August 1, 2025

The Honorable Chair and Members
of the Hawai‘i Public Utilities Commission
Kekuanao‘a Building, First Floor
465 South King Street
Honolulu, Hawai‘i 96813

Dear Commissioners:

Subject: Docket No. 2018-0165
Instituting a Proceeding to Investigate Integrated Grid Planning
Draft Integrated Grid Planning Second Cycle Workplan

In accordance with Order No. 41022, issued on September 6, 2024, in the subject proceeding, Hawaiian Electric[1] hereby provides its Draft Integrated Grid Planning ("IGP") Second Cycle Workplan ("Workplan").

Hawaiian Electric respectfully requests that the Commission formally open a new docket for filing and review of the initial draft Workplan for docket parties and participants to comment and provide feedback. In parallel, Hawaiian Electric will seek feedback from the stakeholder working groups. Together, feedback from the working groups and docket participants will help to shape a final draft of the workplan that the Company currently intends to file by Q4 2025. The Workplan details several issues – some that the Company has proposed a course of action to address and others that will require further discussion. At minimum, Hawaiian Electric requests feedback on the scope of the second IGP cycle as to whether (1) a streamlined analysis of the renewable portfolio standards and greenhouse gas goals proposed by the Governor's Executive Order No. 25-01 and Commission's 2024 Inclinations can be conducted in an expedited fashion, or (2) a broader, more comprehensive analysis that addresses a wider range of planning issues and will require more time is appropriate and desired.

Sincerely,

/s/ Marc Asano

Marc Asano
Director, Integrated Grid Planning

Enclosures
c: Service List

[1] Hawaiian Electric Company, Inc., Hawai‘i Electric Light Company, Inc., and Maui Electric Company, Limited are collectively referred to as the "Hawaiian Electric" or "Company."

Draft Integrated Grid Planning Workplan

Second cycle: 2025–2029

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1 Executive Summary

Hawaiian Electric and our customers are rapidly transforming the ways Hawai'i generates, transmits and uses electricity. Together, we are creating a safe, reliable, and resilient clean energy grid that will produce net-zero carbon emissions and be powered by 100% renewable resources by 2045.

Integrated Grid Planning (IGP) represents a pathway to achieve this clean energy future. It outlines actionable steps to decarbonize the electric grid on the State of Hawai'i's timeline, with a flexible framework that can adapt to future technologies. The IGP process was designed to progress in three-to-five-year cycles to ensure that grid planning remains responsive to evolving conditions and technologies.

Hawaiian Electric is embarking on the second cycle of IGP. This cycle is expected to occur over three years, from 2025 through 2028, followed by review by the Public Utilities Commission (Commission) from 2028 through 2029. Reflecting upon the timeline for the first IGP cycle and Commission guidance on open issues to be addressed in the second IGP cycle, the development of a revised IGP plan in this second cycle could similarly take five years and extend the overall schedule including Commission review to seven years. However, if the Commission and stakeholders agree that the plan development phase of IGP should be expedited, then Hawaiian Electric will work collaboratively to reach agreement on a planning scope that addresses near-term and long-term energy needs that can be completed in less time.

As Hawaiian Electric embarks on its second cycle of IGP, the Company is incorporating lessons learned from its previous planning cycle to make this effort more efficient and collaborative. The IGP process includes five main phases:

- Data collection
- Plan definition
- Plan acceptance
- Growing a clean energy marketplace
- Plan refinement

Throughout the process, meaningful and sustained engagement with technical and community partners is crucial to align energy plans with island-wide needs. Hawaiian Electric is committed to using a variety of in-person and virtual strategies to share information and gather input. The first cycle of IGP demonstrated the value of working groups to engage technical experts and community

members and foster collaboration. Hawaiian Electric will carry forward this effective engagement method by creating and hosting a series of technical and community working groups that will meet throughout the second IGP cycle. Meeting materials—such as slide decks, agendas and notes—will be posted online to Hawaiian Electric's website for public transparency and access.

On the technical side, Hawaiian Electric is currently developing forecast assumptions for demand, fuel price, and resource cost using 2025 vintage datasets or latest available. These inputs allow for the development of different planning scenarios to better understand how resource, transmission and distribution needs will change over time and in response to changing assumptions.

Hawaiian Electric is also developing a set of engagement materials—including a website and handouts—to better explain the modeling process used to identify resource, transmission, and distribution grid needs. These modeling engagement materials will be rolled out in parallel with this workplan filing and are designed to provide more transparent information about how the models and their outputs are used to inform decisions.

This draft workplan considers policy guidance provided by Governor Josh Green's Executive Order No. 25-01 "Accelerating Hawai'i's Transition Toward 100 Percent Renewable Energy" and the Commission's "2024 Inclinations on the Future of Energy in Hawai'i" which define intermediate renewable portfolio standard (RPS) and greenhouse gas (GHG) reduction goals as well as changing federal policies on energy, tariffs, source materials for renewable projects, environmental permits, and Presidential Executive Orders. Hawaiian Electric appreciates the policy guidance provided by Governor Green and the Commission and understands the urgency needed to develop sound plans that can be executed to meet these goals in 2030 and 2035. We look forward to working collaboratively with the State, Commission, and stakeholders to define an appropriate scope for IGP that addresses long-term energy needs but can be completed quickly and efficiently to inform actions for the near-term RPS and GHG goals.

Together, the forecasts, planning scenarios, and technical and community working groups constitute Hawaiian Electric's workplan to be executed over the next several years. Implementing this workplan will keep Hawai'i moving forward toward a decarbonized energy future.

2 IGP Phases and Vision for the Second Cycle

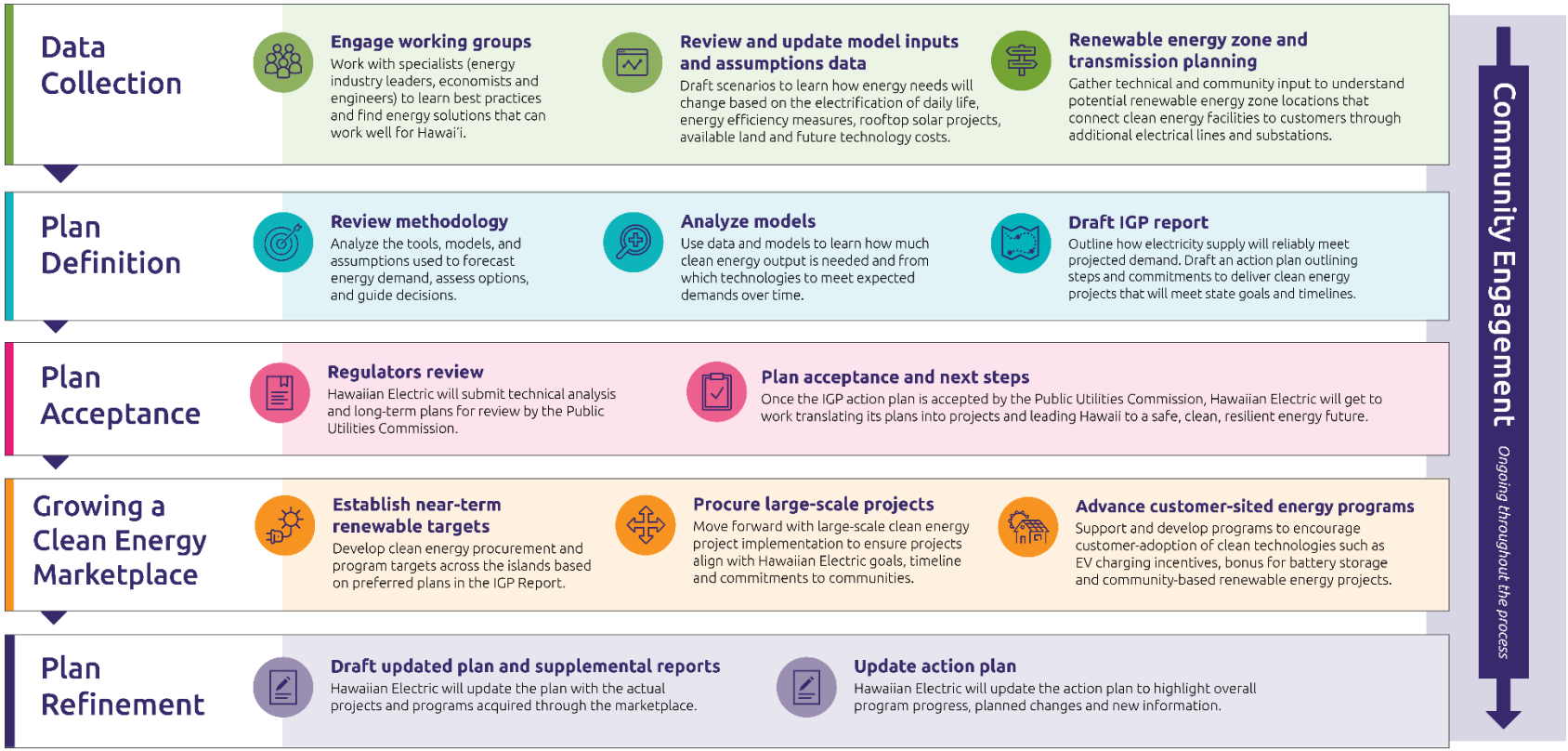
The IGP process helps Hawaiian Electric develop long-term plans for providing safe, reliable, and resilient clean energy across the islands. It outlines actionable steps to decarbonize the electric grid on the State's timeline, with a flexible framework that can adapt to future technologies. This work includes considering potential future locations for clean energy projects and grid infrastructure.

