



# NJ SmartStart Buildings 2011

Opportunities for Commercial, Institutional, and Industrial Customers





m

**Program Market Manager:**

**TRC Energy Services, Inc.**

**900 Route 9 North, Suite 104**

**Woodbridge, NJ, 07095**

**732-855-0033**

**Presenter:**

**Doug Shattuck, P.E.**

**Sr. Project Consultant**

**EAM Associates, Inc**

**732-267-1174**





# Program Management

**NJ Board of Public Utilities Office of Clean Energy**

**“Renewables & Residential”  
Market Manager:  
Honeywell Utility Solutions**

**Outreach Subcontractor:  
Conservation Services Group  
(732-218-3400)**

**“Commercial & Industrial”  
Market Manager:  
TRC Energy Services**

**Outreach Subcontractor:  
EAM Associates  
(732-267-1174)**



## NJ Clean Energy Program

**Introduced in 2001 as part of the NJ “Clean Energy Act” of 1999**

- **Funding comes from a portion of the “*societal benefits*” charge on your utility bills**
- **Provisions for commercial, institutional, & industrial projects, renewable energy system projects, and residential projects**
- **New construction projects must be in State-designated “Smart Growth” areas to be eligible for incentives, except for: K-12 public schools, municipally-owned buildings, hospitals, military facilities, or other public use facilities**



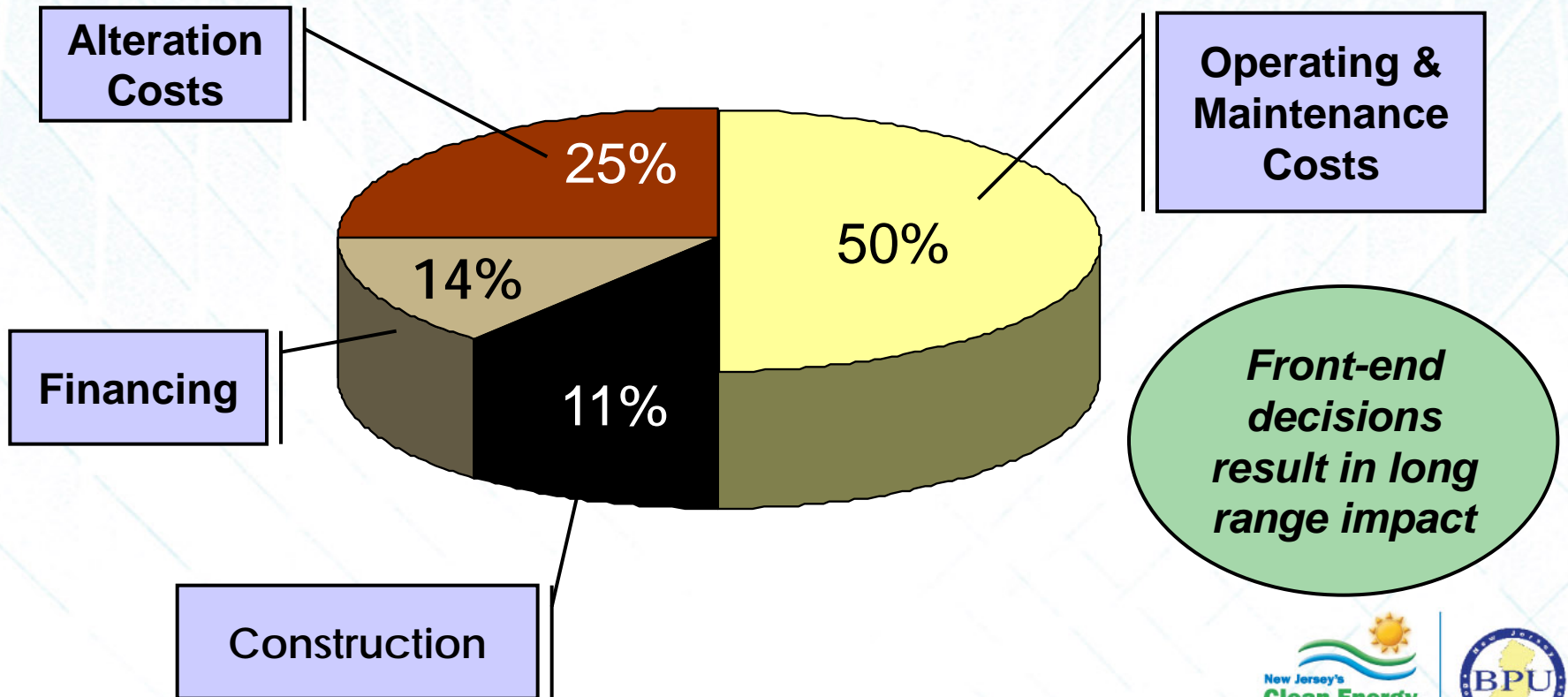
## Why Energy-Efficiency Programs?

