

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

-----In the Matter of----- )  
 )  
PUBLIC UTILITIES COMMISSION )  
 )  
Instituting a Proceeding to )  
Review the Power Supply )  
Improvement Plans for Hawaiian )  
Electric Company, Inc., Hawaii )  
Electric Light Company, Inc., and )  
Maui Electric Company, Limited. )  
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DOCKET NO. 2014-0183

DECISION AND ORDER NO. 34696

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_____	)	

DECISION AND ORDER

By this Decision and Order, and subject to the conditions set forth herein, the State of Hawaii Public Utilities Commission ("commission") accepts the Hawaiian Electric Companies' PSIPs Update Report ("Report"),<sup>1</sup> provides guidance regarding implementation and future planning activities, and closes this docket.<sup>2</sup>

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<sup>1</sup>"The Hawaiian Electric Companies' PSIPs Update Report, Filed December 23, 2016, Books 1-4," filed on December 23, 2016 in the instant docket.

<sup>2</sup>The Parties to this docket are: (1) Hawaiian Electric Company, Inc. ("HECO"), Hawaii Electric Light Company, Inc. ("HELCO"), and Maui Electric Company, Limited ("MECO"), (collectively, the "HECO Companies" or the "Companies"); (2) the Consumer Advocate, an ex officio party to this proceeding, pursuant to Hawaii Revised Statutes ("HRS") § 269-51 and Hawaii Administrative Rules ("HAR") § 6-61-62(a); the Intervenors, pursuant to



I.

INTRODUCTION

On August 7, 2014, the commission instituted this proceeding to review the power supply improvement plans ("PSIPs") filed by Hawaiian Electric Company, Inc. ("HECO"), Hawaii Electric Light Company, Inc. ("HELCO"), and Maui Electric Company, Limited ("MECO") (collectively, the "HECO Companies" or "Companies"). By this order, the commission accepts the Report and provides guidance for implementing the near-term actions identified in the PSIPs.

The Companies' near-term action plans and long-range analysis provide useful context for evaluating pending and future operational decisions and resource acquisition alternatives.

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Order No. 33320 at 175: (3) the County of Maui ("COM"); (4) the Department of Business, Economic Development, and Tourism ("DBEDT"); and (5) the County of Hawai'i ("COH"); the Participants, pursuant to Order No. 33320 at 175: (6) Renewable Energy Action Coalition of Hawaii, Inc. ("REACH"); (7) Life of the Land ("LOL"); (8) Hawaii Solar Energy Association ("HSEA"); (9) Puna Pono Alliance ("Puna Pono"); (10) The Alliance for Solar Choice ("TASC"); (11) Hawaii Renewable Energy Alliance ("HREA"); (12) The Gas Company, LLC, dba Hawaii Gas ("Hawaii Gas"); (13) AES Hawaii, Inc. ("AES"); (14) Blue Planet Foundation ("Blue Planet"); (15) Ulupono Initiative LLC ("Ulupono"); (16) Hawaii PV Coalition ("HPVC"); (17) Sierra Club; (18) Tawhiri Power LLC ("Tawhiri"); (19) SunPower Corporation ("SunPower"); (20) Paniolo Power Company, LLC ("Paniolo"); (21) Eurys Energy America Corporation; (22) First Wind Holdings, LLC; and (23) the Distributed Energy Resources Council of Hawaii ("DERC") (admitted as a Participant in Order No. 33388, filed on December 11, 2015 in this docket). Except as specifically otherwise noted, the use of the term "Parties" in this Order refers, collectively, to the Parties and the Participants.

The commission is confident that many of the Companies' proposed near-term actions pertaining to renewable energy development are supported by sound analysis and are consistent with State energy policy and prior commission orders.

These proposed actions include company-wide plans for competitive procurement of grid scale renewable resources; successful implementation of the community-based renewable energy program ("CBRE"), demand response ("DR"), and distributed energy resource ("DER") programs; and certain utility actions to improve the reliability of each island grid. The commission now expects the Companies to advance these elements of the near-term action plans, and offers further guidance on these elements in Section V.B., below.

The commission also finds that certain projects in the near-term action plans are not sufficiently justified by the analysis in the Report. These projects include certain proposed conventional generation plants, utility-owned battery energy storage systems ("BESS"), proposed synchronous condensers, and certain proposed transmission projects. The commission will require further analysis, including thorough analysis of alternatives, during review of capital expenditures and any applications for these projects. Section V.C., below, contains further guidance related to these proposed projects. The commission expects the Companies to continuously improve and

refine their resource planning tools and methods, and employ these tools to support appropriate competitive procurement processes and project applications in the near term.

Overall, the commission finds significant improvements in the Report over the previous PSIPs filed in this docket. The Companies have expanded the scope of their analysis, and engaged new planning tools to better address the substantial planning challenges they face. Compared to prior filings, the Report is more transparent, incorporates additional stakeholder input, and addresses several of the commission's previously stated concerns regarding analysis.

In addition, the high-quality stakeholder input throughout this proceeding has improved both the planning process and the resulting plans. The commission appreciates the significant effort expended by all Parties, whose continued engagement and respectful dialogue have markedly improved the results.

Subject to the conditions and guidance set forth in this Order, the commission accepts the Report, including the near-term action plans, and directs the Companies to focus their efforts on implementing these plans. The commission will use the Report to provide context for further consideration and analysis in the review of subsequent competitive procurement processes and applications



for approval of specific resources, projects, and contracts, as appropriate.<sup>3</sup>

## II.

### BACKGROUND AND PROCEDURAL HISTORY<sup>4</sup>

On April 28, 2014, the commission issued four Orders<sup>5</sup> that collectively provided broad guidance on electric utility planning and operations, including instructions to the HECO Companies to develop and file PSIPs, and the initial requirements that the PSIPs should address.<sup>6</sup> In addition, the commission made clear that the PSIPs should incorporate the guidance set forth in the *Commission's Inclinations on the Future of Hawaii's Electric Utilities*

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<sup>3</sup>See Order No. 33877 at 14; Order No. 33320 at 2.

<sup>4</sup>A more exhaustive procedural history of this docket is provided in Order No. 33877 at 6-9.

<sup>5</sup>See In re Public Util. Comm'n, Docket No. 2012-0036, Decision and Order No. 32052, filed April 28, 2014 ("Order No. 32052"); In re Public Util. Comm'n, Docket No. 2011-0206, Decision and Order No. 32053, filed on April 28, 2014 ("Order No. 32053"); In re Public Util. Comm'n, Docket No. 2007-0341, Order No. 32054 "Policy Statement and Order Regarding Demand Response Programs," filed on April 28, 2014 ("Order No. 32054"); and In re Public Util. Comm'n, Docket No. 2011-0092, Decision and Order No. 32055, filed on April 28, 2014 ("Order No. 32055").

<sup>6</sup>Order No. 32055 at 87-93; In re Hawaii Elec. Light Co., Docket No. 2012-0212, Decision and Order No. 31758, filed on December 20, 2013, at 113-121; and Order No. 32053, at 68-69.

("Commission's Inclinations"),<sup>7</sup> which detailed the commission's broader perspectives on aligning the HECO Companies' investments and business model with customer needs and the State's public policy goals.

