingests marginal carbon intensity data from WattTime to report CO_2 emissions associated with customers' EV charging
- CO_2 savings from off-peak/solar-optimized EV charging is also reported in real time



Charging locations

- Exact latitude/longitude of all customer charging sessions at home and away
- Can be superimposed on top of utility distribution map to inform network planning studies