

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

----- In the Matter of ----- )  
 )  
PUBLIC UTILITIES COMMISSION ) DOCKET NO. 2018-0165  
 )  
Instituting a Proceeding )  
To Investigate Integrated )  
Grid Planning. )  
\_\_\_\_\_ )

ORDER NO. 37419

PROVIDING GUIDANCE

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PROVIDING GUIDANCE

By this Order, the Public Utilities Commission ("Commission") provides guidance on the integrated grid planning ("IGP") process being implemented by HAWAIIAN ELECTRIC COMPANY, INC., HAWAII ELECTRIC LIGHT COMPANY, INC., and MAUI ELECTRIC COMPANY, LIMITED (collectively "Companies" or "Hawaiian Electric").<sup>1</sup>

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<sup>1</sup>The Parties to this proceeding are Hawaiian Electric, the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"), an ex officio party, and the Intervenors admitted in Order No. 35727, i.e., RENEWABLE ENERGY ACTION COALITION OF HAWAII, INC.; LIFE OF THE LAND; ENERGY ISLAND; COUNTY OF HAWAII; HAWAII PV COALITION; HAWAII SOLAR ENERGY ASSOCIATION; PROGRESSION HAWAII OFFSHORE WIND, LLC; ULUPONO INITIATIVE, LLC; and BLUE PLANET FOUNDATION (collectively, "Parties"). See Order No. 35727, "Admitting Intervenors," filed on October 2, 2018 ("Order No. 35727").

I.

BACKGROUND

By Order No. 35569 the Commission opened the instant docket to investigate the IGP process.<sup>2</sup> Pursuant to Order No. 35569, the Companies filed their IGP Workplan on December 14, 2018.<sup>3</sup> The Workplan describes the major steps of the Companies' proposed IGP process, timelines, and the methods the Companies intend to employ, including various Working Groups.<sup>4</sup>

On March 14, 2019, the Commission issued Order No. 36218, which accepted the Workplan and gave implementation guidance.<sup>5</sup> By Order No. 36218, the Commission directed the Companies to file a brief explanation of the review they envision at the Review Points identified in the Workplan.<sup>6</sup> The Companies filed their Review Points Proposal on July 31, 2019.<sup>7</sup>

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<sup>2</sup>See Order No. 35569, "Instituting a Proceeding to Investigate Integrated Grid Planning," filed on July 12, 2018 ("Order No. 35569").

<sup>3</sup>See "Planning Hawaii's Grid for Future Generations; Integrated Grid Planning Workplan, December 14, 2018" ("IGP Workplan" or "Workplan").

<sup>4</sup>See, e.g., Workplan at 39; Section 5.3.

<sup>5</sup>See Order No. 36218, "Accepting the Workplan and Providing Guidance," filed on March 14, 2019 ("Order No. 36218").

<sup>6</sup>See Order No. 36218 at 8.

<sup>7</sup>Letter From: K. Katsura To: Commission Re: "Docket No. 2018-0165, Instituting a Proceeding to Investigate Integrated

On November 4, 2019, the Commission issued Order No. 36725 to provide guidance on the Review Points Proposal, and supplemental feedback on the IGP process, including the Working Groups' progress.<sup>8</sup>

## II.

### DISCUSSION

It has been a year since the Commission provided guidance in Order No. 36725. In that time, Hawaiian Electric and IGP stakeholders have made significant progress in the Working Groups. But the COVID-19 pandemic has forced Hawaiian Electric, the Commission, and every person in the State, to adapt to difficult and changing circumstances. Many timelines and milestone dates proposed in the IGP Workplan have been missed, and certain key deliverables are not yet finished. The Commission is not aware of any revised timelines for these milestones, and believes that timelines are necessary to maintain progress in IGP.

Based on the progress in IGP, but recognizing that the future is particularly uncertain and may present unexpected

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Grid Planning, Companies' Proposal for Review Points," filed July 31, 2019 ("Review Points Proposal").

<sup>8</sup>See Order No. 36725, "Providing Guidance," filed on November 4, 2019 ("Guidance Order").

challenges, the Commission believes that it is again time to guide IGP's course. Therefore, the Commission provides the following guidance on three fundamental and closely-related areas: coordination, stakeholder engagement, and transparency.

A.

