BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

----In the Matter of----	)	
	)	
PUBLIC UTILITIES COMMISSION	)	DOCKET NO. 2010-0037
	)	
Instituting a Proceeding To	)	
Investigate Establishing	)	
Energy Efficiency Portfolio	)	
Standards, Pursuant to Act 155,	)	
Session Laws of Hawaii 2009 and	)	
Hawaii Revised Statutes § 269-96.	)	
	)	

DECISION AND ORDER NO. 30089

APPROVING A FRAMEWORK FOR ENERGY EFFICIENCY PORTFOLIO STANDARDS

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----In the Matter of----)) PUBLIC UTILITIES COMMISSION)) Instituting a Proceeding To) Investigate Establishing) Energy Efficiency Portfolio) Standards, Pursuant to Act 155,) Session Laws of Hawaii 2009 and) Hawaii Revised Statutes § 269-96.))	Docket No. 2010-0037 Decision and Order No. 30089

APPROVING A FRAMEWORK FOR ENERGY EFFICIENCY PORTFOLIO STANDARDS

By this Order, the commission approves the Framework for Energy Efficiency Portfolio Standards ("Framework"), attached hereto as Exhibit A, to govern the achievement of Energy Efficiency Portfolio Standards ("EEPS") in the State of Hawaii ("State"), as prescribed in Hawaii Revised Statutes ("HRS") § 269-96 ("EEPS Law").

I.

Background on EEPS

Energy efficiency is a means of using less energy to provide the same (or greater) level of energy services.

Presently, energy efficiency programs for the HECO Companies[1] are administered by a third-party Public Benefits Fee Administrator ("PBFA") and are funded by a Public Benefits Fee via a surcharge on HECO Companies' ratepayers' utility bills.[2] The PBFA is subject to regulation by the commission and reports to the commission on a regular basis.[3] Through a process called Evaluation, Measurement, and Verification ("EM&V"), discussed later, reported savings from these programs are verified by an independent auditor.[4] Kauai Island Utility Cooperative ("KIUC"), which provides electric utility service to the island of Kauai, administers its own energy efficiency programs.

An EEPS (or in other states, Energy Efficiency Resource Standard/EERS) is a law that aims to continually increase electric or gas energy savings over time. An EEPS is similar in concept to a renewable portfolio standard ("RPS"), which requires electric utilities to acquire increasing levels of energy from renewable resources by set periods. Stated

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[1]"HECO Companies" collectively refers to Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited. The HECO Companies provide electric utility service to the islands of Oahu, Hawaii, Maui, Lanai, and Molokai.

[2]See HRS §§ 269-121 - 269-124; Decision and Order No. 23258, filed on February 13, 2007, in Docket No. 05-0069.

[3]See HRS § 269-122(b).

[4]See HRS § 269-124(7).

differently, EEPS targets the demand or consumption of electricity, while RPS focuses on the supply or generation of electricity.[5]

II.

Background on EEPS Law

In January 2008, the State and the United States Department of Energy signed a Memorandum of Understanding to establish a long-term partnership with the purpose of transforming the way in which renewable energy and energy efficiency resources are planned and used in the State. This partnership, referred to as the Hawaii Clean Energy Initiative ("HCEI"), set a goal for the State to meet 70% of its energy needs by 2030 through clean energy, with 30% coming from energy efficiency measures, and 40% coming from locally generated renewable sources.

On October 20, 2008, as a product of HCEI, the Governor of the State, the State Department of Business, Economic Development and Tourism ("DBEDT"), the State Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs ("Consumer Advocate"), and the HECO Companies

[5]HRS §§ 269-91 - 269-95 ("RPS Law") establishes as Hawaii's RPS the following percentages of renewable energy that must comprise net electricity sales by specific dates: (1) 10% by 2010; (2) 15% by 2015; (3) 25% by 2025; and (4) 40% by 2030.

entered into a comprehensive agreement designed to move the State away from its dependence on imported fossil fuels for electricity and ground transportation, and toward "indigenously produced renewable energy and an ethic of energy efficiency."[6]

Section 12 of the Energy Agreement specifically addressed "Energy Efficiency," and stated "[i]t is the goal of all parties to ensure that Hawaii achieves the maximum possible levels of energy efficiency as it represents the most effective use of resources possible, including conservation by not using resources at all."[7] To this end, the parties to the Energy Agreement committed to various measures to encourage adoption of energy efficiency, and specifically committed to "support the enactment of an energy efficiency portfolio standard at the 2009 session of the Legislature."[8]

As contemplated in the Energy Agreement, the 2009 session of the State Legislature enacted Act 155, codified as HRS § 269-96, which provides:

> (a) The public utilities commission shall establish energy-efficiency portfolio standards that will maximize cost-

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[6]Energy Agreement Among the State of Hawaii, Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, and the Hawaiian Electric Companies ("Energy Agreement") at 1.

[7]Id. at 21.

[8]Id. at 22.

effective energy-efficiency programs and technologies.

(b) The energy-efficiency portfolio standards shall be designed to achieve four thousand three hundred gigawatt hours of electricity use reductions statewide by 2030; provided that the commission shall establish interim goals for electricity use reduction to be achieved by 2015, 2020, and 2025 and may also adjust the 2030 standard by rule or order to maximize cost-effective energy-efficiency programs and technologies.

(c) The commission may establish incentives and penalties based on performance in achieving the energy-efficiency portfolio standards by rule or order.

(d) The public utilities commission shall evaluate the energy-efficiency portfolio standard every five years, beginning in 2013, and may revise the standard, based on the best information available at the time, to determine if the energy-efficiency portfolio standard established by this section remains effective and achievable. The commission shall report its findings and revisions to the energy-efficiency portfolio standard, based on its own studies and other information, to the legislature no later than twenty days before the convening of the regular session of 2014, and every five years thereafter.

(e) Beginning in 2015, electric energy savings brought about by the use of renewable displacement or off-set technologies, including solar water heating and seawater air conditioning

district cooling systems, shall count toward this standard.[9]

Thus, the EEPS Law establishes an EEPS for Hawaii of 4,300 gigawatt hours ("GWh") of electricity use reductions statewide by 2030. According to DBEDT, which proposed the 4,300 GWh figure in legislation, this figure was derived by calculating 30% of the sum of the baseline electricity sales forecasts from the HECO Companies' third Integrated Resource Planning ("IRP") processes ("IRP-3") and KIUC's 2005 IRP, extrapolated to 2030.[10] This figure did not account for reductions in sales as a result of combined heat and power, future demand-side management, reductions in sales due to photovoltaic ("PV") systems, and increases in sales due to electric vehicles ("EV").[11]

III.

Procedural History

As required by HRS § 269-96, on March 8, 2010, the commission instituted this proceeding to examine establishing

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[9]HRS § 269-96.

[10]See DBEDT's Opening Statement of Position on Establishing EEPS, filed on January 27, 2011, at 17; DBEDT's Final Statement of Position on Establishing Energy Efficiency Portfolio Standards, filed on August 29, 2011, at 22.

[11]See Final Statement of Position of the Hawaiian Electric Companies, filed on August 29, 2011 ("HECO Companies' FSOP"), at 8, 40.

EEPS that will maximize cost-effective energy efficiency programs and technologies. The Order Initiating Investigation named the HECO Companies, the Consumer Advocate, DBEDT, KIUC, R.W. Beck, Inc. (n.k.a. SAIC Energy, Environment & Infrastructure, LLC) ("Beck/SAIC"), which is the current PBFA for the HECO Companies' service territories, the City and County of Honolulu ("CCH"), the County of Hawaii ("COH"), the County of Maui ("COM"), and the County of Kauai ("COK") as parties to the docket.

In addition, the commission's opening order: directed the HECO Companies to file a status report discussing the progress made toward agreed-upon proposals that were to be initiated by April 1, 2009 and June 2009, as set forth in the Energy Agreement; provided the deadline by which motions to intervene were to be filed; and the deadlines by which a stipulated protective order and stipulated procedural order were to be filed.

On March 25, 2010, Hawaii Renewable Energy Alliance ("HREA") filed its Motion to Intervene, and on March 29, 2010, Blue Planet Foundation ("Blue Planet") and Hawaii Solar Energy Association ("HSEA") filed their respective Motions to Intervene with the commission. The HECO Companies filed a letter with the commission on April 6, 2010, stating that they did not oppose

the granting of intervenor status to HREA, Blue Planet, and HSEA.

By Order issued on April 21, 2010, the commission granted intervention to HREA, Blue Planet and HSEA.[12]

On April 7, 2010, the HECO Companies filed a letter with the commission summarizing the progress made towards agreed-upon proposals in the Energy Agreement.

On May 21, 2010, the Parties filed a proposed Stipulation for Protective Order and a proposed Stipulated Procedural Order with the commission.

On June 3, 2010, the commission approved the Stipulation for Protective Order, and on July 7, 2010, the commission issued its Order Approving, With Modifications, Stipulated Procedural Order.