The IGP process was designed to progress in three-to-five-year cycles to ensure that grid planning remains responsive to evolving conditions and technologies. The first cycle of IGP took place from 2018 to 2023 and represented more than five years of dedicated, in-depth engagement from partners and community members across the islands. Hawaiian Electric is now embarking on the second cycle of IGP. This cycle will occur over three years, from 2025 through 2028, followed by review by the Commission from 2028 through 2029. Achieving this timeline will require a more concise scope of planning analyses; otherwise, the second cycle of IGP could have a similar schedule length as the first cycle. Given the policy guidance provided by Governor Green and the Commission, the development of new resources through programs and RFPs to meet RPS and GHG goals in 2030 and 2035 may take precedence over broad, comprehensive utility planning which may take longer to develop, and consequently, limit the time for plan execution to achieve the 2030 and 2035 goals. Hawaiian Electric will work with the Commission and stakeholders to develop an appropriate scope that can balance the need to identify near and long-term energy needs while also allowing enough time for plan execution.

The IGP process includes five main phases: data collection, plan definition, plan acceptance, growing a clean energy marketplace, and plan refinement. **Figure 2-1** illustrates the process flow across the five phases.

Hawaiian Electric's vision for this second cycle is to carry forward and build on the collaborative spirit of the first IGP cycle. Throughout the process, Hawaiian Electric will share information about progress on plan development and invite community members and stakeholders to get involved and share input. Hawaiian Electric will strive to engage stakeholders, technical experts, and community partners early and often to ensure all viewpoints are considered as we map out future resources to meet statewide policy goals.

Figure 2-1: Phases of the IGP process



3 System Planning and Sourcing Process Redesign

Hawaiian Electric will build on the success of its first IGP cycle by:

- Proposing further streamlining of the inputs and assumptions development
- Clarifying its grid needs assessment methodology
- Considering the comprehensive feedback provided by stakeholders and guidance provided by the Commission

In this workplan, Hawaiian Electric also offers responses to Commission directives noted in Order No. 40651 and Order No. 41022, as well as other considerations for the second cycle of IGP.

3.1 Schedule of Key Process Steps and Stakeholder Engagement

In Order No. 41022, the Commission provided an example timeline to illustrate its guidance on the cadence of future IGP cycles:

- August 2024 – July 2025: Prepare for second cycle and update inputs and assumptions
- August 2025 – July 2028: Formal, docketed process for second IGP cycle
- August 2028 – July 2029: Implementation efforts—for example, IGP second cycle requests for proposals (RFPs) and Commission evaluation of second cycle

Hawaiian Electric appreciates the Commission's guidance on the cadence of future IGP cycles to establish a five-year structure and allow time for ongoing procurements to take place before opening a new docket for the second IGP cycle.

3.2 Second Cycle Work Currently Underway

Since the issuance of Order No. 41022, Hawaiian Electric has been working to prepare the applications for the Stage 3 RFP projects and recently submitted a new draft IGP RFP that is currently under Commission review in Docket No. 2024-0258.

Hawaiian Electric is also currently developing forecast assumptions for demand, fuel price, and resource costs using the 2025 vintage datasets or latest available. Given the current uncertain planning environment, assumptions for demand, fuel price, and resource costs may change over the course of the planning cycle. Hawaiian Electric will engage the Stakeholder Technical Working Group for comments and feedback on initial inputs and assumptions by the end of the year, prior to finalizing the Base case forecast as significant revisions to critical third-party datasets from the University of Hawai'i Economic Research Organization, National Renewable Energy Laboratory, and National Oceanic and Atmospheric Administration are expected in Q3 and Q4 of 2025.

In addition, Hawaiian Electric has started to develop a set of comprehensive materials—including a website and handouts—to better explain the models used to identify resource, transmission, and distribution grid needs. The modeling comprehension materials are explained further below and will be rolled out in parallel with this workplan filing through the IGP working groups. An initial draft of those materials can be accessed at: https://hawaiipowered.com/energymodeling/

3.3 Reflections on Key Milestones from the First IGP Cycle

While we continue to work on procurements and planning, Hawaiian Electric reflects on the key milestones from the first IGP cycle and how a July 2028 target date for the next final report may be impacted:

- **Workplan progression:** The workplan for the first IGP cycle was initially filed in July 2018 and accepted in March 2019. Finalizing the workplan spanned eight months from initial filing to Commission acceptance. As the workplan progressed, periodic updates were provided through July 2021.
- **Working groups:** While the modeling teams prepared the assumptions and further refined the process to be used in the first IGP cycle, several parallel efforts were underway to develop specific parts of the IGP process. Those efforts included:
    - **Forecast assumptions working group:** This group began meeting in March 2019 to discuss the forecast assumptions for the sales and peak forecast and resource cost forecast. Draft forecasts were shared in the March 2020 meeting. The assumptions were formally documented in the first draft of the inputs and assumptions review point that was completed in September 2020. The working group continued to meet as they worked toward a second draft of the inputs and assumptions review point that incorporated stakeholder feedback, which was completed in March 2021.
    - **Solution evaluation and optimization working group:** This group first met in May 2019 to discuss the development of the grid needs assessment methodology and overall modeling process. Initial modeling results were shared through the working group as a demonstration of how certain process steps would work. The working group continued to meet to develop the first draft of the grid needs assessment methodology, which was completed in March 2021.
    - **Competitive procurement working group:** This group updated the competitive bidding framework (CBF) through working group meetings that began in March 2019 and ended with the filing of the revised CBF filed in February 2021. The parties and

Hawaiian Electric filed comments on the revised CBF in May 2021 and the Commission approved the revised framework in June 2022. Following the issuance of the Stage 3 RFP—and after a series of meetings between the Commission, Independent Engineer, and Hawaiian Electric from August 2023 to October 2023—the Commission provided additional feedback on the procurement process in their order accepting the 2023 IGP final report.

- **Distribution planning working group:** This group began in February 2019. The group discussed distribution needs identified in the Ho'opili and East Kapolei area that were determined to be potential candidates for a non-wires alternative (NWA) solution. An RFP was launched in November 2019 as a demonstration of whether an NWA could be successfully procured to meet these distribution needs, but it did not move forward due to insufficient response. The working group continued to meet to refine the methodologies for distribution planning and non-wires opportunity evaluation through June 2020. These same methodologies were incorporated into Hawaiian Electric's second review point that was filed in November 2021.
- **Standardized contract working group:** This group first met in December 2018 to discuss updates to the grid services purchase agreement that is used to contract for demand response and certain grid services. Stakeholders provided feedback on the contract revisions through March 2019, and the revised contract was incorporated into the Stage 2 RFP that was approved in August 2019.
- **Resilience working group:** This group met from July 2019 through December 2019. The group identified scenarios that would impact grid resilience, capabilities and needs of customers and sectors following an event, and developed recommendations to address resilience needs. The working group's findings were documented in a report that was finalized in June 2020.
- **Stakeholder technical working group:** This group formed in June 2021 to streamline the working group structure by combining the forecast assumption working group, distribution planning working group, and solution evaluation and optimization working group. Through this working group, Hawaiian Electric continued to refine the early drafts of the first review point on forecast assumptions developed in the forecast assumptions working group and the second review point on grid needs assessment methodology developed in the solution evaluation and optimization working group. After those review points were completed, this working group continued to meet through November 2023 to discuss the modeling results that were published in the draft IGP report and review updates on the resource adequacy workplan.