Specific Guidance

Coordination. As the Commission stated in the Guidance Order, Hawaiian Electric:

should ensure that the IGP process is truly integrating the Companies' efforts across multiple dockets and disciplines by developing methods for appropriate [Hawaiian Electric] personnel from related dockets to collaborate on IGP efforts. This effort should also identify any critical decision points and required approvals, so the Companies can plan for them.<sup>9</sup>

It is clear to the Commission that Hawaiian Electric must improve its coordination with other relevant teams, both within IGP and throughout its operations. This will help ensure the outputs from IGP are consistent with other dockets. One major reason to integrate planning processes is to reap the cross-cutting benefits that come with close coordination. Although IGP's outputs are critically important, so too is the process of Hawaiian Electric's internal teams working together, and with stakeholders, to teach

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<sup>9</sup>Guidance Order at 14-15.

and learn from each other as they transparently develop those outputs.

The work in IGP touches upon nearly every element of Hawaiian Electric's business. For IGP to become truly integrated, Hawaiian Electric staff who work on IGP must communicate and coordinate with every other part of Hawaiian Electric's business, in a timely and transparent manner. In that way, Hawaiian Electric can ensure that other dockets are operating in concert with IGP. Hawaiian Electric must improve its IGP coordination efforts with the dockets specifically identified in the Guidance Order.<sup>10</sup> To promote these coordination efforts, and to help avoid bottlenecks in other dockets, Hawaiian Electric should develop and communicate revised, realistic, timelines IGP for working group deliverables. In addition to transparently coordinating its IGP efforts with all relevant areas within the Companies, Hawaiian Electric must transparently coordinate efforts between

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<sup>10</sup>These dockets include the Stage 1 and Stage 2 RFP dockets, the Microgrid Tariff docket, the Distributed Energy Resources docket, and the Performance Based Regulation ("PBR") docket. See Guidance Order at 14. The Companies should also coordinate their IGP efforts with other dockets and initiatives that may significantly shape energy supply and demand, Electrification of Transportation, Demand Response, and Community Based Renewable Energy.

the IGP working groups to allow for clear feedback between the working groups.<sup>11</sup>

Performance Based Regulation is one particular area that requires coordination with IGP. On October 2, 2020, Hawaiian Electric shared a preliminary IGP resource plan in a meeting of the Solutions Evaluation and Optimization Working Group ("SEOWG"). The SEOWG resource plan largely contradicts the resource plan Hawaiian Electric presented in the PBR docket, on the same day.<sup>12</sup> This is a critical oversight, which suggests a lack of communication between relevant docket teams at Hawaiian Electric. As soon as reasonably practicable, Hawaiian Electric should release an updated resource plan that is consistent across the IGP and PBR dockets.

Energy efficiency is another area that is ripe for coordination with IGP. Hawaiian Electric should evaluate energy efficiency, like all demand-side resources, on a consistent and comparable basis with supply-side resources by incorporating the

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<sup>11</sup>See Guidance Order at 14-15

<sup>12</sup>The plans Hawaiian Electric presented in their Phase 2 power purchase agreement applications also contradict the resource plans Hawaiian Electric presented in both the SEOWG and in the PBR Docket. See Applications filed in Docket Nos. 2020-0137, 2020-0138, 2020-0139, 2020-0140, and 2020-0143, on September 15, 2020, at Exhibit 3, Attachment 1. Discrepancies included the additions of certain new energy resources, the removal from service of existing energy resources, and the timing of both.

most recent potential study findings into IGP, by: (1) developing supply curves for energy efficiency;<sup>13</sup> (2) modeling these supply curves as portfolio options that compete with supply-side options; and (3) explicitly analyzing for any cost and risk reduction benefits of demand-side resources.<sup>14</sup> Hawaiian Electric should maximize stakeholder engagement as it takes these steps. As Hawaiian Electric completes this work with its stakeholders, Hawaiian Electric should transparently specify all relevant characteristics used by the capacity expansion model for resource selection, such as hourly load shapes, annual and maximum cumulative development limits, and dispatchability. This will help assure the Commission that IGP outputs fairly value all utility system cost reductions that demand-side resources provide, including those that are not directly captured in capacity expansion modeling or input assumptions, such as: (1) distribution and transmission system capacity; (2) ancillary services (e.g., planning and operating reserves); (3) air pollutant

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<sup>13</sup>Hawaiian Electric should collaborate with Hawaii Energy and Applied Energy Group, and other relevant stakeholders in developing these supply curves.

