FOR DISCUSSION PURPOSES ONLY

Hawaiian Electric

Innovation Pilot Framework (IPF) Portfolio Update

December 10, 2025

Agenda

December 10, 2025 (1:00 - 2:30 PM HST)

- In-flight pilot updates
- IPF pipeline

Key Takeaways

Status:

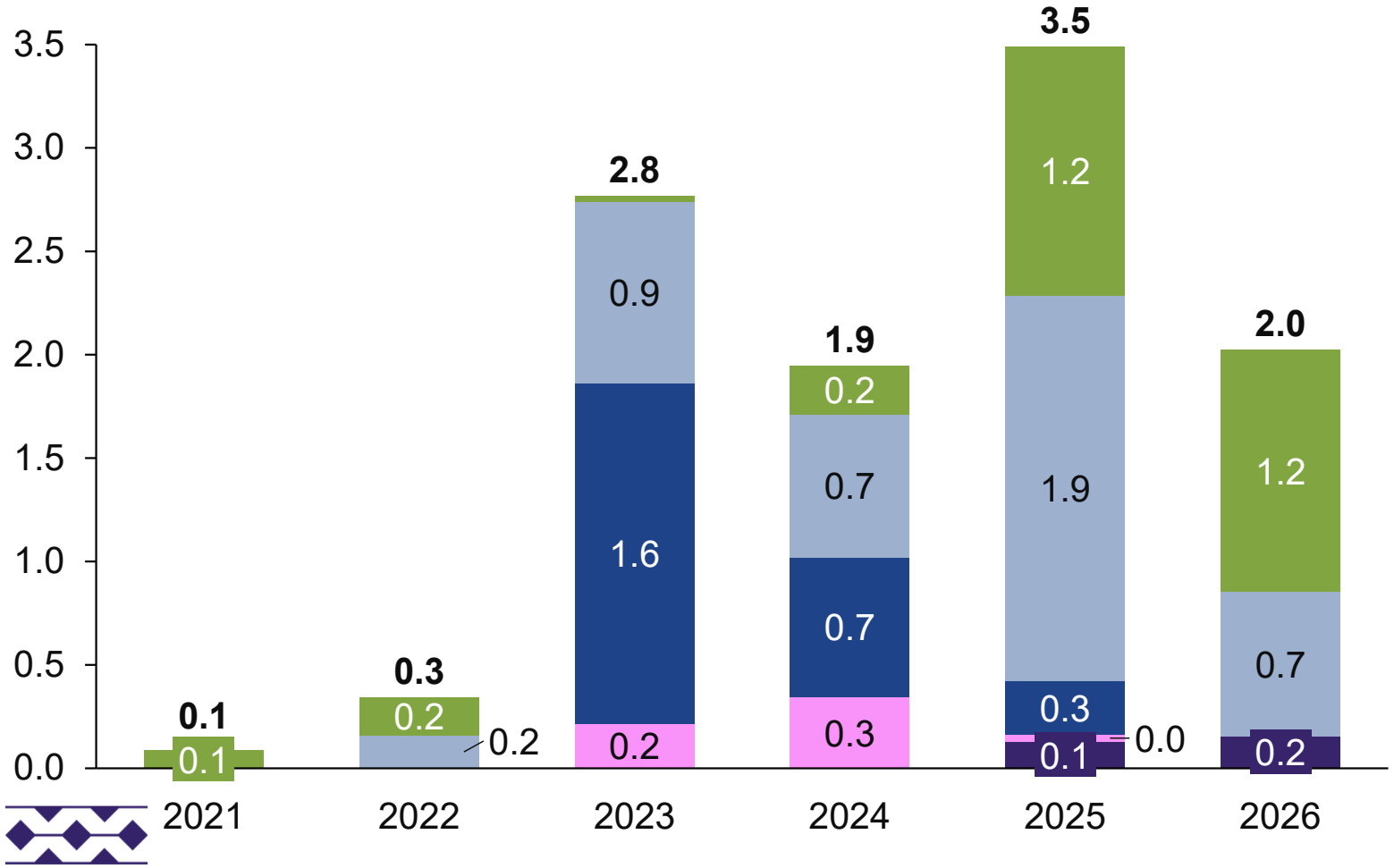
- Notice of Intent for Wildfire EFT Reliability Mitigation pilot conditionally approved on 10/6/2025 (conditions accepted on 10/21/2025).
- Filed Data Analytics Clearinghouse Final Report on 10/27/2025.
- Filed request to remove eligibility criteria from EV-J and EV-P Tariffs on 10/28/2025; IR response filed on 11/17/2025; Request approved on 12/9/2025.
- Anticipate filing Immersive Learning using Virtual Reality pilot in January.

Active pilots:

- **Charge Up eBus** – Yellow: Executed 3 Participation Agreements. One site targeting construction in Q4 2025, 2 sites in permitting.
- **Charge Up Commercial** – Yellow: Executed 14 Participation Agreements and 14 Designs. Completed construction at one site, construction is underway at one other site.
- **EV-J and EV-P Tariff** – Green: Continued interest in enrollment with pace limited by the installation of EV charging facilities and permit closure. Evaluating plan for successor rate in advance of March 2027 pilot end. Awaiting Commission response to requested enrollment criteria revisions.
- **Wildfire EFT Reliability Mitigation** – Green: Targeting installation and commissioning in February 2025.

IPF Portfolio (latest forecast)