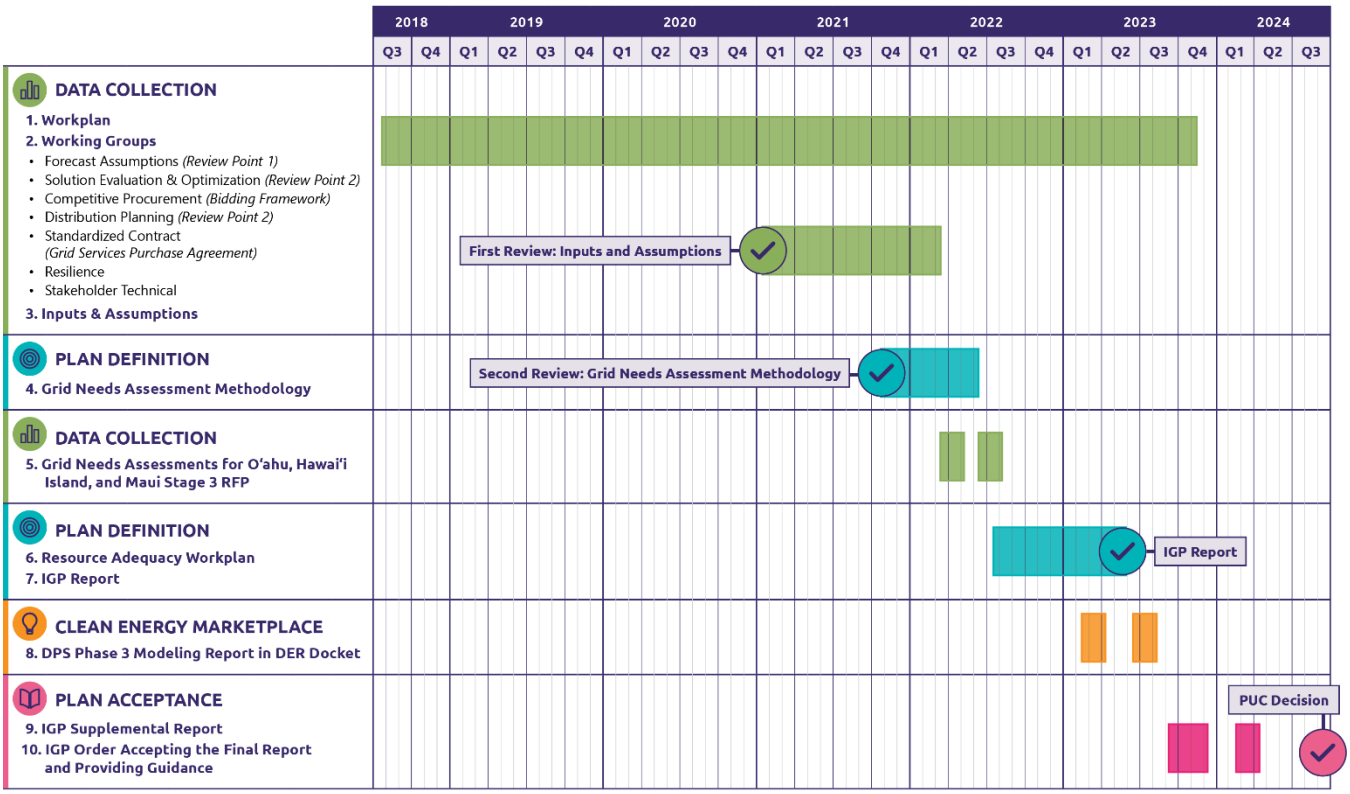
- **First review point (inputs and assumptions):** Hawaiian Electric filed its first review point to seek approval of its inputs and assumptions in January 2021. The proposed assumptions were modified as a result of extensive stakeholder discussion through working group meetings and in the docket. The Commission approved the inputs and assumptions in March 2022. Finalizing the inputs and assumptions spanned 14 months from initial filing to Commission approval, not including prior work done by the forecast assumptions working group.

- **Second review point (grid needs assessment methodology):** Hawaiian Electric filed its second review point to seek approval of its grids needs assessment (GNA) modeling methodology in November 2021, along with the renewable energy zones (REZ) study that analyzed transmission requirements for initial REZ. Like the first review point, the proposed methodology was also discussed through the working groups and in the proceeding. The Commission approved the modeling methodology in June 2022. Finalizing the modeling methodology spanned seven months from initial filing to Commission approval, not including prior work done by the solution evaluation and optimization working group.
- **GNA for Oʻahu, Hawaiʻi Island and Maui Stage 3 RFPs:** In parallel to finalizing the modeling methodology for the second review point, Hawaiian Electric used the methodology as it was defined at the time to prepare GNAs for Oʻahu, Hawaiʻi Island and Maui. These assessments provided the supporting modeling analyses for the Stage 3 RFP targets for those three islands. Hawaiian Electric filed the assessment for Hawaiʻi Island in April 2022 and Oʻahu and Maui in July 2022. Conducting an interim GNA to support the Stage 3 RFP diverted time and resources away from the overall IGP process. Instead of requiring interim GNAs, RFPs that occur in the middle of the IGP process could use the most recent IGP action plan annual update to guide RFP target setting with adjustments for updated planned project timing until a new IGP plan is approved or accepted.
- **Resource adequacy workplan:** Along with approving Hawaiian Electric's modeling methodology, Order No. 38482, issued in June 2022, introduced a new directive for Hawaiian Electric to begin the process of developing an effective load carrying capability (ELCC)-based resource adequacy criteria for use in future rounds of IGP, due in August 2022. In July 2022, Hawaiian Electric filed a motion for reconsideration of this order, given the progress Hawaiian Electric made in revising and adjusting its energy reserve margin (ERM) and hourly dependable capacity (HDC) criteria per the Technical Advisory Panel's (TAP) guidance. In Order No. 38606, issued in September 2022, the Commission denied Hawaiian Electric's motion to scope the resource adequacy workplan to evaluate ELCC and clarified that the workplan should address whether ELCC or other alternatives are appropriate for the next IGP cycle. Following the Commission's order, Hawaiian Electric filed their resource adequacy workplan to evaluate three different capacity planning criteria. In Order No. 38606, the Commission provided feedback on the workplan, stating that Hawaiian Electric's proposed comparison of the three criteria meets the Commission-directed framework for the workplan and that Hawaiian Electric should begin the work to evaluate the criteria before completing the IGP analyses. In April 2024, Hawaiian Electric filed E3's resource adequacy planning methods report based on the workplan.
- **IGP report:** Once the modeling methodology was approved, Hawaiian Electric commenced the planning phase of the process. Initial modeling results were shared with the working groups and technical advisory panel in December 2022, and a draft IGP Report was filed in March 2023 to encourage additional feedback from the public. Hawaiian Electric filed a final IGP report in May 2023 that addressed approximately 300 comments and clarifications received on the draft report. Following the approval of the first and second review point, developing the final modeling results and drafting the final report spanned 13 months.

- **DPS Phase 3 modeling report (Distributed Energy Resources):** Using the assumptions and methods developed and approved for use in the first IGP cycle, Hawaiian Electric developed a set of modeling analyses to inform the appropriate incentives and compensation rates for the next phase of distributed energy resource (DER) programs, which was filed in Docket No. 2019-0323. Draft results were filed in March 2023. Final results were filed in July 2023 after addressing comments on additional cases, assumptions and avoided cost factors from the Commission and docket parties.
- **IGP supplemental report:** Following the filing of the final report, the Commission issued Order No. 40311 in October 2023, which requested that Hawaiian Electric clarify its preferred plans for generation and capacity. Hawaiian Electric subsequently filed its supplemental IGP report in November 2023, and the Commission accepted the 2023 IGP final report in Order No. 40651, issued in March 2024. The Commission's evaluation of the first IGP cycle from the final report filing to acceptance spanned 10 months.
- **Commission Guidance for IGP second cycle:** After accepting the final report, the Commission issued Order No. 41022 in September 2024 providing guidance for the second IGP cycle.

Figure 3-1 provides a visual summary of the steps in the first IGP cycle and how much time was spent developing inputs and methods, analyzing models, using the IGP assumptions and methods to support analytical work in other proceedings, and setting targets for future procurements.

Figure 3-1: IGP First Cycle Timeline



Based on Hawaiian Electric's review of the first IGP cycle, roughly three and one-half years were needed to develop materials for the first and second review points (inputs and assumptions, followed by GNA methodology and allow for stakeholder review and Commission approval). In addition, requests for planning analyses in other proceedings (RFP, DER) using the IGP assumptions and methodologies, as well as reconsideration of key inputs like the planning criteria through the resource adequacy workplan, added several months to the IGP schedule that were not originally envisioned in the IGP workplan that was first approved.

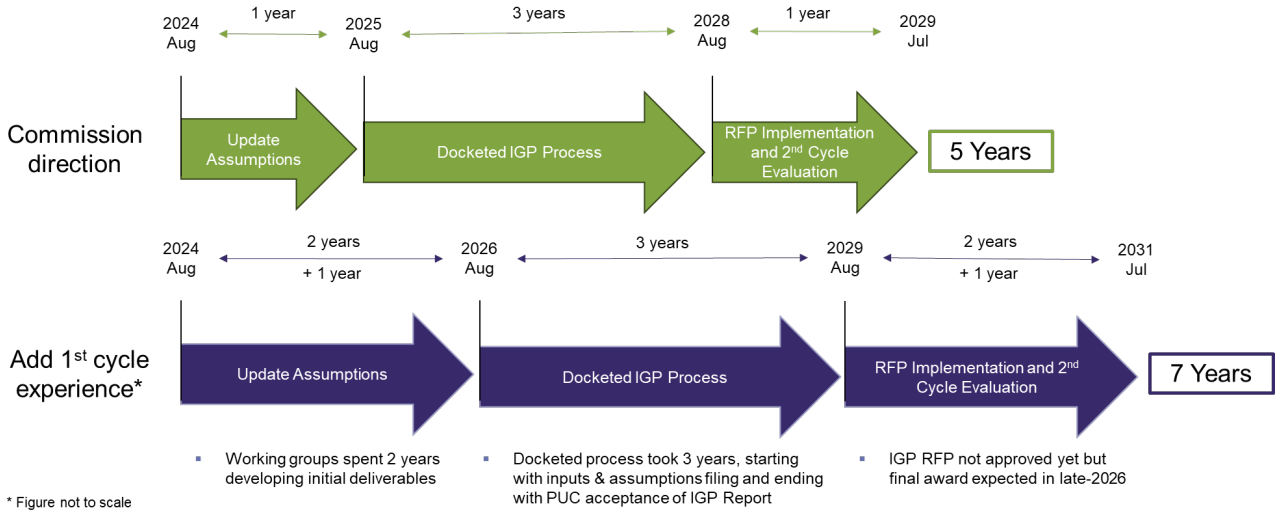
IGP implementation is still underway. Based on the updated draft IGP RFP, the proposed schedule suggests the RFP would be issued on July 25, 2025 and the final award group selected the following year on August 28, 2026.[1] As a result, the end-to-end process for the first IGP cycle, starting with the filing of the IGP workplan in July 2018 and ending with the selection of the IGP RFP final award group in August 2026, will span 8 years.