On August 7, 2014, the commission opened this docket to consolidate the review of the PSIPs filed by the HECO Companies.<sup>8</sup>

In describing the purpose of the PSIPs, the commission stated:

The PSIPs are to include actionable strategies and implementation plans to expeditiously retire older, less-efficient fossil generation, reduce must-run generation, increase generation flexibility, and adopt new technologies such as demand response and energy storage for ancillary services, and institute operational practice changes, as appropriate, to enable integration of a diverse portfolio of additional low cost renewable energy resources, reduction of energy costs and improvements in generation operational efficiencies.<sup>9</sup>

On November 4, 2015, the commission issued Order No. 33320, in response to the PSIPs filed by the HECO Companies on August 26, 2014. The commission identified eight observations and concerns ("Observations and Concerns")<sup>10</sup> regarding those PSIPs and provided the following initial statement

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<sup>7</sup>Order No. 32052, Exhibit A.

<sup>8</sup>In re Public Util. Comm'n, Docket No. 2014-0183, Decision and Order No. 32257 ("Order No. 32257"), filed on August 7, 2014, at 1.

<sup>9</sup>Order No. 32052 at 72-73.

<sup>10</sup>Order No. 33320 at 3-7.



of issues ("Initial Statement of Issues") for the review, supplementation, amendment, and update of the PSIPs:

1. Whether the PSIPs, as amended and updated in this proceeding, provide useful context and meaningful analysis to inform major resource acquisition and system operation decisions and identify well-reasoned and adequately-supported plans and actions that will result in reliable energy services, meeting State clean energy requirements, while ensuring that costs and rates will be reasonable.
2. Whether the PSIP for each of the HECO Companies, as amended and updated in this proceeding, includes reasonable plan components as required for HECO in Order No. 32053, including:
  - a. a Fossil Generation Retirement Plan;
  - b. a Generation Flexibility Plan;
  - c. a Must-Run Generation Reduction Plan;
  - d. an Environmental Compliance Plan;
  - e. a Key Generator Utilization Plan;
  - f. an Optimal Renewable Energy Portfolio Plan; and
  - g. a Generation Commitment and Economic Dispatch Review.
3. Whether the PSIPs, as amended and updated, adequately address the Observations and Concerns . . . .<sup>11</sup>

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<sup>11</sup>Order No. 33320 at 138-139.

In response to Order No. 33320, on April 1, 2016, the HECO Companies filed their PSIP Update with the commission.<sup>12</sup> On June 3, 2016, the commission solicited comments on the PSIP Update.<sup>13</sup> The commission particularly sought comments regarding the Initial Statement of Issues, and "specific procedural steps the commission should consider to ensure constructive further progress in this docket."<sup>14</sup>

Order No. 33877 established the procedural schedule for the remainder of this docket. On August 26, 2016, the Companies filed a motion for clarification of Order No. 33877.<sup>15</sup> Notwithstanding the Companies' motion, pursuant to Order No. 33877: (1) on September 7, 2016 the Companies filed a work plan detailing their analytical approach and the necessary steps to finalize their

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<sup>12</sup>The HECO Companies hosted public meetings to discuss the PSIP Update with interested stakeholders on May 17, 2016, and June 29, 2016.

<sup>13</sup>In re Public Util. Comm'n, Docket No. 2014-0183, Order No. 33740 ("Order No. 33740"), filed June 3, 2016, at 4-5.

<sup>14</sup>Order No. 33740 at 4.

<sup>15</sup>"Hawaiian Electric Companies Motion for Clarification of Order No. 33877" ("Motion for Clarification"), filed on August 26, 2016. By their Motion for Clarification, the Companies seek clarification regarding the focus and scope of the plans, the analysis the commission requires, and confirmation that its proposed approach to completing its work in this docket is consistent with the commission's prior orders. Because the commission is accepting the Report and is closing this docket, the Motion for Clarification is now moot.

PSIPs; (2) on September 21, 2016 and again on October 3, 2016, the commission held technical conferences, prior to each of which, the Parties submitted questions to be asked at the technical conferences; (3) on December 23, 2016, the Companies filed the Report; (4) the Parties filed their information requests ("IRs") and responses thereto; and (5) the Parties filed their statements of positions ("SOPs").<sup>16</sup>

### III.

#### THE REPORT

The Report includes an executive summary, seven chapters, and seventeen appendices.<sup>17</sup> According to the Companies, the Report outlines "a detailed plan charting the specific actions for the years 2017 through 2021 to accelerate the achievement of Hawaii's 100 percent Renewable Portfolio Standard ("RPS") by 2045."<sup>18</sup> The Report details the analyses and procedures the Companies used to determine several alternative long range resource plans and, ultimately, the specific actions in the near-term action plans.

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<sup>16</sup>Order No. 33877 at 6-9.

<sup>17</sup>The Companies also provided additional voluminous supporting data on an internet site accessible to the commission and Parties.

<sup>18</sup>Report at ES-1.



The Report explains how the Companies developed their candidate long-range plans, utilizing several optimization models, including four candidate plans for the Island of Oahu, and two plans each for the Islands of Maui and Hawaii.<sup>19</sup> The Companies refined these candidate plans based on more detailed production cost modeling analysis, by further considering DER, including DR resources,<sup>20</sup> and by analyzing system security requirements.<sup>21</sup> Based on these analyses and several "planning and analysis considerations," the Companies developed the near-term action plans.<sup>22</sup> Chapter 7 of the Report presents the Companies' near-term action plans, which identify "a set of actions that must be taken to continue on the path of reaching our 100% renewable energy goal."<sup>23</sup> The near-term action plans include "company-wide action

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<sup>19</sup>These plans are identified in Chapter 4 of the Report. The Companies identified and developed two additional long-range plans for each of the Islands of Lanai and Molokai without using optimization modeling.

<sup>20</sup>See Report at 3-6 to 3-17. In addition to the plans developed by the optimization modeling, the Companies analyzed a previously developed "Post-April PSIP Plan" for the Islands of Oahu, Maui, and Hawaii.

<sup>21</sup>See Report at 3-17 to 3-18 and Appendix O: System Security Analysis.

<sup>22</sup>See Report, Chapter 6.

<sup>23</sup>Report at 7-1.

plans" and an action plan for each of the five island utility systems, for the years 2017-2021.<sup>24</sup>

The near-term action plans contain elements including acquisition of new renewable generation resources, grid modernization, development of DER policies, achievement of environmental compliance, and system level improvement projects.<sup>25</sup>

#### IV.

##### STATEMENTS OF POSITION

On February 13, 2017, the Parties filed their SOPs on the Report. The commission appreciates the Parties' in-depth review of the Report, detailed comments on the plans, and suggestions for future planning efforts.

The commission notes several common themes among the SOPs. Many Parties state that the revised PSIPs show major improvement from prior efforts, and that the Report should be accepted. Several Parties provide recommended next steps to establish a methodology for procurement decisions. Although there is general agreement that the PSIPs are substantively improved, many Parties remain concerned about how certain assumptions were forced into the models, and how this may have biased the modeling results to

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<sup>24</sup>Report, Chapter 7.

<sup>25</sup>Report, Chapter 7.



disproportionately favor utility-owned assets. Nevertheless, the Parties generally agree that the PSIPs provide enough information to move forward with project procurement.

Below, the commission summarizes several common themes expressed throughout the Parties' SOPs, including: (a) improvements over prior PSIP filings; (b) future resource procurement; (c) recommendations for future planning; (d) proposed new fossil fuel generation; (e) modeling processes and assumptions; (f) DER; and (g) customer bill impacts.

A.

