Biopower in
New Jersey’s Clean Energy Program™
Past, Present and Future

B. Scott Hunter
New Jersey Board of Public Utilities
April 28, 2016
Presentation Outline

• Introduction to the NJ Board of Public Utilities
• The Board’s role & interest in biopower applications
• Authority & regulatory tools for RE market development
• Experience; resource assessments & applications
• The need & opportunities for stakeholder input
• Defining the future
New Jersey Board of Public Utilities

• Cabinet level, State agency and regulatory authority created to ensure **safe, adequate and reliable utility services at reasonable rates** for New Jersey customers (ratepayers),

• Five Commissioners regulate critical services, including natural gas, electricity, water, wastewater, telecommunications and cable television,

• Has general oversight responsibility for monitoring utility service, responding to consumer complaints and investigating utility accidents.

nj.gov/bpu
NJ RE Regulatory Evolution

- Electric Discount and Energy Competition Act of 1999 (EDECA)
  - Definition of Class I & II Renewable Energy
  - Societal Benefits Charge / CRA process (NJCEP)
  - Renewable Portfolio Standards (RPS)
  - Net Metering and Interconnection

- Governor’s Renewable Energy Task Force (04/24/03)
- The “Solar Transition” (Docket No.EO06100744, Orders 2006 thru 2013)
- Global Warming Response Act (L. 2007, c. 340, 1/13/08)
- Solar Advancement Act of 2009 (L.1999 c.23)
- Offshore Wind Economic Development Act (L. 2010, c. 57, 08/19/10)
- The Solar Act of 2012 (L. 2012, c. 24, 07/23/12)
- The “RRF vs. Large Hydro Act” (L. 2015, c. 51, 05/07/15)
New Jersey’s Clean Energy Program

• Statewide clean energy initiative, administered by the NJBPU

• Promotes energy efficiency & renewable sources of energy including geothermal, solar, wind, marine hydrokinetics: small hydropower, wave, & tidal, and sustainable biomass

• Results in a stronger economy, less pollution, lower costs and reduced demand for electricity

• Provides financial incentives, programs and services for residential, commercial, industrial, municipal, schools…

  • NJCleanEnergy.com
### NJCEP Renewable Energy; Regulatory Framework & Results

#### Renewable Resources

**Wind:**
- OnShore, marginal potential
- Offshore, technical potential

**Solar:**
- Distributed generation
- Grid supply; limited to marginal land, no solar on farmland

**Biomass:**
- Landfill Gas to Energy,
- WWT digester gas,
- wood residue,
- food waste and aggregated resources via
- CHP & microturbines

#### Regulatory Framework

**Energy Master Plan (EMP):**

**Legislation:**
- EDECA
- OWEDA
- SEAFCA &
- the Solar Act of ’12

**Implementation:**
- Renewable Portfolio Standard (RPS) rules
- Net metering & Interconnection rules
- Societal Benefits Charge (NJCEP)

#### Installed Capacity

**Today:**
- > 1.7 GW PV Solar
- > 32 MW Biomass
- > 9.6 MW Wind
- ~ 1.5 MW Fuel Cells

**Goals:** (per RPS, EMP or Market Potential Studies)
- > 4,430 MW Solar
- > 1,100 MW Offshore Wind
- < 200 MW Onshore Wind
- ~ 900 MW Biomass
NJ Renewable Portfolio Standard Basic Components

- Established by law (EDECA 1999 and amendments)
- Implemented via regulation (N.J.A.C. 14:8-2)
- Solar interconnected to the “distribution system serving NJ”
- NJ Class I and Class II must deliver power to PJM
- One SREC, NJ Class I or II REC earned for each 1 MWh (1,000 kWh) of eligible, metered solar, NJ Class I or II generation
- Solar projects can earn SRECs for 15 years, then earn Class I RECs
- An SREC has a trading life of 5 years, NJ Class I is 3 years.
§ 14:8-2.5 Energy that qualifies for a class I REC

(b) The following qualify as class I renewable energy for the purposes of this subchapter, with no prior approval required:

1. Solar electric generation in the form of solar RECs;

2. Electricity derived from wind energy;

3. Electricity derived from wave or tidal action;

4. Electricity that is geothermal energy, as defined in N.J.A.C. 14:8-2.2;

5. Electricity generated by the combustion of methane gas captured from a landfill;

6. Electricity generated by a fuel cell powered by methanol, ethanol, landfill gas, digestor gas, biomass gas, or other renewable fuel. Electricity generated by a fuel cell powered by a fossil fuel shall not qualify as class I renewable energy for the purposes of this subchapter; and

7. Electricity generated by the combustion of gas from the anaerobic digestion of food waste and sewage sludge at a biomass generating facility.
Net Metering and Interconnection

- Established by law (EDECA 1999 and amendments) for NJ Class I RE only (solar, wind & RPS eligible biopower)
- Implemented via regulation (N.J.A.C. 14:8-4 &5)
- Net Metered Systems cannot be sized to produce more than 100% of historical electric consumption at the site of installation.
- Monthly Generation > Consumption = Excess Generation credited at retail…
- Annual true-up period selected by customer credited at wholesale price of electricity, NOT retail!
Successes in New Jersey

- As of March 1, 2016 New Jersey has installed:
  > 43,890 renewable energy projects
  > 43,820 solar installed projects, across the state

- Over 1.7 GW of sustainable energy is provided by these solar, wind, biomass, and fuel cell projects

- Fourth largest solar market in the U.S., in terms of cumulative installed capacity. 2nd largest in non-residential.
# NJCEP Renewable Energy Technologies

