

## **HAWAII PUBLIC UTILITIES COMMISSION'S**

### **2024 INCLINATIONS ON THE FUTURE OF ENERGY IN HAWAII<sup>1</sup>**

To serve the vital public interest in affordable, reliable and environmentally sound energy, the Commission is again compelled to express its concerns and inclinations on the future of energy in Hawaii. Ten years ago, our predecessors issued their “Inclinations on the Future of Hawaii’s Electric Utilities” (“2014 Inclinations”),<sup>2</sup> urging the Hawaiian Electric Companies (“Hawaiian Electric”) to articulate and achieve a more sustainable business model. The Commission acknowledges and appreciates the progress made by electric utilities toward the priorities expressed in the 2014 Inclinations, but much more is needed to address the challenges we face today. Energy utilities, government agencies and private stakeholders must embrace an ethos of collective responsibility to confront and effectively mitigate the vulnerabilities revealed by Lahaina’s heartbreaking tragedy, the COVID pandemic, ongoing global unrest, cybersecurity threats and the overarching climate crisis. In these new Inclinations, the Commission offers a “Roadmap” to guide and track, from now until the end of the decade, the completion of urgent and substantial energy infrastructure upgrades for public safety, reliability and resiliency, including:

- Strategic hardening, diversification and enhancements of transmission and distribution systems to improve public safety, mitigate risks and limit vulnerability to wildfires and natural disasters, and to better prepare the grid for an increase of variable and firm renewable energy resources;
- Expedited replacement of old, inflexible fossil fuel generation with more efficient and reliable technologies that fully support the transition to 100 percent renewable energy;
- Streamlined and expanded interconnection of renewable utility-scale and distributed energy resources (“DERs”) to limit fossil oil-based generation of electricity to no more than 40 percent on each island by 2030;
- Continuous software and hardware improvement to prevent evolving cybersecurity threats from outside forces threatening to hold hostage or damage critical infrastructure;
- Creation of Resilience Hubs<sup>3</sup> in isolated, vulnerable and/or high fire risk communities to ensure access to critical resources during extended power outages; and

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<sup>1</sup> For public utilities outside the energy sector, the Commission intends to publish separate inclinations in the near future.

<sup>2</sup> Exhibit A: Commission’s Inclinations on the Future of Hawaii’s Electric Utilities, filed April 23, 2014 (D&O No. 32052 in Docket No. 2012-0036).

<sup>3</sup> As used herein, a “Resilience Hub” is an independent energy and telecommunications resource that allows critical community services such as fire and police stations, food markets, water pumps and disaster shelters to function

- Targeted integration of electric, gas and distributed renewable resources to support continuity of energy, telecommunications, water and wastewater services.

Extraordinary investment will be required to accomplish these essential, transformative improvements, and the Commission is acutely aware of the capital constraints caused by the impact of wildfire related liabilities on Hawaiian Electric's credit rating, Hawaii's exceptionally high electric rates and other economic headwinds. However, it cannot be overstated that investing now will save lives and money in the short and long run, and diverse opportunities to obtain or attract capital are available, including: (1) federal loans and grants<sup>4</sup>; (2) Hawaii government funded projects eligible for Direct Pay incentives under the federal Investment Tax Credit; (3) private utility scale development; and (4) ongoing and expanded private investment in DERs. In addition, creative new mechanisms, such as securitization, are likely necessary to secure the timely availability of funds and reduce ratepayer impact. It is also important to note that once fossil fuel generation of electricity decreases to no more than 40 percent on each island, electric rates will be far less exposed to "rate shock" from oil price surges that periodically afflict Hawaiian Electric customers, most recently relating to the Ukraine war. Over the last decade, the Commission estimates that oil price volatility diverted hundreds of millions of dollars from the pocketbooks of Hawaiian Electric customers.<sup>5</sup>

Along with access to capital, success depends on the sustained willpower of utilities and government agencies, including the Commission, to establish and meet specific milestones for the development and energizing of new projects. Current law often leads to a five-year time frame for renewable generation facility development,<sup>6</sup> but the status quo is unsustainable. Given the compelling public need, critical energy infrastructure development should not take longer than three years. The Commission supports the expansion of ongoing public and private permitting reform initiatives and the identification and removal of other development roadblocks. For its part, the Commission will continue its efforts to reduce the time and burden of review and decision making for decisions within its purview.<sup>7</sup> It is imperative that all involved entities work together to improve policies and procedures to more successfully capture the untapped potential of existing and future DERs to support grid operation and stability. The Commission expects electric utilities to partner with the state and counties and set deadlines for the completion of Resilience Hubs that protect our most endangered communities.

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during an extended grid outage. The components of each Resilience Hub may vary depending on unique community needs and location.

<sup>4</sup> The federal administration transition means that federal resources may be redirected and/or less predictable, but urgent, sustained and targeted efforts to secure federal funding remain worthwhile.

<sup>5</sup> Based on the Commission's review of costs borne by Hawaiian Electric ratepayers for fuel oil under the Energy Cost Recovery Clause Filings (ECRC) in the year 2019 (pre-COVID and prior to the Ukraine war) and fuel oil costs passed through to ratepayers by the ECRC from the commencement of the Ukraine war through the end of 2023, the Commission estimates that oil market volatility costs reached at least \$250 million.