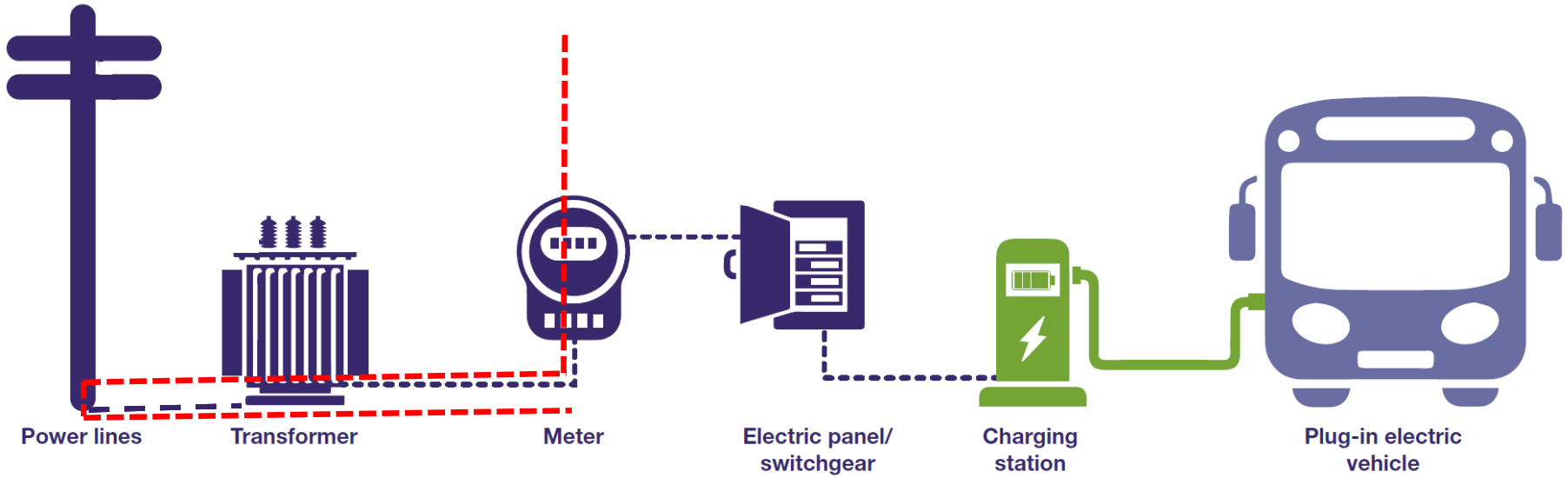
$millions



Totals may not foot due to rounding

In-Flight Pilot Updates

Make-Ready infrastructure as it applies to eBus and Commercial pilots



Traditional Utility Infrastructure

Hawaiian Electric Owned Make-Ready Infrastructure

Hawaiian Electric Owned Public Charging

3 eBus and 14 Commercial Sites

- eBus (launched Q1 2022, extended through 2026)
- Commercial (launched Q4 2022, extended through 2026)

Charge Up eBus

Division	EoT
Project Manager	Tandy Tabata

Description & Scope

Hawaiian Electric estimates that the make-ready infrastructure installed in eBus Pilot will support up to 20 eBus charging ports at 5-10 customer sites.

Objectives

- Enable and accelerate the electrification of bus fleets in the Hawaiian Electric Companies' service territories by **understanding customer behaviors and enable customers to transition faster.**
- Develop ways for the Companies to support make-ready infrastructure by learning how to streamline workflows, understand resource needs for charging, and track the costs of infrastructure to develop sound cost estimates for future deployment.
- Improve renewable energy integration through bus charging on the eBus tariff.

Major Deliverables

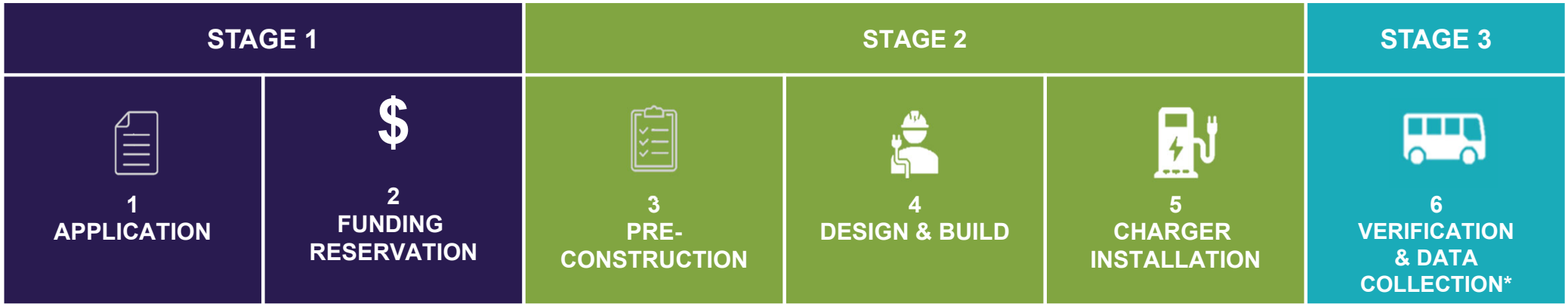
- Implementation Process/Customer Journey
- Final Program Design Report and Appendices
- Annual Updates/Spring Reports
- Infrastructure for up to 20 charging ports at customer sites

Risks

- Funding and customer procurement timelines not aligned with Pilot
- Complex/lengthy landowner approval requirements and processes
- Complex/lengthy permit process
- Supply chain constraints
- Rising labor and material costs

Charge Up eBus

Division	EoT
Project Manager	Tandy Tabata



5 applicants

3 agreements

- **1 site to start construction in Q4 2025**
- **1 pending permit approval & targeting construction in Q1 2026**
- **1 pending permit approval & targeting construction in Q2 2026**

Charge Up eBus

Division	EoT
Project Manager	Tandy Tabata

Milestone	Target Date	Status
Final Program Design Report	1/7/22	Complete
Pilot launch	2/7/22	Complete
Site Evaluations	5/31/22	Complete
Participation Agreements + Funding Reservation	12/30/23	Complete
eBus/Charging Equip. Procurement (customer)	12/30/23	Complete
Make-Ready Final Design (+revisions)	6/30/25	88%
Make-Ready Construction	5/15/26	29%
Charging Equipment Installation (customer)	6/30/26	
Data Collection Initiated	07/01/26	
Final Report	3/31/27	
Overall % Complete		**70%**

Updated Forecast (on track)