Pursuant to the Stipulated Procedural Order, the issues in this docket are:

> 1. What are the appropriate responsibilities and roles of entities to meet the energy efficiency portfolio standards goals?
>
> This issue would include related questions such as (but not limited to): What entity(ies) has the responsibility and accountability for achieving the EEPS goals?; What are the appropriate roles for

[12]Accordingly, the parties to this docket are: HECO Companies, Consumer Advocate, DBEDT, KIUC, Beck/SAIC, CCH, COH, COM, COK, HREA, Blue Planet, and HSEA (collectively, "Parties").

key stakeholders in helping to achieve the EEPS goals?; What type of reporting is appropriate to provide the Commission, the Integrated Resource or Clean Energy Scenario Planning process, and other stakeholders with actual energy efficiency savings achievements and progress towards reaching EEPS interim goals?

2. What is the relationship between the goals of the energy efficiency portfolio standards and other energy goals and initiatives, such as the State energy objectives, renewable portfolio standards, county building codes, etc.?

This issue would include related questions such as (but not limited to): How will the EEPS goals and actual achievements be integrated into the Integrated Resource or Clean Energy Scenario Planning process?; How does the EEPS relate to the duties of the Public Benefit Fee Administrator?

3. What are the appropriate energy efficiency portfolio standards goals by service territory for 2015, 2020, 2025, and 2030 (including identification of measures and programs encompassed by the standards, measurement methods; and evaluation processes)?

This issue would include related questions such as (but not limited to): Is there a clear definition of what energy efficiency programs contribute to the EEPS versus the renewable portfolio standards?; What is the appropriate baseline measurement to utilize in determining achievement of the interim and overall EEPS goals?; What are the appropriate measurement methods to determine EEPS?

4. Is the Public Benefits Fund current funding of 1% of total electric utility revenues for 2010, 1.5% for 2011 and 2012, and 2% for 2013 and thereafter, sufficient to achieve the energy efficiency portfolio

standards goals for 2015, 2020, 2025, and 2030? If the funding is not sufficient, what is the appropriate level of funding?

5. What is the process for the Commission to reevaluate the energy efficiency portfolio standards goals every five years, beginning in 2013, and to revise the goals, if appropriate, based on the best information available at the time, and to determine if the goals remain effective and achievable?

This issue would include a related question (but not be limited to): What entity(ies) has the responsibility and accountability for assisting the Commission with the reevaluation of the energy efficiency portfolio standards goals?

6. Should incentives and/or penalties be utilized to encourage achievement of the energy efficiency portfolio standards?

This issue would include related questions such as (but not limited to): Is an incentive mechanism to help achieve the energy efficiency portfolio standards goals appropriate, and if so what is the appropriate mechanism?; Is a penalty mechanism for underachievement of the energy efficient portfolio standards goals appropriate, and if so, what is the appropriate mechanism?; What are the potential impacts, if any, on the Hawaiian Electric Companies' and KIUC's obligation to serve, provision of reliable electric service and the Integrated Resource or Clean Energy Scenario Planning process if the energy efficiency portfolio standards goals are not achieved?[13]

[13]Exhibit A, attached to Order Approving, With Modifications, Stipulated Procedural Order, filed on July 7, 2010, at 4-6.

The Order Approving, With Modifications, Stipulated Procedural Order included a procedural schedule that was subsequently amended by the commission, as discussed further below.

The initial procedural steps in this docket consisted of informal informational workshops held on July 29, 2010, August 18, 2010, September 8, 2010, September 15, 2010, and December 7, 2010, and included informal information exchanges among the Parties.

On January 27, 2011, the Parties submitted their Preliminary Statements of Position. On February 25 2011, the Parties simultaneously submitted information requests ("IRs"), and on March 30 and 31 and April 1, 2011, the Parties simultaneously filed responses to the IRs.

On April 15, 2011, the Parties held a technical session during which, among other things, the Parties discussed the docket issues established by the Stipulated Procedural Order.

On May 10, 2011, the commission issued a letter to the Parties: (i) rescheduling an upcoming technical session from May 13, 2011 to May 24, 2011; and (ii) stating its intent to have its consultant, James Flanagan Associates ("JFA"), present and guide discussions during the May 24, 2011 technical session.

On May 19, 2011, the commission issued its Order Amending Stipulated Procedural Order, which amended, sua sponte, the Stipulated Procedural Order by amending the applicable dates and/or deadlines for Step Nos. 12 through 20 of the Stipulated Procedural Schedule.

On May 24, 2011, the commission held a technical session, during which, among other things, JFA presented information and led discussions regarding possible effective choices for the Hawaii EEPS and recent nationwide activity in EEPS.

On June 13, 2011, the commission issued its Order Amending Stipulated Procedural Schedule, which further amended, sua sponte, the Stipulated Procedural Order by amending the applicable date for the follow-up technical session (i.e., Step No. 13) from June 27, 2011 to August 12, 2011, to allow the Parties time to review a proposed straw framework prepared by JFA prior to the technical session.

On August 5, 2011, the commission issued a letter to the Parties providing a proposal for "A Framework for Energy Efficiency Portfolio Standards," which was prepared by JFA.

On August 12, 2011, the follow-up technical session was held by the commission for the purpose of providing JFA the opportunity to discuss the draft proposed framework with the Parties.

On August 18, 2011, the commission issued a letter to the Parties providing a revised draft of "A Framework for Energy Efficiency Portfolio Standards" ("Draft EEPS Framework"), as revised by JFA in response to the discussions held during the August 12, 2011 follow-up technical session. In that letter, the commission stated that the Parties may comment on the Draft EEPS Framework in their respective Final Statements of Position ("FSOPs").

The Parties filed their FSOPs on August 29, 2011,[14] which included their comments on the Draft EEPS Framework.

By Order issued on September 9, 2011, the commission further amended, sua sponte, the procedural schedule by: (1) allowing the Parties to file Reply Statements of Position ("Reply SOPs") to the FSOPs by September 23, 2011; (2) removing the Pre-hearing Conference and Panel Hearing from the schedule; and (3) including as the final step in the schedule the issuance of a Decision and Order and final Framework for EEPS by the commission following the filing of the Parties' Reply SOPs.

On September 23, 2011, the Parties filed their Reply SOPs.

[14]COM was granted an extension to file its FSOP on August 31, 2011.

IV.

Discussion

The Parties have had ample opportunity to vet the principles and approaches that are embodied in the Framework, which the commission approves herein, in their FSOPs and Reply SOPs, as well as in technical sessions held with the commission's consultant. Accordingly, the discussion that follows will focus on the highpoints of the Framework, and/or on disputed issues that the commission resolves herein. Moreover, this Order discusses the general, overarching concepts and principles approved in the Framework to achieve the EEPS; more specific direction and/or guidance related to implementation of the principles addressed herein will be provided in future orders.

The commission will first generally comment on some of the bigger challenges that arose during the course of this docket and in developing the Framework. The first challenge worth noting pertains to the fact that the statutory EEPS standard is set for 2030, i.e., roughly twenty years from now. The task of developing interim goals and overarching principles associated with an EEPS standard so far into the future brings with it inherent challenges, particularly when the State is relatively new to EEPS. Energy efficiency programs for the HECO Companies were fairly recently transferred to the PBFA in 2009;

the EEPS Law itself was passed in 2009; and several of the Parties acknowledged that updated potential studies were needed to adequately set interim goals and fairly allocate responsibilities for achieving these interim goals. The Framework attempts to deal with this challenge by, as much as possible, focusing on the near-term and what we know now, establishing broad principles and approaches to guide achievement, while acknowledging that future interim goals may be modified as new information, resources, and technology become available.

Another challenge is what some of the Parties referred to as the "jurisdictional gap," which describes the fact that the commission has jurisdiction over some (i.e., the utilities and PBFA), but not all of the entities that are expected to contribute to the EEPS (i.e., federal, state, and county agencies). To respond to this challenge, the Framework recognizes the jurisdictional gap by distinguishing between "commission regulated entities" and "non-regulated entities," but forms one EEPS Technical Working Group ("TWG") where both groups may have members and work together toward achieving the EEPS.

The commission appreciates the contributions of the Parties and its consultant while working through these complex issues and in developing the Framework, which the commission

believes will start us down the right path in attaining the State's energy goals.

A.

Purpose of Framework

As set forth above, the EEPS Law establishes an EEPS of 4,300 GWh of electricity use reductions statewide by 2030, and requires the commission to establish interim EEPS goals to be achieved by 2015, 2020, and 2025. The purpose of the Framework is to establish EEPS interim goals that will set the course for achieving the 2030 standard in the EEPS Law, and also set forth broad principles and strategies for achieving the EEPS.

The commission believes the Framework is sufficiently broad to remain viable and relevant for several years. As noted above, though, the Framework is based on information and resources that are available today, and which may change over time. Thus, it is expected that the commission may need to adjust or modify provisions in the Framework based on its regular evaluation of the EEPS, and as recommended by the TWG, described in further detail in Section IV.F below.

B.

Performance and Evaluation Periods

To provide structure to the interim goal periods in the EEPS Law, the Framework establishes four "performance periods." These coincide with the interim goal periods set forth in the EEPS Law, and end on December 31, 2015, 2020, 2025, and 2030. The first performance period began in January of 2009, thereby making 2008 the baseline year for purposes of EEPS evaluation, and will end on December 31, 2015. Each performance period will have its own interim savings goals, specified in Section IV.C below.

In addition, pursuant to HRS § 269-96(d), the commission must evaluate the EEPS every five years, beginning in 2013, and may revise the EEPS; it must also report its findings and revisions to the EEPS to the legislature no later than twenty days before the convening of the regular session of 2014, and every five years thereafter. Relative to this requirement, the Framework also establishes "evaluation periods" that organize the time within which EEPS progress must be evaluated and reported to the legislature.