<sup>14</sup>These steps would essentially treat energy efficiency in the same way that Hawaiian Electric is or should be treating demand response, distributed generation, distributed storage and managed electric vehicle charging.

emissions; and (4) compliance with the Renewable Portfolio Standard.

In sum, by transparently and fairly modeling the full range of costs and benefits associated with each resource, and by working with stakeholders at every step in this process, Hawaiian Electric will give the Commission confidence in the validity of the resulting plans. The Commission expects that Hawaiian Electric will fully coordinate and consistently communicate its IGP progress and results with other areas of Hawaiian Electric that depend upon them, and with the stakeholders whose input is critical to shaping those results.

Electrification of transportation is another area that is ripe for additional coordination. The Commission is concerned that Hawaiian Electric's electric vehicle charging forecasts appear only to consider "unmanaged" charging that occurs during system peak hours. Hawaiian Electric has not sufficiently explained why this assumption is appropriate. This assumption is at odds with Hawaiian Electric's work in developing the Electrification of Transportation Roadmap (see Docket No. 2018-0135), the Electrification of Transportation Innovative Pilot Framework (see Docket Nos. 2018-0135 and 2018-0088), and the related work that continues in the PBR and Distributed Energy

Resources dockets.<sup>15</sup> Hawaiian Electric's IGP team should consult with the other teams that have worked on these dockets to fully consider how new workplace charging infrastructure, car-sharing, public transportation options, gasoline prices, vehicle offerings, rate design, and other variables could influence electric vehicle charging behavior and adoption rates. Hawaiian Electric should then present the results of this collaboration to the appropriate working groups to: (1) clearly explain the reasons for its expected trends and characteristics of electric vehicle charging and adoption; and (2) transparently demonstrate how those expected trends and characteristics will be included modeling, including any sensitivities.

Hawaiian Electric's forecast should be integrated into the overall IGP planning process through a series of feedback loops so that the forecast is not simply conducted once per cycle but is used as a tool to iteratively inform needs identification and solution evaluation. For example, considering how interrelated many of the forecast variables are, once potential solutions are identified, they could be run through the forecast models as part of the evaluation process to explore how they influence broader demand projections. This process could also foster detailed

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<sup>15</sup>See Docket Nos. 2016-0168, 2018-0135, 2018-0088, and 2019-0323.

discussions on how experts and stakeholders from different industries provided insight to the underlying assumptions used in forecasts.

Stakeholder Engagement. On August 18, 2020, Hawaiian Electric held its most recent Stakeholder Council meeting. At that meeting, Hawaiian Electric and certain stakeholders presented a proposal to reorganize the Stakeholder Council, with the goal of allowing stakeholders to steer the IGP process, and provide substantive, detailed feedback to Hawaiian Electric before it makes final decisions.

The Commission has repeatedly emphasized the importance of stakeholder input in the planning process.<sup>16</sup> This means not just presenting findings to stakeholders, but proactively seeking stakeholder feedback, giving stakeholders the time and resources necessary to providing meaningful feedback, and incorporating stakeholder feedback into IGP deliverables.<sup>17</sup> The Stakeholder

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<sup>16</sup>See In re Public Utils. Comm'n, Docket No. 2014-0183, Order No. 34696, filed on July 14, 2017, at 49 (stating that Hawaiian Electric's "planning efforts must continue to actively engage stakeholders, and incorporate their constructive input." See also Order No. 35569, at 24-25 (stating the Commission's expectation that Hawaiian Electric's "proposed customer and stakeholder process will support and improve the resulting plans."))

<sup>17</sup>See Guidance Order at 10 (stating "For the IGP process to work, the Working Groups must have the opportunity serve their designated functions, even if this requires more time than originally envisioned. It is critical that [Hawaiian Electric

Council, the Technical Advisory Panel, and the IGP Working Groups include a broad range of stakeholders who can provide valuable insights and expertise. The Commission continues to believe that Hawaiian Electric will benefit by giving these stakeholders meaningful opportunities to develop and improve the IGP process and the plans. The Commission expects that the proposed Stakeholder Council reorganization will advance these goals. Therefore, the Commission encourages Hawaiian Electric to pursue the Stakeholder Council reorganization.