<sup>6</sup> On average, the eleven renewable energy projects completed under Request for Proposal Phase 1 and 2 achieved operation 4.9 years after a proposed Power Purchase Agreement was filed with the Commission for approval (this includes an average PPA approval time of four months from the date of filing).

<sup>7</sup> The Commission is preparing an update to its general administrative rules to streamline and improve procedural requirements in dockets and rate cases.

Generally, the Commission intends to insist on broad and shared accountability for the completion of approved projects that come before it.

With some exceptions based on changed circumstances, the priorities expressed by the Commission align with the fundamental principles of the Commission's 2014 Inclinations<sup>8</sup> and Hawaiian Electric's most recent Integrated Grid Plan ("IGP").<sup>9</sup> However, the Commission's attention is now focused on the measurable achievement of these priorities notwithstanding the many barriers in the path ahead. The Commission does not expect energy utilities to accelerate their transformation without regulatory assistance and third-party resources. For example:

- Strategic utility ownership of new generation may be beneficial, especially when such ownership stabilizes utility finances, benefits from low-interest federal loans or advances other objectives such as operational accountability, resilience and public safety;
- The recently opened Wheeling Docket<sup>10</sup> will first investigate intragovernmental wheeling, which has the potential to facilitate and incentivize extensive development of renewable energy facilities on government land using government funds;
- The Hawaiian Electric IGP preferred resource mix scenario for Oahu projects an increase to 55 percent renewable generation by 2030, but its assumed contribution of 2.8 percent from DERs undervalues the potential of this customer funded resource;
- Resilience Hubs can be designed to serve multiple functions, such as supporting a simplified Community Based Renewable Energy (CBRE or Community Solar) program that attracts more development participants and guarantees predictable and meaningful savings to eligible lower-income ratepayers.

The following sections offer more detailed guidance on the Commission's priorities and the opportunities energy utilities should pursue. The Commission looks forward to collaborating with all stakeholders to achieve these priorities and while promoting mutual accountability for timely implementation of the changes that serve the public interest.

## **Section I: Public Safety is the Highest Priority**

Having endured persistent flooding, landslides, hurricanes and wildfires over the past decade, the effects of climate change are ever more apparent in Hawaii. The devastating Maui wildfires in August 2023 underscored the immediate responsibility of all utilities to assess the sufficiency of their resilience and emergency response plans. Therefore, on November 21, 2023, the Commission directed all public

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<sup>8</sup> The Commission identified fundamental or essential principles of "lower, more stable electric bills and expanding energy options, while maintaining reliable energy service in a rapidly changing system operating environment." 2014 Inclinations at 3.

<sup>9</sup> See PUC Docket 2018-0165, Integrated Grid Plan filed on May 12, 2023, supplemented on November 14, 2023, and accepted by the PUC on March 7, 2024.

<sup>10</sup> See PUC Docket 2024-0200.

utilities to file reports related to their ongoing efforts and future mitigation plans to address natural hazards (“Natural Hazard Mitigation Reports”).<sup>11</sup> The Commission and the public should know whether utilities understand the risks that their facilities face from severe natural hazards of all kinds and whether they have identified the infrastructure, funding and implementation schedule needed to prepare for such events. To the extent vulnerabilities are revealed by the reports, the Commission expects to see utility efforts to mitigate or eliminate the vulnerabilities in their resilience plans and reasonable requests for Commission approval of capital improvements.

Wildfire mitigation is the most urgent and complex task for electric utilities, and the Commission is encouraged by the initial measures employed by Hawaiian Electric and the Kauai Island Utility Cooperative (“KIUC”) following the August 2023 Maui wildfires. Demonstrable progress is underway to better protect against and respond quickly to fires affecting electric utility infrastructure, including deployment of more weather stations, cameras, spotters, reclose blockers, fast-trip settings, remote controllability and protocols for a targeted Public Safety Power Shutoff (“PSPS”) program. Much can be learned from the experiences of states like California, but there is no precise template for Hawaii to follow. Further analysis and planning will illuminate the inherent risks of the electricity infrastructure’s interaction with Hawaii’s unique micro-climates, topography and vegetation in areas of overgrowth or drought. Tradeoffs associated with undergrounding utility lines must also be carefully re-visited, as should the use of Ground Level Distribution Systems<sup>12</sup> and better insulated overhead wires. Utilities should also make all prudent adjustments to practices, operations and equipment validated by the detailed findings of the Attorney General’s commissioned reports from the Fire Safety Research Institute<sup>13</sup> and the Maui Fire Department/U.S. Alcohol, Tobacco and Firearms report.<sup>14</sup>

The Commission recently directed Hawaiian Electric and KIUC to update their wildfire mitigation plans and initiatives by January 2025, including specific projections on how much mitigation work will cost, how it will be funded and a detailed schedule for completion.<sup>15</sup> These plans must also identify specific, near-term measures to manage reliability disruptions caused by wildfire mitigation, especially to the extent outages affect emergency responders and more vulnerable customers, such as those who rely on medical support devices. As it reviews the updated wildfire mitigation plans, the Commission will consider how its personnel and resources should adapt and expand to perform robust oversight of utility improvements and safety programs.