U2511

$000s	2021	2022	2023	2024	2025	2026	TOTAL
TOTAL	**87**	**183**	**29**	**235**	**983**	**1,392**	**2,909**

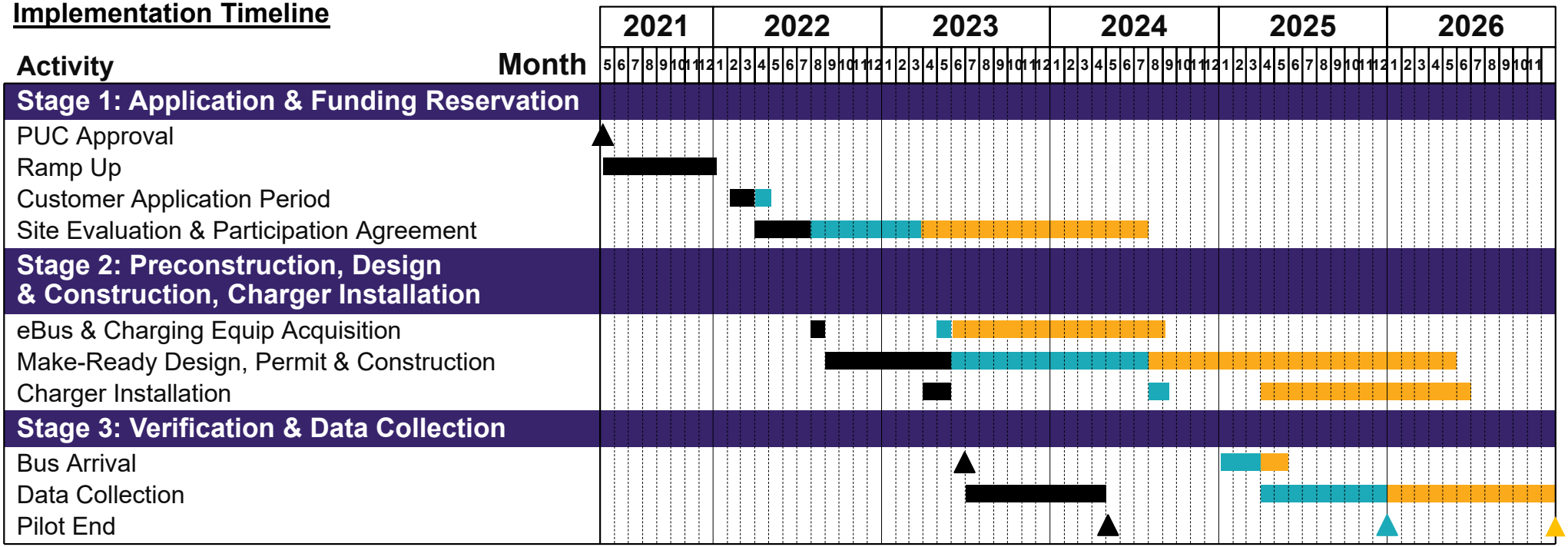
Observations & Lessons Learned

- Coming out of the pandemic, the number of bus operators ready to procure eBuses in 2022 were fewer than expected.
- State and County entities requested modifications to the standard participation agreement to align with their requirements, thus extending the time to execute.
- **State-owned land adds significant complexity and time to seeking approvals for right of entry, grant of easement, and exemptions.**
- Applicants' procurement timelines delayed as a result of external factors.
- **Complexity and costs can vary significantly from site to site.**
- Bus operators with plans to install more than 2 ports in the near future need to be considered in the make-ready design.
- **Uniqueness of each site requires a more hands-on and flexible approach.**
- Some facilities may not be eligible for E-Bus rates.
- 10-year data collection commitment can be viewed by some bus operators as a significant resource burden.
- **Long lead time for stainless steel materials**

Charge Up eBus

Division	EoT
Project Manager	Tandy Tabata

Implementation Timeline



■ Original Implementation Schedule ■ Adjusted Implementation Schedule ■ Anticipated Schedule

Factors contributing Implementation Schedule adjustments:

- eBus and Charging Equipment RFP delayed by stakeholder concerns.
- Validation of qualified buses and charging equipment impacted by RFP delays.
- Participant modifications to the Participation Agreement and landowner approvals.
- Longer bus build estimates due to supply chain issues (18+ months)
- Risk for longer than expected permit timelines.

Charge Up eBus

Division	EoT
Project Manager	Tandy Tabata

- **Recent Approval**
  - Make-ready applicants approved to remain on the original E-Bus Pilot rate for the 10-year commitment period.
- **Modifications to the pilot program to date**
  - Increase charging port limit from 2 to 4 ports
  - Increase rate options to include EV-J and EV-P
  - Reduce data requirements from 10 to 5 years
  - Leverage internal labor in place of outside services where appropriate
  - Pilot extended through December 31, 2026
- **Other Metrics (when available)**
  - Actual pilot costs and revenue
  - Charger utilization

Participation KPIs	
Applications Received	5
Site evaluations Completed	3
Applications Withdrawn or Denied	2
Participation Agreements Executed	3
Anticipated Number of eBuses	9
Anticipated Number of Make-ready Charging Ports	10

Schedule KPIs (as of 11/30/25)	**County of Hawaii Mass Transit**	**Kahului Transit Hub**	**Ka Waihona Charter School**
Application Received	3/31/22	3/31/22	3/6/24
Days to execute Participation Agreement	854 Executed	613 Executed	145 Executed
Days in permitting review	207 In progress	158 Approved	394 In progress
Days in construction			
Days to install and commission charging equipment (customer)			

Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

Description & Scope

Provide make-ready charging infrastructure to eligible fleets, MUDs and commercial sites. Pilot is targeting 14 customer sites (68 charging ports), across Hawaiian Electric, Maui Electric, and Hawaii Electric Light. Pilot will reduce upfront costs for commercial customers seeking to install EV charging infrastructure by providing make-ready infrastructure at Hawaiian Electric's expense.

Objectives

- Install infrastructure for Level 2 charger sites
- Develop actual pilot costs and lessons learned to inform future filings
- Increase enrollment in commercial EV rates
- Collect data to inform future filings

Major Deliverables

- Final Program Design Report
- Implementation Plan
- Annual Report
- Make Ready Infrastructure for Level 2 chargers

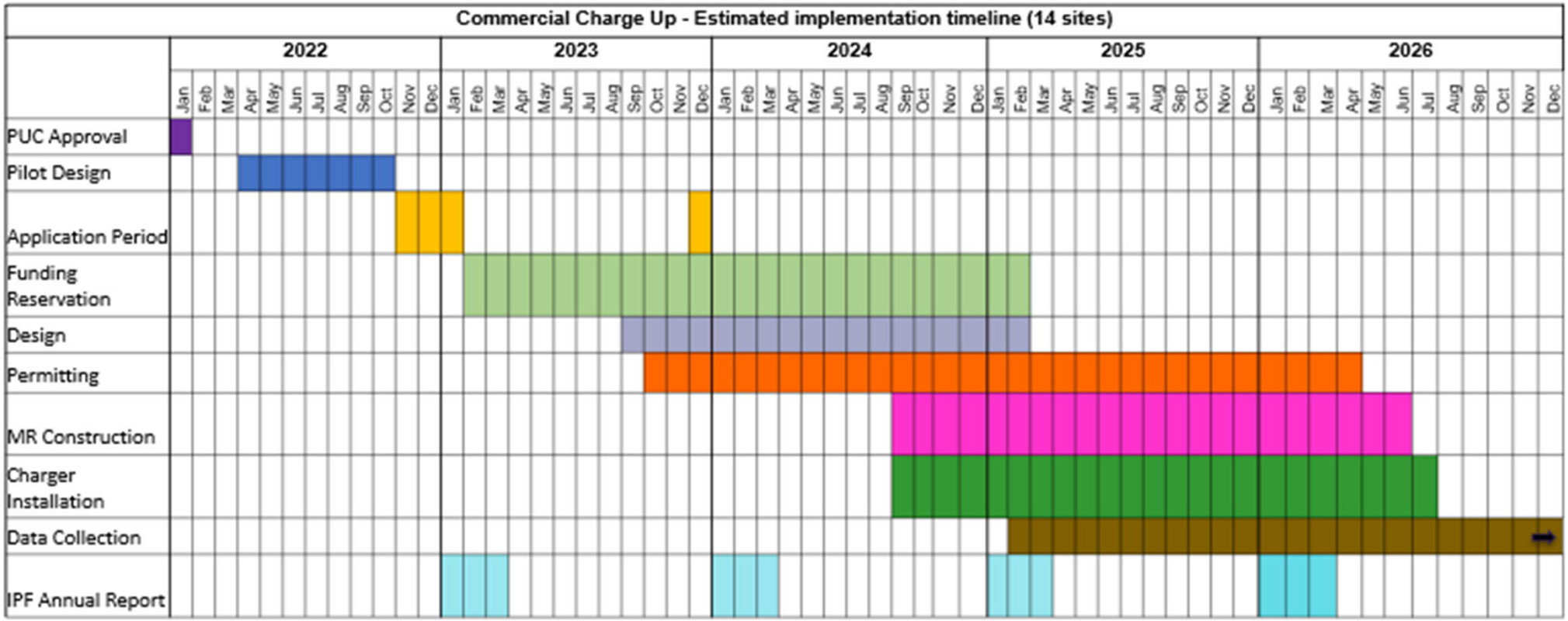
Risks:

