



Overview of New Jersey's Clean Energy Program™

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Office of Clean Energy
NJAE Program
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New Jersey



How to Manage CO₂ , GHG Emission , Global Warming and Sea Level Rise

Make the Energy Cleaner or Renewable
and/or
Use the Energy More Efficiently

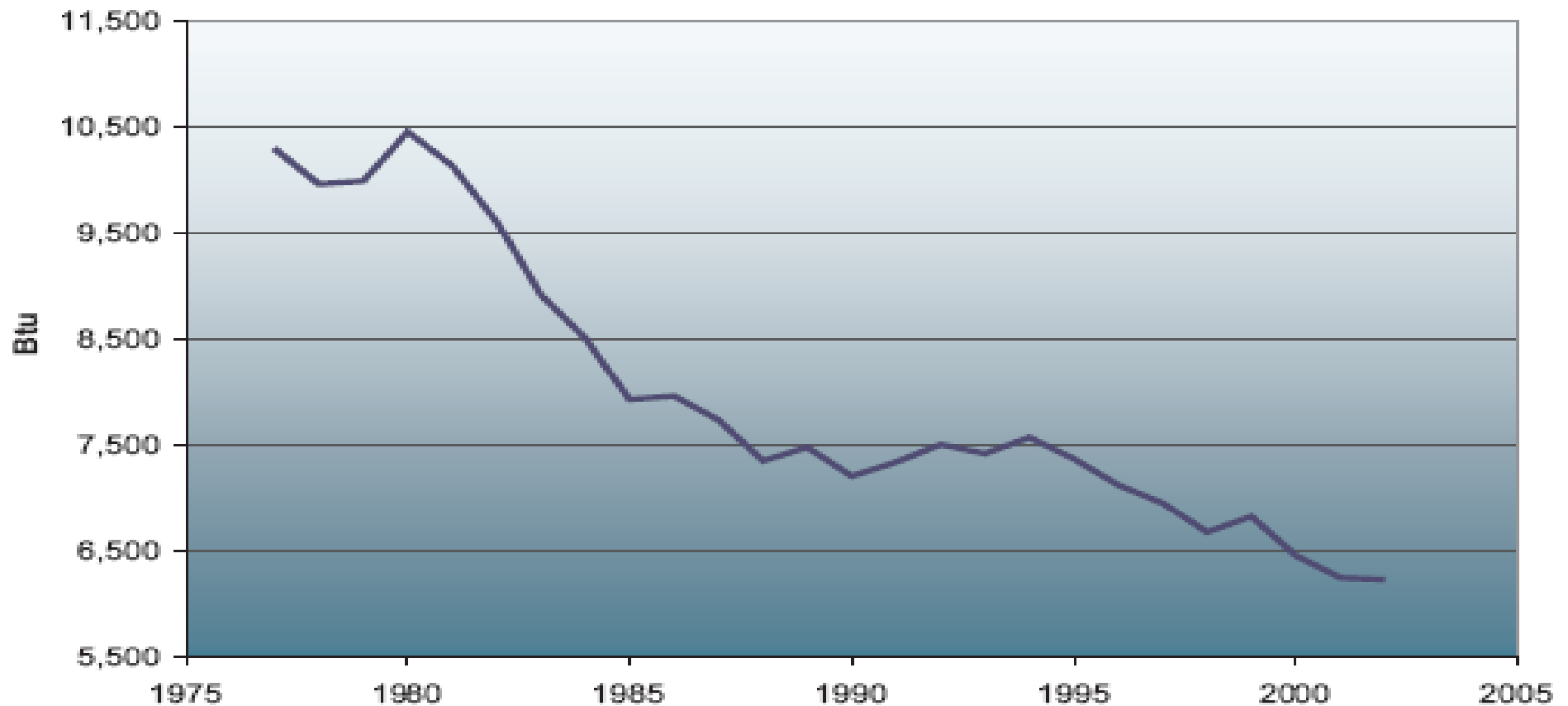


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New Jersey Energy Use per Dollar of Gross State Product (2005 dollars)