To serve the energy needs of the public during extended outages, the Commission strongly encourages electric utilities to work with other utilities to explore resiliency measures for customers’

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<sup>11</sup> See Order No. 40396 in PUC Case No. 2023-04661 (Non-Docketed).

<sup>12</sup> See description of pilot program of Pacific Gas & Electric at <https://www.pgecurrents.com/articles/3901-overhead-underground-pg-e-pilot-program-evaluates-benefits-putting-powerlines-right-ground>

<sup>13</sup> See <https://ag.hawaii.gov/maui-wildfire-investigation-resources-page/>

<sup>14</sup> See [https://www.mauicounty.gov/DocumentCenter/View/149693/FI23-0012446-Lahaina-Origin-and-Cause-Report\\_Plus-Appendix-A-B-C-Redacted](https://www.mauicounty.gov/DocumentCenter/View/149693/FI23-0012446-Lahaina-Origin-and-Cause-Report_Plus-Appendix-A-B-C-Redacted)

<sup>15</sup> See PUC Orders 41033 and 41075 in PUC Case No. 2023-04661 (Non-Docketed).

emergency backup power provided by third parties such as Hawaii Gas. When electric utilities experience extended outages, gas is an independent resource capable of providing emergency backup power for critical infrastructure such as water pumping stations and health care facilities. Ideally, backup power should be on-site and of sufficient capacity to serve electrical loads for at least five days.

Fundamentally, the provision of energy services must be safe, and it is the responsibility of public utilities to be prepared when disaster strikes. The Commission understands that Hawaiian Electric is modeling the effectiveness of its mitigation efforts, and all energy utilities are encouraged to publicly report on their risk reduction progress. Energy utilities are obligated to identify their infrastructure's weak points and to perform hardening work where it will have the most impact. For its part, the Commission is working to support reasonable and prudent utility initiatives and offer guidance on reliability standards through implementation of the Hawaii Electric Reliability Administrator (HERA) law.<sup>16</sup>

## **Section II: A Roadmap for Reliability, Climate Resilience and Affordability by 2030**

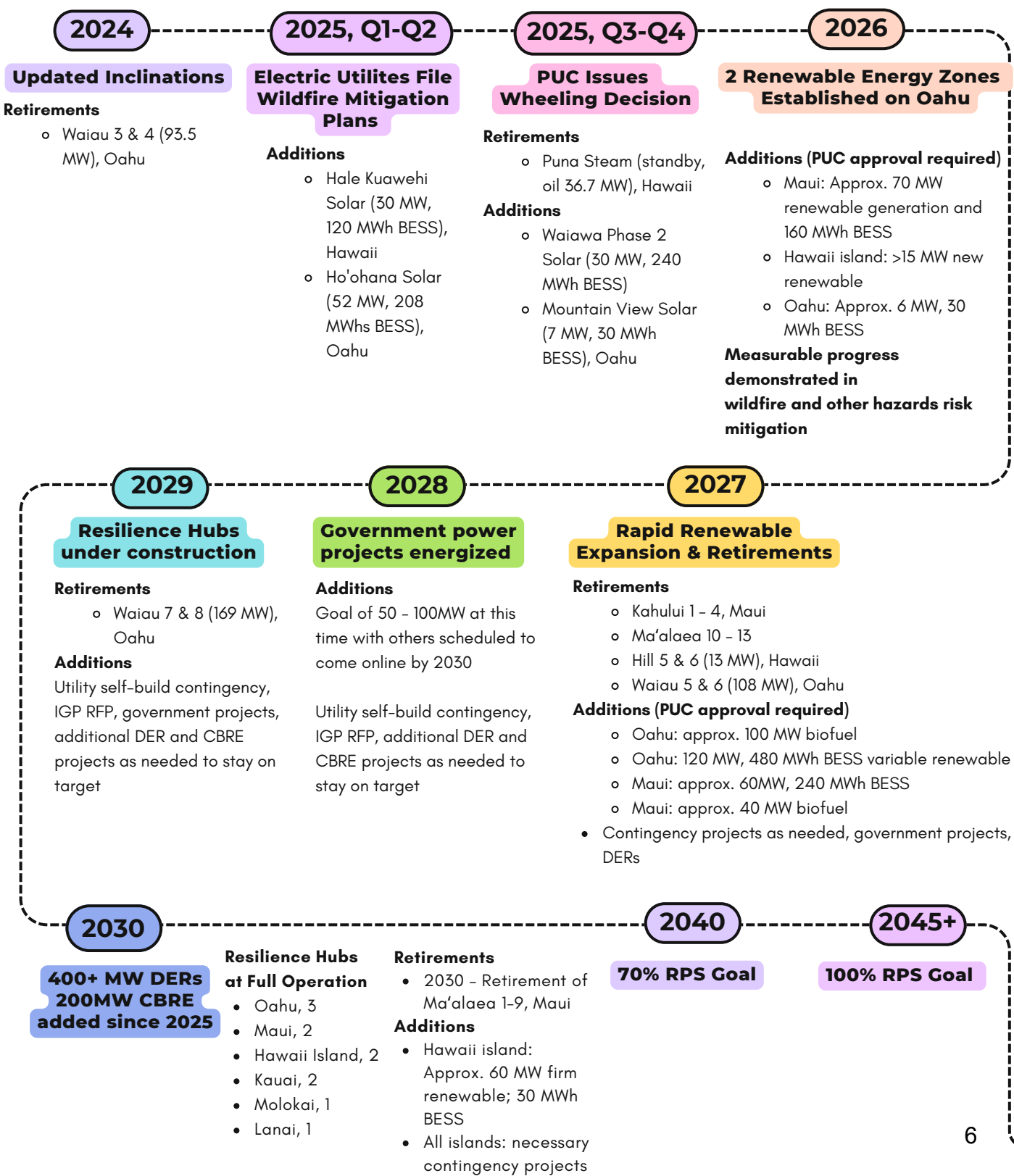
In many ways, Hawaii's energy system remains a marriage of opposites. Electrons from World War II era oil-fired generators mingle with electricity dispatched on demand from advanced batteries powered by an ever-expanding variety of renewable energy sources. On Kauai and the Island of Hawaii, renewables power close to 60 percent of the electric grid, but on Oahu, where most of the state's population lives, a staggering 70 percent of electricity still comes from burning polluting, expensive oil. The traditional transmission and distribution system that supports this marriage often struggles to perform efficiently, and interconnection of cleaner and more affordable alternatives remains unreasonably costly and difficult.