Improvements Over Prior PSIP Filings

Several Parties acknowledge the significant improvements to the planning process. The Consumer Advocate points out that the Report utilized several modeling tools to compare and validate various resource plan options, incorporated stakeholder input, and re-evaluated inputs and assumptions. The Consumer Advocate states that the revised PSIPs "show a reasonable integration of various resource considerations."<sup>26</sup>

DBEDT commends the HECO Companies for making the planning process more transparent:

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<sup>26</sup> "Division of Consumer Advocacy's February 14, 2017 Statement of Position in Response to Order No. 34103; and Certificate of

As compared to two years ago, DBEDT today has a more transparent vantage point with respect to the HECO Companies' development of their resource plans, in particular regarding the exchange of data and analysis. The ability to participate in the HECO Companies' internal planning meetings is evidence of this transparency and has proved valuable to DBEDT in developing its positions.<sup>27</sup>

Blue Planet states that the transparent optimization modeling utilized in the Report is effective and beneficial. To illustrate the value that this process has provided, Blue Planet notes that "[t]he total forecasted revenue requirement forecasted for the Companies combined in the E3 Plan is \$2.4 billion less than the non-optimized Post-April 2016 Plan."<sup>28</sup>

Although Ulupono states that it cannot draw the conclusion that the entire near-term action plan is the least-cost or best mix of resources, Ulupono maintains that the Report provides enough information to take "meaningful near-term actions now, and resolve

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Service" ("Consumer Advocate SOP"), filed on February 14, 2017, at 11.

<sup>27</sup>"The Department of Business, Economic Development, and Tourism's Statement of Position on the Hawaiian Electric Companies' Revised and Supplemented Power Supply Improvement Plans, and Certificate of Service" ("DBEDT SOP"), filed on February 14, 2017, at 6.

<sup>28</sup>"Blue Planet Foundation's Statement of Position on the December 23, 2016 Power Supply Improvement Plan Update; and Certificate of Service" ("Blue Planet SOP"), filed on February 14, 2017, at 3.

the strategic uncertainties that remain in a matter of months, not years."<sup>29</sup>

B.

Future Resource Procurement

The HECO Companies, DBEDT, Blue Planet, and Ulupono all emphasize that there is an urgent need to quickly procure renewable generation while there are still federal tax credits available and to take advantage of current low interest rates. Ulupono more explicitly states that the commission "should approve the issuance of an all-source RFP for utility-scale firm and non-firm renewable power on all counties in 2017, 2020, and 2022."<sup>30</sup>

Although DBEDT generally supports procuring renewables, DBEDT has concerns about the Companies' proposed procurement approach and methodology. DBEDT states:

There is a lack of sufficient evidentiary support or explanation in the PSIPs to demonstrate that the metrics and criteria the HECO Companies will apply in comparing proposals will result in procurement decisions that are consistent with the PSIPs and State energy policies.<sup>31</sup>

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<sup>29</sup>"Ulupono Initiative LLC's Statement of Position; Exhibit A; and Certificate of Service" ("Ulupono SOP"), filed on February 14, 2017, at 24.

<sup>30</sup>Ulupono SOP at 14.

<sup>31</sup>DBEDT SOP at 7.



DBEDT further questions the HECO Companies' methodology for establishing separate blocks for the evaluation of firm and variable generation, and how the Companies will compare and adjust the blocks of energy between the two. Finally, DBEDT doubts the Companies' methodology for analyzing each resource separately to determine cost savings, and the Companies' proposal to use criteria based on a net present value methodology to determine benefits.

Tawhiri recommends that all new renewable resources "must be procured in a manner that is totally agnostic with respect to both technology and the resources involved."<sup>32</sup> Paniolo emphasizes that all new generating resources should be competitively bid and not assumed to be owned by the utility. Paniolo suggests that the HECO Companies issue an energy storage request for proposals ("RFP") that is technology neutral for the Big Island, so that both BESS and pumped storage hydroelectric power ("PSH") are considered.

### C.

#### Recommendations for Future Planning

Many of the Parties provide similar suggestions for future planning processes. The Consumer Advocate maintains that the PSIPs

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<sup>32</sup>"Tawhiri Power LLC's State of Position on the Revised and Supplemented Power Supply Improvement Plans of Hawaiian Electric [sic] Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company Limited; and Certificate of Service," ("Tawhiri SOP"), filed on February 14, 2017, at 5.

should be a "working plan to be periodically updated and revisited[,]""<sup>33</sup> and that "HECO and stakeholders need to continuously seek improvements to the planning process."<sup>34</sup>

The HECO Companies propose that the next cycle of updating the PSIPs should begin in 2019, pursuant to which updated plans would be submitted in 2020. The Companies state that "[s]uch timing would allow the Companies to focus on executing the Near-Term Action Plan, and draw upon the Companies' experiences and findings from RFPs and developments in DER and DR, which could be used as inputs for the next PSIP effort."<sup>35</sup>

DBEDT recommends that future planning processes should be refined "to ensure resulting plans are resilient to uncertainty."<sup>36</sup> DBEDT further recommends more transparent analysis on siting, sizing, and selection of proposed resources, with respect to security during emergencies.<sup>37</sup>

Ulupono proposes the following steps for the next planning process: (1) define the strategic issues; (2) agree on transparent

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<sup>33</sup>Consumer Advocate SOP at 18 (emphasis in original).

<sup>34</sup>Consumer Advocate SOP at 13.

<sup>35</sup>"Hawaiian Electric Companies' Statement of Position; and Certificate of Service" ("Companies' SOP"), filed on February 14, 2017, at 3.

<sup>36</sup>DBEDT SOP at 19.

<sup>37</sup>DBEDT SOP at 21.



methodology; (3) agree on model inputs with all stakeholders, the Consumer Advocate, and commission staff; (4) create an interim report with stakeholder input and inquiry; (5) have the HECO Companies subsequently conduct the detailed engineering and planning; and (6) ensure the action plan is based on the planning process, not the Companies' business decisions.<sup>38</sup>

Blue Planet maintains that future planning analyses should continue to use objective optimization via capacity expansion modeling.<sup>39</sup> Blue Planet recommends that the commission immediately commence the next planning cycle, issue guidelines on the roles of the Companies, consultants, and stakeholders in that planning cycle, and set appropriate milestones and timelines.<sup>40</sup>

D.

Proposed New Fossil Fuel Generation

Many Parties stated concerns with the Companies' proposed new fossil fuel generation resources -- the 100 MW Joint Base Pearl Harbor-Hickam ("JBPHH") plant and the 54 MW Kaneohe Marine Corps Base Hawaii ("KMCBH") plant. Specifically, Parties opposed how the Companies manually selected the JBPHH and KMCBH plants,

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<sup>38</sup>See Ulupono SOP at 30.

<sup>39</sup>See Blue Planet SOP at 3-4.

<sup>40</sup>Blue Planet SOP at 20.

and forced them into the optimization models. The Consumer Advocate believes that additional data and analyses are necessary to assess if the JBPHH and KMBCH projects are in the public interest. DBEDT is concerned that the manual selection of these plants "will box out/influence the renewable options chosen in the future" and "whether the HECO Companies will be responsible for the costs if the manually selected resources are retired."<sup>41</sup>

The Joint Parties state that Companies also treated the JBPHH plant, the KMCBH plant, and the 18 MW combustion engine power plant proposed to be installed in South Maui in 2022, "as 'fixed assumptions,' 'must build' resources . . . effectively circumventing and nullifying the planning process."<sup>42</sup> Ulupono argues that the Companies' analysis demonstrates that the proposed JBPHH and KMCBH plants are not the least cost choices and should not be justified as waiver projects.<sup>43</sup> Ulupono also indicates that "[w]hen RESOLVE was allowed to optimize the construction plan for these projects,

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<sup>41</sup>DBEDT SOP at 22.

