Presentation to:
The World Bank
Clean Energy Global Solutions Group
Energy Sector Management Assistance Program
Renewable Energy Integration for Islands – The Case of Hawaii

Commission Overview

May 23, 2016

Public Utilities Commission

Agenda

Welcome.
Around-the-room introductions:
   Name - Country - Organization - Title.
Presentation: Commission role and key stakeholders / process / policies / energy sector transformation.
BREAK (15 minutes).
Discussion: “Current energy developments and issues in visitor nations.”
Discussion: “Key takeaways.”
Wrap up.
Hawaii Public Utilities Commission

- Commission Chair, Randall Y. Iwase
- Commission Member, Michael E. Champley
- Commission Member, Lorraine H. Akiba

Staff

Executive, Administrative, Legal, Research, Fiscal, Personnel, Audit, Engineering, Compliance, Information Technology, Clerical Support

VOTERS OF HAWAII

LEGISLATIVE

- House of Representatives
- Senate

EXECUTIVE

- Governor
- Lieutenant Governor

JUDICIAL

- Supreme Court

Laws Relating to Public Utilities
Passed by Legislature, Approved by Governor

Delegate regulatory authority to the Public Utilities Commission.

Legislature passes, Governor approves, Law enacted

Utilities request approval

Law directs PUC regulation
```markdown
# Entities Regulated by the Hawaii PUC

<table>
<thead>
<tr>
<th>Energy</th>
<th>Transportation</th>
<th>Telecom</th>
<th>Water/Waste-water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Gas</td>
<td>Water Carriers</td>
<td>Motor Carriers</td>
</tr>
<tr>
<td>Hawaiian Electric Company</td>
<td>Maui Electric Company</td>
<td>Hawaiian Electric Light Company</td>
<td>The Gas Company, dba Hawaii Gas</td>
</tr>
<tr>
<td>Young Brothers</td>
<td>Sea Link</td>
<td>Navy Heke</td>
<td>899 Passenger Services</td>
</tr>
<tr>
<td>Hawaiian Telcom</td>
<td>187 Wireless and Wireline Companies</td>
<td>523 Property Carriers</td>
<td>39 Private Water and Sewer Companies</td>
</tr>
</tbody>
</table>

"PUC" = Public Utilities Commission

# Renewable Portfolio Standards:
Hawaii Revised Statutes, Chapter 269

§269-91 Definitions.
§269-92 Renewable portfolio standards.
§269-93 Achieving portfolio standard.
§269-94 Waivers, extensions, and incentives.
§269-95 Renewable portfolio standards study.
§269-96 Energy-efficiency portfolio standards.

https://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-.htm
```
§269-91 Definitions

"Renewable energy" means energy [from] the following sources:
(1) Wind;
(2) The sun;
(3) Falling water; [hydropower]
(4) Biogas, including landfill and sewage-based digester gas;
(5) Geothermal;
(6) Ocean water, currents, and waves, including ocean thermal energy conversion;
(7) Biomass... crops, agricultural and animal residues [and] municipal solid waste...
(8) Biofuels; and
(9) Hydrogen produced from renewable energy sources.

"Renewable portfolio standard" means the percentage of electrical energy sales that is represented by renewable electrical energy.

§269-92(a) Renewable Portfolio Standards

Each electric utility company that sells electricity for consumption in the State shall establish a renewable portfolio standard of:

- 15% by 2015
- 30% by 2020
- 40% by 2030
- 70% by 2040
- 100% by 2045.
Renewable Portfolio Standards Reached by the Hawaiian Electric Companies (consolidated), 2006-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Biomass*</th>
<th>Geothermal</th>
<th>Utility-scale solar**</th>
<th>Wind</th>
<th>Hydro</th>
<th>Biofuels</th>
<th>Customer-sited*** renewables</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>8%</td>
<td></td>
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<tr>
<td>2007</td>
<td>9%</td>
<td></td>
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<tr>
<td>2008</td>
<td>9%</td>
<td></td>
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<tr>
<td>2009</td>
<td>10%</td>
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<tr>
<td>2010</td>
<td>10%</td>
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<tr>
<td>2011</td>
<td>12%</td>
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<tr>
<td>2012</td>
<td>14%</td>
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<tr>
<td>2013</td>
<td>18%</td>
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<tr>
<td>2014</td>
<td>21%</td>
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<tr>
<td>2015</td>
<td>23%</td>
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</tbody>
</table>

* Including municipal solid waste. **Photovoltaic and Solar Thermal. ***Grid-connected.

§269-96 Energy-efficiency Portfolio Standards

(a) The public utilities commission shall establish energy-efficiency portfolio standards...

(b) ...designed to achieve four thousand three hundred gigawatt hours of electricity use reductions statewide by 2030...

(c) The commission may establish incentives and penalties...

(d) ...revise the standard [and] report its findings and revisions.

(e) Beginning in 2015, electric energy savings brought about by the use of renewable displacement or off-set technologies, including solar water heating and sea-water air-conditioning district cooling systems, shall count toward this standard.

4,300 gigawatt-hours of electricity use reductions statewide by 2030

http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0096.htm
Thank you for your attention.

Please find below some of the information resources that were discussed.


Hawaii Energy website (energy efficiency program): [https://hawaiienergy.com/](https://hawaiienergy.com/)


Hawaii Revised Statutes pertaining to the public utilities: [http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/](http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/)

RPS Law: HRS 269-91 through HRS 269-95

EEPS Law: HRS 269-96

Website for access to PUC orders and other filed documents (Docket website): [http://dms.puc.hawaii.gov/dms/](http://dms.puc.hawaii.gov/dms/)

To access documents, enter the docket number in the “Docket Quick Link” box in the upper left area of the page and click “GO”

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Docket Number</th>
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<tbody>
<tr>
<td>Kauai Island Utility Cooperative’s Power Purchase Agreement for 13 MW PV + 13 MW/52 MWh battery</td>
<td>2015-0031</td>
</tr>
<tr>
<td>Distributed Energy Resources</td>
<td>2014-0192</td>
</tr>
<tr>
<td>Power Supply Improvement Plan</td>
<td>2014-0183</td>
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<tr>
<td>Example of Competitive Bidding RFP (no resultant project)</td>
<td>2012-0072</td>
</tr>
<tr>
<td>Energy Efficiency Program with public benefits fee</td>
<td>2007-0023</td>
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<tr>
<td>Renewable Portfolio Standards Docket</td>
<td>2017-0008</td>
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<tr>
<td>Competitive Bidding Framework</td>
<td>2003-0072</td>
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