

## **Who Can Participate?**

### **All New Jersey C&I Electric and Gas customers**

(who pay societal benefits, i.e., not served by municipal utility)

### **Opportunities for all size and type projects:**

- **New construction** (new buildings & additions)
- **Major renovation** (gut-rehabilitations)
- **Remodeling**
- **Equipment replacement**



# Design Assistance Grants

For Facilities of Minimum of 50,000 Sq Ft  
OR HVAC > 150 tons and Demand > 75kW

## Comprehensive Design Support

At conceptual design stage of construction project

- Brainstorming: \$1,000 grant
- Energy Modeling: \$5000 for 50K / sf, then \$.03 / sf for each additional sf
- Incremental design incentive: up to \$5,000

## Modified Design Support

Design substantially complete, but before bidding

- Goal to re-consider energy saving potential
- Up to \$5,000 on case-by-case basis

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## Pre-approved Technologies

- Electric Chillers (\$8 to \$170 / ton) [...more](#)
- Natural Gas Cooling [... more](#) (\$185 to \$450 / ton)
- Electric Unitary HVAC Systems (\$40 to \$92 / ton) [... more](#)
- Ground Source Heat Pumps (\$370/ton) [... more](#)
- Gas Heating (\$300 minimum / furnace or boiler) & DHW Heating (\$50 minimum / heater) [... more](#)
- Variable Frequency Drives [... more](#)  
VAV Systems or ChW Pumps (\$60 to \$155 / HP)
- NEMA Premium Motors - 1 to 200 hp (\$45 to \$700 / motor) [... more](#)
- Prescriptive Lighting (\$10 to \$284 / fixture) [... more](#)
- LED Traffic Signal Lamps (retro-fit) (\$20 for 8" and \$35 for 12" lamps)
- Lighting Controls (\$20 to \$75 / unit) [... more](#)

## Chiller Incentive Range

Type	Size (tons)	Max kW/ton	Incentive Range per ton
<b>Air-cooled</b>	<b><math>\leq 150</math></b>	<b>1.20</b>	<b>\$14 - \$52</b>
	<b><math>&gt; 150</math></b>		<b>\$8 - \$46</b>
<b>Water-cooled</b>	<b><math>&lt; 70</math></b>	<b>0.75</b>	<b>\$16 - \$54</b>
	<b><math>70 &lt; 150</math></b>	<b>0.75</b>	<b>\$25 - \$60</b>
	<b><math>150 &lt; 300</math></b>	<b>0.62</b>	<b>\$16 - 141</b>
	<b><math>\geq 300</math></b>	<b>0.53</b>	<b>\$12 - \$170</b>

### Notes:

1. May qualify under full load or partial (PLV) kW / ton, but not both.
2. Incentive for chillers with factory-installed VFD to be calculated at the appropriate PLV kW / ton - No extra incentive for VFD.
3. Appropriate ARI data must be supplied with application.

# Natural Gas Cooling

Gas Absorption Chillers (based on full or part load COP)		
Size (tons)	Indirect-fired	Direct-fired
< 100	$\geq 1.1$ COP \$450 / ton	$\geq 1.1$ COP \$450 / ton
100 to 400	$\geq 1.1$ COP \$230 / ton	$\geq 1.1$ COP \$230 / ton
> 400 (only 2-stage)	$\geq 1.1$ COP \$185 / ton	$\geq 1.1$ COP \$185 / ton
Regenerative Desiccant Units		
Based on Process Airflow	Eligible when matched with core gas or electric cooling equipment. Incentive is \$1.00 per CFM	
Gas Engine-driven Chillers – Custom Measure with efficiency levels and incentives determined on a “case-by-case” basis		

# Electric Unitary HVAC Incentive Summary

Capacity (tons)	Unitary/Split Air Conditioners and Heat Pumps *	
	Minimum Qualifying Efficiency	Incentive Amount
< 5.4	14.0 SEER	\$92 / ton
>= 5.4 to 11.25	11.5 EER	\$73 / ton
>=11.25 to 20	11.5 EER	\$79 / ton
>= 20 to 30	10.5 EER	\$79 / ton
Packaged Terminal Systems (PTAC's)		
< 0.75	12.0 EER	\$65 / ton
0.75 to 1.0	11.0 EER	\$65 / ton
> 1.0	10.0 EER	\$65 / ton
Water Source Heat Pumps		
All Capacities	14.0 EER	\$81 / ton
Central DX Air Conditioning Systems		
> 30 to 63	9.5 EER	\$40 / ton
> 63	9.5 EER	\$72 / ton