<sup>42</sup>"Sierra Club's Distributed Energy Resources Council of Hawaii's Hawaii Solar Energy Association's, and SunPower Corporation's Statement of Position RE Hawaiian Electric Companies' PSIP Update Report, filed on December 23, 2016; and Certificate of Service" ("Joint Parties SOP"), filed on February 14, 2017, at 14 (Sierra Club, DERC, HSEA, and SunPower are collectively referred to as the "Joint Parties" in this Order).

<sup>43</sup>Ulupono SOP at 3.

total resource costs were lowered by postponing these investments until 2045."<sup>44</sup>

E.

#### Modeling Process and Assumptions

Several Parties provided detailed feedback about other constraints and assumptions that the Companies applied to their analyses, particularly with respect to the HELCO system. Tawhiri expressed concern that there is a "lack of consistency and possible bias in the evaluation of wind energy investment in Hawaii County."<sup>45</sup> With respect to the wind generation on the HELCO system, Paniolo states "[t]he fact that the entire 70 MW was not procured in 2020 appears to be the result of an artificial 20 MW transmission constraint on wind generation for the year 2020 that was forced into the E3 RESOLVE modeling by the HECO Companies."<sup>46</sup> Paniolo states that the "Near-Term Action Plans should reflect the more optimal, earlier procurement of 70 MW of wind in 2020, even if project is installed in phases."<sup>47</sup>

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<sup>44</sup>Uluono SOP at 16.

<sup>45</sup>Tawhiri SOP at 2.

<sup>46</sup>"Paniolo Power Company, LLC's Statement of Position; and Certificate of Service" ("Paniolo SOP"), filed on February 14, 2017, at 13 (internal citations omitted).

<sup>47</sup>Paniolo SOP at 14.



Tawhiri calls attention to HELCO's use of a single wind generation profile in all simulations of wind energy investments, and suggests that the "proper approach is to use multiple wind generation profiles with each profile representing a specific geographic location among the alternative wind energy resources (farms) under evaluation for each plan."<sup>48</sup>

Paniolo states that the Report does not disclose tradeoffs between alternative resource options, particularly regarding storage.<sup>49</sup> Paniolo questions why BESS was selected over PSH without identifying the tradeoffs between the two resources.<sup>50</sup> Paniolo states that it is unclear why the HECO Companies opted to assume a low-end useful life figure for PSH, while opting to use a high-end useful life assumption for BESS, and maintains that the figures used for the useful life assumptions should be equal.<sup>51</sup>

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<sup>48</sup>Tawhiri SOP at 5.

<sup>49</sup>See Paniolo SOP at 7.

<sup>50</sup>See Paniolo SOP at 7.

<sup>51</sup>See Paniolo SOP at 8.

F.

DER

Blue Planet suggests that the role of DER is a main issue that remains "unresolved" in the Report.<sup>52</sup> Blue Planet recommends that future planning efforts should develop methods to evaluate and incorporate energy efficiency in relation to other resource options.<sup>53</sup> The Joint Parties state that the modeling analyses did not pair distributed solar with distributed energy storage, but rather modeled storage as an independent resource.<sup>54</sup> The Joint Parties further state that "this may have resulted in the selection of separate utility-scale battery resources, but ignored the benefits of 'smart' DER systems combining solar and batteries."<sup>55</sup>

Ulupono commends "the HECO Companies for the extensive circuit by circuit grid-side planning in PSIP Section N, as well as for the transparency of the methodology and analysis."<sup>56</sup> Ulupono affirms that the HECO Companies have performed extensive system security analysis, but notes that "long and mid-term system security requirements would change if 'smart export'"

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<sup>52</sup>Blue Planet SOP at 2.

<sup>53</sup>Blue Planet SOP at 16.

<sup>54</sup>Joint Parties SOP at 10.

<sup>55</sup>Joint Parties SOP at 9.

<sup>56</sup>Ulupono SOP at 19.



was evaluated.<sup>57</sup> Ulupono expresses concern that the Report does not analyze how the potential for smart export could lower ancillary service demands and the need for "extensive utility sided batteries and grid upgrades."<sup>58</sup>

G.

Customer Bill Impacts

Several Parties are concerned about the projected long-term increase in electric rates. COH is especially concerned about the impact increases will have on ratepayers on the Island of Hawaii and recommends that future planning efforts include an "over-arching cost-control process . . . ."<sup>59</sup> Paniolo is concerned with the "detrimental impacts of prolonged high electricity rates outlined in the PSIPs . . . ."<sup>60</sup> The HECO Companies discuss how the rate projections resulting from the PLEXOS outputs "should not be used as precise long-term projections of customer rates."<sup>61</sup> The Companies explain that the value of these projections "is not

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<sup>57</sup>Ulupono SOP at 27.

<sup>58</sup>Ulupono SOP at 27.

<sup>59</sup>"County of Hawai'i's Statement of Position; and Certificate of Service" ("COH SOP"), filed on February 14, 2017, at 15.

<sup>60</sup>See Paniolo SOP at 3.

<sup>61</sup>Companies' SOP at 14.

in the precise values but in the relative results of planning to provide context to inform important pending and future resource acquisition and system operation decisions."<sup>62</sup>

V.

DISCUSSION

A.

Overview

As the commission observed at the outset of this proceeding, each electric utility's power supply system is becoming more complex and operationally challenging as greater quantities of diverse renewable energy resources are integrated with older, relatively inflexible base load fossil-fuel generation resources.<sup>63</sup> In the more than two and a half years since this proceeding began, complexities in the islands' electric systems have only increased, in large part because of continuing developments in DER, such as rooftop PV.

Given the length of time that has passed since the commission and Parties first began this docket, it is useful to

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<sup>62</sup>Companies' SOP at 14.

<sup>63</sup>Order No. 32257 at 1 (citations omitted).

revisit the intended purpose and expectations of the Companies' PSIPs. As the commission has previously stated:

[t]he ultimate purpose of this proceeding is to determine a reasonable power supply plan for each of the HECO Companies that can serve as a strategic basis and provide context to inform important pending and future resource acquisition and system operation decisions.<sup>64</sup>

The commission has repeatedly stressed that the development of well-vetted, credible, comprehensive system analysis<sup>65</sup> is "essential to the HECO Companies fulfilling their role to provide a platform to meet the diverse service requirements of their customers by integrating a variety of generation sources and customer-sited resources in an economically and operationally efficient manner."<sup>66</sup>

The commission acknowledges the challenges inherent in long-term forecasting and analysis, particularly where, as here, the underlying inputs and assumptions are dynamic and subject to significant uncertainty over the next decade or more. Accordingly, the commission has stated its expectation that the PSIPs "should place particular emphasis on identifying and supporting the near-term actions, applications, and decisions necessary

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<sup>64</sup>Order No. 33320 at 2.

<sup>65</sup>See Order No. 33320 at 40-41.

<sup>66</sup>Order No. 33320 at 137.



to effectively meet identified challenges, policy goals, and planning objectives."<sup>67</sup>

Although the instant proceeding has proven to be an extensive undertaking, the commission can now affirm that the objectives outlined above have largely been met, subject to the concerns articulated herein. The PSIPs in the Report reflect significant improvements over the previous PSIPs filed in this docket. The Companies have expanded the scope of their analysis, and engaged new planning tools to better address the substantial planning challenges they face. The Companies have made their filings more transparent, incorporated additional stakeholder input, and addressed many of the commission's previously stated concerns. The result is a set of plans that provides useful context for making informed decisions regarding the near-term path forward.