Source: NJDEP Energy Use & Renewable Energy Sources - UPDATED - November 2006

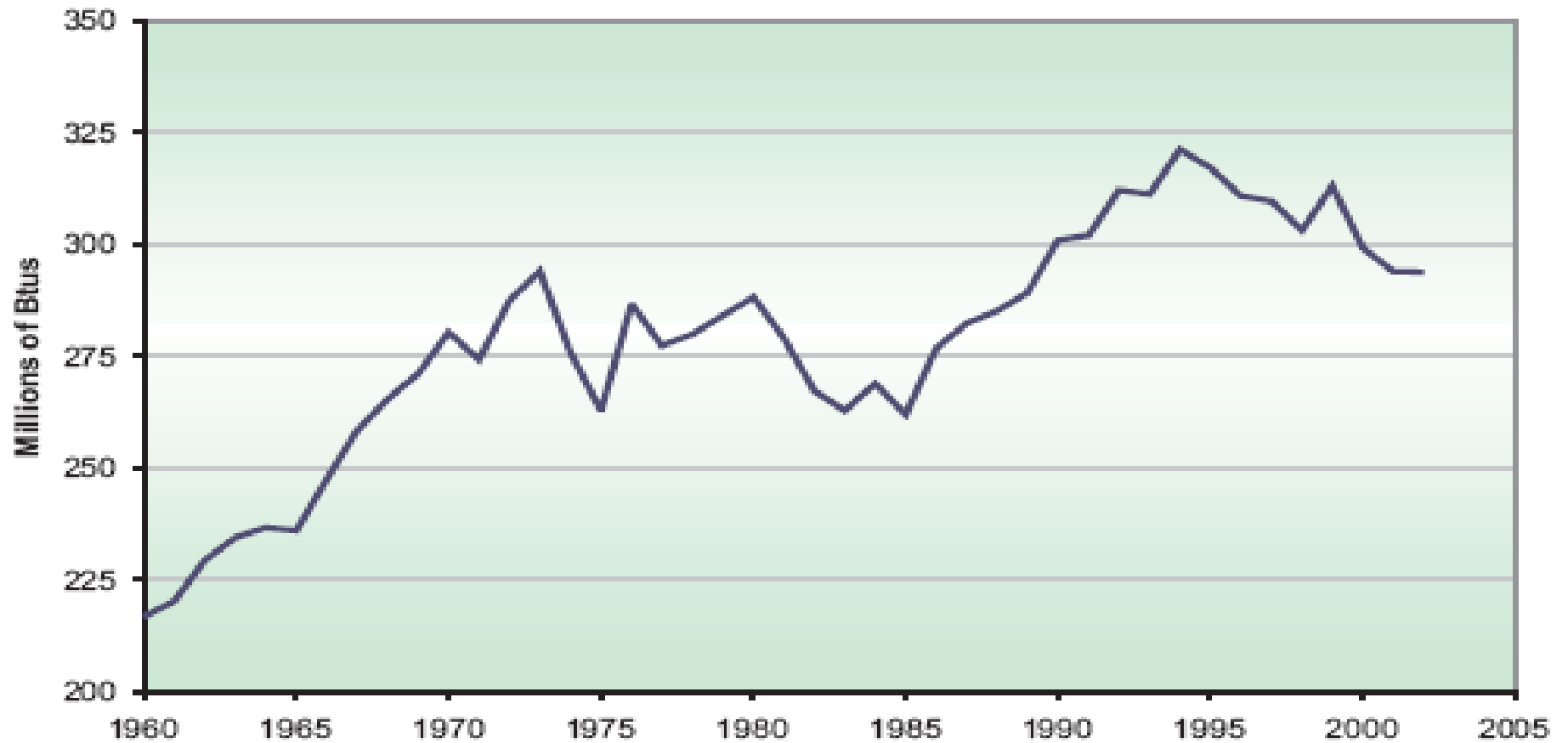


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New Jersey Annual Energy Use per Person



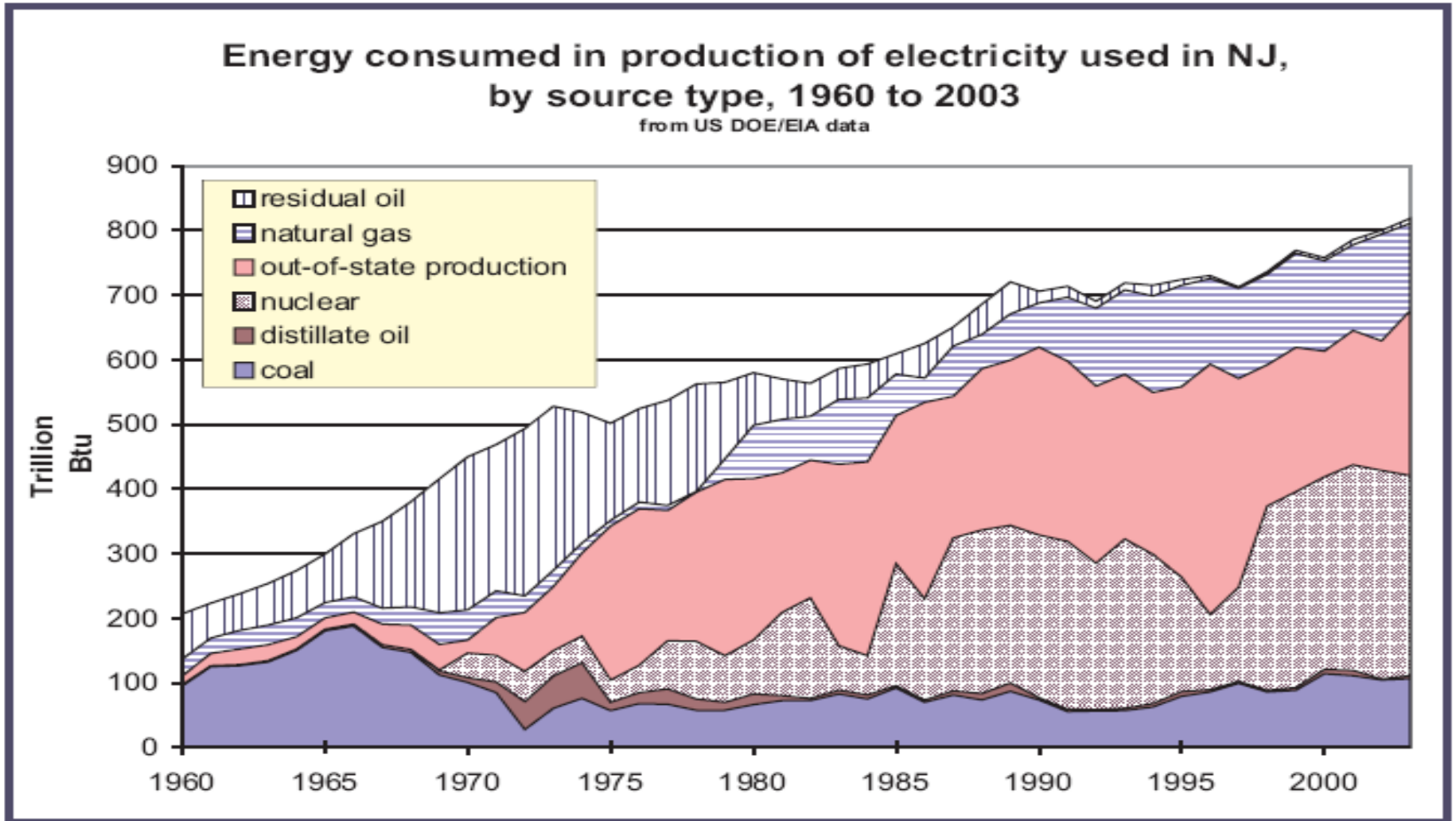
Source: NJDEP Energy Use & Renewable Energy Sources - UPDATED - November 2006



