NJ Farm & Rural Energy Seminar – 2005

NJ Rural Energy Partnership

- USDA Rural Development
- NJ Board of Public Utilities, Clean Energy
- U.S. Department of Energy
- NJ Department of Agriculture
- Rutgers EcoComplex
- Rowan University

U.S. Department of Energy

Resources: On The Web

- DOE Mid-Atlantic Regional Office:
  www.eere.energy.gov/Regions/Mid-Atlantic
- DOE Wind Energy Program:
  www.eere.energy.gov/windandhydro/
- America Wind Energy Association:
  www.awea.org
- Northeast Regional Biomass Program
  www.nrbp.org

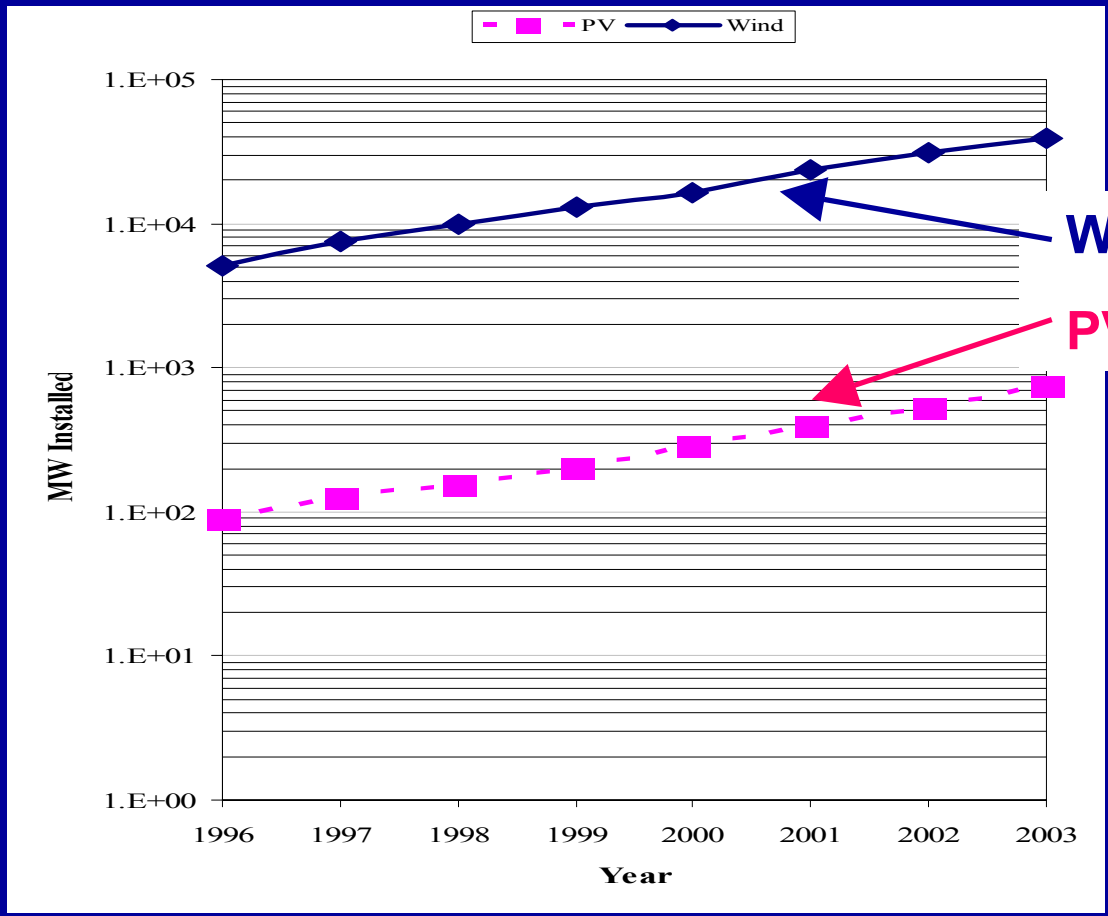
Solar (PV) and Wind Basics

Dr. Peter Mark Jansson PP PE
Associate Professor – Electrical and Computer Engineering
Rowan University

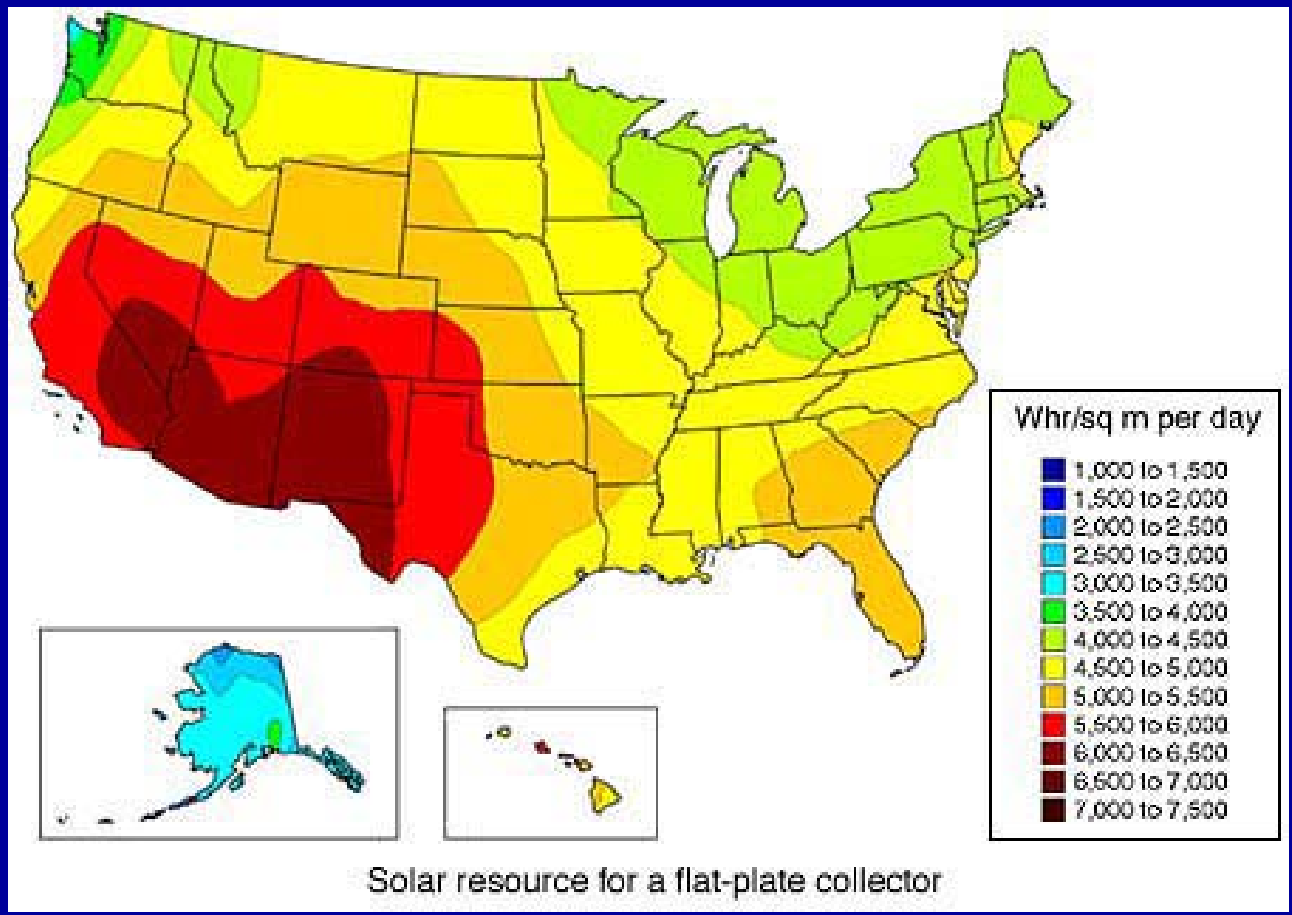
Overview

- Technical and Economic Background
  - Solar (photovoltaic technology)
  - Wind (electric generating technology)
- Benefits for Using in New Jersey
  - Expected generation output
  - Sample paybacks or returns

Wind & PV Production ('96-'03)



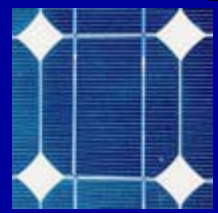
Solar Resources – Total & Diffuse

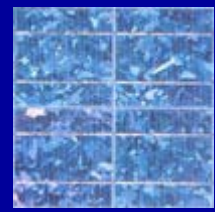


Solar resource for a flat-plate collector

Semi-Conductor Physics

- PV technology uses semi-conductor materials to convert photon energy to electron energy
- Many PV devices employ





  - Silicon (multi-crystalline, amorphous or single)
  - Other electrically active semiconductor materials
    - Cadmium telluride, gallium arsenide, CIS, etc.