The commission appreciates the significant effort expended in this proceeding by the HECO Companies, the Consumer Advocate, and all Parties, whose continued engagement and respectful dialogue have helped develop an extensive record in this docket. After review, commission has reasonable assurance that many of the actions identified in the near-term action plans are credible, supported by sound judgment and analysis, informed by stakeholder input, and consistent with State energy policy and prior

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<sup>67</sup>Order No. 33877 at 15.

commission orders. Thus, the commission believes that the Companies' analyses are sufficient to provide context and inform near-term procurement and resource acquisition.<sup>68</sup> As a result, the commission expects that the Companies will continue implementing the valid aspects of the PSIPs.

Notwithstanding the urgent need to prudently implement the near-term action plans, the commission has concerns with several aspects of the PSIPs. The commission has identified areas that require additional improvements, analyses, or justification to address remaining questions or concerns. These are not "fatal flaws," but rather are areas the commission expects all Parties will continue to address either in parallel proceedings (e.g., Docket No. 2014-0192), through the Companies' submission of discrete project applications, or as part of the next planning cycle. The PSIPs that resulted from this proceeding should not be viewed as a prescriptive plan for future, but a useful snapshot of the Companies' dynamic and ongoing planning efforts.

In sum, by this Decision and Order, subject to the conditions set forth in herein, the commission accepts the Report, and directs the Companies to continue implementing the near-term action plans, particularly those elements described in Section V.B., below.

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<sup>68</sup>See Order No. 33320 at 2.

The following sections of this Order discuss high priority near-term actions in the Companies' resource plans, describe the commission's concerns with certain aspects of the plans, identify topics for further analysis, and offer guidance regarding the Companies' future efforts to continuously refine and improve their planning approach.

B.

High Priority Near-Term Actions

The commission is encouraged by the Companies' commitments to competitively procure new grid-scale renewable resources, to continue to work with stakeholders to develop CBRE and DER programs, and to implement system-level reliability improvements for each island grid. These high-priority near-term actions are discussed in detail, below.

1.

Competitive Procurement of Grid-Scale Renewable Resources

The Companies' resource plans include procurement of nearly 400 MW of new renewable resources across all service territories by 2021.<sup>69</sup> Collectively, this represents the largest new generation procurement ever undertaken in the State. There is

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<sup>69</sup>See Report, Chapter 7.



broad stakeholder support for acquiring new renewable resources, as well as significant developer interest in meeting Hawaii's needs. Furthermore, the Companies must move quickly to enable customers to benefit from available tax credits, such as the federal investment tax credit ("ITC"), which is set to expire within the near-term action plan period. As such, the commission expects the Companies to devote attention and resources to ensure a transparent, timely, and successful procurement process.

The commission intends to open a series of new dockets to serve as repositories for filings related to the planned upcoming procurements. As part of the development of the procurement process, the Companies should carefully consider the design of each RFP, including the quantity of energy and grid services requested, eligible technologies, the interconnection study process, the complexity and risks associated with model power purchase agreements ("PPAs"), the timeline to complete the procurement process, the availability of incentives (e.g., the federal ITC), and the sequencing of future procurements at known intervals to provide greater transparency to market participants and reduce costs to customers.<sup>70</sup> The Companies must learn from and improve upon prior

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<sup>70</sup>As the commission recently stated, it expects that the Companies will fully consider energy storage systems in proposing any new generation projects. In re Hawaiian Elec. Co., Docket No. 2016-0342, Decision and Order No. 34676, ("Order No. 34676") filed on June 30, 2017, at 79. The commission

procurement attempts, including the recent energy storage and waiver project solicitations.

There are benefits and drawbacks to every procurement approach; thus, the commission expects the Companies to solicit and incorporate feedback from stakeholders where appropriate, as well as the Independent Observer,<sup>71</sup> during the drafting of future requests for proposals and model PPAs. In sum, the commission encourages the Companies to use upcoming procurements as opportunities to continue to collaborate with stakeholders to ensure a high-quality approach that fairly considers alternatives and promotes the timely and successful deployment of cost-effective renewable resources for customers' benefit.

## 2.

### Actions Related to CBRE and DER Integration

The commission views the ongoing development of CBRE and DER programs as high priorities for near-term action by the HECO Companies. These efforts are currently the subject of

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views energy storage, such as battery storage or PSH, as an essential element in achieving the State's goals to integrate increasing levels of renewable energy generation into the State's island grids and "a viable option for supporting the integration of low cost renewables into the grid, with the capacity to provide fully dispatchable renewable energy." Order No. 34676 at 79-80.

<sup>71</sup>See In re Public Util. Comm'n, Docket No.03-0372, Decision and Order No. 23121, Exhibit A, Section III.C, at 13-16.

Docket Nos. 2015-0389, 2014-0192, and 2015-0412, among others. The commission supports many of the actions identified by the Companies, including procurement of diverse CBRE projects; further development of DER programs (e.g., "smart export" tariffs), activation of advanced inverter functions for DER, further improvements to the interconnection process (e.g., offering an online application portal), development of a DR portfolio that provides valuable grid services from customers, and continued investment by the Companies in research, development, and demonstration projects. The commission remains very supportive of the use of energy efficiency and cost effective DR resources to resolve operating needs, meet system reserve requirements, defer the need for future capacity additions, provide ancillary services and assist with the integration of additional renewable energy resources, and promote the reliable and economical operation of the electrical grid.<sup>72</sup>

These proposed actions are consistent with the State's energy policy and prior commission orders. Thus, the Companies should accelerate their efforts to make meaningful near-term progress on these topics in relevant parallel proceedings.

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<sup>72</sup>See In re Public Util. Comm'n, Docket No. 2007-0341, Order No. 32054 "Policy Statement and Order Regarding Demand Response Programs," filed on April 28, 2014, at 1-2.



System-Level Grid Reliability Projects

In the Report, the Companies propose to make several system-level grid reliability improvements, including upgrades to the under-frequency load shedding ("UFLS") scheme and projects to reduce fault clearing time. The HECO Companies have discussed these improvements for many years, and appear to have only partially implemented them.<sup>73</sup> Increasing the dynamic flexibility of the UFLS scheme for each island and improving fault detection and clearing times are worthwhile objectives that the Companies should pursue, especially given the high proportion of non-synchronous generation expected on most islands in the near future.<sup>74</sup> The Companies should evaluate such options to enhance grid reliability, in conjunction with procurements for new renewable resources, development of DR and other DER programs, and the implementation of the Companies' grid modernization strategy.

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<sup>73</sup>See Report at 7-29 to 7-30.

<sup>74</sup>While the commission encourages the Companies to pursue these projects, the commission is not providing regulatory "pre-approval" of any investments at this time. Such decisions will be made in the context of future applications for cost-recovery (e.g., general rate case), as appropriate.

C.

Commission Concerns with the Report

While there are many well-supported proposals in the Report, the commission has concerns with some aspects of the Report, including the anticipated increases in customer rates, proposed conventional generation projects,<sup>75</sup> proposed BESS and synchronous condenser projects;<sup>76</sup> and certain proposed transmission projects.<sup>77</sup>

As stated generally above, the commission expects the Companies to rigorously examine the prudence, timing, cost effectiveness, affordability, and reasonably available alternatives in individual applications for future projects. Thus, many of the resources identified in the Report will be subject to further scrutiny in future proceedings. To the extent that the Companies choose to propose these resources and projects in the future, the Companies must address these concerns prior to or as part of the review of any necessary applications or approvals by the commission. At this time, the commission provides the following discussion of concerns to provide broad guidance with respect to several specific resources and projects included with the Report.