Table 1 of the Framework depicts the timing and interplay between the performance and evaluation periods:

Table 1: Timeline for Performance and Evaluation Periods

Event	Dates[15]
First Evaluation Report due to Legislature	20 days before convening of the 2014 session
First EEPS Performance Period	January 2009 - December 2015
Second Evaluation Report due to Legislature	20 days before convening of the 2019 session
Second EEPS Performance Period	January 2016 - December 2020
Third Evaluation Report due to Legislature	20 days before convening of the 2024 session
Third EEPS Performance Period	January 2021 - December 2025
Fourth Evaluation Report due to Legislature	20 days before convening of the 2029 session
Fourth EEPS Performance Period	January 2026 - December 2030
Fifth Evaluation Report due to Legislature	20 days before convening of the 2034 session

C.

Goals and Metrics

While the EEPS Law prescribes one numeric standard of 4,300 GWh of electricity savings by 2030, to ensure a clearer picture of EEPS progress, the Framework advances two additional metrics for achieving EEPS:

[15]Dates run from January 1 during the first year through December 31 of the final year of a given period.

1. Energy efficiency to meet 30% of forecasted energy sales in 2030 (which assumes updated utility sales forecasts are used for each evaluation period); and

2. Energy efficiency to meet a fixed percentage of sales relative to a two-year average of total most recent statewide energy sales.[16]

On the first metric above, as mentioned earlier, the 4,300 GWh figure in the EEPS Law was based on an estimation of 30% of electric utility sales in 2030, using sales forecasts from the HECO Companies' and KIUC's then-most-recent IRP processes. Thus, the 4,300 GWh standard and the first metric above should be roughly equivalent.

However, the drivers of energy forecasts and sales change over time, often for reasons exogenous to the implementation of energy efficiency. At some future point, 4,300 GWh may no longer equate to 30% of forecast demand in 2030. Measuring energy efficiency accomplishments with respect to goals at some future point of time is challenging, and when the uncertainty of economic conditions or the introduction of EVs to the grid are considered, it may be increasingly difficult to determine if the letter and spirit of the EEPS Law have been met. Each of the three metrics may contain different assumptions and outcomes, and together provide additional insights to understanding EEPS progress.

[16] See Framework, Section IV.A.

Table 2 of the Framework sets forth the interim goals under all three metrics for the first performance period as follows:[17]

Table 2: First Performance Period Goals

Year	GWh goal	% of baseline	% of forecast
2009	196.5	1.38	1.38
2010	196.5	1.37	1.37
2011	196.4	1.37	1.37
2012	196.4	1.37	1.37
2013	196.4	1.37	1.37
2014	196.4	1.37	1.37
2015	196.4	1.37	1.37
Total	1,375	9.6	9.6

These goals allocate the yearly savings in a linear fashion. The savings per year are roughly equal to the total savings goal (4,300 gwh) divided by the total number of years (22). Some rounding was assumed to simplify the goals for the later periods. The first performance period goals are in-line with recent activity that demonstrated the existing energy efficiency activity within the State is both robust and active. Many states have chosen to backload forecasts to allow time for programs to develop and take hold, but this was not deemed necessary for Hawaii's EEPS.

The incremental goals for the second through fourth performance periods were based on the same methodology as

[17]The first performance period is a seven-year period; the remaining three performance periods are five-year periods.

the goals for the first performance period, and are reflected in Table 3 of the Framework:

Table 3: Second Through Fourth Performance Period Goals and Grand Total

Second Performance Period			
Year	GWh goal	% of baseline	% of forecast
2016	195	1.36	1.36
2017	195	1.36	1.36
2018	195	1.36	1.36
2019	195	1.36	1.36
2020	195	1.36	1.36
Total	975	6.8	6.8
Third Performance Period			
Year	GWh goal	% of baseline	% of forecast
2021	195	1.36	1.36
2022	195	1.36	1.36
2023	195	1.36	1.36
2024	195	1.36	1.36
2025	195	1.36	1.36
Total	975	6.8	6.8
Fourth Performance Period			
Year	GWh goal	% of baseline	% of forecast
2026	195	1.36	1.36
2027	195	1.36	1.36
2028	195	1.36	1.36
2029	195	1.36	1.36
2030	195	1.36	1.36
Total	975	6.8	6.8
Grand Total -- First through Fourth Performance Periods			
Year	GWh goal	% of baseline	% of forecast
2030	4,300	30	30

These goals may be revised prior to the beginning of each period as determined through evaluation or legislative

mandate(s). Revisions to performance period goals may be recommended by the TWG for consideration by the commission.

The Parties were in some disagreement over the issue of whether the commission should allocate specific amounts of the EEPS goals to entities responsible for meeting the EEPS. The commission finds that it is premature to assign specific allocations to contributing entities now, particularly without the benefit of updated potential studies. For this reason, the Framework allows the TWG to first identify all contributing entities, and then allocate EEPS annual and interim goals to those entities, based on available information, including the results of potential studies.

D.

Relationship to Ongoing Proceedings

The commission views EEPS as having an important role with at least two other commission proceedings, IRP and RPS. State supported IRP efforts assure that load growth is met with the most cost-effective resources when determining if new supply is needed. EEPS will impact the utilities' IRP processes since the projected amount of energy efficiency will affect the utilities' resource plans. The HECO Companies provide the following example:

> [I]f the forecast of energy savings included in the IRP scenario is overly optimistic and actual sales are higher than projected, a need for new firm generation may be created sooner than anticipated, which could negatively affect the Companies' system reliability. This risk to system reliability originates from the uncertainty that the 2030 EEPS goal will be attained and from the uncertainty related to how quickly that goal is attained (or not attained) over time. Even if the energy savings envisioned by the 2030 EEPS goal are assumed to be met, the projected trajectory of energy savings between 2010 and 2030 could have a linear, exponential, S-curve, or some other shape. The rate at which energy-efficiency impacts are recorded over time would have a profound effect on the timing of capital investments and other allocations of resources.[18]

Put another way, the total connected renewable generation capacity that must be built will depend on how successful the EEPS is at reducing electric load. Thus, it is imperative that the EEPS evaluation process inform the utilities' respective IRP processes. For this reason, the Framework provides:

> EEPS reporting shall be designed and scheduled to provide timely estimates of total energy efficiency resources that have and are expected to be obtained, for use in load forecasting and Scenario planning efforts in the IRP process.[19]

With respect to RPS, as indicated above, the RPS and EEPS were the two mechanisms envisioned to achieve the State's

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[18]HECO Companies' FSOP at 43.

[19]Framework, Section IV.E.1.

energy goal of reducing Hawaii's dependence on imported fossil fuel by 70% by 2030. The commission views the EEPS as the essential demand-side counterpart to the RPS's supply-side mandates. If the two mechanisms are examined together, assuming sales growth is fully met by EEPS by 2030, one possible result is the retiring of power plants that are currently delivering 40% of the State's load. This will have an effect on rates that the commission will monitor and address with the legislature, as necessary.

E.

Strategies to Meet the EEPS

1.

Portfolio Approach and Criteria

A portfolio approach will be used to meet the EEPS, with efficiency contributions coming from a combination of sources. This will include a range of programs and activities such as, but not limited to:

> traditional incentive-based programs, education and outreach, implementation of building codes and appliance and equipment standards, system upgrades, and efforts designed to address the market barriers to energy efficiency.[20]

[20]Framework, Section V.A.2.

The Framework also sets forth criteria that must be used when designing and implementing portfolios of programs and activities. As explicitly stated in the EEPS Law,[21] the first criterion listed in the Framework is that resource programs should be cost-effective on a portfolio basis. While cost-effectiveness is a good litmus test for inclusion of energy savings measures, it should not be considered as the sole test for EEPS energy saving measures. Some measures when evaluated alone may not be cost-effective, yet when evaluated as part of a package of measures, or installed as part of a new construction project rather than a retrofit, may be quite cost-effective.

Accordingly, the Framework includes several other criteria, including one that is an important quality of energy efficiency measures -- persistence of savings. Longer life measures such as air conditioning equipment or high efficiency motors are generally preferred over shorter life measures such as screw-in fluorescent lamps or short-term behavioral modifications. Savings from longer life measures persist over time and can be counted on to provide efficiency through the twenty-year EEPS period and beyond.

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[21]HRS § 269-96(a) provides: "The public utilities commission shall establish [EEPS] that will maximize cost-effective energy efficiency programs and technologies." [Emphasis added.]

2.

Contributing Entities and Delivery Channels

a.

Commission Regulated Entities

Section V.C of the Framework sets forth more specific delivery channels for EEPS contributions, delineated by two different types of contributing entities -- (1) commission regulated entities; and (2) non-regulated entities. With respect to the former, traditional energy efficiency programs administered by KIUC and the PBFA (for the HECO Companies' service territories) are expected to initially provide the bulk of the savings towards EEPS. Savings from non-traditional utility delivered measures like rate design and advanced metering may also count towards EEPS.