While Hawaiian Electric shares the Commission's optimism that the lessons learned from the first IGP cycle can help to expedite the second cycle, the schedule should maintain flexibility to be able to accommodate emergent planning issues and coordinate with other proceedings. Starting with the Commission's direction for the second IGP cycle and increasing the time allotted to process steps for updating assumptions and RFP implementation by a year based on experience from the first IGP

[1] *See* Hawaiian Electric Companies' Submission of the Updated Draft Integrated Grid Planning Request for Proposals for O'ahu and Hawai'i Island, filed on June 27, 2025, in Docket No. 2024-0258.

cycle, the overall schedule for the second IGP cycle may increase from five years to seven years as shown below in **Figure 3-2**.

Figure 3-2: High-level adjusted IGP schedule



4 Scenario Design and Planning Assumptions

The demand, fuel price, and resource cost forecasts are inputs that Hawaiian Electric uses to develop different planning scenarios. These scenarios help to better understand how resource, transmission, and distribution needs will change over time, over a range of possible futures, and in response to changing assumptions.

4.1 Forecast Assumptions (Demand, Fuel Price and Resource Cost)

Hawaiian Electric will forecast electricity demand by layer (underlying load forecast and adjusting layers: energy efficiency, DER, and electrification of transportation) using the same approach as the last IGP cycle. Additionally, we will evaluate integrating customer advanced metering infrastructure (AMI) data into the demand forecasts. Continuing to forecast by layers will enable Hawaiian Electric to evaluate low load and high load bookends and determine whether the jaws of the forecast cause significantly different resource needs. In response to feedback in Order No. 41022, the low load and high load bookends will be further evaluated through the full modeling process to determine the suite of grid needs, including additional transmission and distribution needs that may be required under the high-load bookend or avoided under the low-load bookend, relative to the base forecast.

Consistent with earlier Commission guidance provided in Order No. 37730, issued in April 2021, Hawaiian Electric will continue to use publicly available information for its fuel price and resource cost forecasts and avoid the use of proprietary information in IGP. Therefore, Hawaiian Electric will base its resource costs on the National Renewable Energy Laboratory annual technology baseline (NREL ATB) and its fuel prices on the Energy Information Administration annual energy outlook (EIA AEO). Hawaiian Electric may compare resource costs produced by the NREL ATB against the results of recent procurements for similar resource types. If the difference in resource cost is significant and the working group is amenable to changes to the publicly available cost data, Hawaiian Electric may propose an adjustment to the resource cost forecast to reflect its observed cost of procured resources. This in turn would benefit downstream uses of the IGP modeling assumptions and methodologies.

As an example, the DER proceeding contemplated using long run marginal costs to determine appropriate incentives for the next phase of DER programs where the incentive value was determined by the cost of resources that were avoided through DER adoption. Resource cost

forecasts that reflect the cost of recently procured resources would ensure that that same value is afforded to the DER valuation.

4.2 Treatment of Energy Efficiency in Forecast and as a Resource Option

Energy efficiency (EE) is a component of the demand forecast. It will be evaluated as part of the demand forecast through the load demand bookends and in the energy efficiency resource scenario where incremental energy efficiency measures based on technical potential can be considered. Specific energy efficiency measures to evaluate in the planning models will need to be developed with care as increasing the available resource options increases the model run time. A limited number of new energy efficiency measures can be added to the model and evaluated on a level playing field alongside more conventional resource options like photovoltaic/solar, wind, battery energy storage system and firm thermal generation.

As discussed in the 2023 IGP final report, if O'ahu is land-constrained, thereby making future land-based renewable development difficult, customer-sited resources including energy efficiency will play a key role in meeting future demand growth.

Hawaiian Electric will need guidance from Hawai'i Energy and 2050 Partners as they refresh their technical potential study, so that a limited but meaningful number of energy efficiency resource options can be defined to help further Hawai'i Energy's programs. Hawaiian Electric proposes that either the IGP working groups or the Energy Efficiency Portfolio Standards Technical Working Group (EEPS TWG) and Public Benefits Fee Technical Advisory Group (PBF TAG) managed by 2050 Partners be the appropriate venues to discuss the specific set of energy efficiency measure assumptions that should be developed for modeling in the second cycle of IGP.

4.3 Treatment of Emerging Technologies in Planning and Procurement

In its planning and procurements, Hawaiian Electric has relied upon commercially ready technologies to define its resource plans and subsequent RFPs. This is especially important for planning purposes because it ensures that resources can be fully defined in the planning models in terms of costs, operating characteristics and technical potential. Emerging technologies that could meet future demand growth or renewable portfolio standards (RPS) goals may not be directly considered by Hawaiian Electric in its planning. The specific resources identified in the resource plans, however, are not intended to be prescriptive and those resources are proxies for the grid services they provide. Ultimately, Hawaiian Electric would procure for those same services in its RFPs, and the resulting resource mix could be different than the resource plans, depending on the response from project developers.

In the second cycle of IGP, Hawaiian Electric plans to evaluate a high resource cost scenario to account for emerging technologies. For example, a high resource cost applied to solar or wind could serve as a stand in for a future non-emitting emerging technology that can meet the State's net-zero

emissions goals in 2045. A high resource cost scenario can also address uncertainty in state or federal policy (e.g., tariffs, changes in investment tax credits) that affects the availability or pricing of new renewable resources. Incorporating this new scenario into IGP should improve the flexibility of the process to reflect new information and developments by applying the same bookend concept for demand to resource cost.

Emerging technologies can also be considered on the demand side of planning. The "Hawai'i Pathways to Decarbonization" study developed by the Hawai'i State Energy Office[2] provide useful data points for scenarios where future electricity demand needed to achieve the State's decarbonization goals is forecasted. Demand scenarios that are higher than past IGP forecasts and require resources that potentially exhaust land-based generation options, particularly on a land-constrained O'ahu, will be an important consideration when developing the preferred plans.

Hawaiian Electric proposes that the suite of emerging technologies to consider in the second IGP cycle—on both the supply and demand side—be discussed and finalized through the working groups. This approach will help set clear expectations on how these resources should be treated.

[2] *Available at:* https://energy.hawaii.gov/wp-content/uploads/2022/10/Act-238_HSEO_Decarbonization_FinalReport_2023.pdf

5 Modeling Objectives and Planning Scenarios

Today's planning environment is informed by several policies and guidance provided by the State Legislature, Commission, and state and federal governments.

5.1 Renewable Portfolio Standard and Greenhouse Gas Goals

Table 5-1 summarizes the RPS and GHG emissions goals that Hawaiian Electric plans to incorporate into the second cycle of IGP. Policy guidance provided by Governor Josh Green's Executive Order No. 25-01 "Accelerating Hawai'i's Transition Toward 100 Percent Renewable Energy"[3] and the Commission's "2024 Inclinations on the Future of Energy in Hawai'i"[4] provide intermediate RPS and GHG goals that address Commission guidance for incremental GHG targets in addition to established statutory requirements. **Table 5-1** also includes guidance provided by executive orders issued at the federal level that may restrict the availability of onshore and offshore wind.

[3] *Available at:* https://governor.hawaii.gov/wp-content/uploads/2025/01/2501085_Executive-Order-No.-25-01.pdf

[4] *Available at:* https://puc.hawaii.gov/wp-content/uploads/2025/01/Hawaii-PUC-Energy-Inclinations-White-Paper-FINAL.12.31.24_signed.pdf

Table 5-1: Summary of RPS and GHG goals

Zone	2030	2035	2040	2045
Statewide	40% RPS		70% RPS	100% RPS
	50% GHG reduction[5]			Net-zero emissions
O'ahu	60% RPS	70% GHG reduction		
	50% GHG reduction			
	No Onshore and Offshore Wind	No Onshore and Offshore Wind	No Onshore and Offshore Wind	No Onshore and Offshore Wind
Hawai'i Island	60% RPS	100% RPS		
	50% GHG reduction			
Maui County	60% RPS (each island)	100% RPS		
	50% GHG reduction (each island)			
Governor's EO	**President's EO**	**Commission Inclinations**	**GHG Law**	**RPS Law**

5.2 State Law

Several state laws establish near- and long-term requirements for renewable generation and GHG emissions reductions. Hawai'i Revised Statutes (HRS) § 269-92 defines the RPS that Hawaiian Electric must meet for renewable generation as a percentage of net electricity generation of 40% by 2030, 70% by 2040 and 100% by 2045. HRS § 225P-5 establishes a zero emissions clean economy target to sequester more GHG than emitted by 2045 and reduce statewide greenhouse gas emissions by 50% by 2030 compared to 2005 levels.

