Agenda

• Hawaii Clean Energy Initiative
• Wind Power
• Solar
• Effects on the Utility
• County Initiatives
Hawaii Clean Energy Initiative (HCEI)

- 40% by 2030 is the binding Renewable Portfolio Standard (RPS)
- MECO exceeded the 2015 goal of 15% five years early, in 2010
- We estimate MECO will report that 30% of the electricity made in 2013 was renewable energy.
Wind Power on Maui
Wind Power on Maui

<table>
<thead>
<tr>
<th>Wind Farm</th>
<th>Max Megawatt (MW) Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaheawa Wind Partners 1</td>
<td>30</td>
</tr>
<tr>
<td>Kaheawa Wind Partners 2</td>
<td>21</td>
</tr>
<tr>
<td>Auwahi Wind/Sempra &amp; BP</td>
<td>21</td>
</tr>
<tr>
<td><strong>Maximum Total Output</strong></td>
<td><strong>72</strong></td>
</tr>
<tr>
<td><strong>Maximum Daily Demand</strong></td>
<td><strong>&lt; 200</strong></td>
</tr>
</tbody>
</table>
Solar Growth

- Solar is growing faster than expected
- In 2011 Maui County residents added more solar than in the prior ten years combined
Renewables Summary (PV)

- **2008**
  - 135 Systems
  - 946.8 kW

- **2009**
  - 301 Systems
  - 3187.3 kW

- **2010**
  - 342 Systems
  - 1919 kW

- **2011**
  - 1049 Systems
  - 6,569.5 kW

- **2012**
  - 1696 Systems
  - 13,858.3 kW
Solar Power on Maui
County Solar Project
Maui County Installs Solar Photovoltaic

- Public Works / Highways division base yards (3)
- Wastewater treatment facilities (2)
- Park facilities (2)
- Maui Fire Department facilities (4)
- Maui Police Department facilities (1)
- Department of Water Supply facilities (1)
- Senior centers (2)
Participation in the Maui County Solar Projects

Bosch Solar Energy • Gen-X Development
  • Haleakala Solar Inc. • Green Path
Mangan Renewables Inc. • Islandwide Roofing
  • Maui Roofing • Allegiance Excavation
  • J & D Roofing • Morikawa and Associates
Lynn Strickland RME • Hawaii Engineering Group
  Island Geotechnical Engineering, Inc.
  • No Problem Electric • TMC Construction
  • Hawaiian Cement • R.J. Fish Construction
Owyhee Construction & Maintenance
  • Aina Excavation • Pua'a Trucking
Concrete Coring Company of Hawaii • SCADCO
T.J. Gomes Trucking Co., Inc • Riedel Construction Inc.
Maui County installs Solar Photovoltaic Systems in 15 Locations

Savings to the county over the next 20 years in energy costs = $10,000,000
Upfront cost to the county = ZERO
How Does all this Solar Affect the Utility

• Data provided by the Public Utility Commission
• **Average monthly Residential** Energy Use by County: 2002-2012
Electric Utility Rate Cases and Awards: 2005-2012

<table>
<thead>
<tr>
<th></th>
<th>HECO</th>
<th>MECO</th>
<th>HELCO</th>
<th>Total</th>
<th>KIUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Rate Cases</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Cumulative Rate Increases Requested ($ millions)</td>
<td>409</td>
<td>75</td>
<td>71</td>
<td>554</td>
<td>13</td>
</tr>
<tr>
<td>Cumulative Rate Increases Granted ($ millions)</td>
<td>247</td>
<td>31</td>
<td>29</td>
<td>307</td>
<td>3</td>
</tr>
<tr>
<td>Increases Granted As Percent of Request (1)</td>
<td>60%</td>
<td>41%</td>
<td>41%</td>
<td>55%</td>
<td>24%</td>
</tr>
<tr>
<td>Avg. Rate Case Duration (Months)</td>
<td>38</td>
<td>39</td>
<td>43</td>
<td>39</td>
<td>15</td>
</tr>
</tbody>
</table>

1) HECO Companies reached stipulated settlement with the Consumer Advocate in all cases, and, in the case of HECO (Oahu), the Department of Defense. Settlements were approved by Public Utilities Commission as stipulated with minor adjustments on occasion.

2) Indicates the duration between filing date and date of final Commission order. Interim orders were issued within statutory time requirement.
Actual Rate of Return on Common Equity: 2002 – September 2012
Average Electric Rate Level by County: 2011

<table>
<thead>
<tr>
<th>Customers</th>
<th>297,000</th>
<th>68,000</th>
<th>81,000</th>
<th>36,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (GWh)</td>
<td>7,242</td>
<td>1,181</td>
<td>1,104</td>
<td>435</td>
</tr>
<tr>
<td>Capacity (MW)</td>
<td>1,786</td>
<td>290</td>
<td>287</td>
<td>122</td>
</tr>
<tr>
<td>Avg Use/Customer (kWh)</td>
<td>23,564</td>
<td>17,369</td>
<td>13,771</td>
<td>11,995</td>
</tr>
<tr>
<td>Distribution Lines (Miles)</td>
<td>2,294</td>
<td>1,500</td>
<td>3,212</td>
<td>781</td>
</tr>
</tbody>
</table>
Utility’s Perspective

Customers are paying more, due to increases in oil prices

2009 vs. 2011 ¢/kwh

<table>
<thead>
<tr>
<th>Year</th>
<th>Fuel</th>
<th>Purchased Power</th>
<th>O&amp;M</th>
<th>Revenue Taxes</th>
<th>Depreciation</th>
<th>Interest Expense</th>
<th>Income Taxes</th>
<th>Preferred Dividends</th>
<th>Net Income</th>
<th>Total Revenue Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>6.2</td>
<td>5.0</td>
<td>3.3</td>
<td>1.8</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>7.2</td>
<td>12.6</td>
<td>3.7</td>
<td>2.7</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9.5¢ of 10.1¢ increase due to increases in oil prices

Increase due to:
- Fuel: 6.4¢
- Purchased Power: 2.2¢
- Revenue Taxes: 0.9¢
County Initiatives
Building an Energy Audit Industry on Maui

Students from Sustainable Living Institute of Maui

OED granting agency project management

Energy Efficiency Industry

MEO working with Low Income Homeowners

UHMC to collate data collected

MEDB to work with Small Businesses
Energy Audit Fund Proposal

Students

Collect the data from businesses and homes

Use the data to encourage all businesses to have energy efficiency audits

Achieve a new level of energy efficiency on Maui
Program Participant Eligibility

- Low income residents
- Local Businesses turned down for Solar PV interconnection

Leverage County Funding