In addition, the Framework includes utility system transmission and distribution ("T&D") efficiency as an eligible delivery channel. There was some dispute over this issue. The HECO Companies maintained that the definition of EEPS does not include energy savings resulting from efficiency improvements in generation and T&D on the utility side of the customer meter:

> [T]he EEPS goals were derived on the basis of electricity consumption at the customer meter (i.e., electricity sales), which does not include line losses between the generating plants or the conversion of fuel into electricity (heat rates). . . . [I]dentifying the sources of increased

efficiency in utility generation, transmission, and distribution requires engineering analyses that are substantially different from the issues being addressed in this docket. Those analyses would involve detailed studies of the generation, transmission, and distribution system configuration, system electrical flow analyses, planned maintenance outage planning and procedures, etc. Thus, while the Hawaiian Electric Companies acknowledge that they should be expected to, and do, take steps to increase the inherent efficiency of their generators and their [T&D] infrastructures, those efficiency increases should not be included in the EEPS.

<u>However, if the Commission determines that it wants to count electric system efficiencies toward EEPS Draft EEPS Framework, then 1) generation efficiency improvements should not be included, and 2) [T&D] electricity savings may count towards the EEPS goals, but the utilities should not be allocated goals for T&D electricity savings.</u>

Generation efficiency is expressed as British thermal units ("Btus") burned per kilowatthour ("kWh") generated, also known as heat rate. A lower heat rate means better efficiency because fewer Btus are burned to generate a kWh of electricity. However, while improved generation efficiency results in fewer Btus consumed it does not result in lower electricity use. Therefore, generation efficiency improvements do not contribute to the achievement of EEPS, since EEPS is measured by the amount of electricity use reductions.

Furthermore, the inclusion of improved generation efficiency in the EEPS creates unintended consequences. Achievement of [RPS] is mandated by HRS §269-91. In order for the utilities to integrate greater amounts of intermittent renewable energy and

> achieve the RPS, they will likely need to run additional utility generating units to provide additional operation reserve capacity and maintain service reliability to their customers. This will result in higher heat rates and less generation efficiency, all other factors being the same.[22]

On the other hand, several Parties (e.g., DBEDT, Blue Planet, and HREA) argued that efficiencies gained from generation and T&D should be counted in EEPS. For example, Blue Planet argued for inclusion of generation efficiency as follows:

> The EEPS should not exclude efficiency gains from generation for the same reasons gains from large utility customers should not be excluded. To achieve the 2030 Standard, the EEPS must include large customers because they represent the potential for significant [energy use reductions]. Power plants operated by the HECO Companies (in particular the Hawaiian Electric Company) and KIUC consume significant amounts of the electricity they generate. The electricity is consumed to operate and maintain the power plants. The amount of electricity consumed is equivalent to the electricity consumed by the utility's large customers. Given the relative amount of electricity consumed by utility power plants, and the corresponding potential gains in efficiency, it is logical to include generation as an EEPS program or technology.
>
> Although increased integration of variable renewable energy sources could result in increased system or plant heat rate, such increases may be more than offset by increases in energy efficiency and thus variable energy from renewable generation does not provide a sound basis for excluding

[22]HECO Companies' FSOP at 12-13 (emphasis added).

> generation as an EEPS program or technology. In general, variable renewable generation increases generator plant heat rates by requiring the plant to operate at less efficient electricity generation output levels. Similarly, system heat rates increase because more generating units are operated at nearer to their minimum output level. Including generator efficiency as an EEPS program and technology would encourage utilities to reduce the amount of generating units operating at minimum output levels.[23]

As noted by the HECO Companies, electric utilities are expected to contribute savings from improvements to their systems. Savings from measures such as high efficiency transformer replacement, load balancing, re-conductoring and voltage regulation or optimization are all potential sources of utility energy efficiency savings. Voltage optimization, in particular, is a good example of a known energy efficiency measure that has proven to be a cost-effective way to increase end-use efficiency, reduce distribution losses and improve power quality and reliability. The Framework accordingly includes these types of T&D measures as an eligible delivery channel, but at this early stage, does not make any specific allocations for T&D savings to the utilities.

For generation efficiencies, the commission is not convinced that the EEPS Law was intended to also encompass utility heat rates, which are quite distinct from the metric of

---

[23]Blue Planet's Final Statement of Position, filed on August 29, 2011, at 13-14.

electricity sales that the EEPS intends to measure. In addition, inclusion of generation efficiencies would add complexity to the analysis, tracking and reporting of EEPS progress. Accordingly, generation efficiencies were omitted from the Framework.

b.

Non-Regulated Entities

The Framework lists several delivery channels for non-regulated entities:

Building Codes: Building codes provide a small contribution initially. However, savings compound over time, and as such, savings from building codes provide a good complement to ratepayer funded measures, which are expected to provide the bulk of near-term contributions.

Federal, State and Local Appliance Standards: National appliance standards currently in effect are included in utility sales forecasts. However, new federal, state and local standards are not, and should be counted towards EEPS goals. State appliance codes such as those for plasma televisions or solar water heaters all provide for energy savings that can contribute to the EEPS.

Legislative Mandates: Mandatory benchmarking is an example of a legislative directive that can provide savings at a low cost. Several states now require information about energy usage at the time of sale for commercial and residential properties. This visibility encourages investment in efficiency for all properties. Many items in this category are already being implemented by the State's Energy Office, DBEDT, and should be counted towards EEPS.

Non-Profits: Many small and large non-profits, environmental groups, and community organizations are actively working to educate citizens about energy efficiency. These groups may provide equipment or training that can result in significant reductions in energy usage at home and in offices. Participation by these groups should be encouraged and supported through the TWG.

c.

Eligible and Ineligible Measures

Pursuant to HRS § 269-91 in the RPS Law, beginning January 1, 2015, customer-sited, grid-connected renewable energy systems (i.e., PV) shall count towards the RPS and not towards the EEPS. Thus, this is one clear example of an ineligible EEPS measure, effective January 1, 2015.

In the commission's view, the determination of eligible and ineligible measures should evolve in the TWG as information is updated and new programs and technologies are introduced. Thus, the Framework does not include an exhaustive list of eligible and ineligible measures for EEPS. Rather, it requires the TWG to develop and maintain such a list, for submission to the commission.[24]

d.

Updating Energy Efficiency Potential Savings Estimates

As noted earlier, to make sound decisions regarding expenditures towards meeting EEPS, accurate information about electric energy savings potential and costs is needed. To this end, the Framework provides that updated potential studies for all utility service territories are necessary for EEPS planning purposes. For service territories where this information is not available or is not current, the Framework allows the commission to select an entity to perform a potential study. The Framework also lists a number of factors for inclusion in the updated potential studies.[25]

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[24]See Framework, Section V.D.3.

[25]See Framework, Section V.E.2.

F.

TWG

As addressed above, energy consumption patterns, sales forecasts, and technologies may change significantly between each performance period. For this reason, it is important to refine strategies and expectations for meeting the EEPS. The commission believes the best approach to stay engaged with ongoing issues is to set up the TWG, with stakeholders from both commission regulated entities and non-regulated entities.[26] It is the intent of the Framework to support and encourage contributions from both of these groups, since it will take contributions from both to meet the EEPS. It therefore makes sense to have all contributors working together to reach the common EEPS standard.

The Framework requires the TWG to establish its operating procedures and meet regularly to provide recommendations in support of the evaluation and policy process as necessary. However, for the most part, the commission expects the TWG to work together on an informal basis, similar to the Technical Advisory Group currently in place for PBFA-related functions. Recommendations and findings by this

[26]Earlier drafts of the Framework contemplated two separate working groups for commission regulated entities and non-regulated entities. However, in response to concerns raised by some of the Parties over resources and efficiencies, the commission decided to form just one TWG.

group will be incorporated into legislative reports, as appropriate, and may be implemented at the discretion of the commission.

G.

Tracking and Reporting Requirements and Timing

To track and report EEPS savings from all contributing entities, the commission may select an EEPS Reporting Contractor. Although technically a challenging task, tracking and reporting savings is largely a bookkeeping function. This entity shall be neutral to the outcome of the tabulated results and not engaged in administering any incentives or penalties.

For commission regulated entities, the PBFA and KIUC shall continue to file annual plans and report actual energy efficiency program impacts. These reports, which may be used by the EEPS Reporting Contractor, shall incorporate their respective contributions towards EEPS short and long range goals. Each utility shall also report annual estimated energy savings from efficiency-related activities, including, but not limited to: rate design, demand response, and T&D system improvements. Non-regulated entities that wish to contribute towards the EEPS may work with the EEPS Reporting Contractor to develop reporting requirements.

H.

EEPS Evaluation, Measurement, and Verification

Generally, EM&V is the performance of studies and activities aimed at determining the effects of a program or portfolio of programs or policy initiatives, including the implementation of codes and standards. There are two objectives to EM&V: (1) to document and measure the effects of a program, activity and/or policy initiative and determine whether it met its goals with respect to being a reliable energy resource; and (2) to help understand why those effects occurred and identify ways to improve programs, activities or policy initiatives or refine them, and select future approaches.

Currently, as noted above, separate EM&V is being done for PBFA-administered and KIUC-administered energy efficiency programs. The EM&V outlined in the Framework will be in addition to the EM&V already being conducted for PBFA and utility programs, and will be focused on whether or not those programs, and other efforts from non-regulated entities, are meeting the EEPS ("EEPS EM&V"). EEPS EM&V may be conducted separately for commission-regulated and non-regulated programs and activities, but the results will be combined for reporting purposes.

