



# New Jersey's Clean Energy Program Lunchtime Series on the Environment

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*Mark Loeser  
CORE Account Manager  
Market Management Team*



New Jersey Board of Public Utilities, Office of Clean Energy





# AGENDA

- Definitions used in renewable energy generation
- Why we do what we do
- New Jersey's Solution
- Energy Hierarchy
- Municipal Energy Audit program
- Renewable Energy Technologies
- New Jersey's Renewable Energy Program
- Finance Options
- Recap



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# Definitions



- **Renewable energy** = effective use of natural resources such as sunlight, wind, rain, tides and geothermal heat, which are naturally replenished.
- **Watt** = The unit of power
- **A kilowatt-hour** = the amount of energy equivalent to a power of 1 kilowatt running for 1 hour



# Definitions



- **1000 kWh = 1 Megawatt-hour (MWh)**
- **Renewable Energy Certificates (REC) =** tradable certificates that represent all the clean energy benefits of electricity generated from a renewable electric system
- **1 MWh = 1 REC**



# Definitions



- **Renewable Portfolio Standard (RPS) =**
  - Requires energy retailers to purchase a portion of their energy supply from renewable energy sources
  - Retailers prove they have met their requirement by purchasing and retiring RECs from renewable energy generator or developing their own projects



# Definitions



## Net-Metering and Interconnection Standards Interconnection

- State regulations that permit small generators (< 2MWs) to be installed behind the meter.
- These generators cannot be sized to produce more than current site consumption.
- Mandates that utilities connect them to the grid.

## Net-Metering

- State regulations that allow interconnected generators to offset their electric consumption with an on-site resource.
- Allows production of electricity beyond site consumption to be credited at the full retail rate to be used when needed.



# Why we do what we do



## The Next 50 Years



- The 100 year storm happens every 4 years
- 80 days per year > 90F; 25 > 100
- 20-30% more winter precipitation, no snow
- 4x as many bad air days
- Loss of pine forests and crops



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# New Jersey's Solution



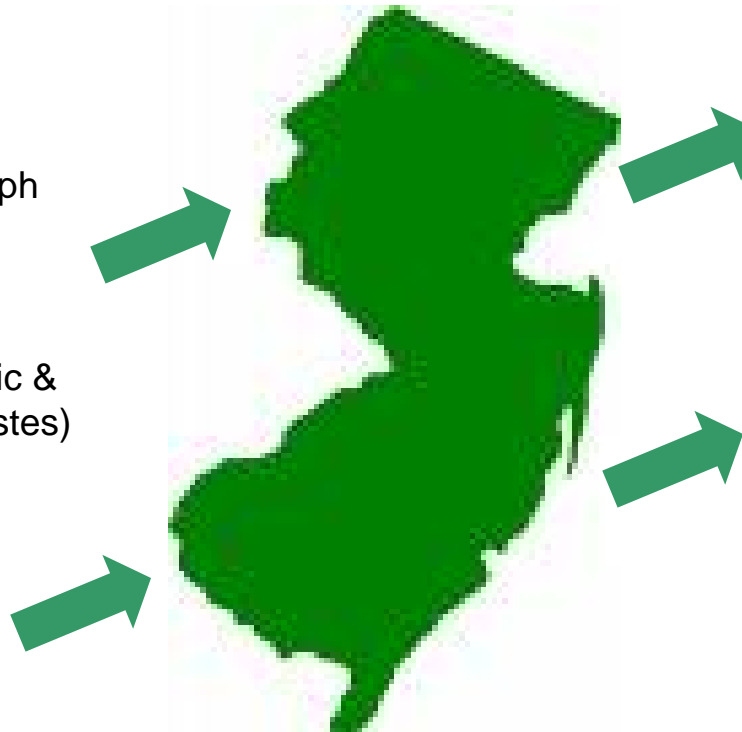
## New Jersey Profile

### Renewable Resources

- Wind:
  - Shore, highlands
  - Sustained winds of 12 mph
- Solar:
  - Output ~1200 kWh AC
- Biomass
  - 25% composed of organic & urban residues (food wastes)