Historic PV price/cost decline

- 1958: ~$1,000 / Watt
- 1970s: ~$100 / Watt
- 1980s: ~$10 / Watt
- 1990s: ~$3-6 / Watt
- 2000-2004:
  - ~$1.8-2.5/ Watt (cost)
  - ~$3.50-4.75/ Watt (price)

PV cost projection

- $1.50 → $1.00 / Watt
- 2005 → 2008
- SOURCE: US DOE / Industry Partners
- Today you can have a grid interactive PV System installed for between $6 and $8 per watt

PV system types

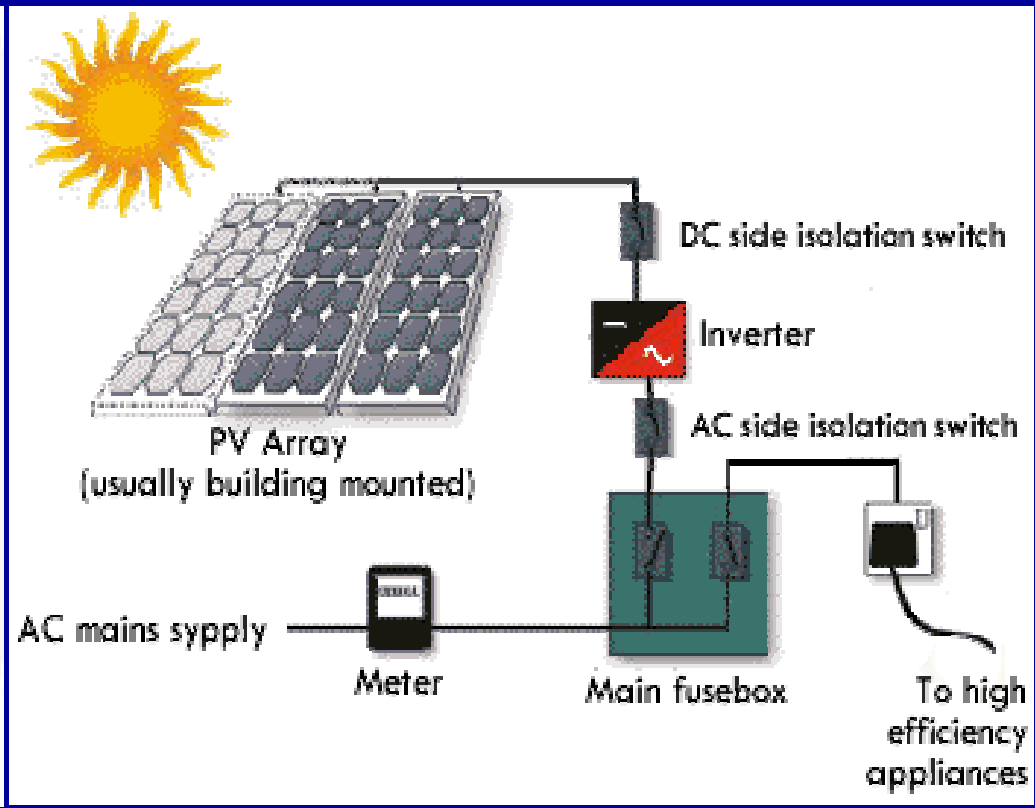
- Grid Interactive – and BIPV
- Stand Alone
  - Pumping
  - Cathodic Protection
- Battery Back-Up Stand Alone
  - Medical / Refrigeration
  - Communications
  - Rural Electrification
  - Lighting

How Large a System do You Need?

- Method:
  - First Determine Electric Use (try to reduce 1st)
  - Determine Solar Resource (SP, model, calcs)
  - Select PV Modules ***or***
  - Select DC-AC Inverter
  - Assure Module Strings V_{oc} and I_{sc} meet inverter specifications
  - Estimate Your Production

Grid-interactive roof mounted

Workers install flat-plate PV panels on the Natatorium for the 1996 Summer Olympics in Atlanta.



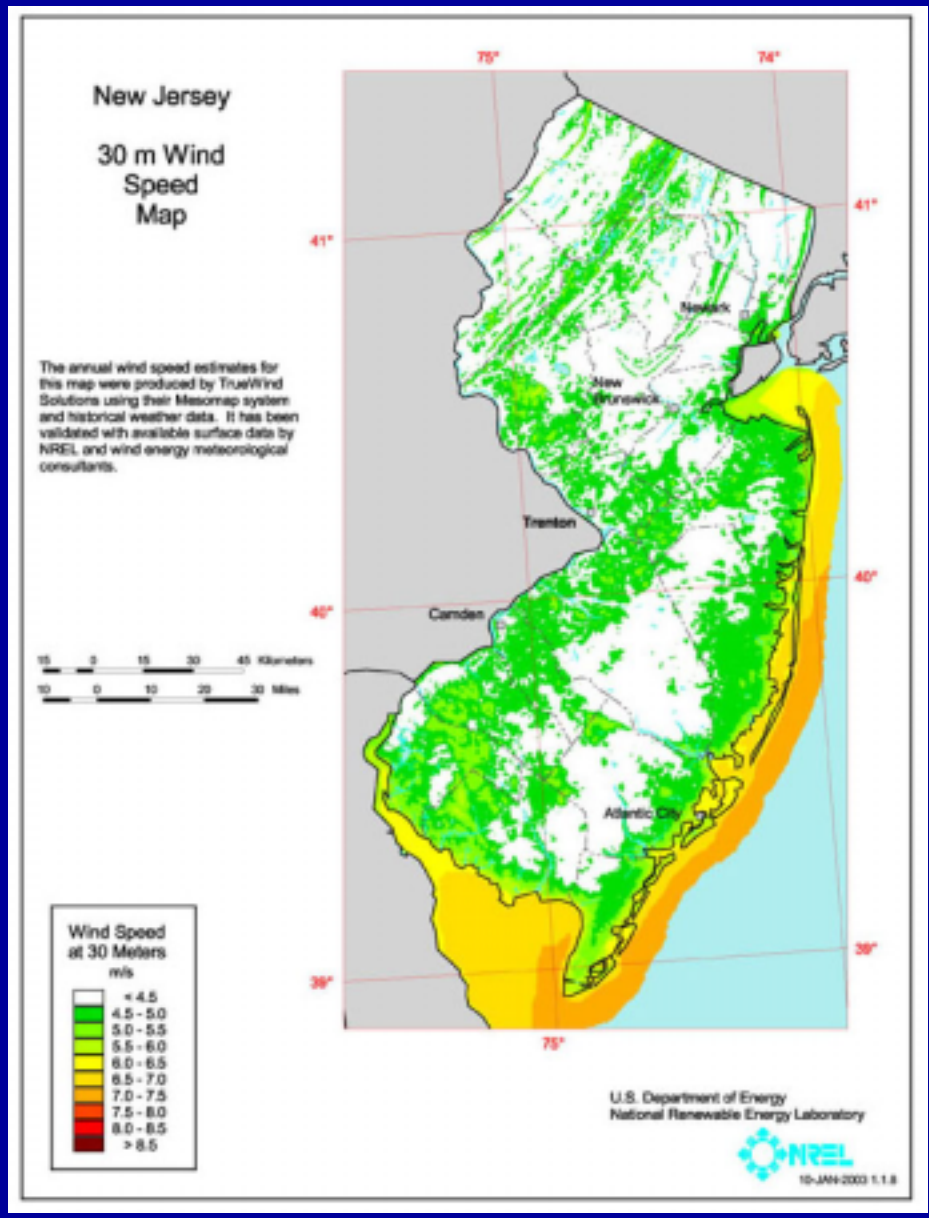
NJ Solar (PV) Incentives

- NJ Clean Energy Program
  - 70% rebate for grid connected systems up to 10kW
- Net Metering to 100kW
- Solar Renewable Energy Certificates
  - NJ RPF requires 2 MW 2004 → 10 MW 2008
  - Currently trading about $150-200/MWh