Contributing entities will be responsible for submitting EEPS-related EM&V estimates of savings that are

expected to be achieved by the proposed programs and activities (ex ante estimates), and subsequently documenting the savings achieved (ex post estimates). The commission may retain an EEPS EM&V Contractor to facilitate, review, conduct, adjust and compile EEPS EM&V results. The TWG may provide review and feedback on all aspects of EEPS EM&V.

Regarding funding, contributing entities will be responsible for developing and funding their own EEPS EM&V to document the validity of their contributions. However, the Framework does not require that EM&V be performed by a third-party auditor (with the exception of PBFA programs).[27] To the extent that contributing entities need assistance with any aspects of EEPS-related EM&V, the commission's EEPS EM&V Contractor may be made available, at the commission's discretion.

Section VIII.F of the Framework lists several metrics that may be used as a part of EEPS EM&V, including: gross energy savings at generation; free-ridership; persistence; market effects; and other metrics that may be recommended by the TWG and/or at the request of the commission.

[27]These programs are statutorily required to be verified by an independent auditor. See HRS § 269-124(7).

I.

Cost-Effectiveness and Consumer Bill Impacts

To determine cost-effectiveness, programs must pass the Total Resource Cost ("TRC") test, which assures that the total benefits exceed the total societal costs. Societal costs include the extra costs of energy efficiency measures as well as the administration costs of the programs. Benefits generally are the sum value of the stream of energy savings provided by these measures. The Framework provides details regarding these costs and benefits.

Program portfolios must also pass the Utility/Administrator Cost test, which ensures that the benefits ratepayers receive from these programs exceed the programs' cost. The Framework provides that a real discount rate of 5% is appropriate for the societal benefit cost modeling of energy efficiency programs where risk is spread across the entire state. This rate, however, may be revised by recommendation of the TWG and subsequent approval by the commission.[28]

When using the TRC or the Utility/Administrator test, the following benefits shall be included: (1) avoided electric energy benefits; (2) avoided generation capacity benefits; (3) avoided T&D capacity benefits; and (4) non-electric

[28] See Framework, Section IX.A.2.

benefits, such as economic development benefits, job creation, energy security benefits and a greenhouse gas benefit.

With respect to avoided costs, the Framework, adopting language proposed by the HECO Companies, provides:

> a) Avoided cost figures should reflect renewable energy and capacity costs. Avoided costs should be in line with those determined in IRP plans. Final values may be proposed by the utilities and the EEPS Technical Working Group for reporting to the Commission at each five-year evaluation reporting period or as requested by the Commission.
>
> b) The utilities will calculate a range of avoided costs for the energy efficiency programs and activities. The [TWG] will determine the appropriate avoided cost values to use in evaluating the cost-effectiveness of such programs and activities and report these costs to the Commission.
>
> c) The utilities shall provide estimates of avoided [T&D] capital costs, and avoided [T&D] energy costs due to avoided line losses, for the energy efficiency programs and activities. The utilities shall use reasonable methods to estimate avoided [T&D] costs, which take into account the information, data and forecasts available to them, and the practical difficulties associated with determining such estimates. The utilities shall provide explanations of the methods used to determine the estimates, and shall refine such estimates as required to do so by the Commission.[29]

[29]Framework, Section IX.B.2.

While the Framework leaves flexibility as to some of the specific details of cost-effectiveness calculations, it is the intent that these calculations provide a fair comparison to all of the built-up costs that are afforded the supply-side comparison. Similar to those concepts used in the IRP, EEPS savings may be called upon to reduce T&D costs or to reduce the cost of risks associated with fossil fuel reliance. As these values will change over time, so will the assumptions used in cost-effectiveness calculations used for the EEPS.

The Framework acknowledges that bill and rate impacts must be considered when setting the EEPS interim goals. The Consumer Advocate, in particular, voiced concerns on this issue:

> It must be recognized that the ratepayers do not represent a limitless source of funds. Regardless of the economic conditions utilities and regulators should not allow rates to significantly increase in order to avoid rate shock, but such consideration should be given even greater weight during these times. To make clear, the Consumer Advocate is not recommending that the State should not continue to make strides towards energy independence and a clean energy industry. However, such progress should not be accomplished in a fashion that will cause Hawaii's economy, its businesses and residents to suffer from unnecessarily prolonged economic doldrums due to unreasonably high utility rates.[30]

[30]Division of Consumer Advocacy's Final Statement of Position, filed on August 29, 2011, at 12.

Generally, long-term bill impacts associated with the implementation of cost-effective energy efficiency are positive. Selecting the lower cost resource will reduce energy bills in the long run. The commission, however, agrees with the Consumer Advocate that ratepayers should not have to shoulder unreasonably increased rates due to EEPS, whether attributed to the actual programs or the administrative costs associated with the programs. Thus, it is important to review bill impacts on a regular basis.

The Framework accordingly encourages the TWG to work with the Consumer Advocate to address energy efficiency bill-related issues, in particular for commission-regulated programs and activities. Moreover, the Framework requires that all annual and five-year reporting discuss short and long-term bill impacts for each customer class in the following categories: (1) Non-participants, which are ratepayers that do not participate in energy efficiency programs and activities; (2) Participants, which are ratepayers that participate in energy efficiency programs and activities; and (3) Rate class totals, which indicate the effect of efficiency savings across the ratepayer class as a whole.

J.

Funding, Incentives and Penalties

Ratepayer funding for PBFA programs and activities is currently set at 1.5% of utility electric sales for the 2011 and 2012 calendar years. The Framework provides that funding for traditional PBFA and utility energy efficiency programs should be re-evaluated by the TWG regularly or at each five-year evaluation period to determine if it is sufficient to meet the State's energy goals.[31]

As for incentives, the Framework allows the existing PBFA model of performance based withholding and a small incentive for exceeding target goals to continue for the current contract term. However, revised incentive mechanisms may be proposed by the TWG for future PBFA contracts. Any changes to incentive mechanisms will be at the discretion of the commission.

Regarding penalties, at this time, without the results of updated potential studies and any allocation of EEPS responsibilities to EEPS contributing entities, the commission finds it premature to impose any penalty mechanism for failure to meet EEPS goals. Upon completion of potential studies, sufficient information may be available for the commission to

[31] See Framework, Section X.A.

determine fair allocations and consider penalties for not reaching the goals.

V.

Order

THE COMMISSION ORDERS:

The Framework for Energy Efficiency Portfolio Standards, attached hereto as Exhibit A, is approved to govern the achievement of EEPS, unless otherwise amended or ordered by the commission.

DONE at Honolulu, Hawaii JAN - 3 2012.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By Hermina Morita
Hermina Morita, Chair

By John E. Cole
John E. Cole, Commissioner

By (RECUSED)
Michael E. Champley, Commissioner

APPROVED AS TO FORM:

Kaiulani Kidani Shinsato
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Commission Counsel

2010-0037.sl

A FRAMEWORK FOR ENERGY EFFICIENCY PORTFOLIO STANDARDS

JANUARY 3, 2012

STATE OF HAWAII

PUBLIC UTILITIES COMMISSION

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I. Definitions

As used in this Framework:

"Commission" means the Public Utilities Commission of the State of Hawaii.

"Commission Regulated Entity" or "Commission regulated" means an entity contributing to the EEPS and subject to direct regulation and/or oversight by the Commission.

"Consumer Advocate" means the Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs of the State of Hawaii.

"Contributing Entity" means an entity that implements programs or activities designed to produce energy efficiency savings that contribute to the EEPS.

"EEPS" or "Energy Efficiency Portfolio Standard" generally refers to a law that sets a standard of electricity use reduction to be achieved in incremental stages. For Hawaii, EEPS refers to the standard set forth by Act 155, Session Laws of Hawaii 2009, and promulgated as HRS § 269-96.

"EEPS EM&V Contractor" means an entity or entities contracted by the Commission to provide an independent review of EEPS-related data filed with the Commission.

"EEPS Reporting Contractor" means an entity contracted by the Commission to track and report savings documented through the EM&V process.

"EEPS Technical Working Group" means a steering committee of members selected by the Commission to represent the Contributing Entities.

"EM&V" or "Evaluation Measurement & Verification" is the performance of studies and activities aimed at determining the effects of a program or portfolio of programs or policy initiatives including implementation of codes and standards.

"Energy efficiency" is a means of using less energy to provide the same (or greater) level of energy services.

"Framework" means this EEPS Framework, as described in this document.

"GWh" means gigawatt-hour.

"HRS" means Hawaii Revised Statutes.

"HECO Companies" means Hawaiian Electric Company, Inc.; Hawaii Electric Light Company, Inc.; and Maui Electric Company, Ltd.

"IRP" or "Integrated Resource Planning" means a process in which stakeholders develop an Action Plan to govern how utilities will meet energy objectives and customer energy needs consistent with State energy policies and goals, while providing safe and reliable utility service at reasonable cost, through the development of Resource Plans and Scenarios of possible futures that provide a broader long-term perspective.

"KIUC" means Kauai Island Utility Cooperative.

"MWh" means megawatt-hour.

"Non-Regulated Entity" or "non-regulated" means an entity contributing to the EEPS but not otherwise subject to direct regulation and/or oversight by the Commission.

"PBF" means the public benefits fee established by the Commission, pursuant to HRS § 269-121, to include all or a portion of the moneys collected by Hawaii's electric utilities from ratepayers through a demand-side management surcharge and transferred to a third-party administrator contracted by the Commission to provide energy efficiency and demand-side management programs and services, subject to Commission review and approval.