\* Note: Dual Enthalpy Economizer Controls Incentive: \$250 per unit

# Ground Source Heat Pump Systems

- Environmentally friendly and high-efficient way to heat and cool
- Uses thermal reserve of earth to exchange BTU's with the building
- Energy Star rated equipment only

Ground source heat pumps	
Open Loop	16.0 EER (min) \$370 per ton
Closed Loop	

# Natural Gas Space & DHW Heating

Gas-Fired Boilers		
Capacity	Minimum Efficiency	Incentive
< 300 MBH	85% AFUE	\$2 per MBH \$300 min
>300 MBH	Varies based on unit size & whether it produces hot water or steam - see web site (\$1.00 -1.75 per MBH)	
Gas Furnaces		
All Sizes	90% or better AFUE	\$300 per furnace
Gas Water Heaters		
<= 50 gal.	0.62 or better energy factor	\$50 per heater
> 50 gal to 4000 MBH	Minimum efficiency and incentive varies based on unit capacity - see web site (\$1.00 – 2.00 per MBH)	
Gas-Fired Water Booster Heaters		
<= 100 MBH	\$35 per MBH	
> 100 MBH	\$17 per MBH	

# Variable Frequency Drives

<b>Centrifugal Fan Applications in Variable Air Volume HVAC Systems</b>	
Controlled Motor HP	Incentive per total HP controlled: <u>retro-fit only</u>
5 < 10	\$155
10 < 20	\$120
>20	\$65
<b>Chilled Water Pump Motors for HVAC Systems</b>	
>= 20 HP	\$60 per VFD rated HP
All other VFD applications must be submitted under Custom Measures with incentives determined on a case-by-case basis	

## Notes:

- VFD must have an input line reactor or isolation transformer.
- VFD must be installed in a system with pressure sensors (or other applicable sensor devices) in the flow stream.



## Variable Frequency Drives (cont'd)

**Rotary Screw Air Compressors** (for new compressors outfitted with VFDs, providing compressed air for typical plant use)

25 to 29 HP -----	\$5,250
30 to 39 HP -----	\$6,000
40 to 49 HP -----	\$7,200
50 to 59 HP -----	\$8,000
60 to 199 HP -----	\$9,000
200 to 249 HP -----	\$10,000
>= 250 HP -----	\$12,500

Retrofit of VFD to existing air compressor may qualify as a custom measure

One VFD compressor eligible per system, operating 2000 hr / yr (min)



# NEMA Premium Motors

## Three-phase motors

- Can consume 60% of a production facility's electrical resources
- Account for up to 50% of a commercial facility's HVAC electrical load

***NEMA Premium motors have paybacks from six months to three years!***

## Qualification for Incentives

- ✓ 1 to 200 HP, 3-phase, 1200, 1800 or 3600 rpm, ODP or TEFC
- ✓ Operate a minimum of 2,000 hrs / year
- ✓ Meet "**NEMA Premium**" qualifying efficiencies
- ✓ Incentives from \$45 to \$700
- ✓ > 200 HP, submit as Custom Project

## Prescriptive Lighting Incentives - for Existing Facilities

Replacement of T-12, HID, or Incandescent fixtures with T-5 or T-8 fixtures:	Wattage of replaced fixture	Type of new fixture	Incentive
HID, T-12, Incandescent	$\geq 1000$ watts	T-5, T-8	\$284
HID, T-12, Incandescent	400 to 999 watts	T-5, T-8	\$100
HID, T-12, Incandescent	250 to 399 watts	T-5, T-8	\$50
HID only	175 to 249 watts	T-5, T-8	\$43
HID only	100 to 174 watts	T-5, T-8	\$30
HID only	75 to 99 watts	T-5, T-8	\$16
T-12 only	$< 250$ watts	T-5, T-8 (1 & 2 lamp)	\$25
T-12 only	$\geq 250$ watts	T-5, T-8 (3 & 4 lamp)	\$30
Retrofit of T-12 fixtures to T-8 fixtures with electronic ballasts	New ballasts and lamps	1 & 2 lamp retro-fit	\$10 per fixture
		3 & 4 lamp retro-fit	\$20 per fixture
Retrofit of T-8 fixtures by permanent de-lamping and new reflectors	N/A	N/A	\$20 per fixture