- Complex/lengthy permitting processes (each island is unique) could impact installation timeline
- Complex/lengthy landowner approval requirements and processes
- Long material lead times

Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

Implementation Timeline



Factors contributing to the need for Implementation Schedule adjustments:

- Long permit timelines
- Reopened application portal for 12/23
- Long lead time of materials
- Executing Participation Agreements was longer than expected

Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

Milestone	Target Date	Status
Final Program Design Report	9/24/22	Complete
Pilot launch	10/25/22	Complete
PUC Response	11/25/22	Complete
Contract Management and Design Consultant RFPs Awarded	12/5/22	Complete
Site Evaluations	10/1/24	Complete
Participation Agreements Executed	3/1/25	Complete
Final Design	3/1/25	Complete
Make-Ready Construction Complete	6/1/26	9%
Charger Installation Complete	7/1/26	6%
Data Collection	12/31/26	6%
Final Report	3/31/27	
Overall		**68%**

Updated Forecast (on track) U2511

$000s	2022	2023	2024	2025	2026	TOTAL
TOTAL	**159**	**878**	**692**	**1,032**	**1,128**	**3,889**

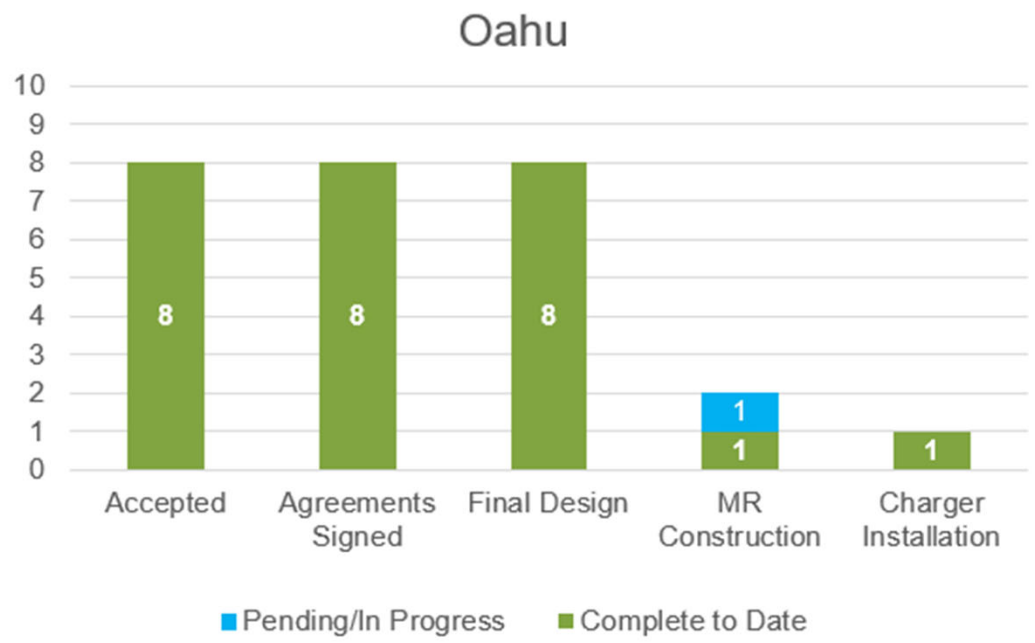
Observations & Lessons Learned

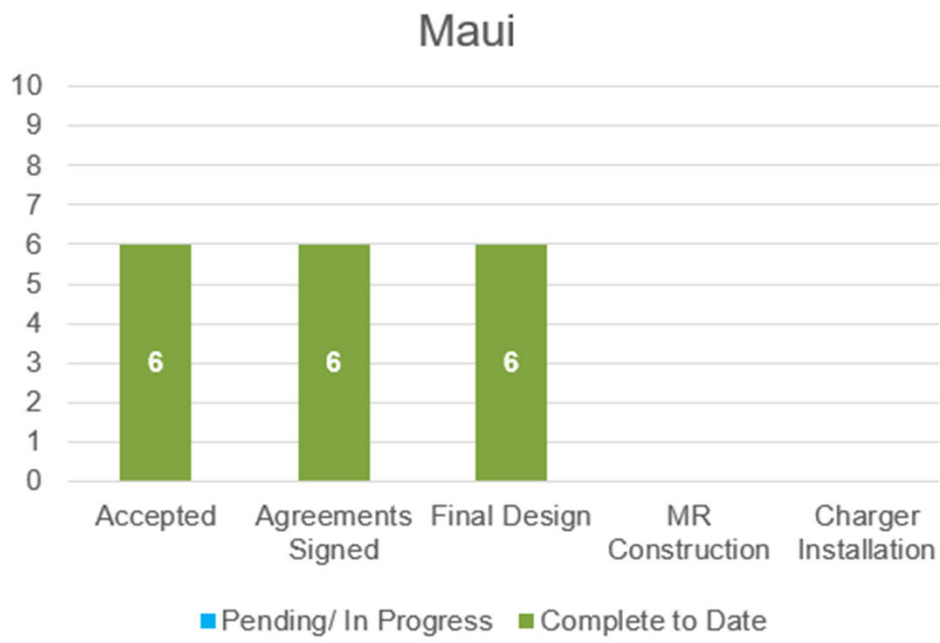
- eBus pilot informed Commercial Make Ready implementation
  - Cost cap
  - Reduce data requirement
- 14 total sites with 4-6 ports each
- Separately metered service can add complexity
- Duration from Pilot acceptance to executed agreement was longer than anticipated
- Use a License Agreement rather than Grant of Easement for consistency
- Customer withdrawals due to
  - 10-year commitment period and uncertainty in customer plans for the site
  - Incremental costs above the cap
- Permit approval is longer than expected
- Installations near shoreline can increase complexity

Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

14 Agreements





Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

Updates

- 8 months of data received from first constructed site
- Construction underway at 1 site
- 6 sites targeting construction in Q1 2026

Next steps:

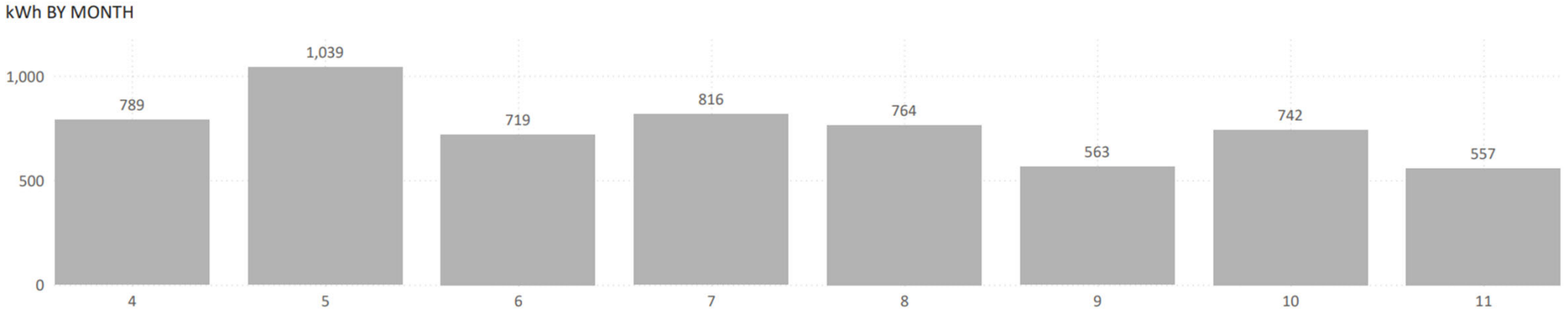
- Onboard contractors
- Schedule and complete construction