Economic Value to You

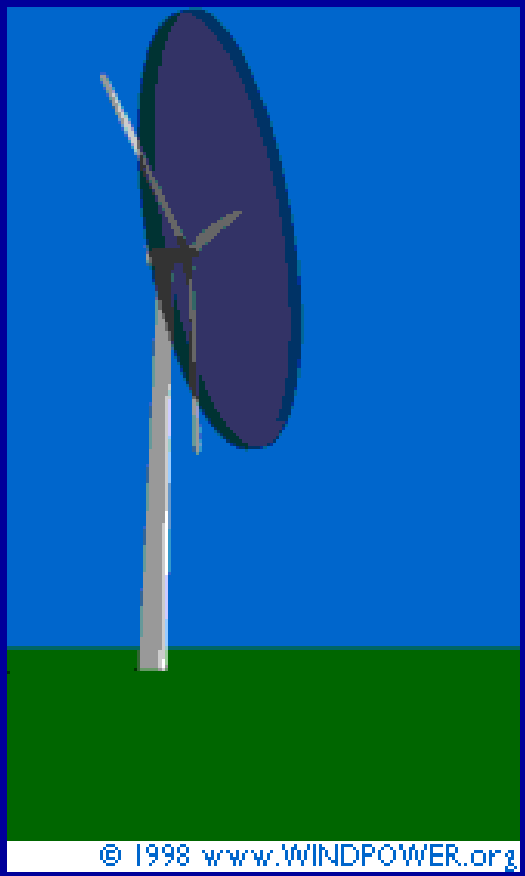
- PV Systems would have 25-30 year payback
- With NJCEP reduces to ~ 10 year
- With SREC payments it could be less than 7 year
  - 5 – years of SRECs at 15 ¢/kWh = $3600 for 4kW system
- PV Systems can produce between 1100 and 1350 kWh per installed kW annually across New Jersey
- Cost After Rebate: ~$9,000 for a 4 kW system
- 20 year electricity cost: 9.4¢/kWh w/o SREC
  5.6¢/kWh w/5yrs of SREC at 15 ¢/kWh

NJ Wind Resources



Wind Turbines

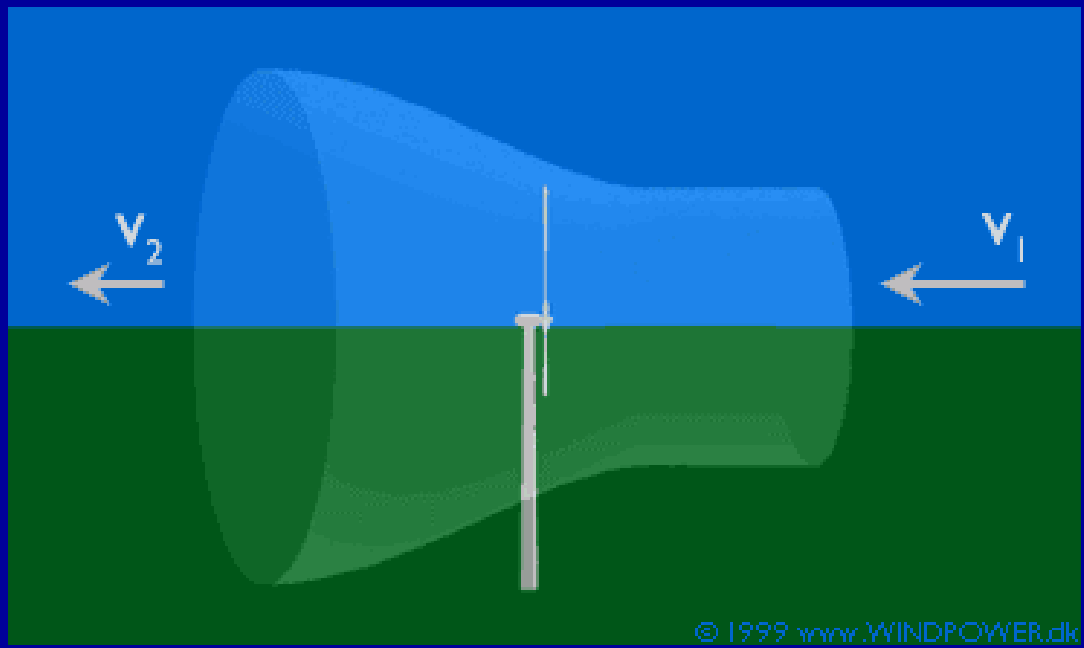
Wind Turbines



- A wind turbine obtains its power input by converting the force of the wind into a torque acting on the rotor blades.
- The amount of energy which the wind transfers to the rotor depends on the density of the air, the rotor area, and the wind speed.

Wind Turbines

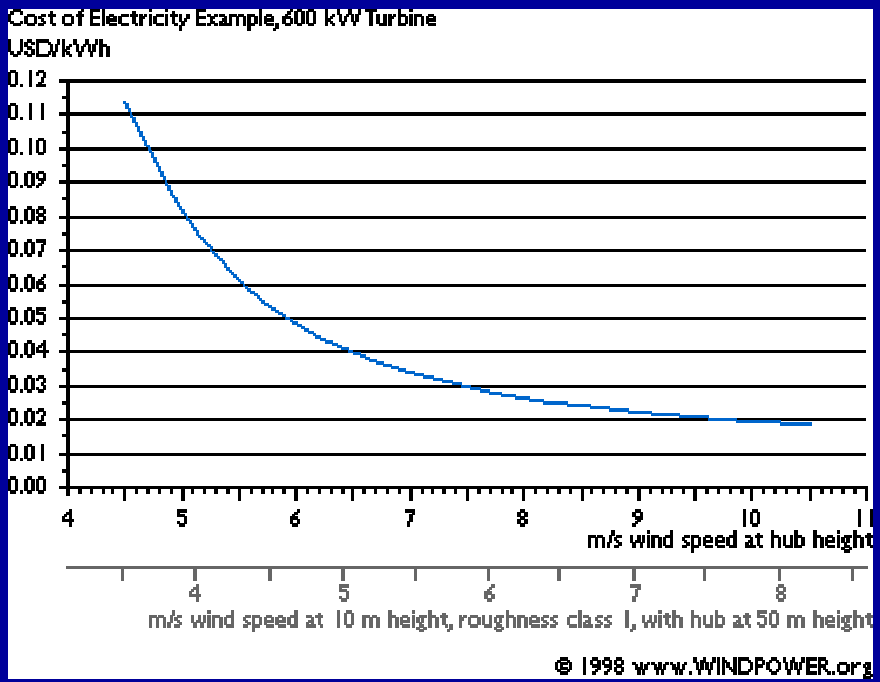
- A wind turbine will deflect the wind before it even reaches the rotor plane which means that all of the energy in the wind cannot be captured using a wind turbine.



