



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

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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)
- RPS Rulemaking (2003, 2004, 2005, 2006, 2008, 2011, 2013, pending)
- The "Solar Transition" (Docket No.EO06100744, Orders 2006 thru 2013)
- Global Warming Response Act (L. 2007, c. 340, 1/13/08)
- New Jersey's Energy Master Plan (2008, 2011, pending)
- 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.



TITLE 14. PUBLIC UTILITIES

CHAPTER 8. RENEWABLE ENERGY AND EFFICIENCY

SUBCHAPTER 2. RENEWABLE PORTFOLIO STANDARDS

N.J.A.C. 14:8-2.5 (2016)

§ 14:8-2.5 Energy that qualifies for a class I REC

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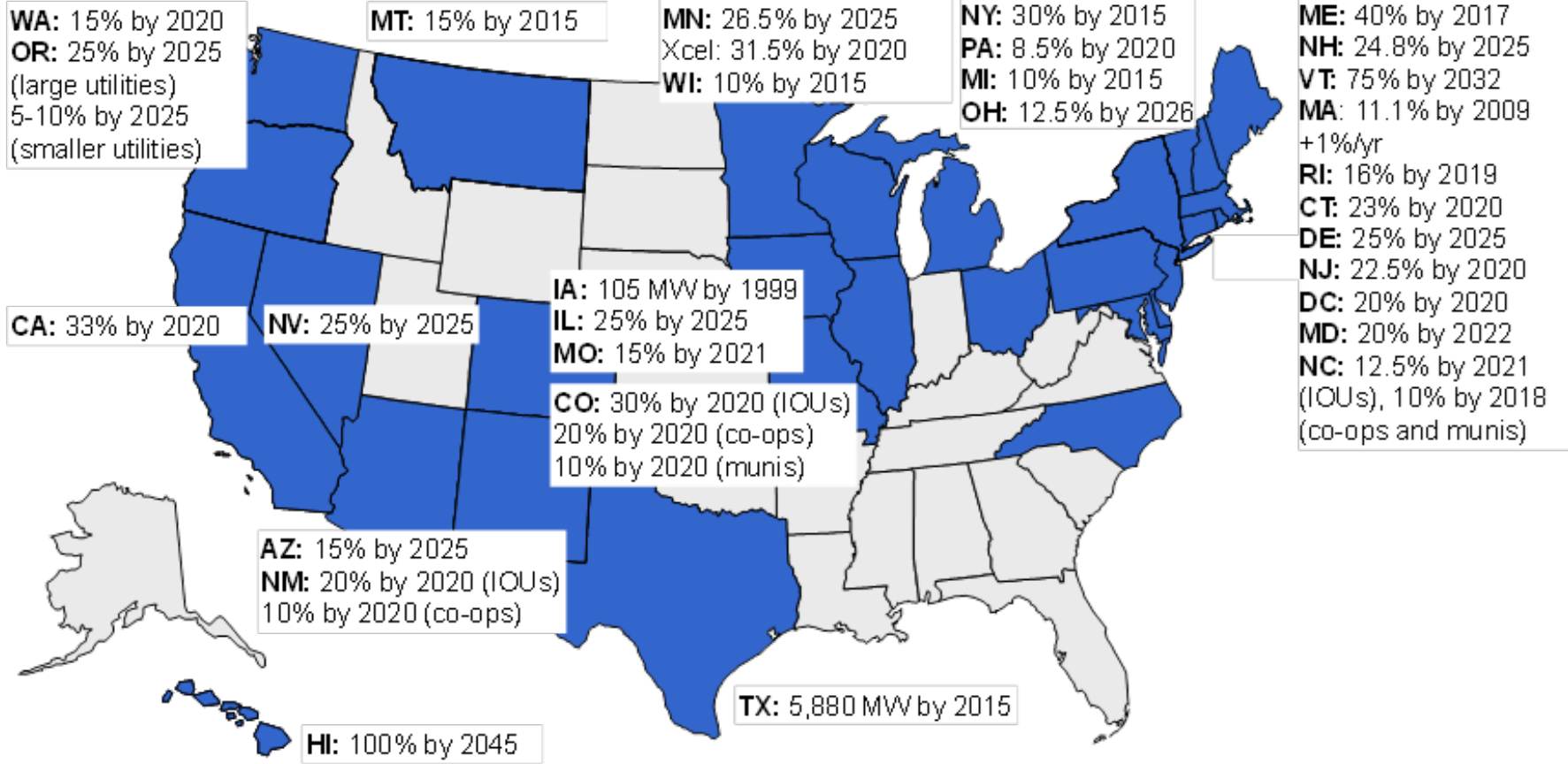
(b) The following qualify as class I renewable energy for the purposes of this subchapter, **with no prior approval required:**

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, digester 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.