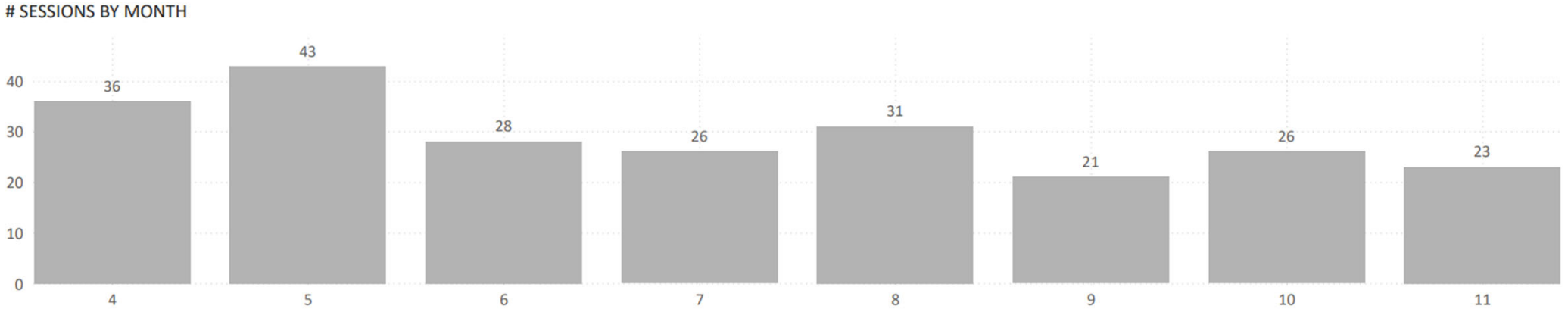
Applications	#
Applications Received	80
Applications Complete	69
Oahu	39
Hawaii Island	10
Maui	20
Site Evaluations/Visits Completed	67
Applications Accepted	27
Applications Denied	36
Applications Withdrawn	19
Applications Pending	0
Participation Agreements Executed	14

Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

4/25 - 11/25 Data (1 Site – 6 chargers)

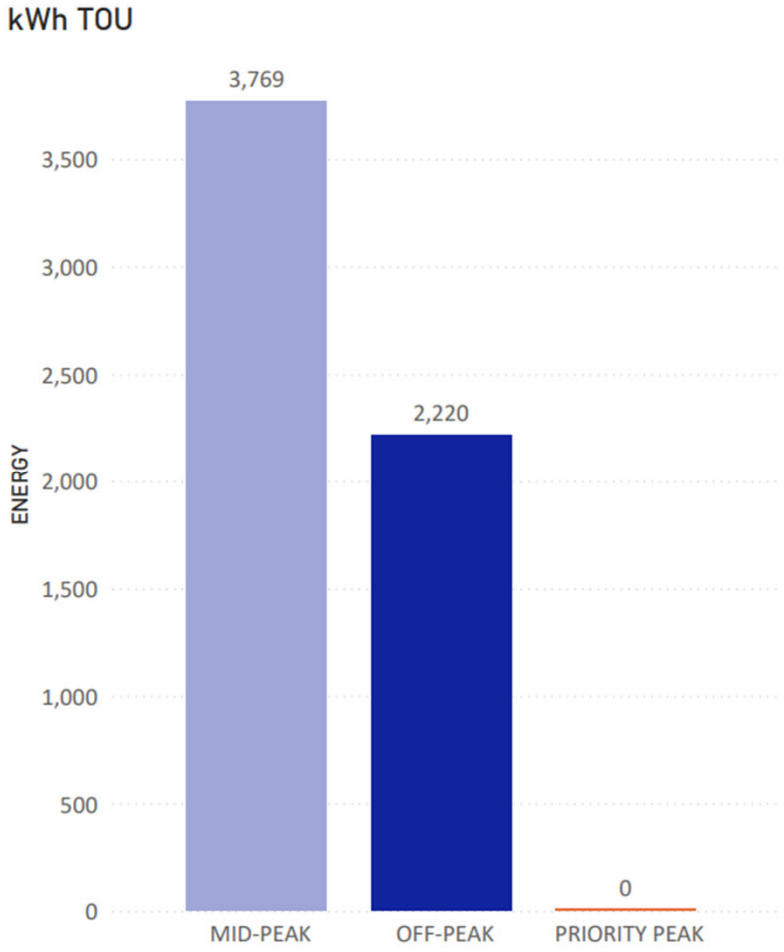


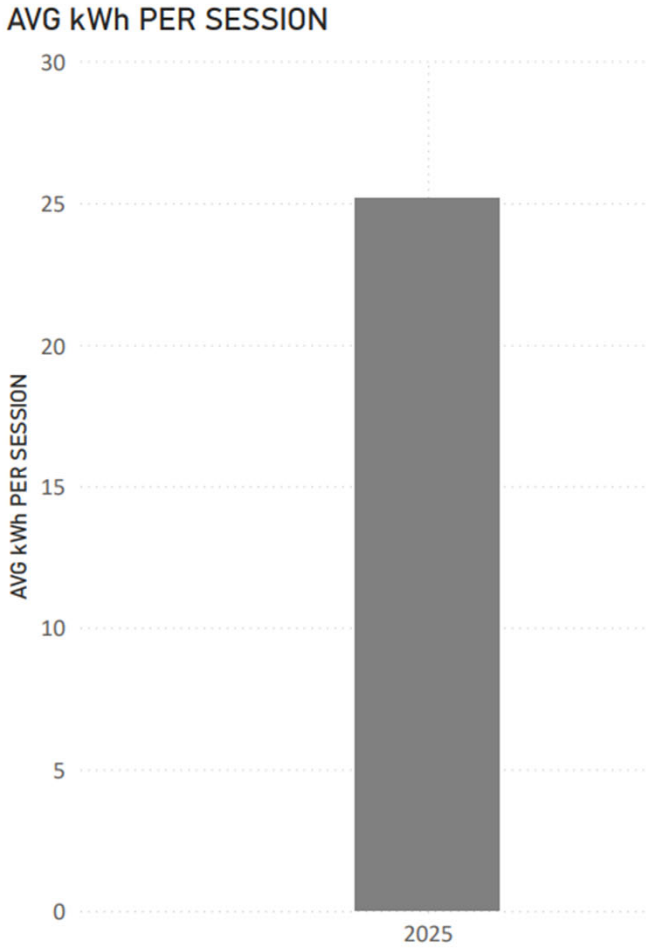


Charge Up Commercial

Division	EoT
Project Manager	Kevin Hachey

4/25 - 11/25 Data (1 Site – 6 chargers)





EV-J and EV-P Tariff Pilot

Division	EoT
Project Manager	Ethan Landy

Description & Scope:

The five-year pilot program (2022-2027) features a time-of-use (TOU) rate structure that incentivizes mid-day charging when there is abundant solar energy flowing into the grid. Schedule EV-J and Schedule EV-P are approved on a pilot basis, available to a max. 1,000 and 500 customers, respectively. Facilities including businesses, workplaces, and multi-unit dwellings may maintain their current commercial rate (such as Schedule J or Schedule P) or choose a new, separately metered EV rate (Schedule EV-J or EV-P) to benefit from TOU pricing a reduced demand charges. The biggest cost savings under EV-J and EV-P are expected to result from the reduced demand charges, which vary with intensity of use and can often be the largest part of a commercial customer's bill.