Wind Turbine Energy

The annual energy delivered by a wind turbine can be estimated by using the equation:

$$Energy = 0.3 \times Average wind\ power (W/m^2) \times \frac{\pi}{4} (Rotor length m)^2 \times 8760 h/yr \times \frac{1kw}{1000W}$$

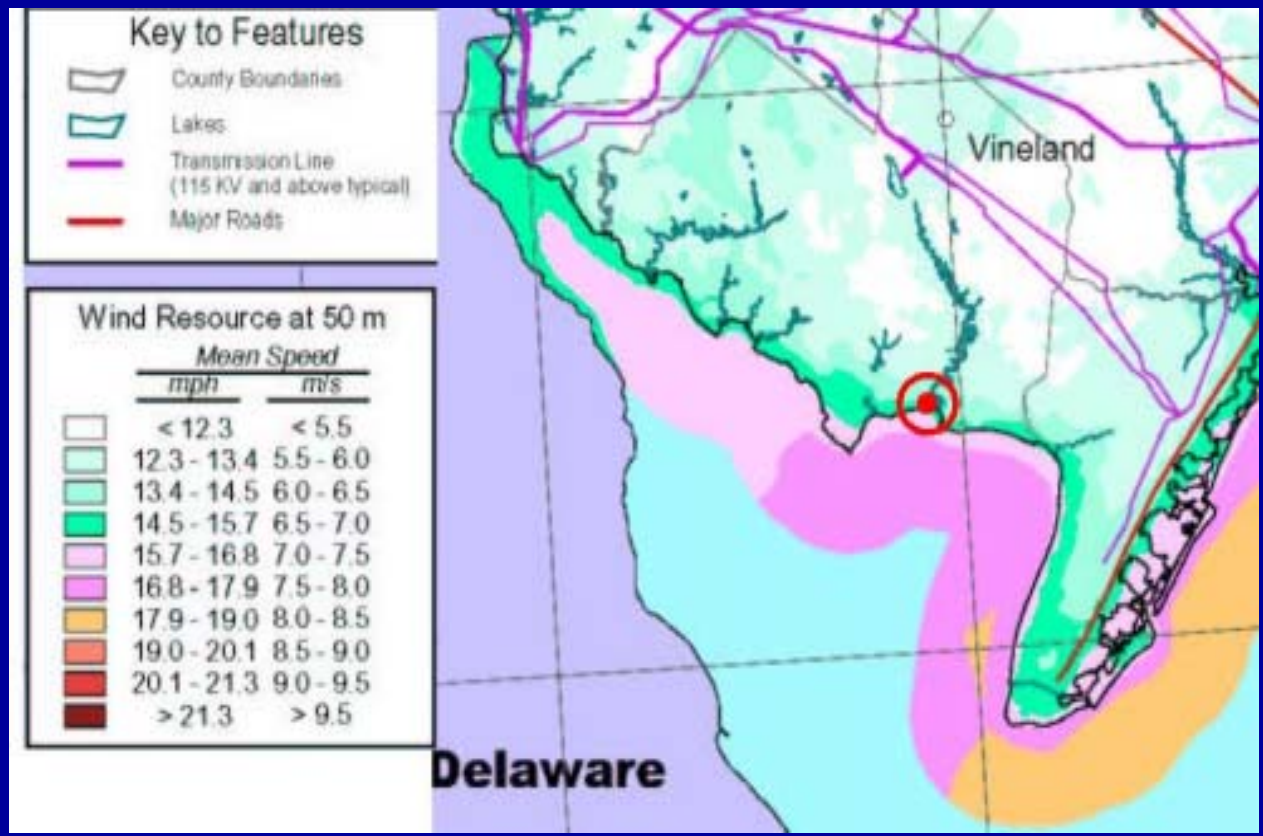


The cost of electricity will vary with wind speed. The higher the average wind speed, the greater the amount of energy, and the lower the cost of electricity

Wind Power Classifications

Wind Power Class	Average Speed m/s	Average Speed mph	10-m Power Density W/m^2	50-m Power Density W/m^2
1	0-4.4	0-9.8	0-100	0-200
2	4.4-5.1	9.8-11.4	100-150	200-300
3	5.1-5.6	11.4-12.5	150-200	300-400
4	5.6-6.0	12.5-13.4	200-250	400-500
5	6.0-6.4	13.4-14.3	250-300	500-600
6	6.4-7.0	14.3-15.7	300-400	600-800
7	7.0-9.5	15.7-21.5	400-1000	800-2000

Delaware Bay Wind Speeds



- Areas along shore are ideal for wind power
- Wind speeds as low as 6.5 m/s can be used productively
- At 6.5 m/s, electricity can be as low as
  - $0.07/kWh

True Wind Solutions

Sample 10 kW Turbine in NJ

- Class 3 winds at ground – 5.5 m/s, 24 m (80ft) – 6.3 m/s aloft
- Power generated is ~18,000 kWh/year
- Turbine: $24,750
- Tower: $6,800
- Install/Misc: $5,500
- NJCEP Rebate (60%): $22,230
- Net Cost : $14,820
- 15 year electric cost: 5.5¢/kWh
- Simple Payback: ~ 7.5 years

New Jersey Anemometer Loan Program

- **USDOE, NJBPU/NJCEP, Rutgers and Rowan University have partnered to offer free wind energy analysis to farms seriously considering wind**
- **1 – year onsite wind measurement**
- **Tower and anemometer installed at no charge**
- **Contacts:**
- **NJCEP:** Alma Rivera 1.973-648-7405 or email: alma.rivera@bpu.state.nj.us
- **Rowan:** Dr. Peter Mark Jansson 1.856.256.5373 or email: jansson@rowan.edu
- **Rutgers:** Dr. Michael R. Muller 1.732.445.3655 or email: muller@caes.rutgers.edu

Rutgers EcoComplex

- Geothermal
- Biomass
- Dave Specca – Director of Developmental Programs

Rutgers, The State University
New Jersey EcoComplex
1200 Florence-Columbus Road
Bordentown, NJ 08505
TEL 609-499-3600 Ext. 226
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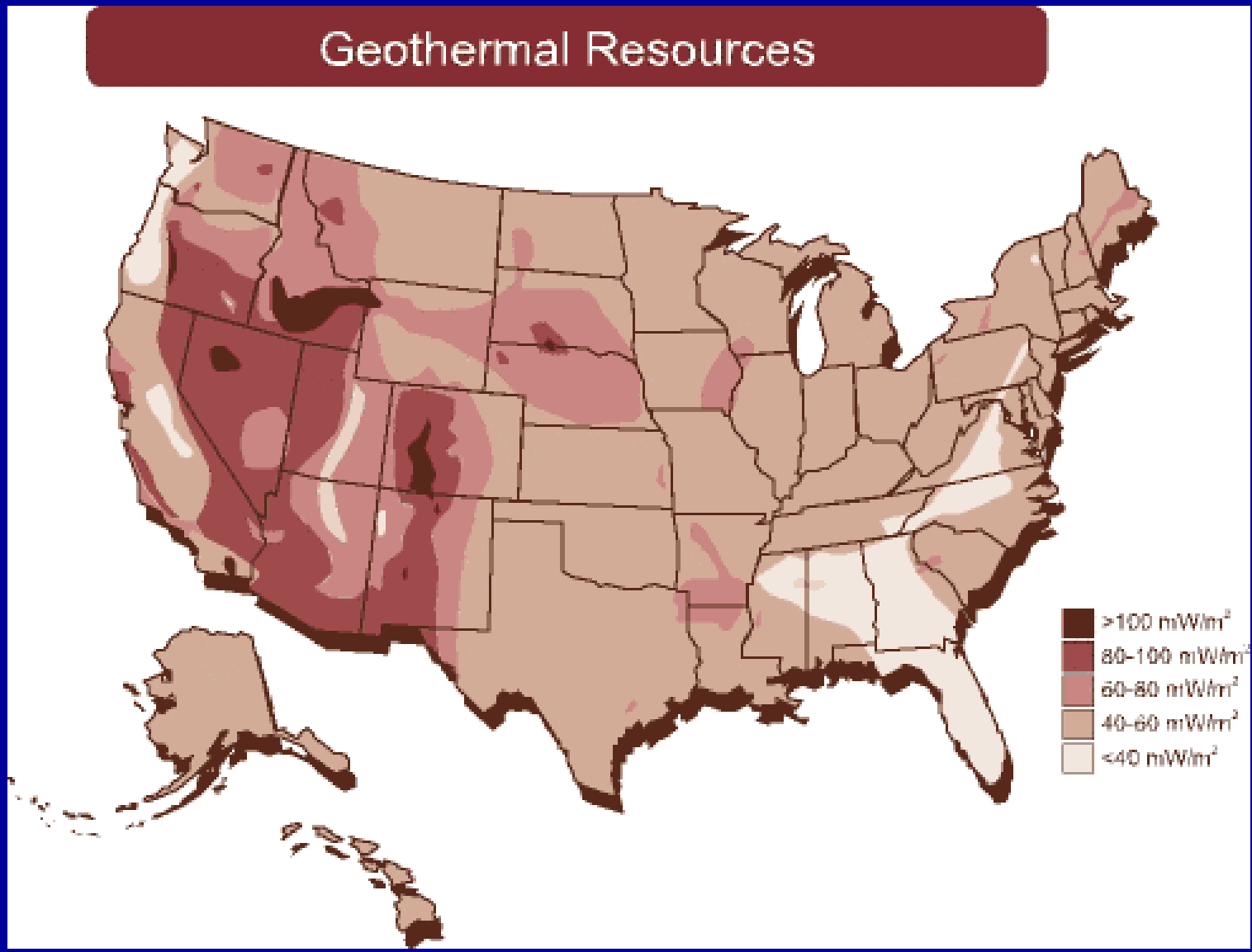
specca@aesop.rutgers.edu