### Government Activism

- “20/20” RPS plan
- 20% GHG legislation
- Energy Master Plan
- BPU commitment
- RGGI



### Today

- 55 MW PV solar
  - 3350 installs
- 3 MW Biomass
- 2.6 MW Wind

### Tomorrow

- 1,500 MW Solar
- 1,000 MW Offshore Wind
- 200 MW Onshore Wind
- 900 MW Biomass



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# *New Jersey's Solution*



## New Jersey's **Clean Energy** Goals

# *20% by 2020*

*20% reduction in Greenhouse Gas Emissions by 2020  
and 80% below 2006 levels by 2050*

*20% reduction in energy use by 2020  
20% use of renewable energy by 2020  
2.12 percent solar photovoltaic by 2020*

The combination of energy efficiency, conservation, and renewable energy resources should allow New Jersey to meet future increase in demand without increasing its reliance on non-renewable resources.



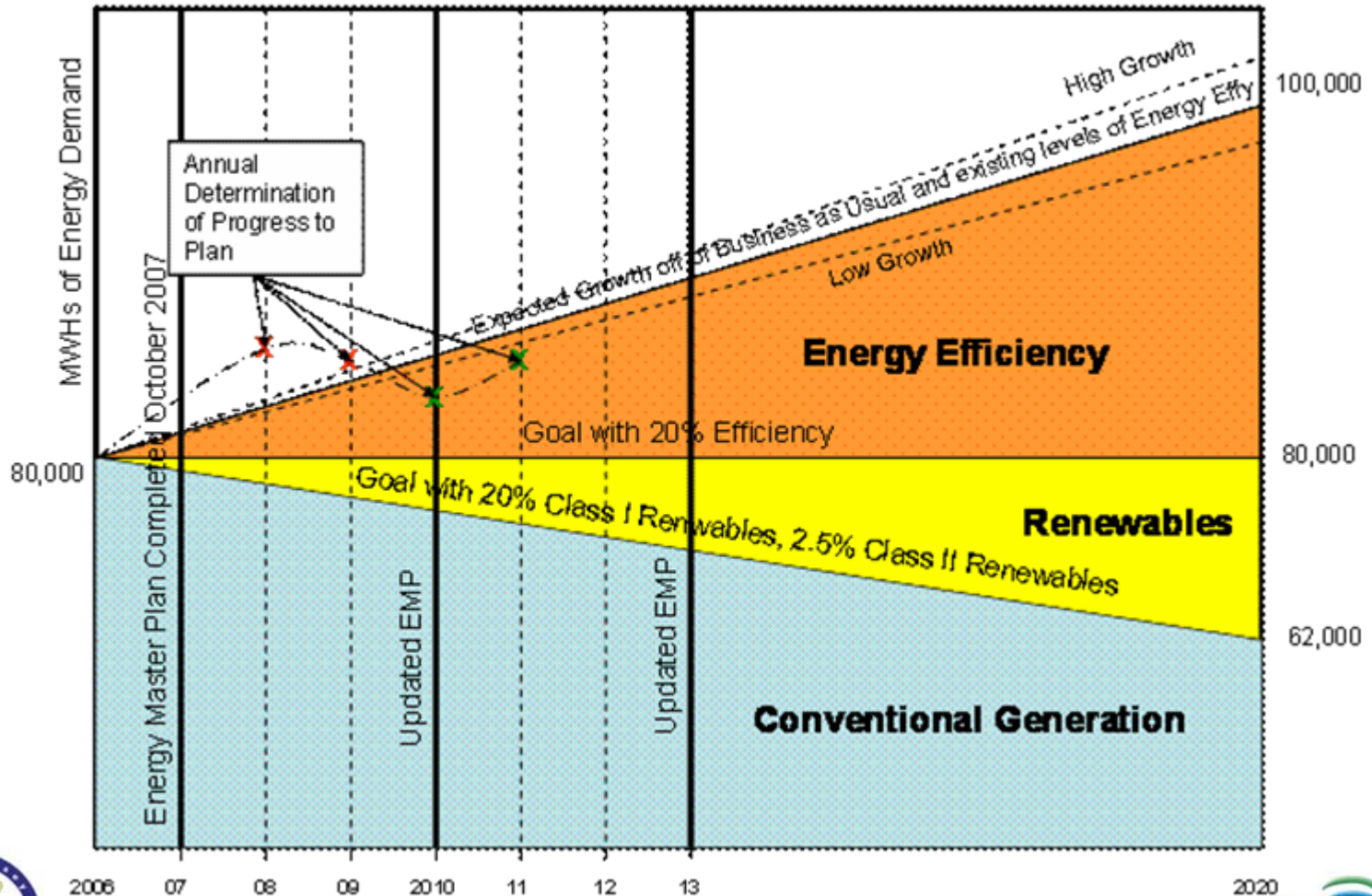
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# New Jersey's Solution