Objectives:

- Measure demand and impact of this type of rate structure on a pilot basis
- Rates are designed to encourage EV charger installation by commercial customers while nudging behavior to charging during mid-day
- Use collected data to inform future filings and/or full-scale deployment

Major Deliverables:

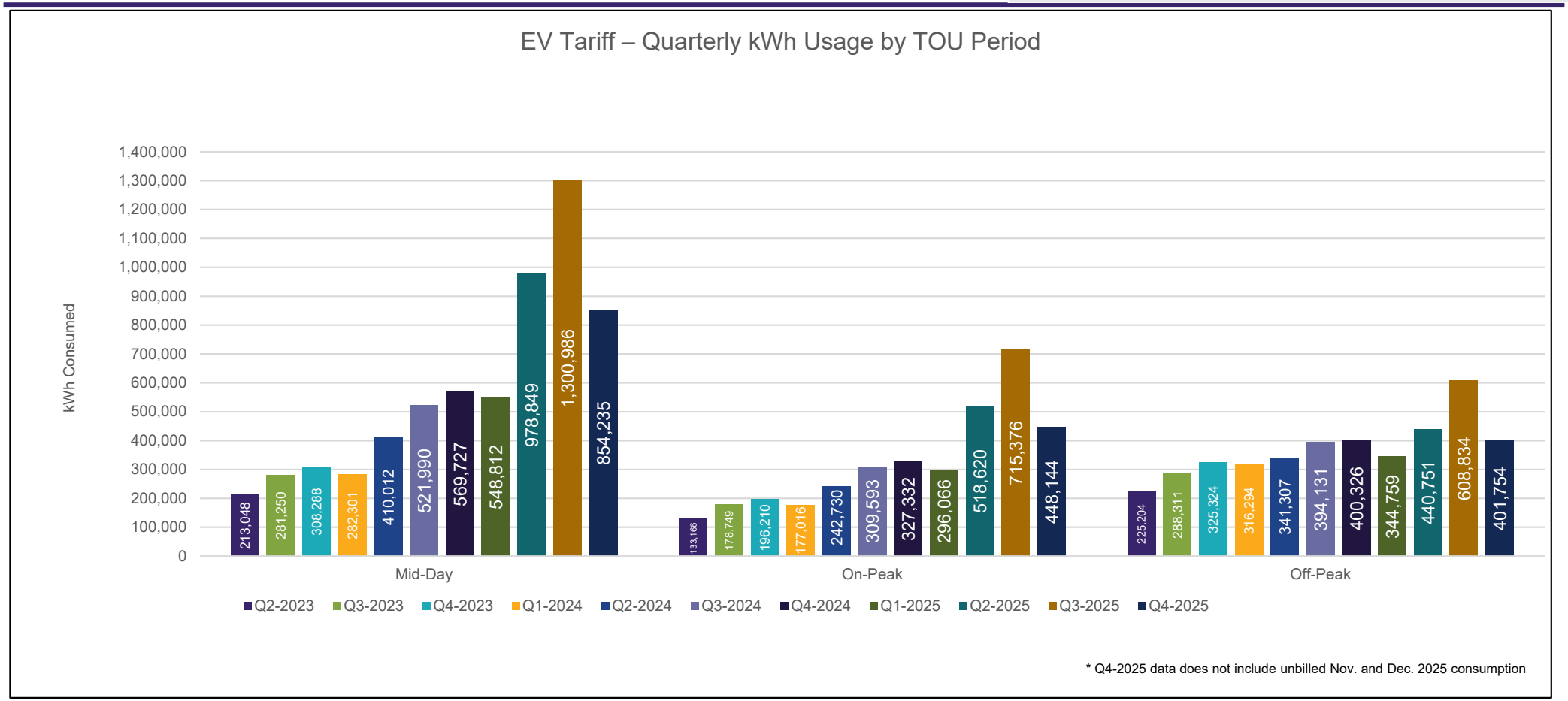
- Annual reports

Pilot Status Updates:

- Filed request on 10/28/2025 to remove closed permit and charger ID number enrollment criteria.
- Filed responses to IRs 01-03 on 11/17/2025
- Evaluating potential approaches to a successor rate in advance of Pilot end in March 2027

EV-J and EV-P Tariff Pilot

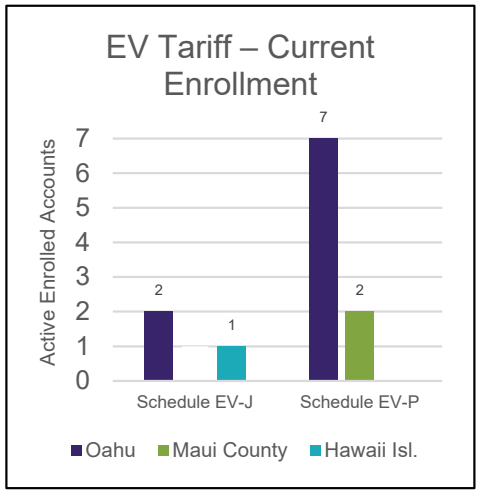
Division	EoT
Project Manager	Ethan Landy