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<sup>75</sup>See Report at 7-18 and 7-24.

<sup>76</sup>See Report at 7-9.

<sup>77</sup>See Report at 7-22 to 7-23 (MECO), 7-29 to 7-30 (HELCO).

Customer Rate and Bill Impacts

The commission continues to be concerned with the affordability of the Companies' plans. Most recently, the commission directed the Companies to address affordability and the risks associated with customer exit in Order No. 33877.<sup>78</sup>

The rates associated with the Companies' near-term action plans are projected to increase substantially (between 18% and 25%) during the near-term action plan period, and even more in the subsequent five years on Oahu and the Island of Hawaii.<sup>79</sup>

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<sup>78</sup>Order No. 33877 at 28-30 (citations omitted).

<sup>79</sup>Figure 1 and Table 1 are based on "PSIP Rates and Bill Impact with CAGR - Consolidated Final.xlsx," filed in support of the Report, Chapter 5.



**Figure 1**  
**Average Residential Rates (Real \$/kWh)**

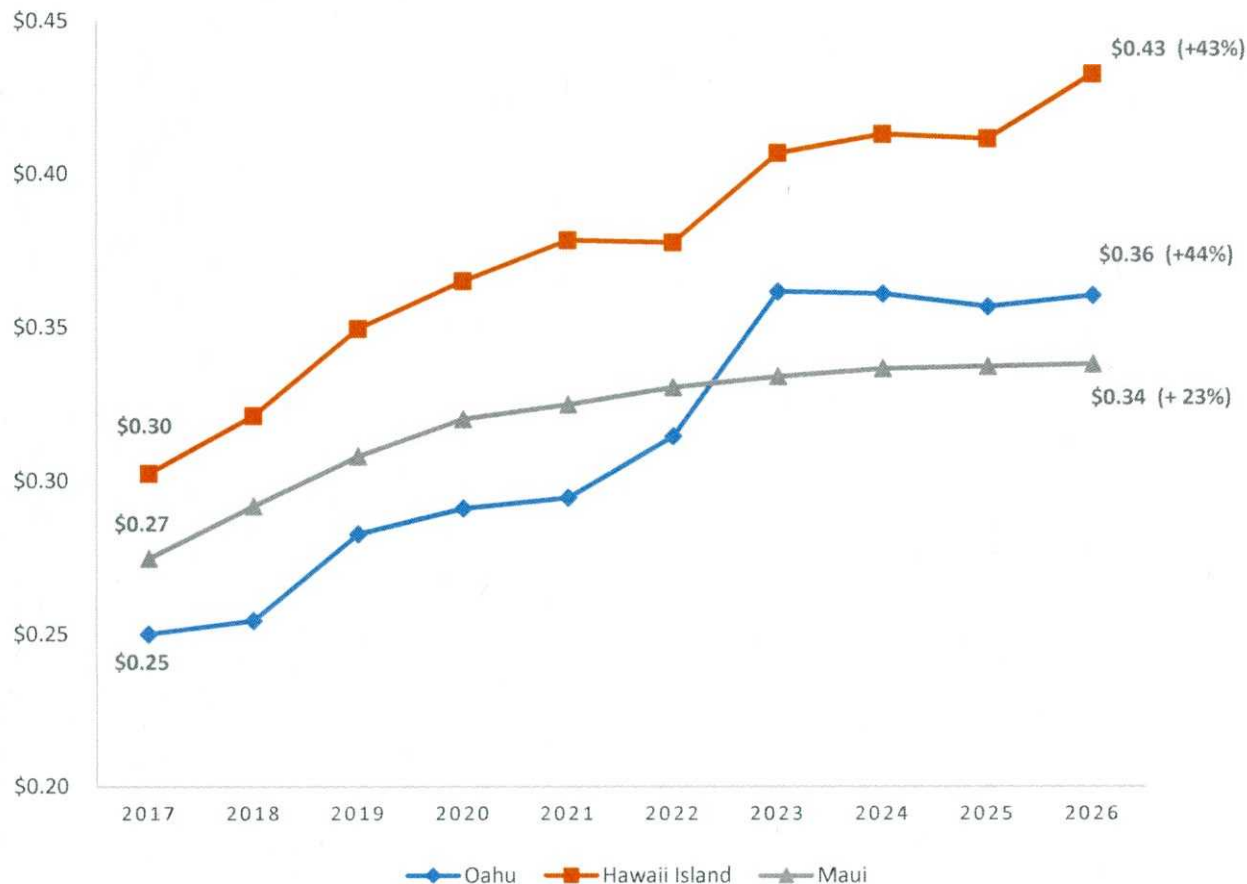


Table 1		
Average Residential Rates (Real \$/kWh)		
	% Increase for the near-term action plans (2017-2021)	% Increase for 2017-2026
HECO	17.8%	44.1%
HELCO	25.1%	42.9%
MECO	18.2%	23.0%

Given the substantial increase in rates forecasted in the Report, the commission is concerned that the Companies have not fully considered the affordability of their plans. The Companies have provided only limited responses to the commission's instruction

to analyze customer and implementation risks.<sup>80</sup> The Companies do not appear to have evaluated the capital investments, financial commitments, and the resulting increasing rates, in the context of affordability to customers and the risk of stranded assets.

It is the Companies' responsibility to diligently examine and fully consider the possibilities and risks that their plans pose to customers. The impacts of increasing customer rates and the prospect of uneconomic customer exit can be reasonably anticipated and could be forestalled or exacerbated by the Companies' investment, procurement, and operational decisions. Thus, the risks associated with such decisions rest with the Companies.

## 2.

### New Conventional Generation Resources

The Oahu Action Plan includes a proposal for HECO to install and operate a reciprocating engine at Marine Corps Base Hawaii ("MCBH"), that the Companies envision acquiring via a waiver from the competitive bidding framework and a G.O. 7

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<sup>80</sup>See, e.g., HECO's Response to PUC-IR-97. Although the Companies state that Appendix Q contains "preliminary analysis of . . . the comparative economics of a customer remaining connected to the utility grid versus disconnecting from the grid," the commission notes that the information and analysis presented in Appendix Q is minimal and incomplete.

application.<sup>81</sup> The Companies also seek to install an additional "100 MW of firm, dispatchable, flexible generation," likely through an RFP, but possibly through a waiver process.<sup>82</sup>

Similarly, the Maui near-term action plan proposes new generation to be installed in 2022.<sup>83</sup> The Maui near-term action plan does not specify the type and size of the new generation resources to be added, presumably because the proposed installation date falls outside of the near-term action plan period of 2017 - 2021. However, in the longer-term supporting optimization and economic analyses for MECO, the Companies specify the addition of two 9 MW internal combustion generation units for the year 2022, with an additional 20 to 40 MW of biomass generation.<sup>84</sup>

The commission's primary concern with these proposed projects is the apparent lack of thorough analysis in the Report to justify the resources. Without this analysis, it appears that the Companies simply presumed that these generation resources would be included in each resource plan.<sup>85</sup> As discussed extensively in prior commission orders, such an approach is not sufficient.

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<sup>81</sup>Report at 7-18.