Hawaiian Electric's IGP includes many of the building blocks of a modern energy system. However, some of its important concepts (such as Renewable Energy Zones) lack adequate definition, the accelerated timeline for renewables integration on Oahu post-2030 may not be realistic, and too much relies on the projected completion dates of Request for Proposal Phase Three ("RFP3") projects. Experience from RFP Phases 1 and 2 shows that some projects may withdraw or delay reaching commercial operation for a variety of reasons. Reliability and safety would gain from a diversified approach that combines diligent contingency planning and energy generation contributions from public and private parties outside the utilities. The Commission is confident that the priorities of reliability, climate resilience and affordability are interrelated and achievable through the right combination of projects and policy. Our Roadmap supports replacing old fossil plants with modern resources, improving the integration of Independent Power Producer ("IPP") projects, creating new forms of community resilience and expanding access for renewable resources that benefit lower-income ratepayers, government facilities and smaller scale DERs.

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<sup>16</sup> The Commission issued its Request for Proposal for engagement of an independent HERA on December 2, 2024, and the deadline for responsive proposals is February 7, 2025 at 2:00 p.m. HST.

# Inclinations Roadmap



**2024**

**Updated Inclinations**

**Retirements**

- Waiiau 3 & 4 (93.5 MW), Oahu

**2025, Q1-Q2**

**Electric Utilities File Wildfire Mitigation Plans**

**Additions**

- Hale Kuawehi Solar (30 MW, 120 MWh BESS), Hawaii
- Ho'ohana Solar (52 MW, 208 MWhs BESS), Oahu

**2025, Q3-Q4**

**PUC Issues Wheeling Decision**

**Retirements**

- Puna Steam (standby, oil 36.7 MW), Hawaii

**Additions**

- Waiawa Phase 2 Solar (30 MW, 240 MWh BESS)
- Mountain View Solar (7 MW, 30 MWh BESS), Oahu

**2026**

**2 Renewable Energy Zones Established on Oahu**

**Additions (PUC approval required)**

- Maui: Approx. 70 MW renewable generation and 160 MWh BESS
- Hawaii island: >15 MW new renewable
- Oahu: Approx. 6 MW, 30 MWh BESS

**Measurable progress demonstrated in wildfire and other hazards risk mitigation**

**2029**

**Resilience Hubs under construction**

**Retirements**

- Waiiau 7 & 8 (169 MW), Oahu

**Additions**

Utility self-build contingency, IGP RFP, government projects, additional DER and CBRE projects as needed to stay on target

**2028**

**Government power projects energized**

**Additions**

Goal of 50 - 100MW at this time with others scheduled to come online by 2030

Utility self-build contingency, IGP RFP, additional DER and CBRE projects as needed to stay on target

**2027**

**Rapid Renewable Expansion & Retirements**

**Retirements**

- Kahului 1 - 4, Maui
- Ma'alaea 10 - 13
- Hill 5 & 6 (13 MW), Hawaii
- Waiiau 5 & 6 (108 MW), Oahu

**Additions (PUC approval required)**

- Oahu: approx. 100 MW biofuel
- Oahu: 120 MW, 480 MWh BESS variable renewable
- Maui: approx. 60MW, 240 MWh BESS
- Maui: approx. 40 MW biofuel
- Contingency projects as needed, government projects, DERs

**2030**

**400+ MW DERs 200MW CBRE added since 2025**

**Resilience Hubs at Full Operation**

- Oahu, 3
- Maui, 2
- Hawaii Island, 2
- Kauai, 2
- Molokai, 1
- Lanai, 1

**Retirements**

- 2030 - Retirement of Ma'alaea 1-9, Maui

**Additions**

- Hawaii island: Approx. 60 MW firm renewable; 30 MWh BESS
- All islands: necessary contingency projects