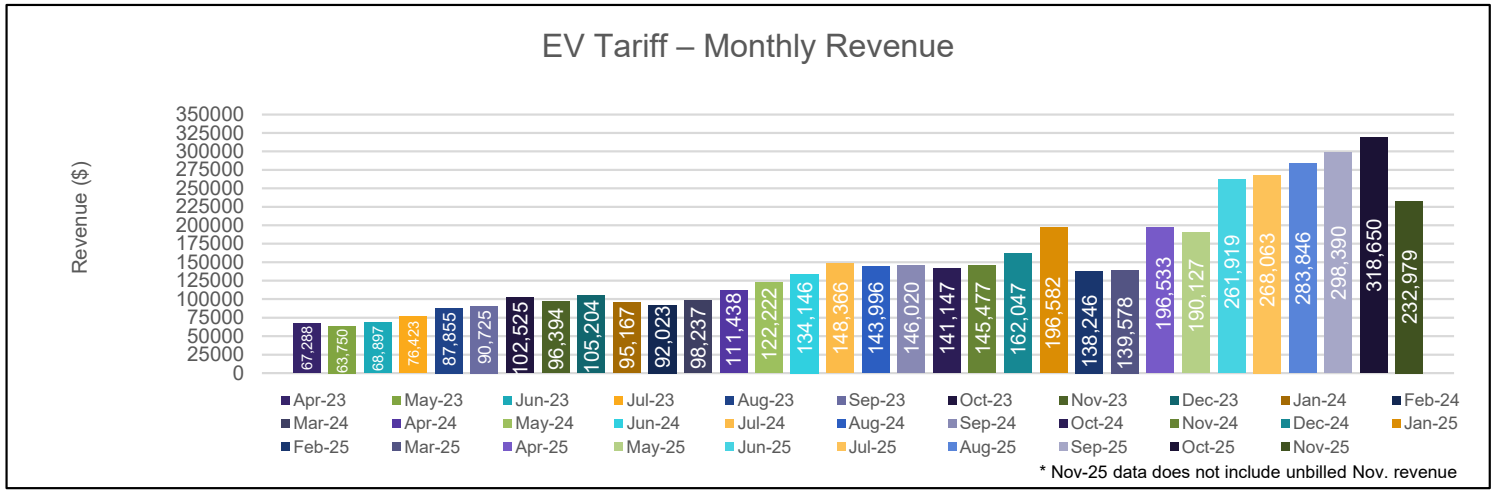


* Q4-2025 data does not include unbilled Nov. and Dec. 2025 consumption

EV-J and EV-P Tariff Pilot

Division	EoT
Project Manager	Ethan Landy





Key Risks & Takeaways:

- Sustained interest from eligible customers.
- Enrollment is limited by rate of EV charging infrastructure development. No direct financial impact, but dataset to inform future decisions may not be as robust as desired.
- On-Peak & Off-Peak rates are the same, which does not dissuade On-Peak consumption
- Despite customer interest, primary barriers to enrollment include
  a) requirement for building permit closure
  b) infrastructure cost for a separately-metered service
  c) longevity of the rate
  d) BESS/PV disqualification

Enrollment updates:

- Current enrollment:
  - Oahu:
    - EV-J: 2 accounts
    - EV-P: 8 accounts
  - Maui County:
    - EV-P: 2 accounts (1 new)
  - Hawaii Island:
    - EV-J: 1 account
- One more account forthcoming (pending building permit closure.)

Wildfire EFT Reliability Mitigation

Division	Asset Planning & Strategy
Project Manager	Riley Ceria / Kandice Kubojiri

Description & Scope

This pilot aims to mitigate the reliability impacts of wildfire safety measures such as Enhanced Fast Trip (EFT) by deploying the SEL Fault and Transmitter System on four pilot circuits across three service territories in wildfire risk areas or in overhead areas where there is a low wildfire risk border. These circuits will be monitored to evaluate the effectiveness of the system and any improved reliability results stemming from the system's ability to prevent fast trip when possible.

Objectives

- Improve reliability: Mitigate adverse impacts of EFT which currently trips entire feeders during faults
- Deploy and test technology
- Monitor effectiveness: collect data on overall performance of these circuits
- Inform future deployment: use pilot results to inform future deployment

Major Deliverables

- Installation and integration with SCADA
- Monitor results
- Go/No-Go decision to operationalize pilot

Risks

- Radio interference
- Unforeseen work/costs for the project
- Insufficient number of faults to accurately assess

Pilot Status Updates:

- PUC IRs received 9/16/25. Company filed responses to IRs on 9/23/25.
- Received Decision and Order from PUC on 10/6/25. Company filed response accepting conditions on 10/21/25.
- Engineering in progress for the 4 pilot circuits.
- Procurement in progress. Expected delivery of remaining materials early January.