<sup>82</sup>Report at 7-18.

<sup>83</sup>Report at 7-24.

<sup>84</sup>See Report at 4-12.

<sup>85</sup>See Ulupono SOP at 16 (citations omitted).



The Companies should not assume the commission will waive the competitive bidding process for any of these proposed projects. If the Companies choose to pursue these resources, the Companies should incorporate the need for the competitive bidding process in planning the timing of its procurements.<sup>86</sup> Prior to initiating any such procurement, the Companies must evaluate and demonstrate the merits of the selection, sizing and timing of these resources, including evaluation of available alternatives (including generation, storage, and distributed resources such as energy efficiency and DR).

3.

BESS and Synchronous Condensers

The long-range resource plans and near-term action plans for each of the five island utility systems include new BESS and synchronous condenser resources.<sup>87</sup> The proposed BESS resources are designed to provide several utility system functions, including meeting "fast frequency response contingency,"<sup>88</sup>

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<sup>86</sup>See HECO's Response to PUC-HECO-IR-88.

<sup>87</sup>See Report at 7-9.

<sup>88</sup>See Report at 7-8.

"load-shift,"<sup>89</sup> and "regulating/ramping" requirements.<sup>90</sup> The Companies also state that they "will continue to evaluate and pursue distributed energy storage systems (DESS) to benefit DER integration."<sup>91</sup>

In the Report, the Companies analyzed the system security that each island grid needs to support diligent efforts to improve grid reliability.<sup>92</sup> However, it is not clear if the Companies have considered a full range of alternative options, including PSH, thermal, and electrical storage technologies, or fully explored demand-side, as well as utility storage options. PSH resources, in particular, may help provide cost-effective long-duration storage, complementing distributed resources like DR.

The Companies should continue their efforts to improve reliability and ensure system security, taking into account the magnitude and duration of ancillary services needs, as well as expected changes in ancillary services needs over time. Further, the Companies should propose appropriately sized resources to meet those needs. Proposed resources should be co-optimized to provide multiple ancillary services if possible, and the Companies should

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<sup>89</sup>See Report, Chapter 4, all tables.

<sup>90</sup>See Report at 7-17 to 7-18.

<sup>91</sup>Report at 7-14. See also Report at 3-17 to 3-20, and Appendix O.

<sup>92</sup>Report, Appendix O.

evaluate options to lower costs to customers, such as pairing with renewable energy projects to enable storage resources to benefit from available tax credits. As stated above, the commission expects the Companies to consider the full range of available options, including DR resources, as well as various technologies and combinations of technologies.

Similarly, the Companies' analysis of synchronous condenser resources does not appear to be complete. If the Companies decide to pursue these resources, the Companies must support their proposals with thorough and sound supporting analyses, prior to, and/or in the context of, procurement proceedings and review for necessary approvals by the commission.

#### 4.

##### Transmission System Projects

The Maui and Hawaii Island near-term action plans both identify several transmission system upgrade projects.<sup>93</sup> Regarding the Maui Island transmission upgrades, the Companies state that "[n]on-transmission alternatives were considered as options to the transmission upgrades," including DG, BESS, DR, and synchronous

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<sup>93</sup>Report at 7-22 to 7-23, 7-29.



condensers.<sup>94</sup> In addition, the Companies state that MECO will further explore the potential of aggregated DR resources as a "non-transmission" alternative.<sup>95</sup> However, the Report does not sufficiently evaluate the possibility of non-transmission alternatives to the transmission upgrades identified in the Maui or Hawaii Island near-term action plans.

The commission supports the ongoing consideration of non-transmission alternatives for the Maui and Hawaii Island systems as mentioned in the Report, along with procedures to solicit competitive proposals that consider a full spectrum of transmission and non-transmission options. If MECO or HELCO decides to pursue such resources, the commission expects any application for transmission system upgrades to ensure that non-transmission alternatives and competitively solicited alternatives are appropriately considered.

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<sup>94</sup>Report at 7-22.

<sup>95</sup>Report at 7-23.

D.

Topics Requiring Further Analysis

1.

Achieving RPS Goals

As requested by the commission, the Report places greatest emphasis "on the near-term actions that allow [the Companies] to make strong progress on achieving our clean energy goals."<sup>96</sup> Although the primary purpose of the Report is to provide context for near-term decisions, the Companies also assert that their resource analyses support a reasonable course to ultimately attain the State's 2045 RPS requirement of 100% by the year 2040, and a goal of 100% renewable generation (i.e., no fossil fuel powered generation, exceeding the 100% RPS) by the year 2045.<sup>97</sup>

Beyond serving as aspirational goals, the long term RPS and renewable generation targets are important planning and design criteria. The commission commends the Companies' commitment to achieving the RPS ahead of schedule. Nevertheless, the commission has some concerns regarding the technical feasibility and economics of the long-term resource plan for each island. It appears that certain technology options, such as PSH resources, may have been excluded from the analysis. It also appears that certain costs

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<sup>96</sup>Report at ES-2.

<sup>97</sup>Report at 1-1.

may not be fully incorporated into the rate and bill impact analysis and several of the underlying analyses in the Report suggest that negative reliability impacts could result from implementing the long-term resource plan.<sup>98</sup> The commission expects future planning cycles will more fully address the capital costs, operating costs, and reliability concerns associated with long-term achievement of the RPS goals.

2.

Molokai and Lanai Advanced 100% Renewable Energy Plans

MECO intends to solicit proposals for the procurement of biofuels in 2018,<sup>99</sup> followed by an application with the commission for approval of a biofuel contract in 2020.<sup>100</sup> The Lanai near-term action plan indicates that MECO will pursue a process to procure cost-effective renewable resources to achieve 100% renewable energy in 2030 or possibly sooner.<sup>101</sup>

As noted above, the commission supports MECO's efforts to achieve 100% renewable energy for the islands of Molokai and Lanai ahead of the timeline established in the RPS. MECO should

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<sup>98</sup>See e.g., Report, Appendix P at P-16 to P-18.

<sup>99</sup>Report at 7-25.

<sup>100</sup>Response to PUC-IR-88.

<sup>101</sup>Report at 7-27.



coordinate future procurement efforts with its upcoming RFP for new grid scale resources. This should include an opportunity for competitive bidding for resources that can provide comparable services as biofuel powered, utility-owned generation. Such resources could include combinations of energy efficiency, renewable generation, DR, and various storage options, in addition to or instead of larger-scale thermal generation. The Companies should also pursue transparent, competitive and community-engaged efforts<sup>102</sup> for the Islands of Molokai and Lanai, for procuring resources and further considering the costs and benefits of early attainment of 100% renewable generation, consistent with the needs and goals of these communities.

3.

System Security Requirements

In Order No. 33877, the commission noted that the Companies had not adequately supported their system security analysis, reiterating guidance from Order No. 33320.<sup>103</sup> Specifically, the commission, stated:

In Order No. 33320, the commission identified significant concerns in the following areas related to system security analysis:

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<sup>102</sup>See Report at 7-27.

<sup>103</sup>See Order No. 33877 at 25-26 (citations omitted).