**2040**

**70% RPS Goal**

**2045+**

**100% RPS Goal**

A. *Implementing the Modern Generation Plan*

Section 1 of the 2014 Inclusions, “Creating a 21<sup>st</sup> Century Generation System,” pressed utilities “to move with urgency to modernize the generation system on each island grid.” Ten years later, modernization progress in the Hawaiian Electric territories, especially on Oahu, has not met expectations. Heavy reliance continues to be placed on older, inefficient fossil units, a few of which face forced retirement due to a lack of replacement parts.<sup>17</sup> What was urgent in 2014 is doubly so today because a key purpose of modernizing the generation system is to lessen the economic harm of sudden oil market price spikes. Recent history demonstrates that KIUC ratepayers largely avoided oil price shocks as the world emerged from the COVID pandemic and Russia invaded Ukraine, thanks to Kauai’s high percentage of low and/or fixed cost renewable generation. According to the Commission’s analysis, most Hawaiian Electric ratepayers were far less insulated and paid an estimated oil market premium of at least \$250 million from February 2022 to the end of 2023.<sup>18</sup> If we fail to accelerate the transition away from burning oil, instability in the Middle East and elsewhere will continue to subject ratepayers to the risk of extreme financial harm.

The U.S. Department of Energy (“DOE”) and other federal agencies may offer generous loan and/or grant programs to assist utilities with transforming antiquated fossil plants into modern alternatives. Modern generation facilities are more reliable, resilient and affordable, even if they temporarily rely on fossil fuel, because they are more efficient, more flexible to operate and support faster interconnection of renewables. The Commission recognizes that the most effective means to accelerate this infrastructure transition may require adjustments to the governing Competitive Bidding Framework to accommodate utility ownership and operation of certain generation assets. For example, federal loans or grants may condition funding on preserving utility control of new facilities as collateral, and refurbishment/re-powering of older generation sites or structures may reduce development costs. As demonstrated by recent third-party power generation interruptions on all islands, maintaining a foundation of utility generation promotes reliability and accountability for proper grid operation. Finally, as Hawaiian Electric works to restore its investment grade credit rating, new capital investment in its facilities can support a stronger balance sheet.

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<sup>17</sup> The Commission notes that it is increasingly concerned about whether electric utility deferred maintenance and/or inadequate inspections are causing reliability problems throughout the state. The Commission is carefully monitoring the utilities’ efforts to mitigate outages and may take corrective action if sufficient improvements are not made.

<sup>18</sup> As noted, *supra*, the Commission calculated the oil market premium by comparing costs borne by Hawaiian Electric ratepayers for fuel oil under the Energy Cost Recovery Clause Filings (ECRC) in the year 2019 (pre-COVID and prior to the Ukraine war) and fuel oil costs passed through to ratepayers by the ECRC from the commencement of the Ukraine war through the end of 2023.

According to Hawaiian Electric’s IGP, the following fossil fuel facilities are scheduled to retire by 2030:

**Oahu [total of 371 MW]**

- Waiau 3&4 (2024)
- Waiau 5&6 (2027)
- Waiau 7&8 (2029)

**Hawaii Island [total of 49 MW]**

- Puna Steam (Standby) (2025)
- Hill 5 & 6 (2027)

**Maui [total of 122 MW]**

- Kahului 1 – 4 (2027)
- Ma’alaea 10 – 13 (2027)
- Ma’alaea 1 – 9 (2030)

Projects making their way through the RFP Phase 1, Phase 2 and Phase 3 process are intended to fully replace the above-mentioned retiring units. While these projects may prove sufficient, the Commission urges parallel development of utility self-build contingency units, government projects and expanded DER resources.

Along with new generation projects, a 21<sup>st</sup> century generation system requires the optimization of existing modern resources, including the KES stand-alone battery storage facility on Oahu. The presence of this 565 MWh Battery Energy Storage System (BESS) should facilitate the more rapid interconnection of lowest-cost standalone variable renewable projects, but at present, it is mostly powered by fossil fuel generation plants. As soon as possible, the Commission expects to see a clear plan, with a specific timeline and a commitment from all stakeholders, that minimizes the dispatch of fossil units to charge KES and achieves the facility’s potential to support more renewables.

Achievement of meaningful generation transformation this decade is important for many reasons, and it also offers the opportunity to reduce or eliminate the community burden of aging, less efficient facilities and strengthen the capacity of the grid to withstand natural disasters. The Commission encourages utilities to be creative, engaging, proactive and generous in their work, especially as it relates to historically over-burdened communities. Improvements to the grid should benefit all affected residents and ratepayers.

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*B. A Smoother Road for Independent Power Producers (IPP)*

For each successive RFP phase, adjustments were made to the procurement process to clarify and streamline the requirements and reduce the time required to reach commercial operation.<sup>19</sup> In the Commission's review of requirements for the next phase of procurement in the IGP RFP, past efforts to improve the process will be scrutinized for effectiveness and further improvement. Particular attention will be paid to any provisions that hinder innovation, unreasonably delay development progress or complicate interconnection cost allocation. If traditional design parameters do not fully accommodate the evolving potential for co-mingling of renewable technologies like solar, wind and BESS in a single project, such parameters should change. Whenever possible, the grid supporting features of BESS associated with renewable projects should be enhanced, including but not limited to serving the dual purpose of powering a Resilience Hub.