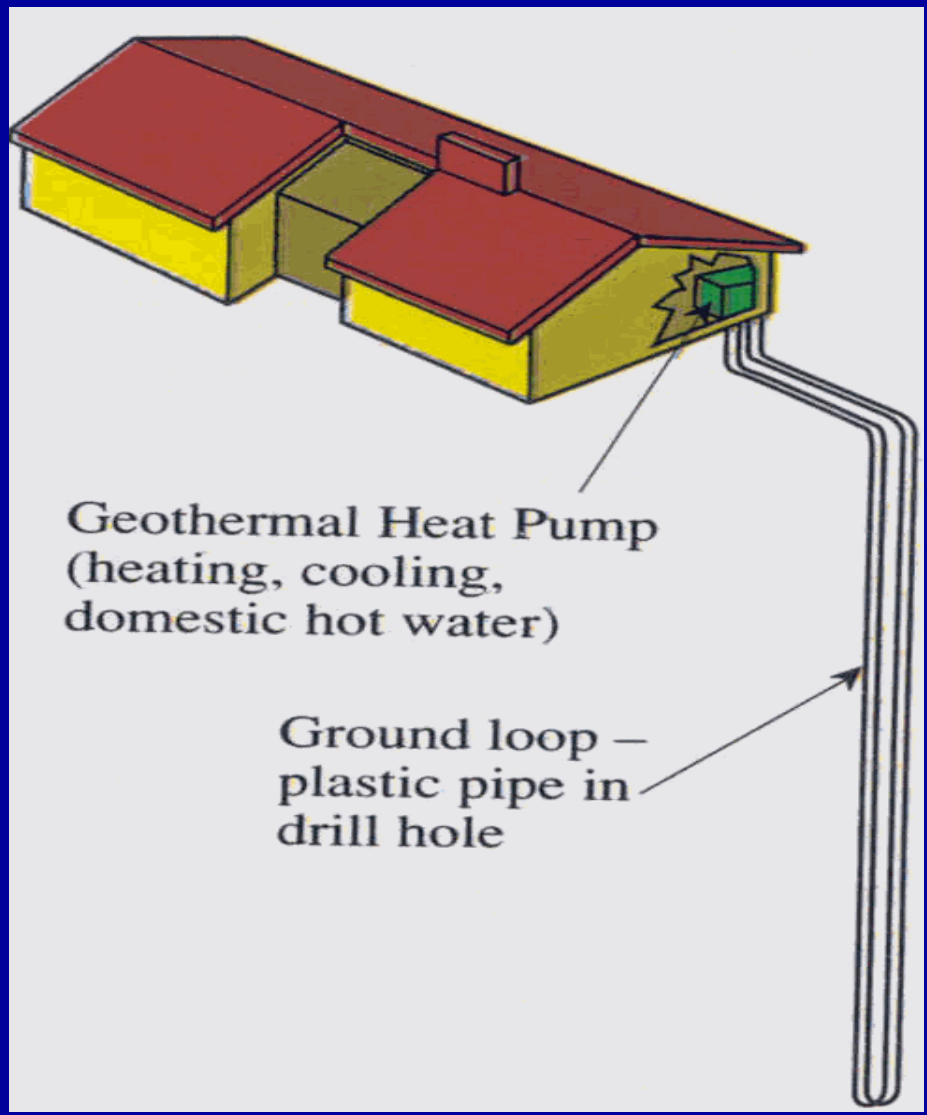
Overview

- Geothermal Energy – Heat pump applications to heat and cool homes and work spaces where thermal energy is stored and collected from the ground
- Biomass Energy – Electricity, transportation fuel and/or heat produced by the direct combustion, fermentation or chemical conversion of plant and animal based materials

Geothermal Resources



Geothermal


Geothermal Heat Pump
(heating, cooling,
domestic hot water)
Ground loop –
plastic pipe in
drill hole

Biomass Energy

- Biomass energy was the first form of energy used by mankind – today it covers a broad range of technologies;
  - Ethanol
  - Biodiesel
  - Landfill and digester gas
  - Wood biomass
  - Gasification

Biodiesel

- Biodiesel is made from plant and animal based oils and fats
- Filtered, used cooking oil can be utilized directly as an alternate fuel in diesel engines
- Biodiesel is made by combining oil, methanol or ethanol and lye in a low temperature and pressure chemical process

Digester Gas

- When organic matter is placed into an environment without oxygen, naturally occurring bacteria will break it down and produce carbon dioxide and methane (biogas). Biogas can be used in place of natural gas to operate generators, heaters and stoves.

Solid Biomass

- Includes wood, agricultural crops, waste wood and waste agricultural products
- Used as a fuel, like coal or heating oil to operate a boiler and produce electricity and/or heat

NJ Department of Agriculture

- **STATE COST SHARE GRANTS**
- Landowners enrolled in permanent or 8 yr. farmland preservation program
- Approved soil and water conservation projects
- Solar powered irrigation pumps may be eligible
- State Agriculture Development Committee (SADC) can provide up to 75% cost share of approved soil & water projects
- Permanently preserved farms have 1st priority
- Project must be completed in 3 yrs.

NJ Department of Agriculture

Contact your County Soil Conservation District, the SADC at 609-984-2504 or

Richard Belcher

Soil Erosion and Sediment Control Specialist

Soil & Water Conservation Program

Division of Agricultural & Natural Resources

NJ Department of Agriculture

PO Box 330

Trenton, NJ 08625-0330

(609) 292-5540

Richard.Belcher@ag.state.nj.us

NJ Department of Agriculture

- **RENEWABLE ENERGY & ENERGY CONSERVATION ON FARMS**
- For further information on renewable energy or energy conservation on farms contact:

Karen Kritz
Agribusiness Development Representative
NJ Department of Agriculture
609-984-2506
Karen.Kritz@ag.state.nj.us

Financial Incentives Available

to Install Renewable Energy Technologies

through New Jersey's Clean Energy Program

B. Scott Hunter
Renewable Energy Program Administrator
Office of Clean Energy,
New Jersey Board of Public Utilities

Who is Eligible?

- The Electric Discount and Energy Competition Act of 1999 established the Societal Benefit Charge and charged the NJBPU with stewardship for **NJ RATEPAYERS**.

- Renewable energy programs – NJ citizens who pay an electric or gas bill with an SBC charge are eligible for renewable energy incentives.

- Energy efficiency programs - NJ citizens must pay an electric bill with an SBC charge to be eligible for energy efficiency incentives.