5.3 Commission Inclinations, Governor's Executive Order and Federal Executive Order on Offshore Wind

Recent guidance from the Commission's "2024 Inclinations on the Future of Energy in Hawai'i" provides additional goals in the near-term for Hawaiian Electric to meet. Each island would need to achieve a 60% RPS by 2030. In meeting this RPS goal, DER should represent 5% or approximately 400 MW of new renewables by 2030. The planning for large renewable project siting and

[5] While statewide emissions targets in HRS § 225P-5 include all industries, they are assumed to be Hawaiian Electric targets for modeling purposes.

interconnection will also be expanded by establishing at least two REZs on Oʻahu by second quarter of 2026.

The Governor issued Executive Order No. 25-01 "Accelerating Hawaiʻi's Transition Toward 100 Percent Renewable Energy" that similarly adds near-term requirements that Hawaiian Electric needs to account for in its planning. For Hawaiian Electric's service territory, by 2035, the counties of Hawaiʻi and Maui will need to meet 100% RPS and Oʻahu will need to achieve a 70% reduction in GHG relative to 2005 levels. In meeting these goals, 50,000 new distributed renewable energy installations will need to be added before 2030.

President Trump also issued a memorandum for the temporary withdrawal of all areas on the outer continental shelf from offshore wind leasing, pursuant to the Outer Continental Shelf Lands Act. In that same memorandum, President Trump issued a temporary cessation of new or renewed approvals, rights of way, permits, leases, or loans for onshore and offshore wind projects pending the completion of a comprehensive assessment and review of Federal wind leasing and permitting practices. While this withdrawal is noted to be temporary, it is stated to be in effect until revoked. Given the long lead time to develop new offshore wind, this may mean that no new offshore wind can be assumed to be developed in the mid-term of planning horizon and may not be available until 2040 or later.

On Oʻahu, the Honolulu City Council changed land use regulations that increased the setbacks for wind turbines to a new distance that is the greater of 1.25 miles or 10 times their height, which will make it difficult for new projects to come online and existing facilities to be repowered.[6]

For planning purposes, offshore wind will be assumed to not be available throughout the entire planning horizon. Similarly, onshore wind will also be removed on Oʻahu only and can be removed for the remaining islands, pending stakeholder discussion in the working groups. These assumptions can be revisited in the following IGP cycle if there is future clarity on this federal policy.

5.4 Reliability

In addition to policy changes underpinning Hawaiian Electric's planning environment, there are several assumptions that characterize the availability of generating resources that will be revisited as part of this second cycle of IGP and may affect Hawaiian Electric's outlook for near-term system reliability. These include:

Evaluate more and less stringent LOLE standards to assess cost sensitivities:
Hawaiian Electric plans to continue to work with E3 to calculate incremental reliability cost over a range of reliability standard stringency. For example, this could include calculating the cost of meeting a reliability of one-day-in-five-years to one-day-in-20-years to inform an appropriate LOLE standard, as a continuation of the work done for the resource adequacy workplan. Additional reliability metrics will also be calculated such as expected unserved energy to provide more context on the impact of any proposed standard. The information

[6] *See* Honolulu City Council Ordinance No. 25-2 (Jan. 13, 2025), *available at* https://hnldoc.ehawaii.gov/hnldoc/measure/2784

gained from this study may help the Commission as it stands up the Hawai'i Electric Reliability Administrator (HERA) and develops recommendations for a future reliability standard.

Establishing a reliability standard at the start of the second IGP cycle and maintaining that standard over the duration of the planning process will help to streamline the planning analyses. If various reliability standards need to be considered that are different than the current 0.1 days/yr LOLE, those discussions and proposals should be considered before the capacity expansion planning step begins. To the extent possible, the Companies request that HERA's work to establish a generation resource adequacy methodology and targets, system Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) reliability standards, and enforcement mechanisms for these new standards be completed before the modeling phase of the IGP second cycle to avoid significant rework.

80% exceedance method for variable renewables:
The 80% exceedance method for variable renewables, also known as the hourly dependable capacity (HDC), defines the capacity value of variable renewables. The HDC, and in conjunction with the energy reserve margin (ERM) criteria, is used to evaluate the amount of generating resource capacity above the system demand. While there was much discussion on the appropriate value to use for HDC in the first IGP cycle, E3's independent analysis of planning reserve margin (PRM) and ELCC, ERM and HDC, and ERM and hourly expected capacity (HEC) proposed by the Technical Advisory Panel found that the three capacity planning criteria and methods yielded similar results.

Given the Commission's reference to E3's comments in Order No. 41022 that HDC is unfairly conservative for variable resources and unrealistically optimistic for some thermal resources, Hawaiian Electric can consider removing the HDC for variable renewables and instead apply their production profiles as their capacity value. Thermal resources already accounted for maintenance and forced outages as a derate in their HDC to more accurately reflect their availability. It's important to note that based on the RESOLVE results presented in Hawaiian Electric's 2023 IGP Final Report, variable renewable resources were built to a high degree with minimal firm thermal additions, so any perceived unfairness or unrealistic optimism due to the HDC for variable and firm thermal resources did not appear to affect the resource plans.

Recalibrate RESOLVE to a 0.1 day per year loss of load expectation (LOLE):
Calibrating the ERM percentage in RESOLVE to a 0.1 days/yr LOLE target can reduce differences between the capacity expansion process step and resource adequacy process step, thereby reducing the need to iterate on the initial resource plan developed by RESOLVE. Given the refinements in Hawaiian Electric's outage modeling for assessing resource adequacy, differences in planned resources due to project withdrawals from recent RFPs, and potential changes to the HDC, the calibrated ERM percentage may be different than what was assumed for the first IGP cycle (e.g., 10% for O'ahu). In addition to these updated

assumptions, if the Commission or HERA decide to revise the reliability standard from 0.1 day/yr, the ERM would similarly need to be re-calibrated.

Forced outage rates for thermal units:

Appropriate forced outage rates for thermal units are an important assumption in Hawaiian Electric's resource planning. In the 2024 IGP Action Plan Annual Update, Hawaiian Electric continued to refine its probabilistic resource adequacy methodology by incorporating the modeling of partial outages based on 2022-2023 outage data. This is an improvement from prior modeling where partial outages were represented by equivalent full unit outages. By directly modeling partial outages, the model can more accurately represent actual outages as they have occurred. Hawaiian Electric plans to continue the modeling of partial outages based on historical data and will incorporate 2024 outage data, in addition to 2022-2023 values.

Hourly load profile in RESOLVE:

The Commission commented in Order No. 41022 that Hawaiian Electric should revisit the hourly load profile used in RESOLVE and reconsider the use of a single year hourly load shape for the planning period. Hawaiian Electric clarifies that RESOLVE's convention for modeling the load forecast is to create representative hourly loads for each load layer, which are then scaled up or down to match the annual load forecast. This methodology that is used by RESOLVE assumes that the shape of each load layer is static but scales in magnitude as the annual loads increase or decrease over the course of the planning horizon. Changes in load shape outside of the scaling of the load forecast components are not considered in RESOLVE. Separately, for ERM, the load plus margin is modeled on an hourly basis for all years in the planning horizon. This is to ensure that while production costs are based on typical days, the reliability requirement meets a stricter hourly standard for all hours in the year. Hawaiian Electric plans to continue to follow this same convention in the RESOLVE model but can clarify or address any remaining Commission concerns on how RESOLVE models the load forecast.

6 Grid Needs Assessment (GNA)

In the first IGP cycle, Hawaiian Electric proposed and implemented an iterative process for identifying and quantifying grid needs for generation, transmission and distribution. Hawaiian Electric plans to use this same process and same planning models to continue to identify grid needs.

Table 6-1 provides the scenarios that Hawaiian Electric plans to model using this same process. Many of the same scenarios that were run in the first cycle will continue to be run in the second cycle. Hawaiian Electric is open to stakeholder discussion on proposals for any additional scenarios that should be considered for this second cycle.

Hawaiian Electric may make certain planning assumptions on the retirement or removal from service of existing units to determine resulting grid needs. To the extent that these assumptions are not being driven by hard requirements such as environmental compliance, these are assumptions made just for planning purposes to evaluate different planning scenarios and should not be perceived as firm commitments to retire units. Firm commitments to retire a generating unit need to be flexible and contingent upon the successful procurement and commercial operation of new resources.