As suggested in the August 18, 2020 Stakeholder Council meeting, one of the first things the re-invigorated Stakeholder Council should consider is a retrospective evaluation of completed IGP deliverables. Good candidates for such retrospective evaluation include the Soft Launch, the Distribution Planning Working Group ("DPWG") deliverable, the SEOWG deliverable, and the Resilience Working Group ("RWG") deliverable. For the Soft Launch evaluation, the Stakeholder Council could work with Hawaiian Electric to develop a programmatic approach to procuring non-wires solutions.<sup>18</sup> For the DPWG and SEOWG deliverables,

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takes] the time to meaningfully respond to and incorporate stakeholder feedback.")

<sup>18</sup>See Docket No. 2020-0016, In re Hawaiian Elec. Co., Order No. 37388, filed on October 22, 2020, at 18 (noting the "significant issues that have arisen regarding the evaluation of" non-wires alternatives in the context of the IGP Soft Launch).

the Stakeholder Council could develop detailed feedback and procedures to ensure that stakeholders receive clear, timely information about how their feedback is incorporated into revised versions of these deliverables. For the RWG deliverable, the Stakeholder Council could develop methods of incorporating the recommendations into the planning process. The RWG could then reconvene to develop resilience rankings for various potential portfolios. These rankings could also be incorporated into the SEOWG deliverable.

The foregoing is not meant to be an exhaustive list of what the Stakeholder Council must do, but some examples of how Hawaiian Electric could use a reinvigorated Stakeholder Council to meaningfully engage its stakeholders and incorporate their expertise in every step of IGP.

Transparency. Transparency is central to effective coordination and stakeholder engagement. Especially in light of COVID-19, transparently addressing uncertainties is critical for ensuring Hawaiian Electric can justify its proposed investment choices. Hawaiian Electric must make sure that its stakeholders understand what scenario and sensitivity analyses it intends to model in developing its resource plans, and how those model results will inform potential solutions. This includes providing meaningful information on the tools, processes, assumptions, and results generated throughout the IGP process, in a way that is

accessible and easy to understand. The design parameters for the RESOLVE and PLEXOS modelling are still opaque to many stakeholders. As one example, among many others, Hawaiian Electric should transparently explain the grid service requirements going into the models and how RESOLVE and PLEXOS will be configured.<sup>19</sup>

In addition to transparently explaining its own processes and decisions, Hawaiian Electric must ensure that stakeholders' feedback is clearly incorporated into every decision-making step in IGP. If Hawaiian Electric chooses not to incorporate stakeholder feedback in certain decisions - which it reasonably may need to do - Hawaiian Electric must transparently

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<sup>19</sup>Other areas that require transparent communication and explanation include: (1) any adjustments made to the load studies that were used to develop underlying load forecasts; (2) all input assumptions, sources, modeling parameters, and methods to account for the changes in load due to COVID-19; (3) how Hawaiian Electric will model aggregated resources; (4) assumptions about customers with distributed energy resources, and the addressable market; (5) transmission and distribution level forecasting, including the spatial and temporal nature of resources, to directly inform distribution and transmission planning by highlighting energy delivery infrastructure needs down to the circuit-level; (6) why Hawaiian Electric's plan to account for load defection only on a case by case basis is appropriate, and why it is not reasonable to consider broader long-term load-defection sensitivities; (7) how Hawaiian Electric's work on advanced rate designs and time based-rates could change each layer underlying the load forecasts; (8) how Hawaiian Electric is addressing the uncertainties around resource costs in its resource planning, including fossil fuel costs, and operating and maintenance costs, and broader uncertainties related to COVID-19; and (9) greenhouse gas emissions forecasts, and, relatedly, how Hawaiian Electric will incorporate climate change into its weather forecasts.

explain what stakeholders recommended, how Hawaiian Electric considered those recommendations, and give clear and compelling explanations why it rejected those recommendations. Hawaiian Electric has done a good job of starting this process, with the summary of stakeholder feedback provided in the IGP Workplan.<sup>20</sup> Hawaiian Electric could carry this effort forward by developing an updated version of this section with clear explanations of how stakeholder feedback was incorporated into Working Group deliverables, and to the extent it was not incorporated, providing clear reasons why. This would ensure that stakeholders, who have devoted over two years to IGP, would know that their voices have been heard, and would help ease Commission review.

The Australia Energy Market Operator provides an illustrative example of how Hawaiian Electric could transparently integrate stakeholder perspectives into its planning process.<sup>21</sup> Transparency will be particularly important for the Forecasting and Assumptions Working Group ("FAWG") deliverable,

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<sup>20</sup>See IGP Workplan, Section 2.