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New Jersey's Electricity Demand



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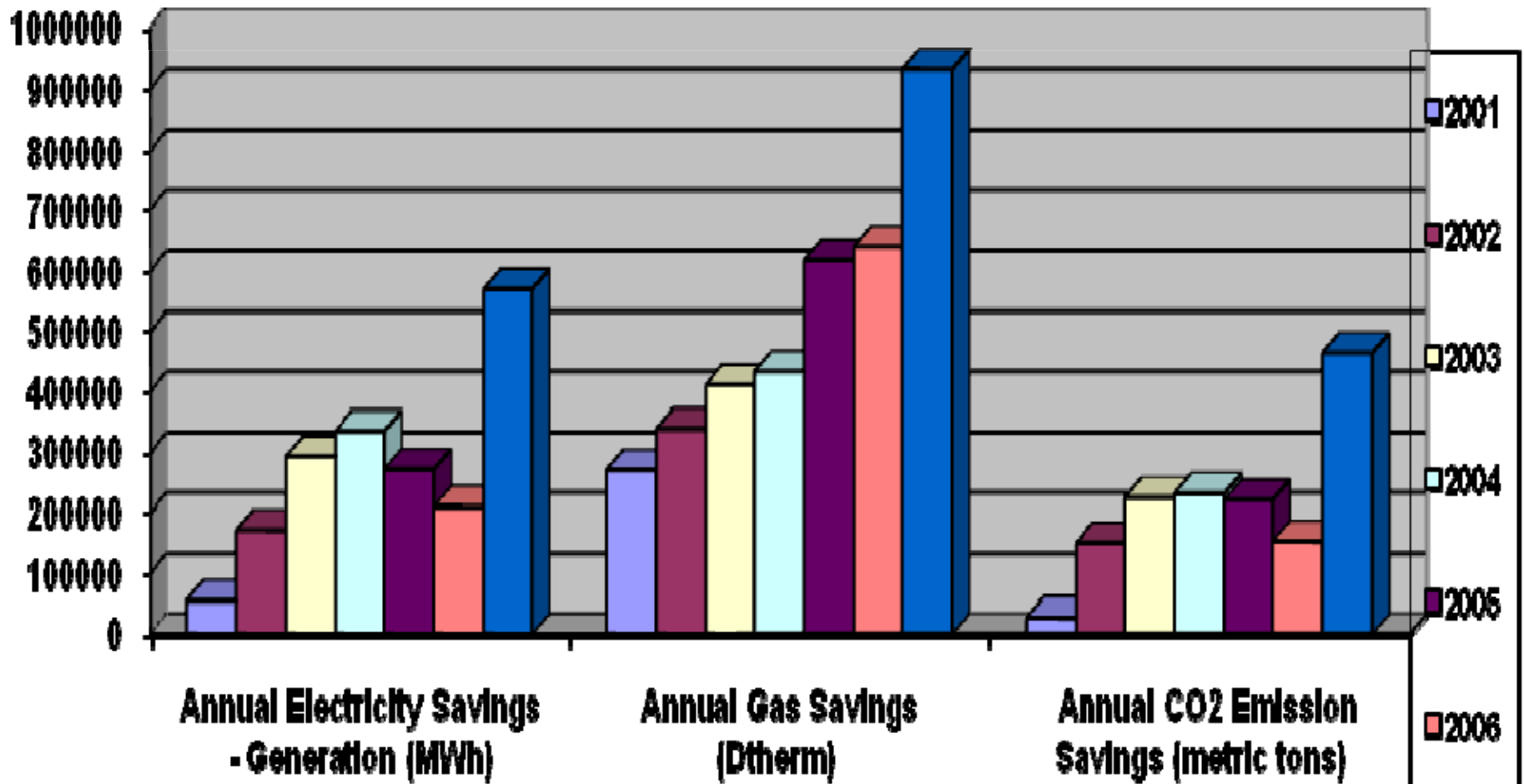


*New Jersey's Clean Energy
Program 01 – 08 Funding Level
Non-bypassable fee - all electric
and natural gas customers*



Year	Total (\$M)	EE (\$M)	%	RE (\$M)	%
2001	\$115	\$86.25	75%	\$28.75	25
2002	\$119	\$89.25	75%	\$29.75	25
2003	\$124	\$93	75%	\$31	25
2004	\$124	\$93	75%	\$31	25
01 - 04	\$482	\$361.5	75%	\$120.5	25
2005	\$140	\$103	74%	\$37	26%
2006	\$165	\$113	68%	\$52	32%
2007	\$205	\$123	60%	\$82	40%
2008	\$235	\$133	56%	\$102	44%
05 – 08	\$745	\$472	63%	\$273	37%
Total	\$1,227	\$833.5	68%	\$393.5	32%
Avg	\$153.4	\$104.2		\$49.2	





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Save Energy & Save \$\$\$

Throughout Your **Whole House, Whole Community**

- Maximize savings by adopting a holistic and integrated approach to energy use in your home and your community
- From unsealed windows to inefficient gas heating equipment, there are many things residents can do to save
- The place to start is an online home energy assessment or a Home Performance with ENERGY STAR® audit to identify and prioritize saving opportunities



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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.