An important concept in Hawaiian Electric's IGP is that of REZs. If properly implemented, the zones could simplify large renewable project siting and interconnection while proactively addressing affected community concerns.<sup>20</sup> The Commission looks to Hawaiian Electric to partner with government authorities on the designation of at least two REZs<sup>21</sup> on Oahu no later than the second quarter of 2026 and thereafter to encourage utilization of the REZs in RFPs. If the combined REZs are large enough to facilitate grid resource needs, it may also be appropriate to disincentivize development of utility-scale renewable projects outside of a REZ.

Notwithstanding past progress, the Commission favors ongoing, substantial reform of the utility-scale interconnection process. One approach could involve Hawaiian Electric pre-building interconnection facilities connected to the REZs prior to IPP project development and/or advance REZ site control.<sup>22</sup> Hawaiian Electric could also continue to improve its standardization and early disclosure of material and equipment specifications for interconnection facilities. To the greatest extent possible, the cost and configuration of interconnection facilities should be predictable and identified early to allow

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<sup>19</sup> See Commission REPORT TO THE 2023 LEGISLATURE RELATED TO AN INTERCONNECTION STUDY AND PROGRESS ON CONTRACTING THE HERA PURSUANT TO ACT 201 (December 2022), Attachment A at p. 9, Section 1.2.3 Interconnection Process Improvements in Stage 3 RFP, which provides, in part: "[For RFP3, Hawaiian Electric has] worked to reduce the total process time between the initial collection of the developers' models, to the completion of the IRS and filing the PPA application with the Commission to a twelve-month period. [Hawaiian Electric has] instituted a new model checkout process, clearly highlighting requirements for developers to ensure that their models are sufficient upon initial submission, to mitigate issues and delays in the SIS phase. [Hawaiian Electric] will also provide bidders with pre-highlighted substation requirements typically identified in the FS, to reduce cost risk to developers and decrease the chance of a project being withdrawn due to the projected costs of interconnection facilities. . . . [Hawaiian Electric] will also complete the IRS prior to negotiating the PPA and submitting the PPA and proposal for the project's overhead line, if applicable, for Commission approval."

<sup>20</sup> Even at this advanced planning stage before project design is finalized, the nexus between potential new energy resources and local energy needs must be addressed.

<sup>21</sup> The Commission encourages flexibility as to how the concept of a REZ is implemented. Its key components are relative ease of interconnection (ideally aided by advance utility planning and infrastructure development), community acceptance and feasibility of land use. Instead of, or in addition to, REZs that are large enough to support multiple projects, targeted REZs could be established on desirable government land, large parking lots, or in strategic locations that serve resilience goals.

<sup>22</sup> KIUC's common practice of obtaining advance site control for energy projects appears to have accelerated development on Kauai.

procurement of long-lead equipment. It is not reasonable to expect IPPs to absorb the risk of unexpected cost increases for an aspect of the project that is mostly under utility control.

In the interest of diversifying and enhancing the value of the relationship between Hawaiian Electric and IPPs, Hawaiian Electric should evaluate the potential of contracting with IPPs (and/or other qualified contractors) to deliver turn-key projects for utility ownership and operation. The Commission will entertain, to the extent necessary, adjustments to the Competitive Bidding Framework to preserve grid reliability, effective contingency planning and the timely completion of transformative energy infrastructure.

### *C. Resilience Hubs in Every Community*

As our changing climate exerts greater pressure on electric grids, the importance of resiliency and reliability grows. Power generation, especially on Oahu, is highly concentrated, leaving many geographically isolated communities exposed to extended power outages. From a land use perspective, suitable land should be identified for small scale projects in every community to generate power for critical infrastructure, such as hospital/clinics, police and fire stations, telecommunications backup, disaster shelters and major grocery stores/gas stations. As many commentators have observed,<sup>23</sup> energy-independent Resilience Hubs are essential community resources for climate adaptation and the preservation of life and social stability.

Unfortunately, the obvious need for Resilience Hubs does not resolve the barriers that prevented their existence in the past. They are expensive to build properly, and they are difficult to finance if they are conceived solely as emergency resources. A combination of utility, societal and government leadership is needed to envision new funding and development options, including: (1) exploration of Rural Energy for America Program grants<sup>24</sup> for rural communities; (2) leveraging intragovernmental wheeling or community solar programs to add value to the projects when the grid is functioning; or (3) connecting the projects to community benefits packages associated with nearby utility-scale projects.

Implementation strategies will vary depending on local characteristics, but the Commission urges energy utilities to coordinate with other stakeholders to facilitate the creation, no later than 2030 (and the sooner the better), of at least three completed energy facilities to support Resilience Hubs on Oahu, at least two each on Maui, the Island of Hawaii and Kauai and one each on Molokai and Lanai. Principles of equity and climate vulnerability should guide the prioritization of the first project locations.

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<sup>23</sup> See, e.g., *Build Resilience Hubs to Strengthen Hawaii's Communities*, by Chip Fletcher, Chris Benjamin and Jeff Mikulina, Op-Ed Column, Star Advertiser on September 14, 2023. <https://www.staradvertiser.com/2023/09/14/editorial/island-voices/column-build-resilience-hubs-to-strengthen-hawaiis-communities/>

<sup>24</sup> Rural Energy for America program grants are administered by the United States Department of Agriculture (USDA).