"PBFA" or "Public Benefits Fee Administrator" means the third-party administrator contracted by the Commission to operate and manage energy efficiency

programs in accordance with HRS Chapter 269, Part VII (Public Benefits Fee), and any other applicable laws, rules, and Commission decision(s).

"RPS" or "Renewable Portfolio Standards" means the standards or goals set forth in HRS § 269-95.

"Scenarios" means a manageable range of possible future circumstances or set of possible circumstances reflecting potential energy-related policy choices, uncertain circumstances, and risks facing a utility and its customers, which will be the basis for the plans analyzed in IRP. A scenario may not consist of a particular project.

"State" means the State of Hawaii.

"Utility" means Hawaiian Electric Company., Inc.; Hawaii Electric Light Company, Inc.; Maui Electric Company, Ltd.; and Kauai Island Utility Cooperative and their successors in interest, as applicable.

II. Introduction

A. State Policy

1. The State has a vested interest in promoting and maintaining a clean energy economy that utilizes energy as efficiently as possible.

2. Furthermore, HRS § 226-18(c) provides that, it shall be the policy of this State to:

   (2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;

   . . . .

   (4) Promote all cost-effective conservation of power and fuel supplies through measures, including:

      (A) Development of cost-effective demand-side management programs;
      (B) Education; and

(C) Adoption of energy-efficient practices and technologies; [and]

. . . .

(6) Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies[.]

B. Goal of the EEPS Law

1. On June 25, 2009, A Bill for An Act Relating to Energy Resources, Act 155, Session Laws of Hawaii 2009 ("Act 155"), was signed into law and promulgated as HRS § 269-96 ("EEPS Law").

2. The purpose of the EEPS Law, as described in Act 155, is to "...maximize cost-effective energy-efficiency programs and technologies to achieve electricity-use reductions to the maximum extent feasible by establishing an energy efficiency portfolio standard."

C. EEPS Targets

1. Pursuant to HRS § 269-96(a), the Commission shall establish EEPS that will maximize cost-effective energy efficiency programs and technologies.

2. Pursuant to HRS § 269-96(b), the EEPS shall be designed to achieve 4,300 GWh of electricity use reductions statewide by 2030; provided that the Commission shall establish EEPS interim goals for electricity use reduction to be achieved by 2015, 2020, and 2025, and may also adjust the 2030 standard by rule or order to maximize cost-effective energy efficiency programs and technologies.

D. Purpose of Framework

By this Framework, the Commission establishes EEPS interim goals coincident with four performance periods (one seven-year period and three five-year periods), and sets forth broad principles and strategies for achieving the EEPS; provided that the Commission may modify any of the provisions in this Framework based on its periodic evaluation of the EEPS, with input from the EEPS Technical Working Group, and as necessary to achieve the 2030 standard in the EEPS Law.

III. Performance and Evaluation Periods

A. Performance Periods

There shall be four "performance periods" that end on December 31, 2015, 2020, 2025 and 2030, respectively. Each of these periods shall have an electricity savings goal for cumulative savings to be obtained during that period, as measured by the three metrics described in Section IV.A. The first EEPS performance period began in January of 2009 and will end on December 31, 2015.

B. Evaluation Periods

1. As provided in HRS § 269-96(d), "evaluation periods" are established for assessing progress toward EEPS goals during each performance period, and for the Commission to determine if EEPS remains effective and achievable.

2. Evaluations of progress-to-date and progress-expected-to-occur for each evaluation period shall be conducted sufficiently prior to the conclusion of each performance period to ensure that updates to savings potential, benefits, and costs are determined in order to revise the goals and approaches for the subsequent performance period as necessary.

3. These cycles are repeated every five years until the standard is achieved in 2030, and following 2030, to assess the EEPS.

C. Timeline

Table 1 below describes the starting and ending dates for the performance periods, with concomitant evaluation periods, including key reporting milestones.[1] The Commission may establish interim guidelines necessary to meet the requirements articulated below.

[1]Note that the first cycle, January 1, 2009-December 31, 2015, is actually seven years rather than five.

Table 1: Timeline for Performance and Evaluation Periods

Event	Dates[2]
First Evaluation Report due to Legislature	20 days before convening of the 2014 session
First EEPS Performance Period	January 2009 - December 2015
Second Evaluation Report due to Legislature	20 days before convening of the 2019 session
Second EEPS Performance Period	January 2016 - December 2020
Third Evaluation Report due to Legislature	20 days before convening of the 2024 session
Third EEPS Performance Period	January 2021 - December 2025
Fourth Evaluation Report due to Legislature	20 days before convening of the 2029 session
Fourth EEPS Performance Period	January 2026 - December 2030
Fifth Evaluation Report due to Legislature	20 days before convening of the 2034 session

IV. Goals and Metrics

A. Metrics for Achieving the EEPS

To ensure a clearer picture of EEPS progress, EEPS shall be tracked and reported following three metrics:

[2]Dates run from January 1 during the first year through December 31 of the final year of a given period.

1. 4,300 GWh of electricity use reductions statewide by 2030, as provided in HRS § 269-96(b);[3]

2. Energy efficiency to meet 30% of forecasted energy sales in 2030. This assumes updated utility sales forecasts are used for each evaluation period; and

3. Energy efficiency to meet a fixed percentage of sales relative to a two-year average of total most recent statewide energy sales.

B. Goals for First Performance Period

EEPS goals for the first performance period shall be:

Table 2: First Performance Period Goals

Year	GWh goal	% of baseline	% of forecast
2009	196.5	1.38	1.38
2010	196.5	1.37	1.37
2011	196.4	1.37	1.37
2012	196.4	1.37	1.37
2013	196.4	1.37	1.37
2014	196.4	1.37	1.37
2015	196.4	1.37	1.37
Total	1,375	9.6	9.6

C. Goals for Second through Fourth Performance Periods

The goals for the second through fourth performance periods are described below in Table 3. These goals may be revised prior to the beginning of each period as determined through evaluation or legislative mandate(s). Revisions

[3]Gross energy savings measured at system level (including energy savings from reduced transmission and distribution losses).

to performance period goals may be recommended by the EEPS Technical Working Group for consideration by the Commission.

Table 3: Second Through Fourth Performance Period Goals and Grand Total

Second Performance Period			
Year	GWh goal	% of baseline	% of forecast
2016	195	1.36	1.36
2017	195	1.36	1.36
2018	195	1.36	1.36
2019	195	1.36	1.36
2020	195	1.36	1.36
Total	975	6.8	6.8
Third Performance Period			
Year	GWh goal	% of baseline	% of forecast
2021	195	1.36	1.36
2022	195	1.36	1.36
2023	195	1.36	1.36
2024	195	1.36	1.36
2025	195	1.36	1.36
Total	975	6.8	6.8
Fourth Performance Period			
Year	GWh goal	% of baseline	% of forecast
2026	195	1.36	1.36
2027	195	1.36	1.36
2028	195	1.36	1.36
2029	195	1.36	1.36
2030	195	1.36	1.36
Total	975	6.8	6.8
Grand Total -- First through Fourth Performance Periods			
Year	GWh goal	% of baseline	% of forecast
2030	4,300	30	30

D. Allocation of Goals to the Contributing Entities

1. The Commission regulated and non-regulated entities that contribute towards EEPS savings will be identified by the EEPS Technical Working Group (see Section VI. Roles and Responsibilities).

2. The EEPS Technical Working Group will allocate EEPS annual and interim goals to the Contributing Entities based on the information available to them, including the results of any energy efficiency potential studies.

3. The allocations should be reviewed every five years, and if necessary, modified. Modifications recommended by the EEPS Technical Working Group should be reported to the Commission.

E. Relationship to Ongoing Proceedings

1. IRP

EEPS reporting shall be designed and scheduled to provide timely estimates of total energy efficiency resources that have and are expected to be obtained, for use in load forecasting and Scenario planning efforts in the IRP process.

2. RPS

The RPS goals set forth in HRS § 269-95, in coordination with the EEPS and EEPS interim goals, and energy electricity savings from other sectors, shall apply towards the State's energy goal of 70% of Hawaii's energy needs coming from renewable energy by the year 2030, as contemplated in Act 155.

V. Strategies to Meet the EEPS

The following key principals and strategies apply to achieving the EEPS.

A. Portfolio Approach and Strategies

1. The Commission will take an approach that combines short- and medium-term resource acquisition and long-term market transformation. Resource acquisition programs and measures deliver cost-effective and measureable savings through the installation of specific energy efficient equipment. Market transformation goals will help to develop infrastructure necessary for the continued delivery of savings over the long-term.

2. A portfolio approach will be used to achieve the EEPS. It will include a range of programs and activities such as, but not limited to: traditional incentive-based programs, education and outreach, implementation of building codes and appliance and equipment standards, system upgrades, and efforts designed to address the market barriers to energy efficiency. Approaches to overcome these barriers may include low interest loan programs, trade ally programs, free or low cost energy audits and education, incentives for sub-metering, or other innovative approaches.

B. Portfolio Components and Criteria

In designing and implementing portfolios of programs and activities, the following criteria shall be used to build balanced resource acquisition and market transformation portfolios in each market segment.