What is Renewable Energy?

Renewable energy:

Is……..non-depletable,
continuously or self-replenishing,
environmentally preferrable

Is frequently…..solar, wind, biomass, landfill gas

Is sometimes….hydropower, waste incineration

Is not……*fossil or*
nuclear

What is Renewable Energy?

"Class I renewable energy" means electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells, geothermal technologies, wave or tidal action, and methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner.

"Class II renewable energy" means electric energy produced at a resource recovery facility or hydropower facility, provided that such facility is located where retail competition is permitted and provided further that the Commissioner of Environmental Protection has determined that such facility meets the highest environmental standards and minimizes any impacts to the environment and local communities.

What Incentives Are Available to Encourage Renewables?

The Suite of Renewable Energy Incentives

- Rebates; buy-down installed costs
- Grants; for qualified costs of large projects
- Finance; loan guarantees and low interest for businesses and public entities
- Enabling Rules; facilitate easy interconnection, require net metering, and mandate a renewable portfolio for all NJ electricity suppliers… essentially a production incentive for renewable energy system owners.

What Incentives Are Available?

Renewable Energy Programs & Budgets 2005

- **Customer On-site Renewable Energy** (rebates for RE technologies) $ 86.2
- **Renewable Energy Project Grants and Financing** (projects > 1MW) $ 15.0
- **Renewable Energy Business Venture Assistance** (for applied R,D&D) $ 8.5
- **Clean Energy Project Financing for Businesses** (for RE w/ EE) $ 3.0
- **Clean Energy Project Financing for Businesses** (for RE w/ EE) $ 3.0
- **Manufacturing Incentive** (expand or locate an RE mfg. plant) $ 2.0
- **Voluntary Green Power Choice** (electric bill check-off funds) $ 3.0

What is CORE Solar?

...rebates to reduce installed costs, aka "buydowns"

Current Rebate Levels

Solar Electric Systems	
2004	**Incentive Level**
Systems up to 10kW	$5.50/watt
Maximum incentive as percentage of eligible system costs	70%
Systems greater than 10kW	
1 to 10 kW	$5.50/watt
> 10 to 100 kW	$4.00/watt
> 100 to 500 kW	$3.75/watt
> 500 to 1,000 kW	$0.30/watt
Maximum incentive as percentage of eligible system costs	60%
Incentive Available	

Installed Solar Electric

	# PV	Solar Rebate$	Solar kW
2004	282	$10,947,455	2144
2003	56	$3,354,636	757
2002	42	$2,658,310	764
2001	6	$45,750	9
Total	386	$17,006,151	3674

1 kW_{dc} => 1200 kWh

CORE Wind & Biomass

...rebates to reduce installed costs, aka "buydowns"

Current Rebate Levels

Wind and Sustainable Biomass Systems See chart below for PV incentive rates	
2004	**Incentive Level**
Systems up to 10 kW	$5.00/watt
Maximum incentive as percentage of eligible system costs	60%
Systems Greater than 10 kW	
1 - 10 kW	$3.00/watt
> 10 to 100 kW	$2.00/watt
> 100 to 500 kW	$1.50/watt
> 500 kW, up to 1000 kW	$0.15/watt
Maximum incentive as percentage of eligible system costs	30%

Installed Wind and Biomass

	# Wind	Wind Rebate$	Wind kW	# Biomass	Biomass Rebate$	Biomass kW
2004	0	$0	0	2	$2,390,000	1850
2003	2	$74,400	20	2	$153,594	150
2002	2	$38,830	11	1	$560,000	167
2001	0	$0	0	0	$0	0
Total	4	$113,230	31	5	$3,103,594	2167

When, How and Where to Get Started

Q: When to get started? A: Now, early, as soon as possible.

Q: How to get started? A:
1. Start your research.
2. Visit and become familiar with our website.
3. Gather your utility bills.
4. Estimate savings with the Clean Power Estimator
5. Contact at least three vendors.

Q: Where to get started? A: www.njcep.com

How else does the NJBPU encourage Renewables?

- Renewable Portfolio Standards
  - Solar carve-out requires 120,000 MWh by 2008 translates into roughly 90 MW
  - Percentages accelerated for Class I required
- Net Metering and Interconnection
  - Simplified interconnection
  - Increased capacity limit for net metering

How does Net Metering and Interconnection work?

- Visit www.njcep.com for forms & EDC contacts
- Updated net-metering and interconnection standards:

  * Increased net-metering capacity from 100 kW to 2 MW.

  * Extended eligibility to all Class I renewables

  * Makes interconnection processes, simplified, transparent and time limited.

What is the Renewable Portfolio Standard **Solar Requirement**

- Required for all NJ electric suppliers.
- Accelerates % 2004 through 2008 to 0.16% (90 MW)
- Facilitates Renewable Energy Certificates (RECs, aka green tags or attributes trading)
- Sets Alternative Compliance Payments or ceiling price
- Adopted April 19, 2004 with changes in March 2005

What is an "SREC"

- SREC = Solar Renewable Energy Certificate
- "attribute" of solar electricity generation unbundled & verified from the actual energy delivered.
- 1 SREC is equivalent to 1 **megawatt hour** (MWh).
- Effectively provides an **incentive payment** to solar electric system owners for production of electricity
- New Jersey's Renewable Portfolio Standard mandates **all retail electric suppliers** procure an increasing percentage of solar electricity.

What does the SREC % Requirement translate into in Solar Capacity by Year?

- RY 2005 0.0100 % ~ 3.6 MW
- RY 2006 0.0170 % ~ 6.12 MW
- RY 2007 0.0393 % ~ 22.5 MW
- RY 2008 0.0816 % ~ 46.7 MW
- RY 2009 0.1600 % ~ 90 MW

How will the SREC Market Work?

NJ's Renewable Portfolio Standard rules:

- Mandate use of the Office of Clean Energy's SREC system to document compliance (see www.njcep.com/srec)
- Require solar electric systems be connected to the local distribution system.
- Set an Alternative Compliance Payment for SRECs (SACP) of $300 per MWh or $0.30 per kWh = a ceiling on the price of an SREC.
- Are expected to lead to prices from $100 to $250 / SREC (MWh)
- Effectively reduce investment paybacks to below 10 yrs.

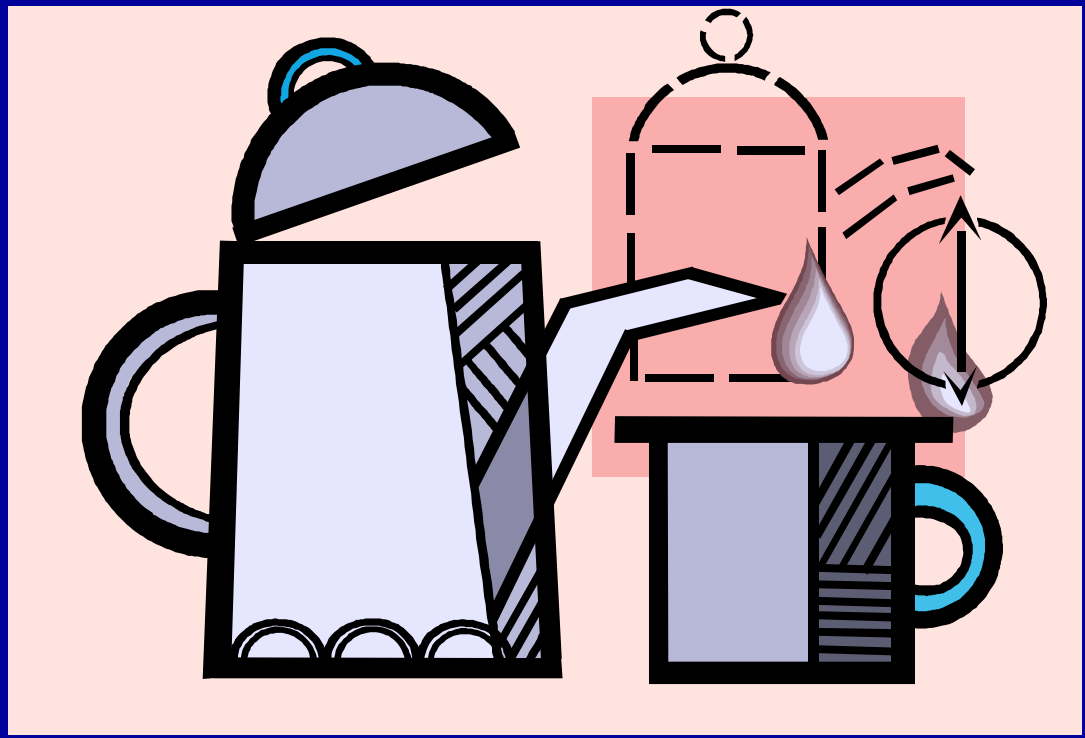
Where can we learn more?