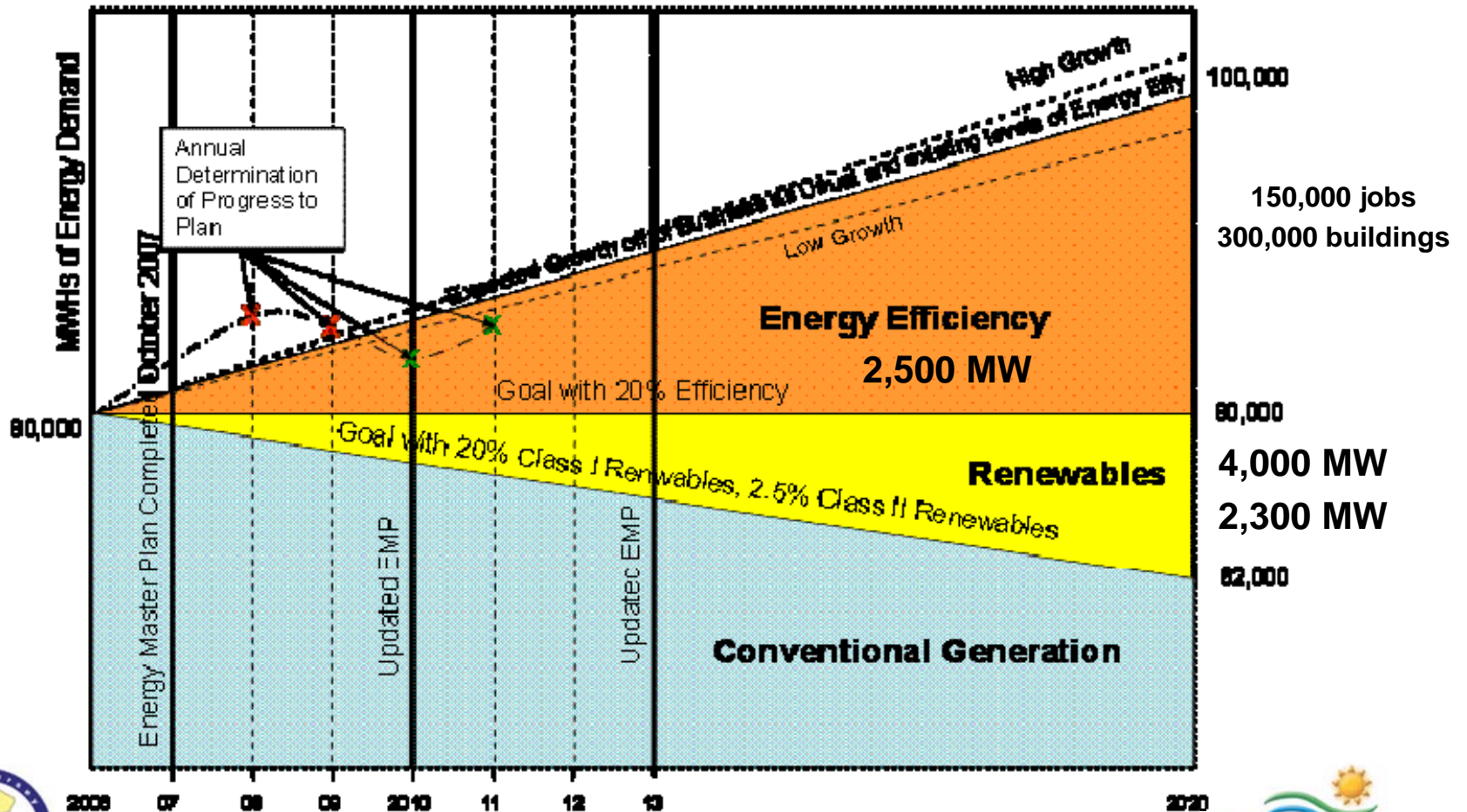


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NJBPU EMP Planning Approach



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New Jersey ENERGY STAR® Homes



ENERGY STAR Homes
(New Jersey)
– 32,000 Homes certified



ENERGY STAR Homes
(National)
– 850,000 Homes certified

The ENERGY STAR Label is the Symbol For Energy Efficiency
(Recognized by 60% of American consumers)



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What types of housing are eligible for NJ ENERGY STAR Homes?

- **Custom homes**
- **Single-family production homes**
- **Townhouses**
- **Multi-family apts** (3 stories or less, as well as mid- and high-rise)
- **Active adult single-family and low/mid-rise senior housing**
- **State and Federal funded affordable housing**