1. Resource programs should be cost-effective on a portfolio basis. Commission regulated entities and the EEPS Technical Working

Group should collaborate to design and implement program portfolios.

2. In general, energy efficiency portfolios shall favor measures with longer effective useful lives that provide efficiency through the twenty-year EEPS period and beyond. Longer life measures, such as air conditioning equipment or high efficiency motors, are preferred over shorter life measures, such as screw-in fluorescent lamps or short-term behavioral modifications. Non-energy benefits, such as job creation and increased productivity or reliability, should be considered to the extent that they can be measured, and that non-energy costs that may exist are also considered. Portfolio design should encourage the use of emerging technologies and optimization of systems.

3. Market transformation programs may not be cost-effective in the year they are offered, but should be cost-effective over a five-year term or when folded into an annual portfolio of programs. Transformation programs often generate participants for resource programs and should be designed with this consideration in mind. Typical transformation programs may include the following:

   a) Energy training for engineers, trades people, building operators and architects;

   b) Increased collaboration with builders and county building departments;

   c) Development of programs that leverage schools and universities to promote and study energy efficiency; and

   d) Support of benchmarking or time of sale energy scores for commercial buildings.

4. Savings obtained from solar water heating programs and sea-water air conditioning shall count towards the EEPS.

5. Other suitable measures and approaches may count toward the EEPS based upon recommendations from the EEPS Technical Working Group.

C. Contributing Entities and Delivery Channels

The Commission regulated and non-regulated entities may use a variety of delivery channels and mechanisms to meet the EEPS, including, but not limited to contributions from:

1. Commission Regulated Entities

a) Traditional Energy Efficiency Programs

Utility-administered (i.e., by KIUC) and third-party administered (i.e., PBFA for HECO Companies' service territories) programs are expected to initially provide the bulk of the savings towards EEPS.

b) Other Utility Programs

Utility delivered programs such as rate design or advanced metering may also contribute to EEPS.

c) Coordinated Programs

The PBFA and/or KIUC may coordinate with government agencies to assist in the design of new standards that complement ratepayer funded programs as they are rolled out.

The PBFA and/or KIUC may also provide assistance with incentives, and training and enforcement to respective County building departments during

initial rollout periods for new building codes.

Any use of ratepayer funds to support non-regulated programs and activities shall be reviewed and approved by the Commission or its designee prior to such funds being committed.

To the extent that Commission-regulated entities assist with non-ratepayer funded activities, the associated savings may be counted by the applicable ratepayer funded program provider.

d) Utility System Efficiency

Utilities (i.e, HECO Companies and KIUC) are expected to contribute savings from improvements to their system. Savings from measures such as high efficiency transformer replacement, re-conductoring and voltage regulation or optimization are all potential sources of utility energy efficiency savings.

2. Non-Regulated Entities

a) Building Codes

Energy savings from building codes developed and implemented subsequent to preparation of the demand forecasts relied upon in the development of Act 155 shall count toward achievement of the EEPS.

b) Federal, State and Local Appliance Standards

Energy savings from appliance and equipment standards developed and implemented subsequent to preparation of the demand forecasts relied upon in

the development of Act 155 shall count toward achievement of the EEPS.

c) Legislative Mandates

State building retrofits, time of sale reporting, energy service contracts and mandatory benchmarking are all examples of legislative mandates that may provide savings at a low cost. These concepts are referenced in Act 155 and should be utilized to the extent possible.

d) Non-Profits

Non-profits, environmental groups and community organizations are actively working to educate consumers on energy efficiency initiatives. Participation by these groups should be encouraged and supported through the EEPS Technical Working Group and ratepayer funded activities.

D. Eligible and Ineligible Measures and Approaches

1. Energy savings resulting from external factors including the departure of a major customer, such as the closing of military base, or the reduction of operating hours in a retail store shall not count toward the EEPS.

2. Pursuant to HRS § 269-91, beginning January 1, 2015, customer-sited, grid-connected renewable energy systems (i.e., photovoltaic systems) shall count towards the RPS and not toward the EEPS.

3. The EEPS Technical Working Group shall develop and maintain a list of eligible and ineligible measures and approaches for submission to the Commission.

E. Updating Energy Efficiency Potential Savings Estimates

1. Updated potential studies for all utility service territories are necessary for EEPS planning purposes. For service territories where this information is not available or is not current, the Commission may select an entity to perform a potential study. These studies shall be coordinated with revised residential and commercial utility saturation studies on an ongoing basis.

2. Updated potential studies shall include, but not be limited to:

   a) A focus on developing a shorter-term re-useable model that provides estimates of technical and economic potential for the five-year term as well as a long term analysis to 2030, and beyond, as appropriate.

   b) A modeling of results that are updated every five years at a minimum.

   c) Models that utilize revisions and updates to primary field and economic data gathered through EM&V research, PBFA and KIUC studies and other data as needed, including utility data.

   d) The utilization of updated residential and commercial saturation data that accurately represent energy use in Hawaii's residential, industrial and business sectors.

   e) Updates to saturation data developed in coordination with the EEPS Technical Working Group, EM&V providers, utilities and the PBFA to assure the data gathered is timely, useful and accurate. Utility cost recovery for these efforts shall be determined by the Commission.

f) Updates to the saturation studies shall be coordinated such that this information can be used in the first and subsequent evaluation periods.

VI. Roles and Responsibilities

A. Commission Regulated Activities

The majority of the EEPS savings will initially come from Commission regulated entities, namely the energy efficiency programs administered by the PBFA and KIUC and the transmission and distribution system improvements implemented by the electric utilities.

B. Non-Regulated Activities

Energy-related savings from the large and more diverse group of non-regulated entities are crucial to achieving the EEPS and may include contributions from:

1. Federal, State and local building codes;

2. Federal and State appliance and equipment standards;

3. Non-profit environmental groups;

4. Faith based groups; and

5. Internal goals from large energy consumers such as: Military operations, State and County buildings, and State energy-related legislation.

C. EEPS Technical Working Group

The Commission will establish an EEPS Technical Working Group that represents both Commission regulated and non-regulated activities and programs.

The EEPS Technical Working Group should identify Contributing Entities and should encourage participation by representatives from each of the major categories described above in Section VI.A and B. The EEPS Technical Working Group will coordinate issues in the EEPS by making recommendations regarding prioritizing savings strategies for the portfolio, determining eligible measures and programs and revising goals as necessary.

The EEPS Technical Working Group will establish its operating procedures and meet on a regular basis to provide recommendations in support of the evaluation and policy process as necessary. Recommendations and findings provided by this group will be implemented at the discretion of the Commission.

The Commission will establish priorities for EM&V activities conducted by the EEPS EM&V Contractor, with input from the EEPS Technical Working Group.

VII. Tracking and Reporting Requirements and Timelines

The progress toward and achievement of the EEPS shall be reported on a regular basis. This reporting shall be provided to the Commission and will inform stakeholders in the EEPS, RPS, and IRP planning and implementation processes.

A. Reporting Entity and Functions

1. The Commission may select a provider, termed the EEPS Reporting Contractor to track and report the savings documented through the EM&V process. The selected entity shall be neutral to the outcome of the tabulated results and not engaged in administering penalties or incentives.

2. The EEPS Reporting Contractor may be required to perform the following tasks in reporting EEPS progress, including, but not limited to:

a) Develop a reporting system that accommodates the Commission regulated and non-regulated programs and activities, as described in Section VI above.

b) Review reported savings figures for overlap, continuity, clarity of assumptions and accuracy as an accounting check on the EEPS-related EM&V results prepared by other entities.

B. Reporting Schedule

1. The EEPS Reporting Contractor and the EEPS Technical Working Group shall propose to the Commission reporting schedules from each Contributing Entity taking into consideration factors such as alignment of existing reporting cycles necessary to develop integrated reporting and tracking for EEPS purposes.

a) Commission Regulated Entities

i. The PBFA and KIUC shall continue to file annual plans and report actual energy efficiency program impacts. These reports shall incorporate their respective contributions towards EEPS short and long range goals.

ii. Each utility shall also report annual estimated energy savings from efficiency-related activities, including, but not limited to: rate design, demand response, and transmission and distribution system improvements to the Commission or its designee.

b) Non-Regulated Entities

Non-regulated Entities that wish to contribute towards the EEPS may work with the EEPS Reporting Contractor to develop annual reporting requirements. In the case of activities that can be measured and reported only as multi-year savings or other such anomalies, the EEPS Reporting Contractor shall allocate savings such that they can be included with the Contributing Entities' savings reporting.

C. Criteria for Tracking and Reporting Savings

Energy savings reported by the utilities and the PBFA programs shall be in the form of gross kWh at the system level.[4] Savings measured at the customer meter shall be converted using the total line and auxiliary losses specific to each utility. Transmission and distribution efficiencies shall also be reported as described above.

VIII. EEPS Evaluation, Measurement & Verification (EM&V)

A. Overview

1. EEPS EM&V shall develop estimates of energy savings in a manner that is defensible in regulatory and legislative proceedings.

2. EEPS EM&V shall also provide a summary of lessons learned from efficiency programs and activities implemented to assist with future program implementation.

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[4]Gross energy savings measured at system level (including energy savings from reduced transmission and distribution losses).

3. EEPS EM&V may be conducted separately for Commission-regulated and non-regulated programs and activities. Results will be combined into overall reports with concurrent annual, five-year and summary reporting schedules per Table 1 above.