RPS ACROSS THE US

29 U.S. states and Washington D.C



Source: Berkeley Lab

A Retrospective Analysis of the Benefits and Impacts of U.S. Renewable Portfolio Standards, LBNL Draft Sept. 2015



Net Metering and Interconnection

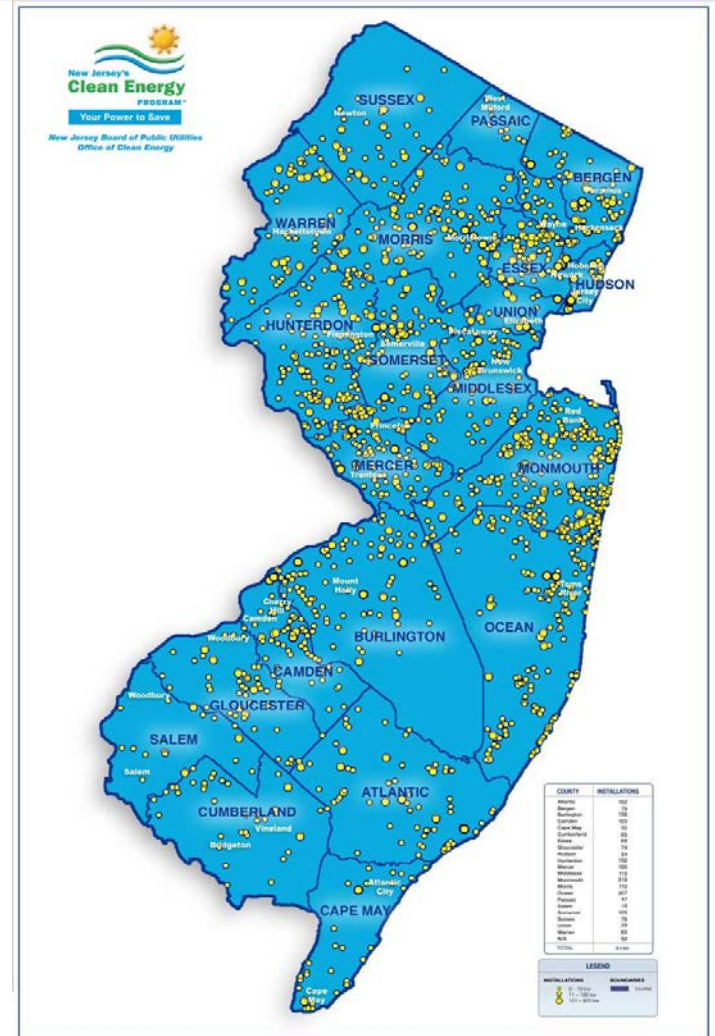
- Established by law (EDECA 1999 and amendments) for NJ Class I RE only (solar, wind & RPS eligible biopower)
- Implemented via regulation (N.J.A.C. 14:8-4 &5)
- Net Metered Systems cannot be sized to produce more than 100% of historical electric consumption at the site of installation.
- **Monthly Generation > 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 Solar, Wind & Biopower

NJCEP Renewable Energy Technologies			
Installed Projects 2001 to 2/29/16			
Technology	# Projects	Total kW	Total Rebate \$
Solar	43,822	1,644,314.6	\$ 363,492,538
Biomass	20	32,555.0	\$ 16,472,345
Fuel Cell	8	1,505.0	\$ 4,707,312
Wind	43	9,609.1	\$ 6,132,100
Total*	43,893	1,687,983.7	\$ 390,804,296

NJCEP Biomass Installation Projects by Program			
Installed Projects 2001 to 2/29/16			
Program	# Projects	Total kW	Total Rebate \$
CORE/REIP Rebate	15	9,905.0	\$ 8,859,120
Grid Supply / REAP	5	22,650.0	\$ 7,613,225
Total*	20	32,555.0	\$ 16,472,345



NJCEP Grid Supply Biomass

Prig.	Customer Name	Size (kW)	Incentive	Type of incentive	Year
Grid Supply	Burlington County (LFG)	6,150	\$3,900,000	Production Grant	2007
REAP	Rahway Valley Sewerage Authority (Biogas)	1,500	\$500,000	Grant	2009
REAP	Ocean County (LFG)	9,600	\$1,500,000	Grant	2007
REAP	Warren County (LFG)	3,800	\$1,200,000	Grant	2006
REAP	Atlantic County Utilities Authority (LFG)	1,600	\$513,225	Grant	2004
	TOTAL	22,650	\$7,613,225		



NJCEP Customer-Sited, Behind-the-Meter Biomass

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



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



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