<sup>21</sup>See Australia Energy Market Operator "2019 Planning and Forecasting Consultation responses on Scenarios, Inputs, Assumptions and Methodology," available at: [https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning\\_and\\_Forecasting/Inputs-Assumptions-Methodologies/2019/2019-Planning-and-Forecasting-Consultation-Responses.pdf](https://www.aemo.com.au/-/media/Files/Electricity/NEM/Planning_and_Forecasting/Inputs-Assumptions-Methodologies/2019/2019-Planning-and-Forecasting-Consultation-Responses.pdf)

where stakeholders have provided extensive feedback and suggestions during meetings in addition to sending emails with suggestions about assumptions, data, scenarios, and sensitivities to use when developing the forecasts.

To further promote this necessary transparency, the Commission reminds Hawaiian Electric that information must “be available in spreadsheet files compatible with Microsoft Excel in live and dynamic format with cell logic, assumptions, references, calculations, and formulas intact, and all cells unhidden and unprotected.”<sup>22</sup> Hawaiian Electric must revise the outputs from the FAWG, consistent with this guidance. In so doing, Hawaiian Electric should consider how to better use Microsoft Excel formatting to help users understand inputs and assumptions.<sup>23</sup>

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<sup>22</sup>See Guidance Order at 8-9, n.17 (emphasis added). To date, much of data provided by Hawaiian Electric has been in static format.

<sup>23</sup>See e.g., Australia Energy Market Operator 2020 ISP Input and Assumptions Workbook, available at: [https://aemo.com.au/-/media/files/electricity/nem/planning and forecasting/inputs-assumptions-methodologies/2020/2019-input-and-assumptions-workbook-v1-5-jul-20.xlsx?la=en ;!!LIYSdFfckKA!gPwzqRbbvMBNzwZfavlmkYdqxYfjqoI6sKqUJBu07QUUOG1-rZvS4m1kDE2yIDpV F2qBs41tg\\$](https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2020/2019-input-and-assumptions-workbook-v1-5-jul-20.xlsx?la=en ;!!LIYSdFfckKA!gPwzqRbbvMBNzwZfavlmkYdqxYfjqoI6sKqUJBu07QUUOG1-rZvS4m1kDE2yIDpV F2qBs41tg$); see also, Australia Energy Market Operator 2020 ISP Scenarios, Inputs, Assumptions and Methodologies, available at: <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2020-integrated-system-plan-isp/2020-isp-inputs-and-assumptions>; National Electricity Market Electricity Demand Forecasts, available at: <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem->

By adopting comprehensive transparency in its decision making, Hawaiian Electric will benefit from the full range of stakeholder expertise, significantly improve resulting plans, enable the Commission to evaluate them in similarly transparent manner, and foster broad confidence in the resulting plans and the decisions based upon them.

To begin implementing this guidance, Hawaiian Electric should: (1) transparently communicate proposed scenarios and sensitivities for stakeholder feedback; (2) summarize and incorporate that feedback into the SEOWG deliverable; and (3) clearly summarize stakeholder feedback received in the FAWG with explanations of how it was incorporated or why it was not incorporated.

B.

#### Conclusion

As the Commission has stated, “[f]or the IGP process to work, the Working Groups must have the opportunity serve their designated functions, even if this requires more time than originally envisioned. It is critical that the Companies take the time to meaningfully respond to and incorporate stakeholder

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[forecasting-and-planning/forecasting-and-planning-data/nem-electricity-demand-forecasts.](#)

feedback.”<sup>24</sup> In this vein, the Commission urges the Companies to further develop meaningful coordination on IGP efforts within Hawaiian Electric, and between the Working Groups, and further improve their stakeholder engagement, consistent with the guidance in this Order. Heightened transparency will be critical for these efforts. Meaningful coordination and stakeholder engagement will be impossible without it.

Although improvements in IGP’s coordination, stakeholder engagement, and transparency are critical, the Commission will not allow the understandable delays in IGP to slow progress on parallel efforts in other proceedings, including PBR, competitive bidding for new renewable energy, energy efficiency programs, distributed energy resources, community-based renewable energy, electrification of transportation, etc. These initiatives will continue to proceed expeditiously, and the Commission expects Hawaiian Electric to fully support and enable achievement of these proceedings’ objectives within their respective timelines, regardless of the progress or status of the IGP process.