Table 6-1: Modeling scenarios

No.	Modeling Case	RESOLVE Only	Full Process	Purpose	Forecast Types						
					DER Fcst	EV Fcst	EE Fcst	EV Load Shape	Fuel Price Fcst	Res. Cost Fcst	Res. Potential
0	Status Quo	✘ (PLEXOS Only)	✘	Status quo case if no new resources are selected and no existing units are retired	Base Forecast	Base Forecast	Base Forecast	Managed EV Charging	Base Forecast	**None**	**None**
1	Base	✓	✓	Reference Case	Base Forecast	Base Forecast	Base Forecast	Managed EV Charging	Base Forecast	Base Forecast	NREL Alt-1 / **Land-Constrained for O'ahu**
2	High Load Bookend	✓	✓	Understand the impact of customer adoption of technologies for DER, electric vehicles, and energy efficiency that leads to higher loads.	**Low Forecast**	**High Forecast**	**Low Forecast**	**Unmanaged EV Charging**	Base Forecast	Base Forecast	NREL Alt-1 / **Land-Constrained for O'ahu**
3	Low Load Bookend	✓	✓	Understand the impact of customer adoption of technologies for DER, electric vehicles, and energy efficiency that leads to lower loads.	**High Forecast**	**Low Forecast**	**High Forecast**	Managed EV Charging	Base Forecast	Base Forecast	NREL Alt-1/ **Land-Constrained for O'ahu**

No.	Modeling Case	RESOLVE Only	Full Process	Purpose	Forecast Types						
					DER Fcst	EV Fcst	EE Fcst	EV Load Shape	Fuel Price Fcst	Res. Cost Fcst	Res. Potential
4	DER Freeze	✓	✗	Understand the value of the distributed PV and BESS uptake in the Base forecast. Informative for program design and solution sourcing.	**DER Freeze**	Base Forecast	Base Forecast	Managed EV Charging	Base Forecast	Base Forecast	NREL Alt-1/ **Land-Constrained for O'ahu**
5	EE Resource	✓	✗	Understand the value of the energy efficiency uptake in the Base forecast. Informative for program design and solution sourcing.	Base Forecast	Base Forecast	**EE Freeze + EE Supply Curves**	Managed EV Charging	Base Forecast	Base Forecast	NREL Alt-1/ **Land-Constrained for O'ahu**
6	O'ahu REZ	✓	✗	Understand the impact of developing certain renewable energy zones on O'ahu.	Base Forecast	Base Forecast	Base Forecast	Managed EV Charging	Base Forecast	Base Forecast	NREL Alt-1
7	High Fuel Price	✓	✗	Understand the impact of higher fuel prices on the resource plan.	Base Forecast	Base Forecast	Base Forecast	Managed EV Charging	**EIA High Fuel Price Forecast**	Base Forecast	NREL Alt-1/ **Land-Constrained for O'ahu**

No.	Modeling Case	RESOLVE Only	Full Process	Purpose	Forecast Types						
					DER Fcst	EV Fcst	EE Fcst	EV Load Shape	Fuel Price Fcst	Res. Cost Fcst	Res. Potential
8	High Resource Cost	✓	✘	Understand the impact of higher resource costs as a proxy for changes investment tax credits or related policy at the State or Federal level.	Base Forecast	Base Forecast	Base Forecast	Managed EV Charging	Base Forecast	**NREL High Forecast**	NREL Alt-1/ **Land-Constrained for O'ahu**

In Order No. 40651, the Commission raised concerns that since Hawaiian Electric did not use the full modeling process for all scenarios, there may be reduced confidence that all scenarios were sufficiently examined to develop the preferred plans. As a result of this feedback, in the second cycle of IGP, Hawaiian Electric plans to model the following scenarios through the full modeling process:

- Base
- High load
- Low load

Modeling the load bookends through the full process provides a meaningful compromise and balance of modeling work to ensure that the second cycle of IGP can be completed in a reasonable amount of time while sufficiently examining a wide range of grid needs for generation, transmission, and distribution across the load bookends to inform the preferred plans.

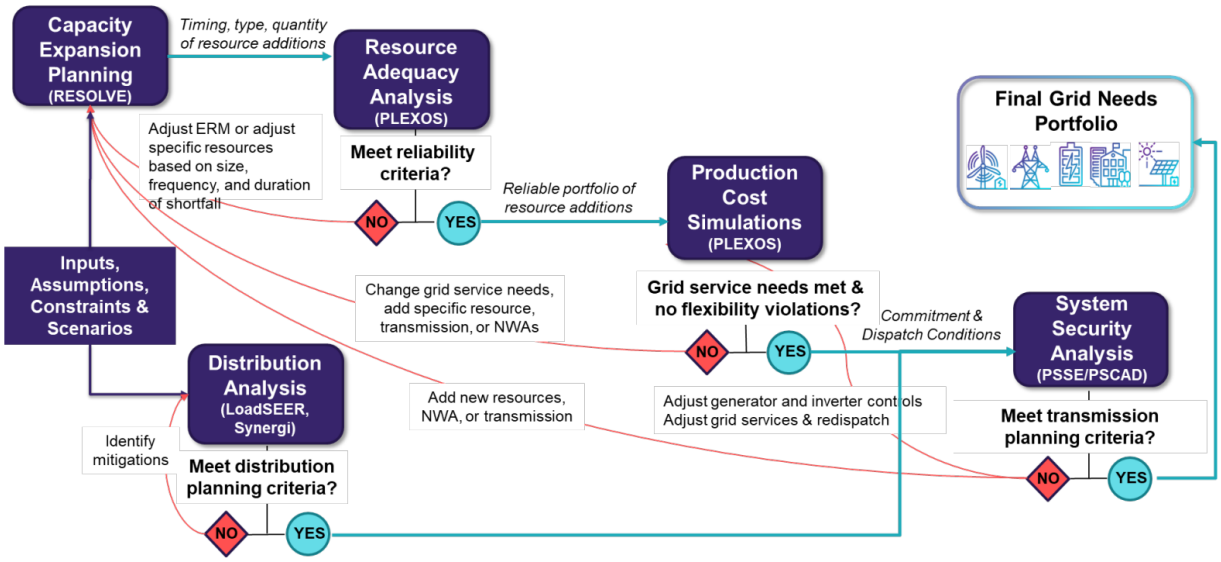
The remaining sensitivities will be modeled only in RESOLVE to identify whether the new scenario assumptions cause a dramatic difference in resource build-out compared to the base case, or to serve as initial analysis for more detailed work in a separate docket. As an example, the results of the high resource cost and high fuel price cases can test how robust the base case is to changes in resource cost or fuel price. Or, as another example, the DER freeze and energy efficiency resource cases can provide the first step of a more detailed analysis that can be examined in the respective DER or energy efficiency dockets.

For the transmission and distribution planning analyses, grid needs will be quantified across the load bookends. For transmission planning, a review will be performed to analyze power flow, dynamic stability, and protection for cases with high load, a high number of new large-scale projects interconnecting to the transmission system, and high DER / high EV adoption. For distribution planning, analyses for location-based and DER hosting capacity will be conducted for the base case, high load, and low load bookends.

Consistent with the discussion in the October 2023 stakeholder technical working group meeting[7] and shown below in **Figure 6-1**, Hawaiian Electric plans to utilize the following steps to develop the preferred plans:

[7] *See* https://www.hawaiianelectric.com/a/13016

Figure 6-1: Grid needs assessment modeling framework



1. **Capacity expansion (all scenarios):** Initial resource plans for all scenarios will be developed in the RESOLVE model under the capacity expansion planning step.
2. **Resource adequacy (base scenario and load bookends):** The reliability of the base, high load, and low load RESOLVE resource plans will be verified in PLEXOS in the resource adequacy analysis step. If there are reliability shortfalls in any of the three resource plans and the size and cost of the new resource needed to meet the reliability shortfall is a relatively small percentage of the total plan cost and total new resource build, then a new resource may be added manually to the resource plan to address it. Otherwise, the process steps will be repeated, and the RESOLVE model may be re-run with a higher ERM percentage to allow RESOLVE to select additional resources to meet the reliability need. Conversely, if the plans are overly reliable relative to a 0.1 LOLE, some future firm additions may be removed during the preferred plan development, similar to what was done in the first IGP cycle.
3. **Integrate stakeholder feedback:** Working group and community feedback are then incorporated into the resource plan to reflect sentiment about certain resources identified in the plans. For example, in the first IGP cycle, onshore wind selected in certain REZ groups was removed based on feedback from the West O'ahu and North Shore communities, and the duration of paired and standalone BESS was increased to four hours based on feedback from the technical advisory panel regarding current market conditions. To the extent that proposed changes from the community and technical working groups may significantly impact the cost or reliability of the resource plans, they may be incorporated in earlier planning steps.
4. **Production cost simulation (base scenario, status quo scenario, and load bookends):** The production cost simulation step will then be run to determine the cost of the plans and develop the set of initial dispatch conditions for the system security analysis step.