1. The HECO Companies have not clearly established the technical basis for the proposed requirements and defined them in technology-neutral terms;
2. The HECO Companies have not adequately demonstrated how the proposed requirements balance cost with system reliability and risk; and
3. System security requirements appear to unreasonably limit utilization of and increase costs to integrate renewables.<sup>104</sup>

After reviewing the Report, the commission notes significant improvement in several aspects of the system security analysis. Some of these improvements enabled the Companies to identify ways to reduce costs and develop innovative solutions to meet customer needs.<sup>105</sup> For example, the Companies have developed an analytical approach to unbundle various ancillary services from conventional generation resources. This analysis has allowed the Companies to define specific ancillary services needs as part of the DR portfolio in Docket No. 2015-0412. In addition, the Companies' system security analysis now appears to more realistically consider the characteristics and capabilities of DER.

Nevertheless, within the limited time provided for the final Report, the Companies have not fully performed the system

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<sup>104</sup>Order No. 33877 at 25-26, citing Order No. 33320, at 112 (citations and quotations omitted).

<sup>105</sup>See, e.g., Docket Nos. 2014-0192 and 2015-0412.

security analysis required by the commission in Order No. 33320, and again in Order No. 33877. The commission expects that the Companies will continue building upon their efforts to date by diligently refining their system security analysis.

E.

Expectations for Implementation

By this Decision and Order, the commission accepts the Report, and intends to use the PSIPs "in conjunction with the evaluation of specific filings for approval of capital and other projects."<sup>106</sup> Although the commission supports many aspects of the Report, given the uncertainty about future conditions, and because planning is a continuous and ongoing activity, the commission encourages flexibility and anticipates variation and modification of the plans, as time goes on. Future applications "will be evaluated on [their] own merits pursuant to applicable statutory and regulatory standards, as well as [their] relationship to the final PSIPs."<sup>107</sup>

As such, in subsequent applications for approval or cost-recovery, the utility will bear the burden of supporting the merits of each proposed resource or action. The commission's

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<sup>106</sup>Order No. 33877 at 2.

<sup>107</sup>Order No. 33877 at 2.



acceptance of the Report should not be construed as regulatory pre-approval for any specific element identified in the Report. The inclusion of a specific resource or action in the Report or near-term action plans does not mean the commission will presume that resource or action is necessary, properly timed, or prudent. Furthermore, the commission expects the Companies to consider and propose the most efficient and cost-effective resource alternatives, including resources not specifically included in the Report or near-term action plans, as applicable. The commission expects the Companies to procure resources that, both individually and collectively, continue to drive down customer costs compared to the costs estimated in the Report.

In addition, the revenue adjustment mechanism cap ("RAM Cap"), that was implemented pending "approval" of the Companies' PSIPs, remains in effect, unless otherwise ordered by the commission. Any proposed changes to the RAM Cap will be addressed in pending or future rate cases for each of the HECO Companies.<sup>108</sup>

In subsequent applications, the Companies must fully support the merits of each resource or proposed action. The commission expects the procurement activities identified in the

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<sup>108</sup>See In re Public Util. Comm'n, Docket No. 2013-0141, Order No. 34514 ("Order No. 34514"), filed on April 27, 2017.

PSIPs and near-term action plans to result in the acquisition and development of the most cost-effective resources for customers, and to include consideration of resources not necessarily identified in the PSIPs or near-term action plans. The commission expects the Companies to strive to procure resources at the lowest costs possible, and at costs lower than estimated in the near-term action plans.

In addition, although the commission supports the Companies' ambitious plan to achieve the State's RPS ahead of schedule, it is most important for the Companies to focus their efforts on designing and executing sound procurement and application processes that address the commission's concerns, as described in this and prior Orders.

Therefore, the commission directs the Companies to take the following actions, at a minimum, as a part of efforts to implement the near-term action plans: (1) include a fair and transparent evaluation of alternatives, including consideration of alternatives that could result in lower cost and/or lower risk for customers, (2) consider all appropriate technologies, including combinations of technologies, to address system, capacity, and energy needs, rather than specifying a single resource option, (3) sufficiently justify how each resource is the best choice in conjunction with the near-term action plans identified in

the Report, and (4) include performance measures to evaluate implementation of the proposed action.

F.

Future Planning Activities

The conclusion of this docket does not mean the end of the Companies' planning efforts. The Companies have repeatedly stated that planning is a continuous process, and the commission agrees.<sup>109</sup> As such, the Companies must work diligently to continuously improve their planning tools and methods, and timely revise their estimates and forecasts as part of an ongoing, cyclical planning process.<sup>110</sup> The commission also agrees that even as the Companies' continually update their work, now is the time to focus on implementing the Companies' near-term action plans, consistent with the guidance provided herein.<sup>111</sup>

The Companies' future planning efforts must coordinate with and learn from other ongoing activities and pertinent proceedings and activities, including programs such as DER, DR, CBRE, and proposed grid modernization projects. Future planning

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<sup>109</sup>See, e.g., Report at ES-7, 2-15, 2-18, and 7-28.

<sup>110</sup>Consumer Advocate SOP at 18.

<sup>111</sup>See, e.g., Companies' SOP at 3, DBEDT SOP at 6, and Blue Planet SOP at 2.



efforts must also include and build upon the new set of tools used in the last round of PSIPs, particularly the use of advanced resource optimization models.<sup>112</sup> Finally, future planning efforts must continue to actively engage stakeholders, and incorporate their constructive input.

The commission observes that in the Companies' June 2017 Draft Report, "Modernizing Hawaii's Grid for Our Customers," the Companies propose a planning process that integrates bulk system resource planning with transmission and distribution planning to assess total resource net benefits.<sup>113</sup> The Companies state that the process would engage customers and stakeholders at key junctures in the integrated planning effort. The commission is supportive of the Companies' proposal to more effectively integrate resource, transmission, and distribution planning going forward.

Therefore, the commission directs the Companies to file with the commission, outside of this docket, a report that details the Companies' planning approach and schedule for the next round of

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<sup>112</sup>Blue Planet SOP at 3-4.

<sup>113</sup>See "HECO Companies' Grid Modernization Strategy (Draft) for Stakeholder Review and Comment," filed on June 30, 2017, at 22-23 ("Draft Grid Modernization Strategy"), available online at [https://www.hawaiianelectric.com/Documents/about\\_us/investing\\_in\\_the\\_future/grid\\_modernization\\_strategy\\_draft.pdf](https://www.hawaiianelectric.com/Documents/about_us/investing_in_the_future/grid_modernization_strategy_draft.pdf).

integrated planning. The Companies shall file this report with the commission no later than March 1, 2018.

VI.

ORDERS

THE COMMISSION ORDERS:

1. The Report is accepted, for the purposes stated and subject to the conditions set forth in this Order.

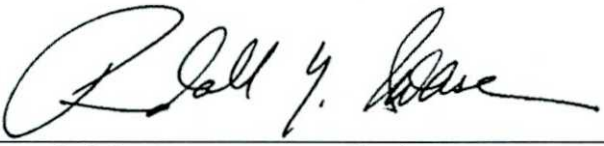
2. By March 1, 2018, the Companies shall file with the commission, outside of this docket, a report that details their planning approach and schedule for the next round of resource planning.

3. The Companies' Motion for Clarification of Order No. 33877, filed on August 26, 2016, is dismissed as moot.

4. This docket is closed unless determined otherwise by the commission.

DONE at Honolulu, Hawaii JUL 14 2017.

PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

By   
Randall Y. Iwase, Chair

By   
Lorraine H. Akiba, Commissioner

By   
James P. Griffin, Commissioner

APPROVED AS TO FORM:

  
Mike S. Wallerstein  
Commission Counsel

2014-0183.ljk



CERTIFICATE OF SERVICE

The foregoing order was served on the date of filing by mail,  
postage prepaid, and properly addressed to the following parties:

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