Again acknowledging that “the IGP process is an ambitious and novel effort, with many interdependent parts,”<sup>25</sup> the Commission directs Hawaiian Electric to work with stakeholders

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<sup>24</sup>Guidance Order at 10.

<sup>25</sup>Guidance Order at 13.

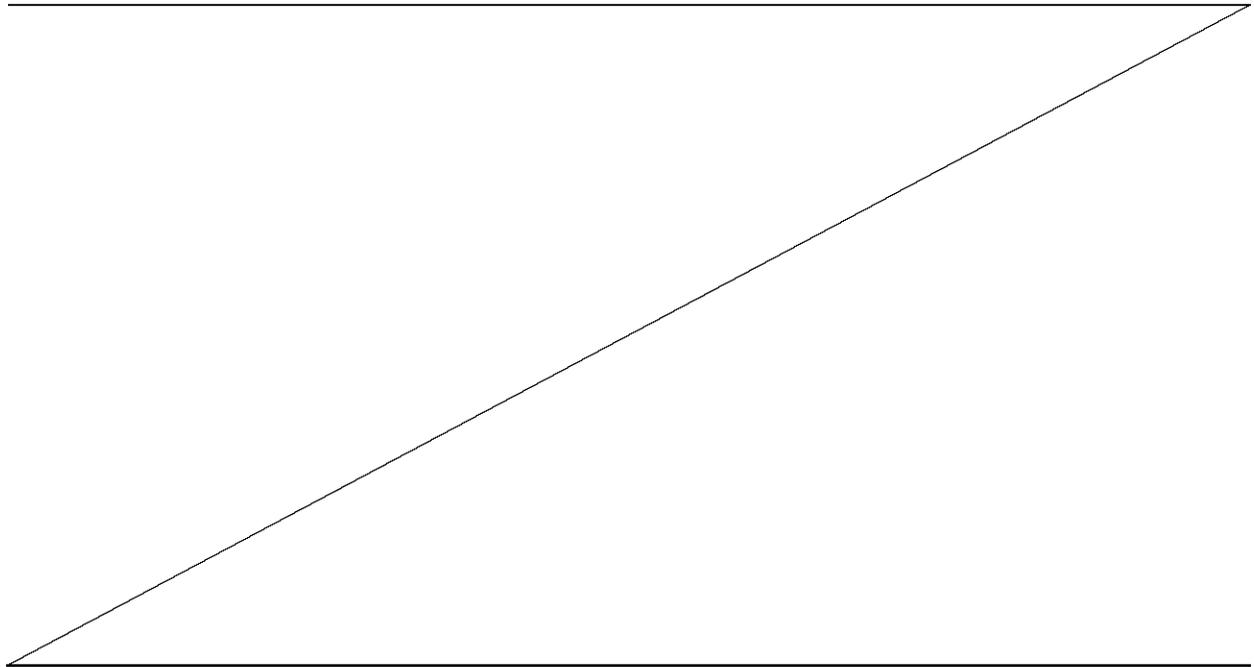
on incorporating the guidance in this Order, and to develop revised, realistic timelines for the major IGP steps, and file them in this docket. The Commission expects Hawaiian Electric to devote the time and resources necessary to make IGP an industry-leading planning process. The Commission believes that greater coordination, the proposed Stakeholder Council reorganization, and further improved transparency will advance this goal.

III.

ORDERS

THE COMMISSION ORDERS:

1. Hawaiian Electric shall continue implementing IGP consistent with the guidance set forth in this Order.



2. Hawaiian Electric shall file an updated version of the IGP Workplan that indicates how it will implement the guidance in this Order, and include revised timelines for review points, and other milestones and deliverables, as required.

DONE at Honolulu, Hawaii NOVEMBER 5, 2020.

PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

By James P. Griffin  
James P. Griffin, Chair

By Jennifer M. Potter  
Jennifer M. Potter, Commissioner

By Leodoloff R. Asuncion, Jr.  
Leodoloff R. Asuncion, Jr., Commissioner

APPROVED AS TO FORM:

Mike S. Wallerstein  
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2018-0165.ljk

CERTIFICATE OF SERVICE

Pursuant to Order No. 37043, the foregoing Order was served on the date it was uploaded to the Public Utilities Commission's Document Management System and served through the Document Management System's electronic Distribution List.

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COMMISSION

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