B. EEPS EM&V Principles

The overall approach to EEPS EM&V will be founded on two principles:

1. Contributing Entities are responsible for submitting estimates of expected savings from the proposed programs and activities (*ex ante* estimates), and subsequently documenting the savings achieved (*ex post* estimates).

2. The Commission may retain an EEPS EM&V Contractor to facilitate, review, conduct, adjust and compile EEPS EM&V (*ex ante* and *ex post*), as needed, for the EEPS, and to be available to assist Contributing Entities and the Commission with all aspects of EEPS EM&V.

C. EEPS EM&V Roles and Responsibilities

1. <u>The Commission</u> retains the right to review and approve all EEPS EM&V activities and adjust any EM&V results and any information resulting from EM&V.

2. <u>Contributing Entities</u> should provide the EEPS Reporting Contractor and EEPS EM&V Contractor with estimates of program savings goals and designs, EEPS EM&V plans and implementation results as available. The EM&V plans and results will be reviewed by the EEPS EM&V Contractor.

3. <u>The EEPS EM&V Contractor</u> will provide EM&V assistance to the Commission to support the EEPS.

4. The EEPS Technical Working Group may provide review and feedback on all aspects of EEPS EM&V, as needed, including but not limited to, all documents, plans and assumptions regarding *ex ante* and *ex post* EEPS EM&V, acceptable methods and approaches, prioritization of EEPS EM&V resources, and compilation of EEPS portfolio-wide results.

D. EEPS EM&V Funding

1. Contributing Entities are responsible for developing and funding EEPS EM&V to document the validity of their contributions.

2. To the extent that Contributing Entities desire and request assistance with any aspects of EEPS EM&V, the Commission's EEPS EM&V Contractor may be made available at the Commission's discretion.

3. The Commission is responsible for carrying out and funding the responsibilities relating to the EEPS as discussed in HRS § 269-96.

E. EEPS EM&V Planning

EEPS EM&V planning will be governed by several documents listed below.

1. EEPS EM&V Plan

The EEPS EM&V Plan shall contain EM&V principles, metrics, allowable approaches, net versus gross savings issues, reporting requirements, schedules, roles and other appropriate information. The EEPS EM&V Plan will articulate overarching approaches for several years, and therefore, will be more "fixed" than annual plans. It will set the expectations for the format and content of

the other EEPS EM&V documents and annual portfolio and statewide evaluation reports.

2. Annual EEPS EM&V Work Plan

This plan will include the major evaluation activities that will be conducted during the year, including EEPS EM&V activities and corresponding budgets, timeline and allocation of resources between programs, measures, and market sectors, as applicable.

3. Activity-Specific Research Plans

Activity-specific research plans may be developed on an as-needed basis and will describe in detail the EEPS EM&V that is planned to document a given activity or portfolio of activities.

4. EEPS Technical Reference Manual

The EEPS EM&V Contractor will maintain a database and a series of reports that track assumptions over time regarding measure-level and activity-level savings, measure life, baselines, and replacement assumptions. This documentation will reflect both the *ex ante* and *ex post* assumptions used to calculate metrics for the portfolio of activities that comprise the EEPS, and the EM&V activities and approaches used to develop and refine EEPS savings estimates. The EEPS Technical Reference Manual shall be based on existing technical documentation where practicable.

F. Metrics

Metrics to be evaluated and reported by EEPS EM&V may include, but are not limited to:

1. Gross energy savings at generation, which is the primary metric counting toward the EEPS goals. First-year, lifecycle and cumulative savings will be assessed and reported.

2. Free-ridership, which will be used, if needed, to inform program design and facilitate decisions necessary for limiting potential double-counting between savings from different EEPS activities.

3. Persistence, measure life, and expected lifetime for each activity, which will be employed in the calculation of first-year, lifecycle and cumulative savings, costs and benefits.

4. Baseline assumptions, which will be calculated or estimated using 2008 *in situ* energy consumption. For purposes other than EEPS, entities may be required to use alternative baselines (e.g., baselines for PBFA-funded activities are defined for each implementation cycle). This may entail tracking two types of impacts for certain activities - impacts from a 2008 baseline, and impacts from the baseline used for a given implementation cycle.

5. Participant and non-participant spillover, which are actions taken outside a particular program or activity that are determined to have been influenced by the implementation of that program or activity, and which may result in additional savings.

6. Market effects, which are energy savings caused over time, above and beyond any direct effects attributable to an energy efficiency program or activity.

7. Takeback and rebound - the increase of energy use arising due to perception or awareness that technologies have become efficient - can affect overall estimates of energy savings and will be measured.

8. Replacement, which includes evaluation regarding the technologies and practices that are assumed to replace a technology or

practice at the end of its lifetime and may be used to evaluate cumulative savings.

9. Implementation and administration costs, which include incentive costs, measure costs and other information necessary to support cost-effectiveness analyses.

11. Co-benefits of energy efficiency savings (such as greenhouse gas reductions, job creation, and other benefits resulting from EEPS activities), based on recommendations from the EEPS Technical Working Group.

10. Other metrics as recommended by the Technical Working Group and/or at the request of the Commission.

G. Allowable Approaches

Allowable approaches to EEPS EM&V shall be based on best practices, as articulated in nationally-recognized documents and protocols at the time the EEPS EM&V is undertaken. A range of approaches may be used. Rigor and precision levels for EEPS EM&V shall be determined within EEPS EM&V workplans, and shall balance best practices with the value of information, uncertainty and resource availability.

IX. Cost-effectiveness and Consumer Bill Impacts

A. Cost-effectiveness

1. Ratepayer funded efficiency activities shall be cost-effective when evaluating each yearly portfolio of savings by using the Total Resource Cost ("TRC") test. This test should be aligned as closely as possible with the supply side alternatives and include parity when examining incremental cost of measures as well as the use of net-to-gross factors.

2. Program portfolios must also pass the Utility/Administrator Cost test in order to ensure that the benefits ratepayers receive from these programs exceed the programs' cost. A real discount rate of 5% is appropriate for the societal benefit cost modeling of energy efficiency programs where risk is spread across the entire state. This rate may be revised by recommendation of the Technical Working Groups and subsequent approval by the Commission.

B. When using the TRC or the Utility/Administrator test, the PBFA and utilities shall include the following benefits and avoided costs:

1. Benefits

a) Avoided electric energy benefits, calculated as the product of the portfolio's energy savings and an avoided energy cost.

b) Avoided generation capacity benefits, calculated as the product of the portfolio's peak demand and an avoided capacity cost.

c) Avoided transmission and distribution capacity benefits, calculated as the product of the program's reduction in peak demand and avoided transmission and distribution costs factors' respectively.

d) Non-electric benefits such as economic development benefits, job creation, energy security benefits and a greenhouse gas benefit based on each ton of CO_2 reduced may be used as determined and agreed upon in the EEPS Technical Working Group and reported to the Commission.

2. Avoided Costs

a) Avoided cost figures should reflect renewable energy and capacity costs. Avoided costs should be in line with those determined in IRP plans. Final values may be proposed by the utilities and the EEPS Technical Working Group for reporting to the Commission at each five-year evaluation reporting period or as requested by the Commission.

b) The utilities will calculate a range of avoided costs for the energy efficiency programs and activities. The EEPS Technical Working Group will determine the appropriate avoided cost values to use in evaluating the cost-effectiveness of such programs and activities and report these costs to the Commission.

c) The utilities shall provide estimates of avoided transmission and distribution capital costs, and avoided transmission and distribution energy costs due to avoided line losses, for the energy efficiency programs and activities. The utilities shall use reasonable methods to estimate avoided transmission and distribution costs, which take into account the information, data and forecasts available to them, and the practical difficulties associated with determining such estimates. The utilities shall provide explanations of the methods used to determine the estimates, and shall refine such estimates as required to do so by the Commission.

B. Bill Impacts

Bill and rate impacts must be considered when setting EEPS interim goals. The EEPS Technical

Working Group should work with the Consumer Advocate to address energy efficiency bill-related issues, in particular for Commission-regulated programs and activities. All annual and five-year reporting shall discuss short and long term bill impacts for each customer class, categorized as follows:

1. Non-participants, which are ratepayers that do not participate in energy efficiency programs and activities.

2. Participants, which are ratepayers that participate in energy efficiency programs and activities.

3. Rate class totals, which indicate the effect of efficiency savings across the ratepayer class as a whole.

X. Funding, Incentives and Penalties

A. Funding for Programs and Activities Under Commission Jurisdiction

Funding for PBF-administered and utility-funded energy efficiency programs should be re-evaluated by the EEPS Technical Working Group regularly or at each five-year evaluation period to determine if it is sufficient to meet State energy goals.

B. Incentives and Penalties

1. The existing PBFA model of performance based withholding and a small incentive for exceeding target goals should continue for the current contract term. Revised incentive mechanisms may be proposed by the EEPS Technical Working Group for future PBFA contracts. Any changes to incentive mechanisms will be at the discretion of the Commission. Goals associated with PBFA penalties and incentives will continue to be determined by the Commission, with input from the EEPS Technical Working Group.

2. Upon completion of any updated potential studies, adequate information is expected to be available to determine if firmer goals for future performance period(s) should be established. In addition, the Commission may determine whether penalties for not reaching these goals are necessary.

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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