- Obvious reasons are to save energy, reduce the demand for energy, and protect the environment through less emissions
- *Also to “Transform” the Market Place:*
  - change behaviors: think high efficiency first
  - encourage sustainable practices
  - & promote newer technologies & energy alternatives



## OWNERSHIP COST SUMMARY

(40-year building life cycle approximation)





## Who Can Participate?

All New Jersey C&I electric and gas customers who pay societal benefits to an investor-owned utility

Opportunities for all size and type projects:

- New construction (new buildings & additions)
- Major renovation (gut-rehabilitations)
- Equipment replacement
- Holistic facility energy upgrades





## Free Benchmarking Service

Compares your facility's energy usage to similar buildings nationwide

You provide a data collection form and 12 months of utility/fuel bills

We provide a benchmark report, which will include:

- Data analysis graphs
- An EPA Energy Star score (where applicable)
- Suggestions for improving operations and maintenance
- Guidance on NJCEP incentive options

Just send an e-mail inquiry to TRC Energy Services:

[benchmarking@trcsolutions.com](mailto:benchmarking@trcsolutions.com) or go to  
[njcleanenergy.com/benchmarking](http://njcleanenergy.com/benchmarking)







## Original Program Incentives for:

- Pre-Qualified Equipment
- Custom Measures with energy-saving potential

Note: To receive incentives, installing contractor must pay **prevailing wage** for any project with an installed cost of \$14,187 or more.



## Pre-approved Technologies

- Electric Chillers  
(\$8 to \$170 / ton)
- Natural Gas Cooling  
(\$185 to \$450 / ton)
- Electric Unitary HVAC Systems  
(\$40 to \$92 / ton)
- Ground Source Heat Pumps  
(\$450 to \$750 / ton)
- Gas Heating (\$300 minimum /  
furnace or boiler) & DHW  
Heating (\$50 minimum / heater)
- Variable Frequency Drives  
(\$60 to \$155 / HP)
- NEMA Premium Motors - 1 to  
200 hp (\$40 to \$700 / motor)
- Prescriptive & Performance  
Lighting (\$10 to \$200 / fixture)
- Lighting Controls  
(\$20 to \$75 / unit)
- Occupancy Controlled T-stats  
(\$75 each for hospitality &  
institutional facilities)





## Prescriptive Lighting Incentives for Existing Facilities

Replacement of T-12, HID, or incandescent fixtures with T-5 or T-8	Wattage of replaced fixture	Type of new fixture	Incentive per new fixture
HID, T-12, Incandescent	>= 1000 watts	T-5, T-8	\$200
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 & 4 lamp)	\$25
<u>Note:</u> T-12 to T-8 replacement or retrofit requires CEE qualified high performance T-8 or reduced wattage T-8 system			
Retrofit of T-12 fixtures To T-8 or T-5 fixtures with electronic ballasts	New ballasts & lamps required	1-4 Lamp retro-fit	\$10per fixture
If reflectors and de-lamping included	Ditto	1-4 Lamp retro-fit	\$20 per fixture
Retrofit of T-8 fixtures by permanent de-lamping, new: reflectors, electronic ballasts	Must result in more efficient sys	Must maintain existing lighting levels	\$15 per fixture if THD <20%







## Prescriptive Lighting Incentives (cont'd)

Type of Fixture	Requirement	Incentive
T-8 to reduced wattage T-8 (28W / 25W 4-foot)	Retro-fit with new ballasts and lamps required	\$10 per new 1-4 lamp fixture
LED refrigerated / freezer case lighting	Replacing fluorescent lighting in medium / low temp display cases	\$42 per 5-foot LED fixture \$65 per 6-foot LED fixture
LED Exit Signs	Facility peak demand $\leq$ 75 kW Facility peak demand $>$ 75 kW	\$20 per fixture \$10 per fixture
LED Parking lot lighting	Low bay parking lots	\$43 per fixture
Pulse Start Metal Halide	$>$ 150 watts (includes parking lots)	\$25 per fixture
Screw-in CFL PAR 38 or Par 30 with Aluminum Reflectors	Replacing incandescent lamps	\$7 per lamp replaced
Hard-wired Compact Fluorescent (New Fixtures only)	Replacing incandescent lamps	\$25 for 1-lamp fixture \$30 for 2-lamp fixture
Induction lighting fixtures to replace or retro-fit of HID fixtures $\geq$ 100W	Must include power coupler and generator & use 30% less watts	\$50 per fixture for retro-fit of HID \$70 per fixture to replace HID