## Prescriptive Lighting Incentives - For Existing Facilities

<u>Type of Fixture</u>	<u>Requirement</u>	<u>Incentive</u>
LED Exit Signs	> 75 kW Load (12 month average meter load)	\$ 10 per new fixture
LED Exit Signs	<= 75 kW Load (12 month average meter load)	\$ 20 per new fixture
Compact Fluorescent (New Fixtures only)	Hard wired and replacing incandescent lamps	\$ 25 for 1 lamp \$ 30 for 2 lamp
Pulse Start Metal Halide	> 150 watts (Including Parking Lots)	\$ 45 per fixture
LED	Low Bay Parking Lot	\$ 43 per fixture
New Construction or Complete Renovation	N/A	Performance Based Only



# Lighting Control Incentives

Fixtures controlled to comply with Prescriptive Lighting incentive requirements

Types of Controls	Fixtures < 14 ft high	Fixtures >= 14 ft high
Occupancy Sensor – On/Off*	\$20/control**	NA
Wall-mounted		
Remote-mounted	\$35/control**	
Daylight Dimming (Adjusts for natural lighting)	\$25/fixture controlled	\$75/fixture controlled
Occupancy Sensor – Hi/Lo with Step Ballast***	\$25/fixture controlled	\$75/fixture controlled

\* Must control 2 or more fixtures & can't have manual override to the "ON" position

\*\* Existing facilities only      \*\*\* Space must be at least 250 square feet



## **Custom Electric Projects**

### **Opportunities for non-pre-qualified technologies**

- Submit Custom Electric Equipment application and technical study estimating:
  - Savings over established “base-line”, for example, 20 kW minimum demand reduction or 25,000 kWh saved per year
  - Life-cycle costs vs. life-cycle savings
- If project qualifies:

**Incentive of up to 80% of incremental cost of equipment above the baseline or a two year pay-back, whichever is less**



## **Custom Gas Projects**

### **Opportunities for non-pre-qualified technologies**

Submit Custom Gas Equipment application and technical study proposal

- Market Manager must review & provide conditional approval for each proposal prior to commencement of technical study
- No minimum natural gas savings threshold required

If project qualifies:

Incentive of up to 80% of incremental cost of equipment above the baseline or a two year pay-back, whichever is less

## **School Energy Education Program (Pilot)**

- **For Public K – 12 Public Schools in 6 to 9 Districts**
- **Approx 100 Schools to be Selected by State of NJ based on building characteristics**
- **Requires 24 months of energy consumption data to serve as baseline**
- **25% to 50% of energy savings returned to the “Green Schools Team” for reinvestment in energy saving equipment.**

## **Municipal / Local Government Audit (Pilot)**

- **Municipality requests proposal for an energy audit from contractor on approved NJ Dept of Treasury list.**
- **Municipality pays 25% of audit fee - if recommended upgrades are installed, the 25% fee is refunded to Municipality.**
- **Municipality participating is eligible for upgrade equipment installation through the Direct Install Program or the standard SmartStart Program.**
- **Target for 2008 Pilot is 100 Municipalities Participating**

## **Direct Install (Pilot)**

- **Retro-fit Program for customers with an average peak demand of 100 kW or less.**
- **Provides for direct installation by pre-qualified contractors , incentives and education are to encourage early replacement of eligible equipment.**
- **Qualifying customers are eligible for incentives up to 80% of installed cost of approved projects.**
- **Incentives are paid directly to the contractor**
- **Customer pays contractor remaining 20%.**

## **Pay For Performance (Pilot)**

- **For customers with average peak demand of more than 100 kW per year**
- **Incentives are linked directly to energy savings with a 20% reduction as the minimum goal based on simulation.**
- **Incentives range from \$5K to \$50K based on \$0.10 / sq ft.**
- **Milestone payments upon completion of Energy Reduction Plan, equipment installation, & measurement and verification.**
- **Incentive cannot exceed 50% of annual energy cost.**
- **EPA Portfolio Manager or LEED EB may be followed to validate savings, along with post Retrofit billing data.**

# Combined Heat and Power

(Capped at \$1 million per project)

## Goals:

- Enhance energy efficiency through on-site power generation with recovery and productive use of waste heat, while reducing peak demand on the electric power grid
- Encourage the use of emerging technologies

## Restriction:

- Any portion of the customer's load that is committed to an interruptible or peak load reduction program is not eligible for incentives.