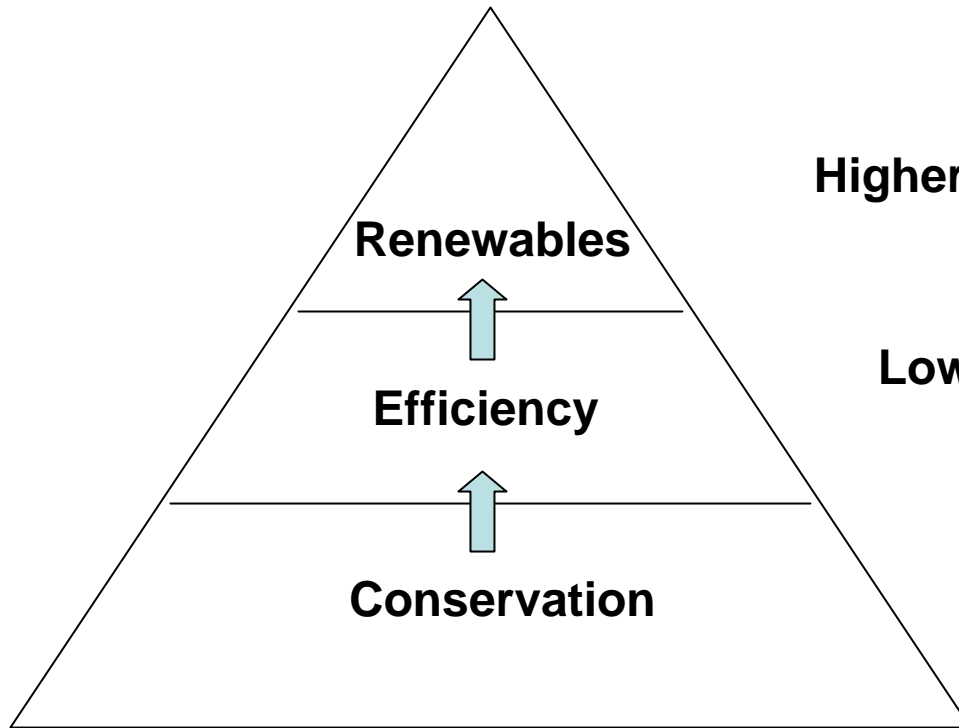
## NJBPU EMP Planning Approach



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# Customer Energy Management Hierarchy



**Higher Investment with Longer term ROI**

**Lower Investment with Near Term ROI**

**No Investment Behavior Change**



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# Municipal Audits: Local/State Governments



- **Local Gov – Standard term contract list**
- **Provide 75% of the audit cost**
- **Implement cost effective measures within a set timeframe**
- **Receive balance of 25% of audit cost upon completion**
- **To be launched in late 2008**



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# Renewable Energy Technologies



- **Solar Power** Well established business infrastructure and thriving market in New Jersey
- **Wind power** is the conversion of wind energy into useful form of electricity, using wind turbines. Increasing in popularity, but many hurdles and myths need to be overcome.
- **Biopower** utilizes biogas that can easily be produced from current waste streams such as Landfill Gas, WWTF, BioCrops, etc...
- **Fuel Cells** are the newest RE technology