*D. The Big Potential of Smaller Public and Private Projects*

The recently opened Wheeling Docket will focus first on intragovernmental wheeling because it holds great promise as an alternative pathway to large-scale energy facility development outside utility procurement processes. Hawaii governments control substantial land assets, are motivated to participate in renewable energy development to promote state policy and understand the critical resilience needs of communities. It should be possible to design a simple compensation formula and framework that incentivizes intragovernmental wheeling, fairly compensates utilities, saves the government money on electricity and lowers costs for ratepayers. After taking into consideration the information provided by government agencies, utilities and other stakeholders, the Commission will issue an order relating to intragovernmental wheeling by the end of 2025.

In many parts of Hawaiian Electric's territories, the greatest source of renewable energy comes from the aggregated private development of DERs.<sup>25</sup> However, the IGP sets only modest targets for DER expansion, even though stakeholders (including Hawaiian Electric) agree that every viable rooftop and many parking lots and smaller parcels unsuited for agriculture should ultimately be covered with solar, advanced inverters and BESS. From a development perspective, DERs are easier to build and interconnect than any other energy project type. Over 600 MW of existing DERs do not have BESS,<sup>26</sup> and without BESS, DER systems are much less useful to the utility and system owners. Further, many of the original DER systems need to be expanded to support electric vehicle (EV) charging and increased use of air conditioning.

Additional investigation is needed to determine the best ways to incentivize and accelerate the conversion of DERs without storage to BESS integrated systems. The Commission also remains concerned that tariff complexity may be a barrier to customer participation in grid-services programs by legacy and new DER customers. Interconnection tariffs for DERs need to be, to the greatest extent feasible, as simple to describe and administer as the original Net Energy Metering connection tariff. Simplicity protects consumers from confusing assessments of DER system value and reduces utility costs to administer DER programs. As interconnection tariffs continue to improve, DERs should represent closer to 5 percent of new renewables added (i.e., approximately 400 MW) between now and the end of 2030 instead of the 2.8 percent, 223 MW, projected in the IGP. Although DERs by their nature are decentralized and not usually subject to RFPs and specific annual targets, Hawaiian Electric, DER industry parties to Commission dockets and other stakeholders should review annual progress and collaborate on strategies to sustain a consistent pace of integration to meet the 2030 target.

Community Based Renewable Energy (CBRE) is a program that has not lived up to its core objective of saving money for ratepayers who don't control their own rooftops. The current Phase 2 has

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<sup>25</sup> See Hawaiian Electric IGP at 5.

<sup>26</sup> Commission estimate based on filed utility reports.

attracted only a fraction<sup>27</sup> of the 235 MW program cap, and nearly all the developers working on projects have struggled mightily to meet the program’s complex requirements and schedules. The Commission intends to study whether CBRE should be restructured to replace Subscriber Organizations with utility managed, on-bill customer enrollment; simplify developer engagement subject to standard interconnection review/tariffs; establish a flat rate for exported power at the time of generation and a modestly higher flat rate for exported power from dispatchable BESS controlled by Hawaiian Electric; focus on lower income communities and allow ratepayers who qualify for the federal Low Income Home Energy Assistance Program (LIHEAP) to automatically qualify for the new CBRE; and seek to guarantee a bill discount of at least 10 percent for CBRE participation.

### **Section III: Staying Flexible, Creative and Proactive as the World Changes**

#### *A. Anticipating Load Growth and Household Energy Burden*

According to Hawaiian Electric surveys, only 14 percent of Oahu households and 2 percent of neighbor island households had air conditioning (AC) in 1970, but by 2019, those percentages ballooned to 68 percent on Oahu, greater than 50 percent on Maui, Molokai and Lanai, and 32 percent on Hawaii Island.<sup>28</sup> The growth of energy intensive AC will continue as the climate warms.<sup>29</sup> Hawaii may also soon face the challenge of accommodating the significant new energy demands related to artificial intelligence, crypto currency or large- scale data storage.

EVs represent another rapidly growing load, although their adoption reduces Hawaii’s total energy burden because EVs are more efficient than gas vehicles. Hydrogen fuel cells or similar technology may ultimately power some vehicles, but the electric grid will likely be the primary source of charging for the foreseeable future. For a variety of reasons, EV charging infrastructure in Hawaii substantially lags public demand and unless consumers have access to charging at home, access to chargers is woefully inadequate.<sup>30</sup> This access dichotomy raises obvious adoption and utilization concerns, especially in a state where conditions favor the use of EVs because daily driving distances are short (except on the Island of Hawaii) and gas is expensive. Charging infrastructure must be common enough for EVs to be a viable choice for all consumers.

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<sup>27</sup> Internal Commission CBRE progress tracking indicates that only 16.95 MW, with 45.1 MWh BESS, remains in development, i.e. less than 10 percent of the program cap.