**Installed Projects 2001 to 2/29/16**

<table>
<thead>
<tr>
<th>Technology</th>
<th># Projects</th>
<th>Total kW</th>
<th>Total Rebate $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>43,822</td>
<td>1,644,314.6</td>
<td>$363,492,538</td>
</tr>
<tr>
<td>Biomass</td>
<td>20</td>
<td>32,555.0</td>
<td>$16,472,345</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>8</td>
<td>1,505.0</td>
<td>$4,707,312</td>
</tr>
<tr>
<td>Wind</td>
<td>43</td>
<td>9,609.1</td>
<td>$6,132,100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43,893</strong></td>
<td><strong>1,687,983.7</strong></td>
<td><strong>$390,804,296</strong></td>
</tr>
</tbody>
</table>

## NJCEP Biomass Installation Projects by Program

**Installed Projects 2001 to 2/29/16**

<table>
<thead>
<tr>
<th>Program</th>
<th># Projects</th>
<th>Total kW</th>
<th>Total Rebate $</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE/REIP Rebate</td>
<td>15</td>
<td>9,905.0</td>
<td>$8,859,120</td>
</tr>
<tr>
<td>Grid Supply / REAP</td>
<td>5</td>
<td>22,650.0</td>
<td>$7,613,225</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>32,555.0</strong></td>
<td><strong>$16,472,345</strong></td>
</tr>
</tbody>
</table>

NJCleanEnergy.com
<table>
<thead>
<tr>
<th>Prig.</th>
<th>Customer Name</th>
<th>Size (kW)</th>
<th>Incentive</th>
<th>Type of incentive</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid Supply</td>
<td>Burlington County (LFG)</td>
<td>6,150</td>
<td>$3,900,000</td>
<td>Production Grant</td>
<td>2007</td>
</tr>
<tr>
<td>REAP</td>
<td>Rahway Valley Sewerage Authority (Biogas)</td>
<td>1,500</td>
<td>$500,000</td>
<td>Grant</td>
<td>2009</td>
</tr>
<tr>
<td>REAP</td>
<td>Ocean County (LFG)</td>
<td>9,600</td>
<td>$1,500,000</td>
<td>Grant</td>
<td>2007</td>
</tr>
<tr>
<td>REAP</td>
<td>Warren County (LFG)</td>
<td>3,800</td>
<td>$1,200,000</td>
<td>Grant</td>
<td>2006</td>
</tr>
<tr>
<td>REAP</td>
<td>Atlantic County Utilities Authority (LFG)</td>
<td>1,600</td>
<td>$513,225</td>
<td>Grant</td>
<td>2004</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>22,650</td>
<td>$7,613,225</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## NJCEP Customer-Sited, Behind-the-Meter Biomass

<table>
<thead>
<tr>
<th>Prog.</th>
<th>Company Name</th>
<th>Size</th>
<th>Incentive Amt.</th>
<th>Yr. Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE</td>
<td>Rex Lumber</td>
<td>150</td>
<td>$560,000.00</td>
<td>2002</td>
</tr>
<tr>
<td>CORE</td>
<td>Rutgers Eco-Complex</td>
<td>120</td>
<td>$122,518.80</td>
<td>2003</td>
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<tr>
<td>CORE</td>
<td>So. Monmouth Regional Sew. Auth.</td>
<td>30</td>
<td>$31,075.00</td>
<td>2003</td>
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<tr>
<td>CORE</td>
<td>Aluminum Shapes (2 projects)</td>
<td>1,850</td>
<td>$2,390,000.00</td>
<td>2005</td>
</tr>
<tr>
<td>CORE</td>
<td>Cape May County MUA</td>
<td>150</td>
<td>$285,000.00</td>
<td>2007</td>
</tr>
<tr>
<td>CORE</td>
<td>Monmouth County</td>
<td>1,000</td>
<td>$885,000.00</td>
<td>2008</td>
</tr>
<tr>
<td>CORE</td>
<td>Burlington County Bd. of Freeholders</td>
<td>1,000</td>
<td>$480,000.00</td>
<td>2008</td>
</tr>
<tr>
<td>CORE</td>
<td>Landis Sewerage Authority</td>
<td>185</td>
<td>$252,000.00</td>
<td>2008</td>
</tr>
<tr>
<td>CORE</td>
<td>Rutgers University (Greenhouse)</td>
<td>250</td>
<td>$194,805.30</td>
<td>2010</td>
</tr>
<tr>
<td>CORE</td>
<td>Joint Meeting of Essex &amp; Union</td>
<td>3,240</td>
<td>$885,000.00</td>
<td>2010</td>
</tr>
<tr>
<td>REIP</td>
<td>So. Monmouth Regional Sew. Auth.</td>
<td>280</td>
<td>$490,000.00</td>
<td>2010</td>
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<tr>
<td>REIP</td>
<td>Village of Ridgewood DPW</td>
<td>240</td>
<td>$720,000.00</td>
<td>2014</td>
</tr>
<tr>
<td>REIP</td>
<td>Rutgers Dining Services</td>
<td>10</td>
<td>$28,147.56</td>
<td>2014</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>8,505</td>
<td>$7,323,526.76</td>
<td></td>
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</tbody>
</table>
FY2017 Comprehensive Resource Analysis

• “Annual” Public Stakeholder process to establish funding levels derived from the Societal Benefits Charge for EE and RE

• Board action in June 2016 with staff recommendation on NJCEP programs and budgets for coming Fiscal Year(s)

• See the Staff Straw Proposal for Fiscal Year 2017, soon! (www.njcep.com)

• New in the FY17 Plan for NJCEP:
  > Merge Biopower & Renewable Electric Storage into a Distributed Generation Program w/ CHP & FC
  > Microgrid feasibility studies
Thank You for your time.
Visit NJCleanEnergy.com
Call 866-NJSMART

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