5. **Integrate system security study findings:** Constraints identified in the system security study will then be folded back into the production cost simulation. Such constraints are primarily a function of the type and capabilities of resources added, interconnection locations, capacity of resources, and iterated with solutions that may address certain constraints. For example, new reserves may need to be added to the PLEXOS model like grid-forming headroom reserve for dynamic stability, or the sizes of certain REZ may need to be reduced to avoid large transmission costs.
6. **Assess reasonableness of transmission planning requirements (base scenario, status quo scenario and load bookends):** The plan costs can then be compared with and without the transmission constraints to assess whether the transmission constraints have a significant impact on costs. If the change in production cost with the transmission constraints is relatively small compared to the cost of new transmission infrastructure, then the constraints can be deemed reasonable.
7. **Develop distribution system requirements (base scenario, status quo scenario, and load bookends):** Distribution upgrades required to support the projected loads and distributed resources in the base scenario and load bookends will be identified.
8. **Determine rate and bill impacts (base scenario, status quo scenario, and load bookends):** Rate and bill forecasts can then be developed using the production simulation costs, as well as capital costs for grid needs identified in the transmission and distribution analysis.
9. **Develop the preferred plans:** The preferred plans can incorporate results from the base case as well as the load bookends. Since the base case represents the most reasonable set of assumptions, the preferred plans should derive most of their elements from the base case results. However, if the rates and bills for the high load bookend are similar to the base case, it may make sense to include certain generation, transmission, or distribution investments from the high load bookend in the preferred plans as a means of mitigating the risk of higher loads. Conversely, if the rates and bills for the low load bookend are much lower than the base case, it may make sense to identify certain generation, transmission, or distribution investments that could be deferred from their original timing in the base case as a means of mitigating the risk of over-investment due to lower loads. Through this process, the final preferred plans will continue to place emphasis on the base case, but the load bookends may also influence the timing and quantity of generation, transmission, and distribution needs.

Given the convention in RESOLVE to model every five years of the planning horizon (e.g., 2035, 2040, 2045), generating resource additions may be added in five-year increment across the three cases at different amounts. This is illustrated in **Figure 6-2**, the O'ahu RESOLVE build chart from the 2023 IGP final report. The five-year increments represent a reasonable planning assumption to identify resource grid needs that allows for adequate time to develop future RFPs based on those grid needs, seek Commission approval of the RFP, select projects through the RFP evaluation process, and file project applications.

Figure 6-2: O‘ahu capacity selected by RESOLVE in 2030, 2035 and 2050

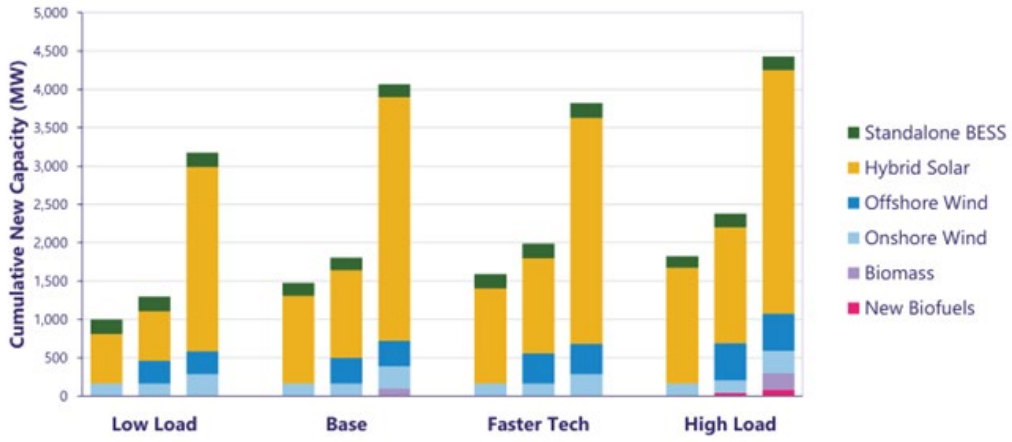


Table 6-2 walks through an example of how Hawaiian Electric could use the low load, base case, and high load resource plans to further inform RFP targets as part of the preferred plan.

Table 6-2: Preferred Plan Development Example

Year	Low Load	Base	High Load	Preferred plan
2035		Resource 1 - Base 10 MW	Resource 1 - HL 12 MW	RFP 1 Procure for target of 10 MW, up to 12 MW, of grid service provided by Resource 1 with required COD in 2035, preference for earlier COD in 2033-2034
2036				
2037				
2038				
2039				
2040	Resource 1 - LL 8 MW	Resource 2 - Base 5 MW Cumulative – 15 MW	Resource 2 - HL 9 MW Cumulative – 21 MW	RFP 2 Procure for target of 5 MW, up to 9 MW, of grid service provided by Resource 2 with required COD in 2040, preference for earlier COD in 2038-2039
2041				Assuming RFP 1 procured the full MW target and because the RFP 1 target (10 MW) was larger than the Low Load grid needs in 2040 (8 MW), consider whether other existing generating units can be retired
2042				

To account for the resource build differences in the preferred plan, the RFPs should target the grid needs in the base case but allow the RFP flexibility to procure up to the grid needs in the high load

case. This will help to account for changes in resource mix and policy that could set Hawaiian Electric on the pathway to higher load. The RFP would also use the base case build year as the commercial operations date (COD) target in the RFP but because of the five-year build interval, would have preference for CODs that can be achieved earlier, e.g., by one to two years. By preferring projects with shorter timelines to reach commercial operations, this gives further flexibility to revise targets for the next RFP should projects withdraw or higher loads develop.

To account for slower resource build out under the low load case, Hawaiian Electric can evaluate whether grid needs in the low load case were previously addressed by an earlier RFP (RFP 1 in **Table 6-2**). If the grid needs in the low load case were met, then the following RFP (RFP 2 in **Table 6-2**) could adjust its target to account for any additional needs or consider whether additional existing generating units could be retired. The decision to retire additional generating units would be contingent upon the cumulative response to both RFP 1 and RFP 2 and the likelihood that the selected projects receive Commission approval and reach commercial operations.

7 Renewable Energy Zones (REZ)

Hawaiian Electric is taking steps to shift the concept of developing REZ into a reality to enable long-term, higher-capacity resources to interconnect with the system. As Hawaiian Electric continues working toward powering island grids with 100% renewable energy by 2045, more renewable energy projects, both at the community and large-scale grid levels, are needed. The development of REZ requires finding the right balance between engineering, technical conditions, community insights, and customer preferences. This process will take collaboration and creative land-use solutions.

As the Commission noted in its Inclinations, REZ could simplify large renewable project siting and interconnection while addressing community concerns. To that end, the Commission has directed Hawaiian Electric to partner with the appropriate government authorities to designate two REZ on O'ahu by the second quarter of 2026.

In alignment with this guidance, Hawaiian Electric is developing plans to commence engagement with government agencies, including selecting consultants to support these engagements and the development of an application to the Commission seeking confirmation of the Companies' near-term plans for REZ designation. The designation of candidate REZs will require iterations of general pathways for interconnection and an understanding of land requirements for generating resources and transmission expansions to these REZs. This initial designation must be supported by agencies responsible for permitting and developing renewable energy resources and transmission on government-owned lands.

An integrated routing and engagement process is planned to be developed to gather and consider identified opportunities and sensitives throughout the routing process. A routing and engagement framework will guide Hawaiian Electric through this process, leveraging industry best practices and local engagement needs. Planning projects and routing new transmission lines will require a series of phased discussions and information gathering sessions to narrow down a potential route that meets the goals of the community, landowners and Hawaiian Electric. A multifaceted approach will require both in-person and virtual engagement opportunities along with availability for individualized site visits and conversations to gather land-use details and think through technical and routing solutions together.

An engagement plan will be developed by the end of 2025 to provide guidance for initial REZ implementation steps including identifying routing criteria, data gathering, engagement, agency coordination, permitting, surveys and preliminary design. A dedicated webpage will be focused on REZ, providing up-to-date information and accessible materials.

8 Cross-Docket Coordination

Commission guidance will be especially important to coordinate how impacts of other key dockets can be integrated into IGP, and conversely, how impacts of IGP can be integrated into other key dockets. Hawaiian Electric believes that IGP should be settled first to drive other dockets. For example, if IGP identifies a grid need for grid-scale resources or DER, other proceedings like community-based renewable energy (CBRE) or wheeling could be allocated a portion of that need.

If the other dockets that need to be coordinated with IGP can be identified along with their key deliverables and procedural schedule, Hawaiian Electric can adjust its schedule for the second cycle of IGP to ensure that interim IGP results are made available to inform those discussions in other dockets, or if needed, to pause the IGP schedule to be able to incorporate the outcomes of those other dockets as an assumption into IGP. While a pause in the IGP schedule may not be preferrable, the IGP process steps proceed sequentially, and depending on the nature of the assumption that needs to be made in other dockets, it could potentially restart the entire IGP planning process.

9 Customer and Stakeholder Engagement

Hawaiian Electric views the public and stakeholders as a partner in our planning processes. Hawaiian Electric will strive to communicate transparently and keep community members and stakeholders informed throughout the IGP process. Hawaiian Electric will continue to build partnerships with community members by listening, learning, and integrating ideas and feedback into the IGP process.