Renewables www.njcep.com
--Subscribe to the list serve!!!!!
Energy Efficiency www.njcleanenergy.com
Office of Clean Energy www.bpu.state.nj.us

B. Scott Hunter
New Jersey Board of Public Utilities
Office of Clean Energy
Benjamin.hunter@bpu.state.nj.us

Why are renewables good for your business?

- Diversifying the business energy mix with renewable energy acts a energy price hedge, reduces the risk of energy cost escalation
- Net metering reduces electric bills
- The Renewable Energy Certificates provide cash flow
- Market your business as progressive & green



State Incentives for Energy Efficiency
Commercial and Industrial

New Jersey Board of Public Utilities
Office of Clean Energy

Mona Lee Mosser
Bureau of Energy Efficiency

Commercial and Industrial Energy Efficiency Programs

- Marketed as *New Jersey SmartStart Buildings*, umbrella for individual targeted market segments:
  - Commercial/Industrial New Construction
  - Commercial/Industrial Retrofit
  - Schools
- Combined Heat and Power Program (CHP)

Invest Some Time and Build Your Bottom Line

In Return, You will Receive:

- Free Design and Technical Support
- Rebates on High-Efficiency Equipment and Technologies
- Savings on Your Monthly Energy Bills

Who Can Participate?

The Program is Open to All Qualified New Jersey C&I Electric and Gas Customers.

Program was Developed for All Types of Projects, Large and Small, Including:

- New Construction in Smart Growth Areas
- Schools New Construction
- Renovations
- Remodeling
- Equipment Replacement

New Jersey SmartStart Buildings® — The Program

New Jersey SmartStart BUILDINGS®

Program Offerings and Customer Incentives

- Prescriptive Rebates
  - fixed incentives.
- Custom Measure Incentives
  - state of the art, complex efficiency measures.
- 10% Multiple Measure Bonus
- Technical Assistance to help customers evaluate energy efficiency options

Three Ways to Participate

There Are Three Ways to Participate in the Program:

1. Larger Projects (over 50,000 sq. ft.)
2. Smaller Projects/Projects Past Preliminary Design Stage
3. Energy-Efficient Equipment Installation

1. Larger Projects (Over 50,000 sq. ft.)

Larger Projects Starting in Planning Stage Are Eligible for:

Three Step Process:

- Pre-Design Planning Session
- Design Simulation and Screening
- Detailed Analysis of Energy-Efficient Measures

*And…*Equipment Incentives

- Additional Multiple Measures Bonus (Two or More Approved Measures)

2. Smaller Projects (Under 50,000 sq. ft.)/ Projects Past Preliminary Design Stage

Smaller Projects, or Those Begun After the Design Stage, May Take Advantage of:

- Project Review and Screening
- Recommendations for Energy-Efficiency Measures
- Equipment Incentives
- Additional Multiple Measures Bonus (Two or More Approved Measures)

3. Energy-Efficient Equipment Installation*

Financial Equipment/Technology Incentives are Eligible for Customers Who:

- Replace Existing Equipment
- Install High-Efficiency Equipment as Part of an Approved Project
- Multiple Measures Bonus

* Eligibility/Incentives Are Based Upon an Approved Technologies List.

Approved Technologies for Incentives

Categories:

- Electric Chillers
- Natural Gas Cooling
- Desiccant Units
- Electric Unitary HVAC Systems
- Natural Gas Heating Systems
- Natural Gas Water Heating
- Premium-Efficiency Motors
- Prescriptive Lighting
- Lighting Controls
- LED Traffic Signals
- Variable Frequency Drives
- Ground Source Heat Pumps

Custom Measures

Customers May Request Technical Assistance and Receive an Incentive for Qualified Energy-Efficient Equipment Not on the Prescriptive Technologies List.

- Customer project in New Jersey
- Custom Measure application
- Screening process
- Incentive Up to 80% of measure or 1.5 year payback

ECO #8 Raritan Millstone High Lift #8 and #9 Pump and Motor Replacement and VFD installation

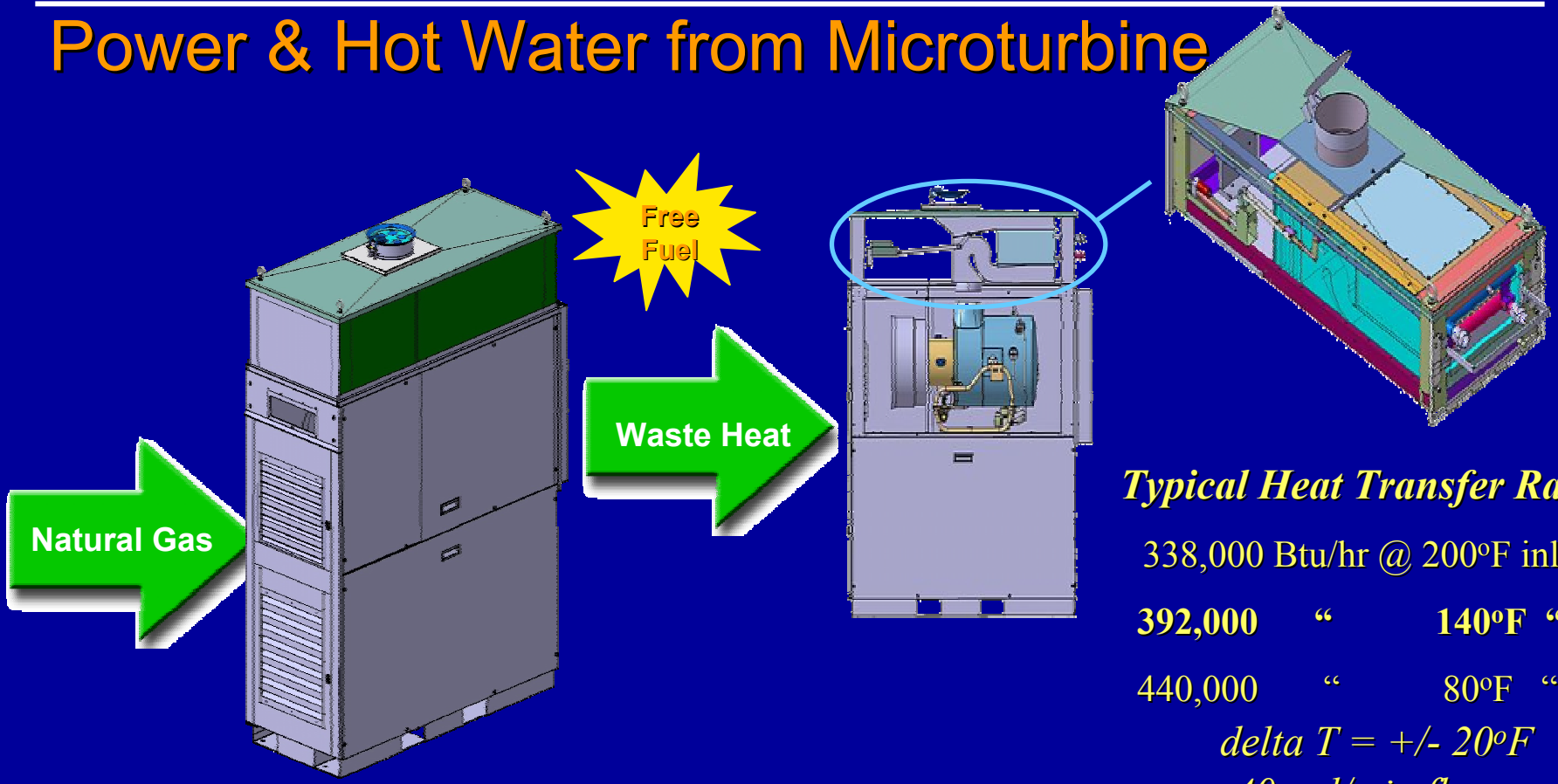
- **Economics (with VFD installation and #14/#15 engine shut down savings from ECO #24)**
- **Implementation Costs** $842,000
- **Annual Cost Savings** $384,000
- **Simple Payback** 2.2 years
- **Economics (with Pump and Motor Replacement only)**
- **Implementation Costs** $460,095
- **Annual Cost Savings** $110,000
- **Simple Payback** 4.2 years