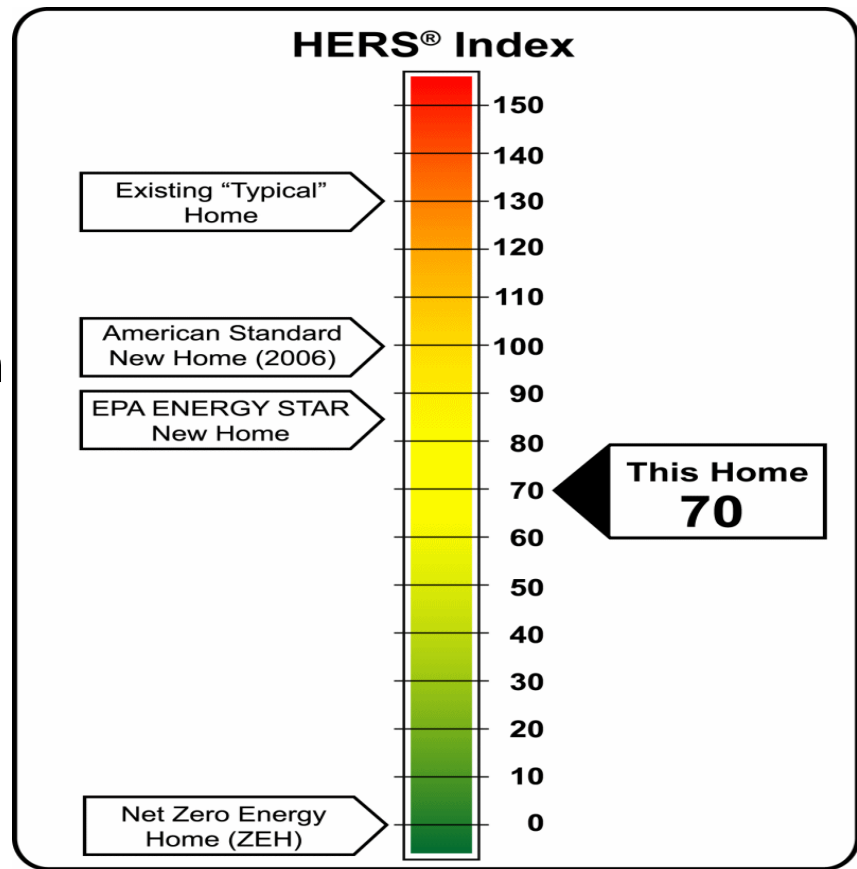
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What is an ENERGY STAR Home?

- Energy efficient performance
 - 15% more energy efficient than IECC 2006;
 - scores 85 or less on the Home Energy Rating System (HERS) Index
- Third-party verified
- Credible: government backed label





ENERGY STAR Homes- Typical Features

- **Envelope**
 - Improved Insulation
 - Tight Construction
 - Advanced Windows
- **ENERGY STAR Labeled Light Fixtures & Appliances**
- **Mechanical Equipment**
 - High Efficiency HVAC
 - Tight Ducts
 - Right-Sized HVAC
 - Whole House, Controlled Ventilation



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Diagram of Leaky Home:



In typical homes, air leaks are often found at holes and penetrations for plumbing, wiring, lighting, and ductwork.

Energy

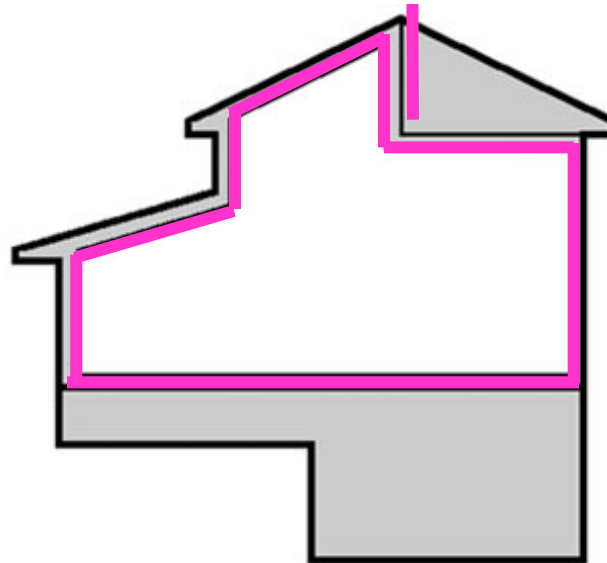




In an ENERGY STAR Home... Air Barrier and Thermal Barrier Alignment

• Insulation is installed in full contact with the air barrier to provide continuous alignment of the insulation with the air barrier.

- ***Continuous***
- ***Full contact with interior air barrier (e.g., sheet rock)***
- ***Fully enclose conditioned space***



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Tightly Sealed Ducts

- **ENERGY STAR Homes have tightly sealed ducts.**



- Tightly-sealed and well-insulated ducts keep you more comfortable and increase the energy efficiency of your home. Sealing also helps improve indoor air quality by reducing the risk of dust, moisture, pollen, pests, and noise from entering the ducts and circulating throughout your home.




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How you know it's an ENERGY STAR Home...




NEW JERSEY ENERGY STAR HOMES

New Jersey ENERGY STAR Homes Certificate

This certifies that the home built at
123 Main Street
Anytown, NJ 08001

meets New Jersey ENERGY STAR Homes Program guidelines for energy efficiency and qualifies for the ENERGY STAR label issued by the U.S. Environmental Protection Agency. ENERGY STAR labeled homes protect the environment by using less energy.



New Jersey's Clean Energy PROGRAM
Your Power to Save
njcleanenergy.com

The New Jersey ENERGY STAR Homes Program is brought to you by the New Jersey Board of Public Utilities' Office of Clean Energy and New Jersey's Clean Energy Program™.

This certificate does not constitute a warranty. Neither the Home Energy Rating Provider issuing this certificate nor the New Jersey Board of Public Utilities provides a warranty or representation of any kind, expressed or implied, regarding the equipment or features that are part of this home, or the actual energy performance, comfort, durability, indoor air quality or radon levels of this building. Builder is responsible for compliance with all applicable codes and standards.