Hawaiian Electric is committed to equitable, inclusive, and transparent community engagement throughout the IGP process. This means:

- **Providing accessible and inclusive opportunities to engage,** including offering multiple ways to engage, both online and in person, hosting events in locations that are accessible by public transportation, and providing information in multiple languages and in formats that meet or exceed accessibility standards.
- **Reaching out to and integrating feedback from people who are historically underserved,** including prioritizing outreach to underserved and most impacted communities, such as people who live in rural areas and people who live closest to places where new energy facilities may be located. This also means listening to community members' experiences, priorities, and vision, and using their feedback to shape the outcomes of IGP.
- **Being accountable to feedback received,** including reviewing and considering public feedback as part of the decision-making process, such as where to locate new energy facilities and transmission corridors, and clearly communicating how community input shapes outcomes throughout the planning process.
- **Receiving faster, real-time feedback during regular stakeholder meetings in addition to written feedback through the docketed process,** especially from the Commission, Commission staff, parties to the IGP docket, and stakeholders to enable faster turnaround on process improvements. Feedback given before the modeling phase of the process is underway will also minimize impacts to the schedule by avoiding rework of the modeling scenarios.

Over the next three years, Hawaiian Electric will draw on previous IGP community engagement and implement additional virtual and in-person outreach tools to share information with the public and gather input. These efforts will include:

- Implementing a modeling education dashboard and hosting meetings to increase transparency on Hawaiian Electric's modeling and decision-making processes.
- Continuing to use hawaiipowered.com as a central hub for information sharing, in tandem with updates on hawaiianelectric.com.
- Reinstating various working groups—including the stakeholder technical working group—to provide information and solicit regular feedback and insights throughout the IGP process. This also includes forming a community working group to gather more local, customer, and community-focused feedback to help inform IGP.
- Conducting outreach related to REZ and community benefits.
- Attending local community fairs and festivals, hosting open houses, providing presentations to community organizations, and providing IGP team contact information for any follow up questions.

In all its outreach efforts, Hawaiian Electric will explain why it is essential to move through a second cycle of the IGP process and provide updates regarding progress made toward its goals.

9.1 Modeling Education

Hawaiian Electric is working to transparently communicate its modeling process to ensure that it is understandable for all stakeholders in response to Order No. 41022. To that end, Hawaiian Electric is implementing a modeling education dashboard as part of the Hawai'i Powered website at hawaiipowered.com/energymodeling. The dashboard will provide more transparent information about the modeling that Hawaiian Electric does and how the models and their outputs are used to inform decisions like the preferred plan development.

The dashboard will include information on what modeling is and where it fits in the IGP process. The content identifies key questions of the IGP process and explains how modeling is used to help find answers. It also discusses the overlap and interactions between models that are used by Hawaiian Electric. The modeling dashboard will be shared with the Commission, stakeholders, and community members to support planning discussions within the IGP process.

To further increase transparency, Hawaiian Electric will hold stakeholder meetings to discuss modeling comprehension that provide additional context and explanation around the modeling process. These meetings will walk attendees through the modeling process and provide insights into modeling inputs and outputs and what those mean to Hawaiian Electric for decision making.

9.2 Information Sharing

Hawaiian Electric will continue to use the Hawai'i Powered website (hawaiipowered.com) as a central hub to share information with the public and gather feedback. This will include annual updates from the first IGP cycle and updated information about the process, including an explanation of why Hawaiian Electric updates the Integrated Grid Plan. Hawai'i Powered will also provide opportunities for stakeholders and the public to provide input throughout the process.

Hawaiian Electric will also use its main Company website (hawaiianelectric.com) to share documents and basic information about the planning process. The content will have specific details and documents about the IGP process.

In addition to the modeling education materials, Hawaiian Electric plans to develop workbooks of its modeling assumptions, like those that were provided in the first IGP cycle. Hawaiian Electric will post the workbooks on its website for stakeholders to review. The workbooks will detail the modeling assumptions used in the capacity expansion planning model (RESOLVE) and the resource adequacy analysis/production cost simulation model (PLEXOS), with descriptions added to the top of each model assumption tab to provide an overview of the data being provided. Assumptions for other models used in the modeling framework can be discussed in the working groups.

Hawaiian Electric can also provide access to its models to align with past practice. Model access would be limited to stakeholders who are not market competitors and would be contingent on the stakeholder signing a non-disclosure agreement. For stakeholders who represent industry associations, a specific person will need to be named as the representative to receive model access. Stakeholders may need to contact the model vendors to comply with any licensing requirements for the model.

Hawaiian Electric will also provide information about IGP and modeling at in-person events such as open houses, fairs, and festivals, as well as, offering community presentations. Hawaiian Electric may also send information through the mail using bill inserts or using contact information provided to the IGP team.

9.3 Advisory and Collaboration Groups

Hawaiian Electric will work with the following advisory groups to provide information to different audiences and gather feedback throughout the IGP process:

9.3.1 Stakeholder Technical Working Group

Hawaiian Electric will work with a Stakeholder Technical Working Group (STWG) to share information with customer and stakeholder representatives. This group will be tasked with providing feedback to Hawaiian Electric to ensure alignment of the updated IGP with customer and stakeholder interests. Participants will include:

- City and county representatives
- Community delegates from each island
- Consumer advocate
- Hawai‘i Public Utilities Commission
- Commercial and industrial customers
- Office of State Planning
- Solar developers
- State of Hawai‘i Department of Business, Economic Development and Tourism
- U.S. Department of Defense
- Electric vehicles industry experts
- Energy efficiency industry experts
- Energy storage industry experts
- Environmental advocates

- Local and national sustainability advocates

In addition, the STWG will include industry peer group experts with representatives from internationally recognized utilities, market operators, and research organizations who have demonstrated engineering expertise in methodologies and technologies involving resource, transmission, and distribution planning for large-scale and distributed renewable resources. The STWG will meet every other month and discuss a variety of topics as they arise through the planning process.

9.3.2 Community Working Group

Hawaiian Electric will implement an IGP Community Working Group (CWG) to communicate more with the public, with particular focus on communities that may be most affected by IGP outcomes. The group is envisioned to include representatives from community advocacy and resource groups and intends to meet quarterly. Hawaiian Electric will provide an invitation to community representatives to participate. If other community members are interested in participating, information will be provided to them about future opportunities.

Community Working Group meetings will not be recorded or available live to allow for a focused environment for conversation and collaboration, but meeting agendas and materials presented will be made available on the Hawaiian Electric website.

9.3.3 Technical Advisory Panel

Hawaiian Electric will continue to convene the Technical Advisory Panel (TAP) to provide independent peer assessment of the IGP development process, methodologies, tools, and results. The group will consist of an industry peer group of experts participating voluntarily from utilities, market operators, and research organizations that have demonstrated engineering expertise in resource, transmission, and distribution planning.

Similar to community working group meetings, the technical advisory panel meetings will not be recorded to foster collegial, balanced discussions but meeting agendas and materials will also be made available on the Hawaiian Electric website.

Table 9-1 provides an overview of the stakeholder technical working group, community working group, and technical advisory panel.

Table 9-1: IGP Second Cycle working groups

Group name	Participants	Purpose or outputs	Meeting frequency and format
Stakeholder Technical Working Group	Representatives from cities, each island, the State, partner agencies, experts in energy technologies and engineering, developers.	Provides strategic guidance to Hawaiian Electric and helps to ensure alignment with interests across the islands.	Recommend every other month, can be increased as needed through IGP process/milestones.

Group name	Participants	Purpose or outputs	Meeting frequency and format
Community Working Group	Representatives of community-based advocacy and resource groups across the islands.	Provide community-focused input at key milestones through the IGP process, serve as ambassadors and identify concerns.	Recommend quarterly meetings. When all islands are meeting together, meetings will be held virtually. If island-specific meetings are held, meetings may be held in-person or virtually, dependent on participant preference.
Technical Advisory Panel	Representatives from research organizations, utilities, and market operators.	Provides independent review of Hawaiian Electric planning process.	Recommend every other month, can be increased as needed through IGP process/milestones.

9.4 REZ-Related Outreach

Hawaiian Electric will work to share information about REZ and the progress toward 100% renewable energy. Outreach will include education about REZ and the routing process, with opportunities for community members to share input regarding the REZ identification process and local sensitivities. Community input will help Hawaiian Electric narrow down potential locations and routes that meet shared goals. Hawaiian Electric will hold both in-person and virtual events and be available for individualized site visits and conversations to gather land-use details and think through technical and routing solutions together with community members and landowners. A dedicated webpage will be focused on REZ to provide up-to-date information and accessible materials. Specific engagement will be centered around the identification of two initial REZ projects on O'ahu.

10 Next Steps

A high-level schedule of proposed next steps is presented below, summarizing current work in progress and estimated due dates.

10.1 Schedule

- Summer 2025 (June–August):
  - File Action Plan Update from first cycle of IGP, completed June 2025
  - Draft IGP workplan (this document) ready to launch
  - Launch modeling education website
  - Establish REZ criteria
  - Host first IGP Stakeholder Technical Working Group meeting to discuss modeling education materials
  - Begin drafting second cycle IGP August 2025 (through July 2028)
- Fall/Winter 2025:
  - Host first IGP community working group meeting
  - Submit Final IGP workplan by Q4 2025
- Spring 2026:
  - Designate 2 REZ projects on O'ahu by Q2 2026
- 2027–2029:
  - Finalize second cycle IGP and Commission review, August 2028–July 2029

SERVICE LIST
(Docket No. 2018-0165)

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Chu, Michael

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