Combined Heat & Power Program (CHP)

Financial incentives for CHP installations

- enhance energy efficiency through on-site power generation
- recovery and productive use of waste heat
- July 27, 2004 approved funding of $5 million for CHP
- 2005 funding for this program

Power & Hot Water from Microturbine



Typical Heat Transfer Rates

338,000 Btu/hr @ 200°F inlet

392,000 " 140°F "

440,000 " 80°F "

delta T = +/- 20°F

40 gal/min flow

MicroTurbine ~26% **+** ***Integrated Heat Exchanger ~45%*** **=** ***Total Energy Utilization 70%+***

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Additional Program Information

To Learn More About the New Jersey SmartStart Buildings® Program, Visit:

www.njsmartstartbuildings.com

And, to Learn More About All of New Jersey's Energy-Efficiency and Clean Energy Programs, Visit:

www.njcleanenergy.com

Additional Program Information

For more Information, Contact Your Local Electric Or Gas Utility:

conectiv Power Delivery 1-800-317-2938	PSE&G 1-800-854-4444
Jersey Central Power & Light A FirstEnergy Company 1-800-823-6462	Rockland Electric Company 1-800-231-0427
NJR New Jersey Natural Gas 1-800-221-0364	South Jersey Gas 1-609-561-9000 ext. 4182
NUI Elizabethtown Gas 1-800-221-0364	

New Jersey SmartStart Buildings®

New Jersey's Clean Energy PROGRAM
Your Power to Save

Michael P. Kelsey

Director, Business & Community Programs
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TEL 856-787-7751
FAX 856-787-7757

Renewable Energy Program

- Notice of Funding Availability (NOFA) – March 28, 2005
- $22.8 million in competitive grant funds for FY2005
- Purchase renewable energy systems
- Make energy efficiency improvements
- Applications must be submitted to USDA RD State Offices postmarked no later than Monday, June 27, 2005

Rural Area

- Rural Area Definition - Any area other than a city or town with a population of greater than 50,000 and the *urbanized area* contiguous and adjacent to such city or town.
- Go to:

  www.rurdev.usda.gov/nj/bpeligarea.html for assistance in determining rural area eligibility. This office will make the "official" determination.

Applicant Eligibility

- Ag producers – 50% or greater of gross income derived from agricultural production; must be located in an eligible rural area
- Rural Small Businesses – must meet U.S. Small Business definition; must be in an eligible rural area.
- No delinquent Federal debt
- Applicant must demonstrate financial need
- Determine project viability
- Must have financial and technical feasibility

Applicant Eligibility

- Individual applicants must be citizens of the U.S. or reside in the U.S. after being legally admitted for permanent residence.
- Entities must be at least 51 percent owned directly or indirectly by individuals who are either citizens of the U.S. or reside in the U.S. after being legally admitted for permanent residence.
- For small businesses, the business' headquarters must be in a rural area and the project funded also must be in a rural area.

Project Eligibility

- Must be for renewable energy systems ("Renewable") or
- Efficiency improvements ("Efficiency")
- Project must be located in a "rural area"
- Must be commercially available; not for research and development
- Must be technically feasible
- Applicant must own and control the proposed project.
- Must be based on sufficient revenue to operate & maintain the system

Renewable Energy Project

- Energy derived from a wind, solar, biomass, or geothermal source, or hydrogen derived from biomass or water using wind, solar, or geothermal energy sources.
- Purchase systems using these sources
- Total energy input from a nonrenewable source will be determined by the technical reviewers

Energy Efficiency Project

- Improvements to a facility or process that reduces energy consumption.
- Energy Audit – required for projects in excess of $50,000
  - Must address:
    - Situation report
    - Potential improvements
    - Technical analysis

Maximum Grant

- USDA Grant will not exceed 25% of eligible project costs
- "Renewable" grants – not less than $2,500 but no more than $500,000
- "Efficiency" grants – not less than $2,500 but no more than $250,000
- Total "Maximum" grant not more than $750,000
- Applicant must provide 75% balance of funds for project (leverage requirement)
- Applicant in-kind contributions & other Federal grants do not count towards leverage requirement.

Eligible Project Costs

- Post application purchase & installation of equipment
- Post application construction & improvements
- Energy Audits
- Permit fees
- Professional service fees
- Feasibility studies
- Business Plans
- Retrofitting

Application

- Table of Contents
- Project Summary
- Eligibility
- Ag producer / Small Business
- Ownership
- Description of operation
- Management
- Financial
- Commercial Product info for Renewable Energy projects
- DUNS Number
- Forms, certifications and agreements
- Environmental Review
- Feasibility Study for Renewable Energy projects > $50,000
- Technical Requirements reports > $50,000 requires preparation by P.E.
  - See guidelines by project type

Technical Requirements Reports by Project Type

- Qualifications of project team
- Agreements & permits
- Resource Assessment
- Design & Engineering
- Project Development Schedule
- Financial feasibility
- Equipment procurement
- Equipment Installation
- Operations & maintenance
- Decommissioning

Applications

- You must submit a separate application for "Renewable" and "Efficiency" projects
- Each application is to be submitted in an original and one copy
- The technical report is to be submitted in an original and one copy
- The maximum amount of grant assistance to any one entity can not exceed $750,000
- Application content per the NOFA
- Also see our website at: www.rurdev.usda.gov/nj/rbs.html

Evaluation Criteria - Scoring

- **Energy –** points awarded for one of following:
  - Replacement: max. - 15 pts.
  - Savings: max. – 15 pts.; extra 5 pts for efficiency projects < $50,000 w/professional Energy audit
  - Generation: energy for sale – 10 pts.
- **Environmental benefits –** points awarded for only one of the two. Exceed standards – 2 to 5 pts.
  - Health & Sanitary
  - Environmental goals
- **Commercial Availability –** 5pts; with 5 yr. or greater warranty – 10 pts.
- **Technical Merit** - up to 35 pts. Tech Review by NREL
- **Readiness –** 5 to 15 pts; depending on written commitment for matching funds by application deadline
- **Small ag producers/Small businesses –** 5 to 15 pts.
- **Previous grantees –** no grant last 2yrs. – 10 pts.
- **Return on investment –** 1 to 5 pts.; Less than 4 yrs = max. pts.

How to get information!

- NJ USDA Rural Development – Home Page - www.rurdev.usda.gov/nj/
- Renewable Energy portal - www.rurdev.usda.gov/nj/reg.html
- USDA Section 9006 Website – www.rurdev.usda.gov/rbs/farmbill/2005NOFA/nofa05navigate.htm

Applications

Submit a complete application postmarked no later than June 27, 2005 to:

Attn. Community & Business Programs Division
USDA Rural Development
5th Floor North, Suite 500
8000 Midlantic Drive, Mt. Laurel, NJ 08054

TEL 856-787-7750

FAX 856-787-7757

michael.kelsey@nj.usda.gov

Thank You