AN ENERGY STAR® QUALIFIED HOME

Address:

Built by:

Verified by:

Date:

Optional information:

This home has been independently verified through an EPA-approved sampling protocol to meet ENERGY STAR's strict guidelines for energy efficiency. Each ENERGY STAR qualified home can keep 4,500 lbs of greenhouse gases out of our air each year.

www.energystar.gov

Labels and certificates are provided to builders for each qualified home



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NJ ENERGY STAR Homes Marketing Support for Builders

- Statewide Media Campaign
- Site Signs and Consumer Brochures
- Program Co-Op Ad Campaign with EPA
- Co-op Advertising Program for Builders
- Toolkit for Demonstration Homes
- NJ ENERGY STAR Homes Banners
- Homeowner Kits



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Along With New Marketing Support in 2008, Changes are coming in 2008...

- **Builders will have choices:**

The Introduction of Tiers...

Tier 1- ENERGY STAR (the current performance level, HERS Index of 85 or less, plus all mandatory requirements); or an alternative prescriptive EPA National Builder Option Package (climate zone specific BOP)

Tier 2- ENERGY STAR with a HERS Index of 65 or less (approximately equivalent to the current Federal Energy Tax Credit level);

Tier 3- “Micro-load” (a customized high performance level at or approaching Net-Zero Energy).

Final Approval Pending From NJBPU



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For Builders of Multi-family Homes...

- A new High-Rise Multi-Family Building Pilot Program for multi-family buildings over three floors

(based on ASHRAE standard 90.1 instead of the Home Energy Rating System)

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Incentives *Simplified* for 2008

- Instead of Base + Equipment + Supplemental Incentives...
Now... a *Flat Dollar Amount based on Tier level*

<u>Building Type</u>	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 3</u>
Single Family	\$1,800	\$2,800	Custom
Multiple Single Family ("Townhouse")	\$1,300	\$1,800	
Multiple-Family Building ("Multifamily")	\$1,000	\$1,200	

Note: Homes with over 4000 square feet of conditioned floor area are required to meet Tier 2 performance criteria in order to qualify for the direct incentives (above) and marketing support. Note also that Tier 2&3 incentives are in addition to available Federal Energy Tax Credits, if applicable.

Final Approval Pending From NJBPU



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Residential Energy Efficiency Programs



Save up to 30% on energy costs
and increase the comfort, safety, and
durability of your home with New Jersey's
Home Performance with ENERGY STAR® Program



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Home Performance with ENERGY STAR® offers:

- **A comprehensive assessment:** We look at your house as a whole and find out how each component affects the other...and recommend ways to improve your home and its performance!
- **A comprehensive solution:** Home Performance is your chance to reduce energy use and solve common home problems by looking at the big picture!
- **An opportunity** for you to do your part for the environment!



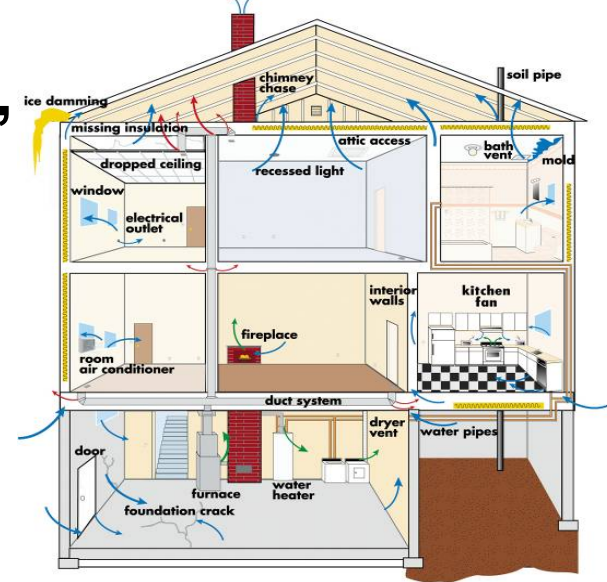
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Home Performance with ENERGY STAR®...Participant Benefits

- How to lower your energy costs,
- Improve your comfort and,
- Ensure your home environment is healthy & safe.



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Who can participate in the program?

- New Jersey homeowners of 1-4 unit buildings



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Participating Contractors

- Companies accredited by the Building Performance Institute (BPI)* may participate in the program.
- Technicians performing the audits must also be individually BPI certified, demonstrating that they have the knowledge to test your home and make recommendations based on building science principles.

*BPI is a national organization that sets the technical standards in home performance contracting



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What are the financial incentives?

- New for 2008! Homeowner Incentives increase as the measures selected and completed become more comprehensive:
 - Install at least 2 eligible measures...package does not meet SIR 1.0; **5.99% financing or 10% cash to consumers, up to \$2,000**
 - Install at least 3 eligible measures... package has SIR =>1.0; **3.99% financing or 20% cash to consumers, up to \$4,000**
 - Install all recommended cost-effective efficiency measures, package has SIR =>1.0 with projected heating energy savings of at least 25% - **50% cash rebate, up to \$5000**



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Financial Incentives new for 2008!

- Homeowners can now receive incentives to offset the cost of the their Comprehensive Home Assessment
- The Program will provide a \$250. “Assessment” incentive if a homeowner completes a minimum of \$2,500 worth of measures within 3 months of their Home Assessment.



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Are Contractor Incentives Available?