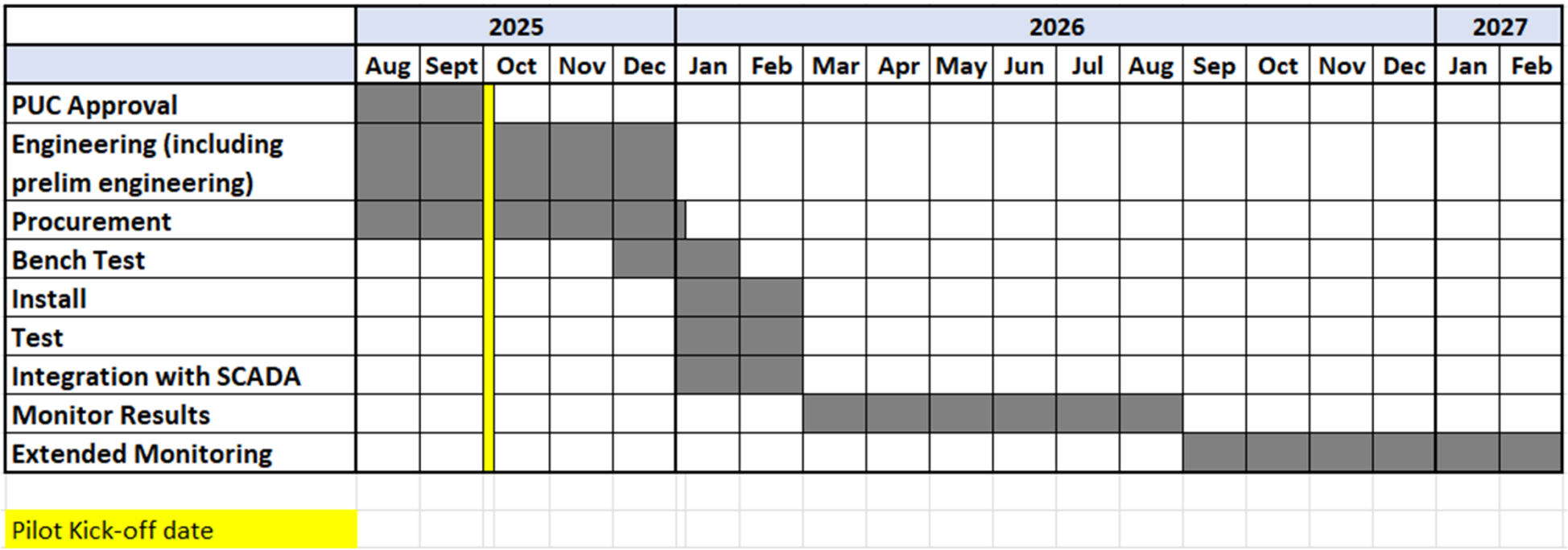
Updated Forecast (on track) U2511

$000s	2025	2026	TOTAL
TOTAL	**123**	**157**	**281**

Wildfire EFT Reliability Mitigation

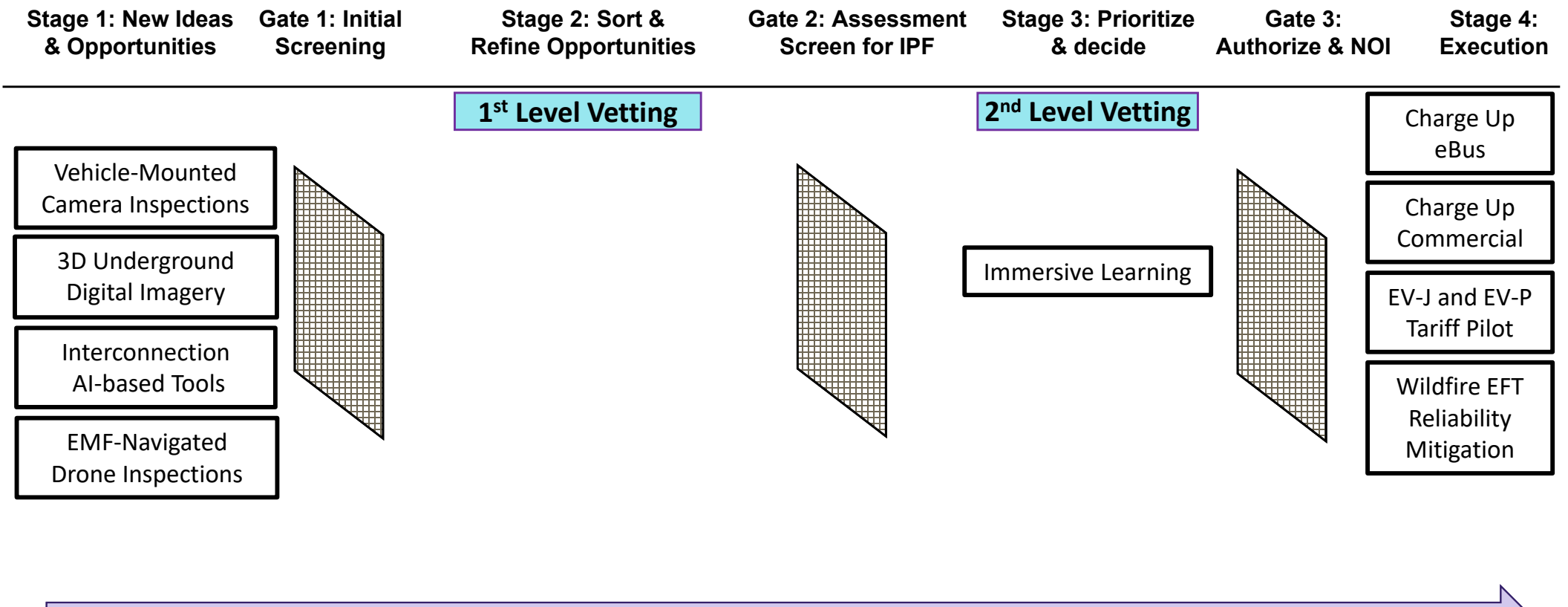
Division	Asset Planning & Strategy
Project Manager	Riley Ceria / Kandice Kubojiri

Implementation Timeline



Pilot Pipeline

Innovation Pilot Framework (IPF) pipeline status board



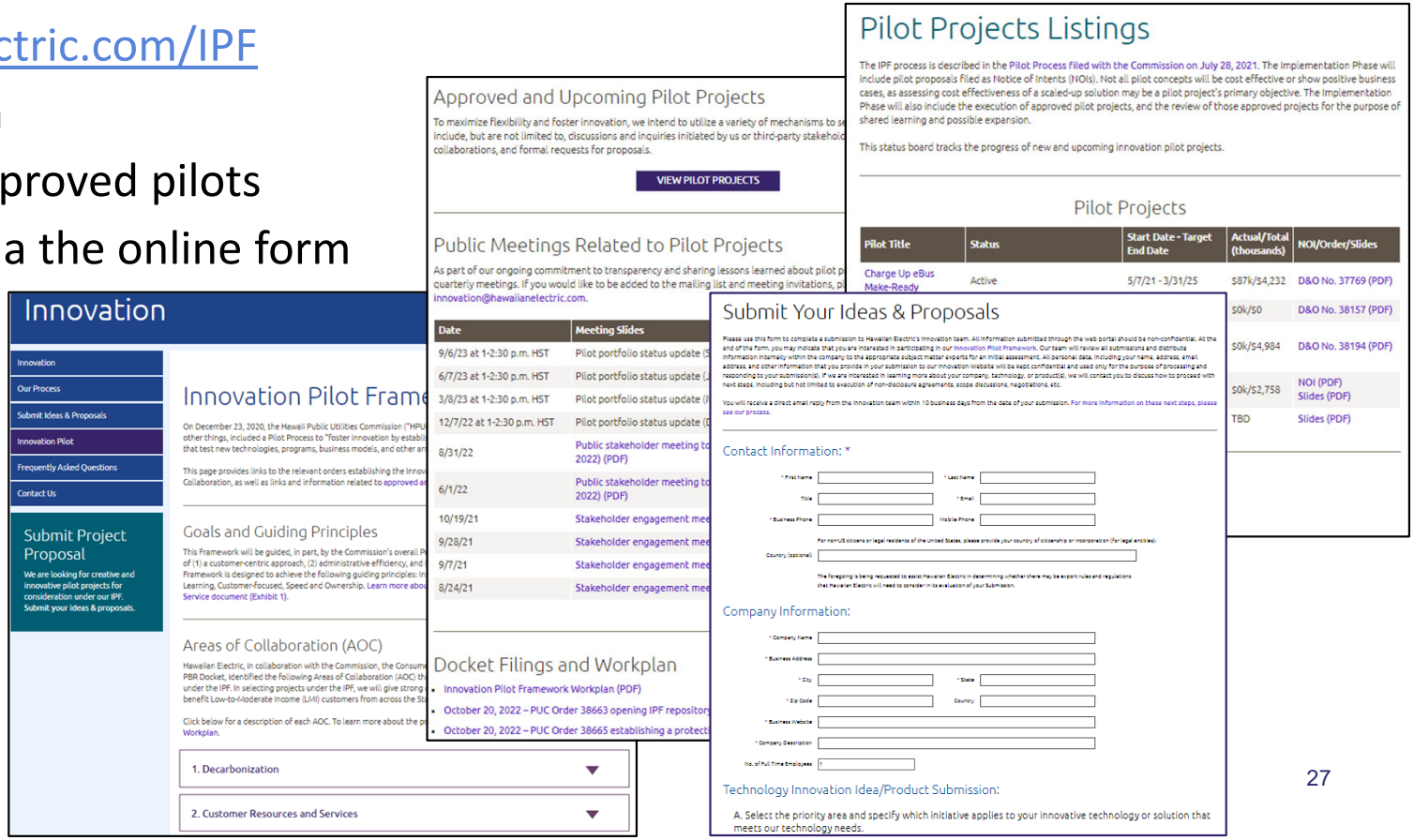
What's next?

- Next quarterly IPF stakeholder meeting: March 18, 2026 (1:00-2:30pm)
- Save the dates:
  - June 17, 2026 (1:00-2:30pm)
  - September 16, 2026 (1:00-2:30pm)
  - December 9, 2026 (1:00-2:30pm)

Innovation Pilot Framework Website

Website: hawaiianelectric.com/IPF

- General information
- Track progress of approved pilots
- Submit pilot ideas via the online form



THANK YOU