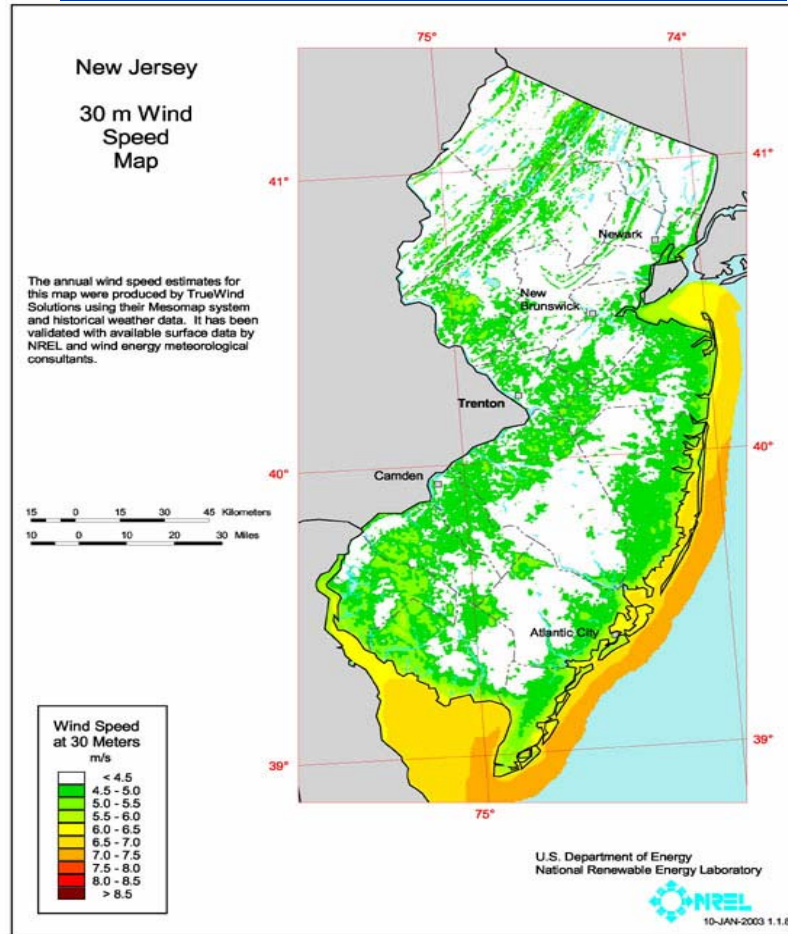
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# Renewable Energy Technologies



## New Jersey Wind Resources



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# New Jersey's Clean Energy Programs



## **2008 Customer On-Site Renewable Energy (CORE) Program**

The CORE program supports a variety of technologies such as photovoltaic (solar electricity), small wind, sustainable biomass equipment and fuel cells.

- On-site behind the meter.
- Net metered to 2 MW.
- Solar rebates are sold out for 2008
- Rebates for wind and biomass systems are still available (~\$2M left)
- Solar Renewable Energy Credits (SRECs) capped value has been raised to (\$711/SREC)
- Wind incentives are production based.
- Biomass Incentives are capacity based.



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# New Jersey's Clean Energy Programs



## 2009 Renewable Energy Program

The Renewable Energy Program will continue to support solar electricity, small wind, sustainable biomass equipment, and fuel cells.

- On-site behind the meter still capped at 2 MW, but these rules are being reviewed
- Community Energy (one large system for multiple building) rules are being developed
- Rebates for small solar systems (probably < 50kW)
- Financial incentives for wind and biomass projects will stay the same.
- The SREC program (non-rebated projects) will continue to be promoted
- SREC securitization and Utility Company solar loan programs are being developed

**CORE** program information is available on the web at: [www.njcleanenergy.com](http://www.njcleanenergy.com).



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# Financing Options

- Self-Funding
- Equipment Lease
- Power Purchase Agreement



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*If you have any questions about renewable energy, New Jersey's Clean Energy Programs, or would like a copy of this presentation please feel free to contact:*

**Mark Loeser at**  
[mark.loeser@csgroup.com](mailto:mark.loeser@csgroup.com)  
Phone 732-218-4430



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