- Yes, if you become a BPI Accredited firm with BPI certified technician(s) and enroll in the Program you may be eligible for incentives that include rebates for;
 - Equipment (50% reimbursement)
 - Co-op Advertising (25% reimbursement)
 - Accreditation/Certification (75% reimbursement)
 - Job Completion (from \$200 to up to \$1,400)

Please Contact a Program Representative for Details

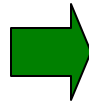


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The Solar Market



- **NJ is 2nd in the US and 5th in the world in installations.**
- **Over 170 experienced installers and 2,500 customers.**
- **Installed costs at \$8,000 per kw:**
 - **7-10 year straight payback**
 - **10-15 years discounted cash flow**
- **Solar market transition underway**



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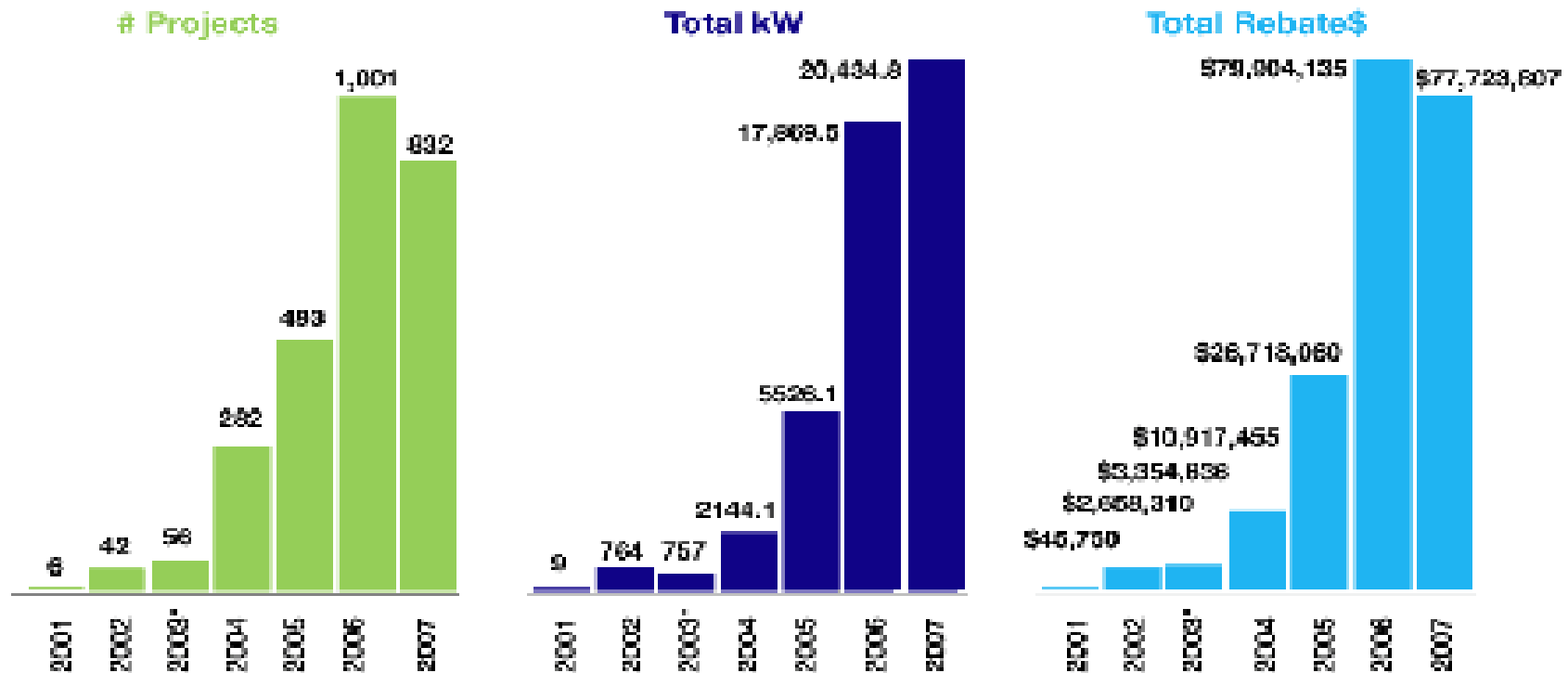


Renewable Energy : Solar On-site Generation



Solar Installation Projects (CORE)

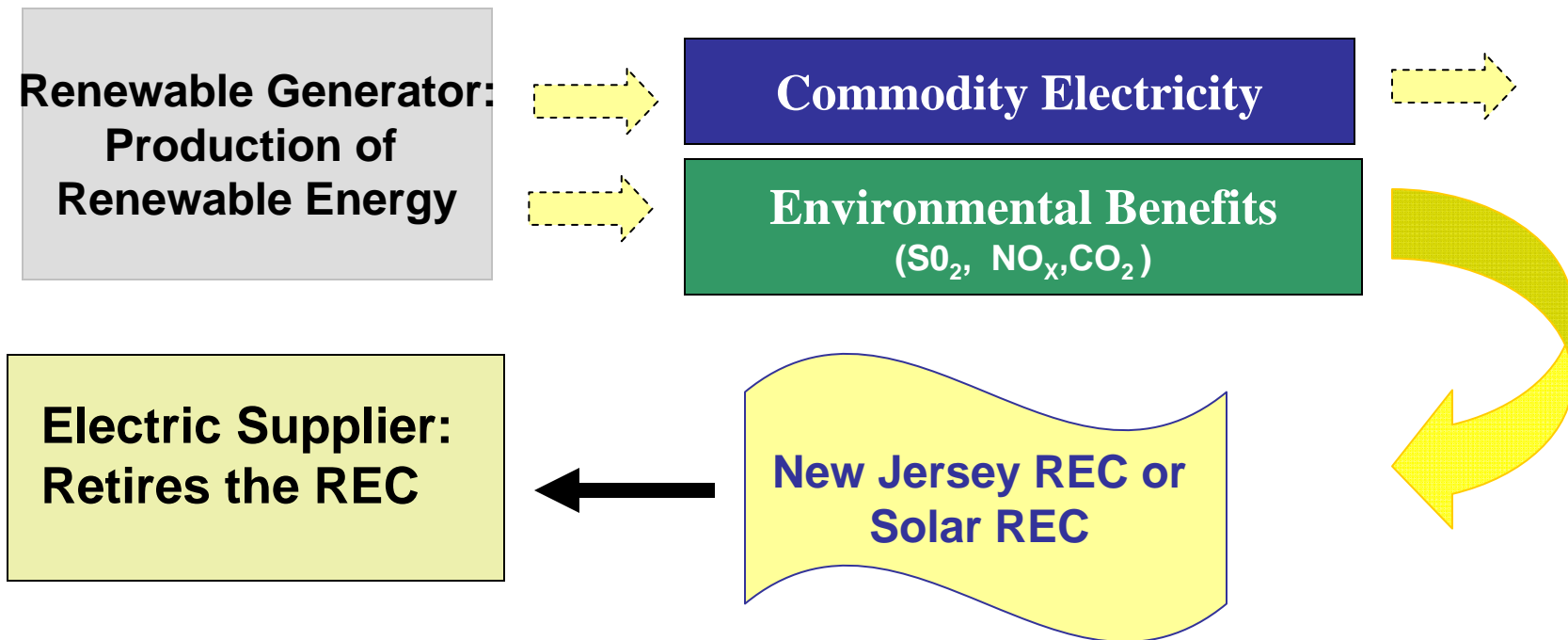
**All New Jersey Solar Installation Projects (CORE)
(2001 - Dec. 31, 2007)**