<sup>28</sup> See <https://www.civilbeat.org/2019/09/as-ac-replaces-trade-winds-hawaiis-demand-for-electricity-imperils-renewable-goals/>

<sup>29</sup> *Id.*

<sup>30</sup> See, e.g. <https://www.civilbeat.org/2024/05/hawaii-is-a-lousy-place-to-charge-an-electric-vehicle/>

[Note – this article reasonably expresses frustration with the progression of the PUC EV charging docket, No. 2021-0173, which has been hampered by cost concerns, technical complexities, and changes in the scope of Hawaiian Electric’s proposal. In Order No. 40977 on September 6, 2024, the Commission suspended this docket pursuant to Hawaiian Electric’s August 13 letter request for a 90-day suspension to continue “evaluating priorities” and “considering potential Project scope and/or schedule changes.” The Commission will review the status and future of this docket in early 2025.]

The governments of Los Angeles, California and Norway achieved widespread access by promoting a multifaceted approach of standard Level 2 chargers, fast chargers and light pole charging. Hawaii clearly needs a much higher number and greater variety of charger options, but our state also has unique considerations arising from distinct commuting and traffic patterns and the benefits of charging during the day when solar power is abundant. The Commission will work with public utilities and fellow agencies to pursue solutions that lower installation costs per charger, improve “up-time” of existing chargers, incentivize daytime charging and prioritize sites that serve residents of apartments and condominiums. Our collective goal should be to at least double the current number of public charging stations by 2026 and to continue ambitious growth each year until charging access no longer deters EV purchases.

Proactive management of new energy demands is necessary to prevent load growth from overwhelming progress made toward a carbon-neutral future. Architectural solutions already exist that virtually eliminate the need for AC but are not yet common in Hawaii.<sup>31</sup> More stringent energy efficiency standards can be imposed by government on new residential and commercial cooling systems, and giant new industrial loads should be required at the time of development to fully offset their electric use with new, non-fossil generation. Another safeguard against runaway energy consumption is the Hawaii Energy Program, a.k.a. the Public Benefits Fund Administrator (PBFA), that has, for over 15 years, delivered efficiency savings for Hawaii’s residents and businesses as well as targeted benefits to low-income customers. For the upcoming 2025-2027 PBFA RFP, the Commission intends to apply a 6-year perspective, even for this 3-year RFP, to plan for the achievement of the energy efficiency goal (codified in Hawaii Revised Statutes §269-96) of 4,300 GWh cumulative energy savings by 2030.

#### *B. Using our Limited Land Resources Wisely*

Like all island communities, Hawaii knows from long experience about the finite nature of its resources. Hawaiian Electric’s final supplement to its IGP confirms that the preferred energy resource plan for Oahu is the “Land-Constrained Plan,” acknowledging the difficulty of generating sufficient renewable power to serve Hawaiian Electric’s largest loads on the third-largest island. Further, not all undeveloped land is suitable for energy projects when consideration is given to community impacts and the competing priorities of agriculture and affordable housing. Several strategies exist to make the most of what we have, including:

- improving assessments of designated agricultural lands to allow construction of energy projects when they are not displacing local food production;
- promotion of hybrid energy/agriculture projects;
- programs that facilitate Government leases of land or rooftops to Hawaiian Electric for energy project development in exchange for electric bill discounts;
- designation of REZs (discussed above).

The Commission has limited jurisdiction to advance these strategies but resolves to work with public and private stakeholders to explore their benefits.

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<sup>31</sup> See, e.g. <https://www.wlrn.org/environment/2023-08-04/as-florida-heats-up-architects-go-back-to-the-past-for-passive-cooling-home-designs>

## Conclusion

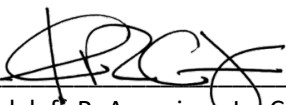
There is broad consensus on the need for urgent and immediate action to modernize our island electric grids and achieve reliability, resiliency, environmental and affordability goals.<sup>32</sup> But as the last 10 years demonstrate, transformational plans are much easier to describe than execute. Whether we are more successful now will depend on the willingness of the traditional participants<sup>33</sup> in the regulatory process to turn aspirations into achievement through:

- willpower: staying laser focused on measurable and timely results;
- flexibility: avoiding the stagnation of customary practices that impede progress and swiftly implementing contingency plans when primary options fail;
- creativity: encouraging new approaches to problem solving;
- collaboration: engaging new participants (such as government agencies, community leaders and entrepreneurs) whose resources and abilities amplify the collective efforts.

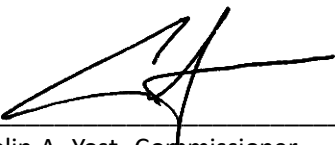
The road ahead may be complex and groundbreaking, but it is also ordinary because it concerns the fundamental purpose of utilities to act in the public interest by providing reliable, safe, utility services at reasonable rates. No matter how daunting the circumstances, the energy utilities' performance of that fundamental purpose must be fulfilled.

APPROVED at Honolulu, Hawaii December 31, 2024.

PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

By  \_\_\_\_\_  
Leodoloff R. Asuncion, Jr., Chair

By  \_\_\_\_\_  
Naomi U. Kuwaye, Commissioner

By  \_\_\_\_\_  
Colin A. Yost, Commissioner

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<sup>32</sup> See e.g. IGP Section 1.3.2 "Immediate Action to Meet Goals and Maintain Reliability," and IGP November 14, 2023 Supplement at p. 2.

<sup>33</sup> I.e. the utilities, the Commission, the Consumer Advocate and prominent stakeholders.