## Combined Heat & Power Incentives (2007)

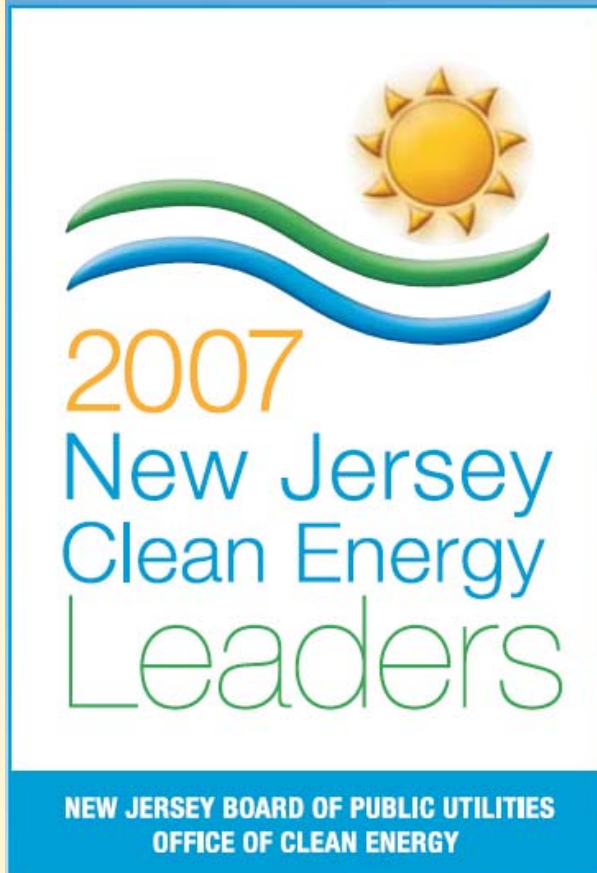
Eligible Technology (min 60% annual eff)	Incentives (\$/W) (\$1million max)	Maximum percent of project cost
Level 1: fuel cells not fueled by class I renewable fuels	\$4.00 per Watt	60%
Level 2: Micro- turbines, I/C engines, gas turbines	\$1.00 per Watt	30% (40% where a cooling application is used with CHP sys)
Level 3: Heat recovery or other mechanical recovery from electric generation equipment	\$0.50 per Watt	30%

Note: All systems, except for fuel cell stacks, must be covered by a 5-year warranty or service contract

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# Clean Energy Leadership Awards



## **EPV Solar**

CLEAN ENERGY MANUFACTURER

## **Ferreira Net Zero Project with Live Data Systems**

CLEAN ENERGY MARKET INNOVATOR

## **Middlesex County Showroom of Environmental Technology**

CLEAN ENERGY MUNICIPALITY

## **New Jersey Resources**

CLEAN POWER PURCHASER OF THE YEAR

## **Prout Funeral Home**

CLEAN ENERGY SMALL BUSINESS LEADER

## **Rowan University**

CLEAN ENERGY SCHOOL

## **Springfield Commons**

CLEAN ENERGY PROJECT OF THE YEAR

## **Trump Marina**

CLEAN ENERGY BUSINESS LEADER



**The 2008 New Jersey  
Clean Energy Conference  
& Leadership Awards** *Clean Energy. Smart Business.*

**The New Jersey Board of Public Utilities (NJBPU) has announced a date and location for the *2008 Clean Energy Conference & Leadership Awards* - to be held **October 17th** at the **Jersey City Hyatt Regency Hotel**.**

**This year's conference – “*Investing in a CleanTech Economy*” – will engage businesses and institutions in harnessing cleantech investment and growth opportunities.**

*2008 Clean Energy Conference & Leadership Awards*

**October 17, 2008**

**Jersey City Hyatt Regency Hotel**



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***Thank you for your time!***