*Total NJCEP + Utilities
CORE program managed by utilities 2001 through mid-2003
2007: includes Check Requests Pending Payment; preliminary results as of 12/31/07.

New Jersey

Renewable Energy Certificates (RECs)



Certificates represent the environmental benefits and other attributes associated with electricity generated from a renewable energy generator .

May be traded independently of underlying electricity.



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New Jersey Residential 10 kW Solar Electric System



Installed Cost: **\$77,500**

NJCEP Rebate:
\$0.00

Federal Tax
Credit: \$2,000

Out of Pocket
Expense : \$75,500



assuming a 12,000 kWh annual energy usage

Electric cost savings /
Net Metering: \$1,500/ yr

SRECs Income:
\$6,050 / yr

\$502/ SREC

Total savings :
\$7,550

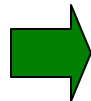
Payback Period: 10 yrs

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The Wind Market



- **The required wind resource (>11mph) is along the shore and highlands**
- **Small wind projects have run into home rule issues; model ordinance adopted by Ocean Gate**
- **\$5 million in 2008 funds set aside for wind (and biopower) projects**
- **Rule changes required to support Community Wind**



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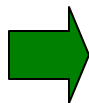




The Biopower Market



- **Rutgers study shows 5.2MDT available to power 1,1075MW**
- **Landfills are largely tapped, wastewater treatment facilities are high potential**
- **Other target markets include farms, wood and food processing industries**
- **MSW is now a Class 2 resource**

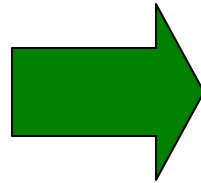


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CORE Renewable Energy Program



- For onsite/"behind meter"
- Net metering up to < 2MW
- Rebates for <10kw systems
- Renewable Energy Credits



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Comfort Partners provides energy saving measures to low income customers at no cost to improve their energy affordability and comfort.

Energy efficiency measures may include air sealing against drafts, insulation, and duct sealing, installation of high-performance products and appliances such as compact fluorescent lighting and ENERGY STAR refrigerators, and performance of health and safety testing to detect, reduce, or prevent the existence of dangerous combustion by-products.

In 2006 The Comfort Partners Program served **7,190** households and delivered a total of **10,277 MWh** in annual electric savings.



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ENERGY STAR® Qualified Products:

New Jersey's Clean Energy Program™ supports ENERGY STAR Qualified products such as:

Compact fluorescent lights (CFLs) and Fixtures through retail purchase price buy downs and we are exploring creative distribution opportunities

Energy Star Room Air Conditioners through a seasonal incentive program

Energy Star Clothes Washing Machines through a year round incentive program.

Energy Star Dehumidifiers through a new incentive offering to come out in 2008

Energy Star Windows through an energy Star Windows Sales training

Other promotions to follow – watch on www.njcleanenergy.com



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Did you know...

New Jersey's Energy Star Products Program was responsible for distributing over 3 Million CFLs and 38,000 efficient fixtures in a seasonal campaign in 2007.

- CFLs use 75% less lighting than standard incandescent
- Save 30% in energy costs over a bulb lifetime
- Average life of a bulb is between 3 & 5 years depending on use.
- EPA Estimates one bulb can reduce as much green house gas emission as .06 cars removed from the road



Retail CFL program promotion will begin again in mid-May.



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New Jersey's Energy Star Products Program offers incentives on :

- ***Energy Star Clothes Washing Machines***
 - *2 Tiers pay \$50 or \$75 per unit*
- ***Energy Star Room Air Conditioners***
 - *Seasonal incentives, available May through September*
 - *Pays \$20 per unit (maximum 2 per customer)*
- ***Energy Star Dehumidifiers***
 - *A new, year-round incentive will pay \$25 per unit*
 - *EPA estimates one unit is the equivalent of .3 cars removed from the road.*



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HVAC Rebate Programs

COOLAdvantage for high efficiency Central Air Conditioning Systems and Heat Pump Systems



WARMAvantage for high efficiency natural gas Heating Systems and Domestic Water Heating



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