## New for 2011 LED Fixture Incentives

(for replacement of incandescent, fluorescent, and HID only)

- Linear panels (2X2 troffers only) ..... \$50 per fixture
- Recessed down lights ..... \$35 per fixture
- Wall-wash lights ..... \$30 per fixture
- Display case lighting ..... \$30 per case
- Shelf-mounted display & task lights ..... \$15 per foot
- High-bay and low-bay fixtures ..... \$150 per fixture
- High-bay aisle lighting ..... \$150 per fixture
- Track or mono-point directional fixtures ..... \$50 per fixture
- Portable desk lamps ..... \$20 per fixture



## New for 2011 LED Fixture Incentives (cont'd)

- Parking garage luminaires ..... \$100 per fixture
- Bollard fixtures ..... \$ 50 per fixture
- Fuel pump canopy fixtures ..... \$100 per fixture
- Outdoor wall-mounted area luminaires ..... \$100 per fixture
- Outdoor pole/arm-mounted decorative luminaires ... \$175 per fixture
- Outdoor pole/arm-mounted area and roadway ..... \$175 per fixture  
luminaires

Note: All LED fixtures must be listed on Energy Star's or Design Lights Consortium's Qualified (DLC) Products Lists







## Performance Lighting Incentives for new construction projects only

Technology & Qualifiers	Reference Base-line	Incentive Hurdle	Incentive
New construction projects	ASHRAE Energy Standard 90.1 – 2007	5% more eff than baseline UPD (watts/sf)	\$1/watt/sf reduced below hurdle

- Incentives up to \$30.00 per fixture
- Light levels must comply with non-residential NJ codes (e.g. schools).
- Refer to the ASHRAE 90.1-2007 tables for Unit Power Density (UPD) baselines for various areas (each room or area must be evaluated independently).
- Apply for incentive by completing a Performance Lighting Worksheet and Application.





## Lighting Control Incentives

must control qualifying light fixtures

<b>Types of UL listed Controls</b>		
<b>Occupancy Sensor – On/Off*</b>	<b>\$20/control</b>	
<b>Existing facility: wall-mounted</b>		
<b>Existing facility: remote-mounted</b>	<b>\$35/control</b>	
<b>Occupancy Sensor – Hi/Lo with Step Ballast**</b>	<b>\$25 per low ballast factor fluorescent fixture controlled</b>	<b>\$75 per high ballast factor fluorescent fixture controlled</b>
<b>Daylight Dimming (adjusts for natural lighting)</b>	<b>Ditto except \$50 for offices</b>	<b>Ditto</b>

\* Must control 2 or more fixtures

\*\* Space must be at least 250 square feet

Low ballast factor is <1.0 for T-5 fixtures and <1.14 for T-8 fixtures



## Electric Unitary HVAC Units

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**
- **Only for closed-loop systems**

Ground Source Heat Pumps	
> or = 16.0 EER	\$450 per ton
> or = 18.0 EER	\$600 per ton
> or = 20.0 EER	\$750 per ton



## Prescriptive Application Procedure

### **Send to TRC Energy Services (market manager):**

- Application (and worksheet, if applicable)
- Copies of latest utility bills and W-9 form
- Equipment manufacturer technical data sheets

### **Receive TRC's approval letter prior to the removal of existing, or installation of new, equipment with following exceptions:**

- When incentives are < \$5,000 for HVAC, motors, water heaters
- For verified emergency-related installations (at TRC's discretion)

### **Install within approved time frame**





## Prescriptive Application Procedure (continued)

Then submit “proof-of-purchase” documentation and tax clearance certificate. Incentive will be the lesser of:

- Approved program incentive amount
- Actual equipment cost of the EEM

Allow 60 days for delivery of incentive after submission of all required documentation.

The NJBPU reserves the right to cap incentives at \$500,000 per utility account per calendar year.





## Custom Electric Projects

- Opportunities for other than pre-qualified technologies including: HVAC&R systems and industrial process end uses
- Submit custom electric equipment application and custom project data sheet, if estimated 1st year savings is at least 75,000 kWh over established “base-line”.
- If project qualifies, with an Internal Rate of Return of 10% or greater, incentive will be the lesser of:
  - \$0.16 per kWh of estimated annual savings
  - 50% of total project installed cost
  - buy down to a one year pay-back



# Custom Gas Projects

- Submit custom gas equipment application and custom project data sheet, if estimated 1st year savings is at least 1,500 therms over established “base-line”.
- If project qualifies, with an Internal Rate of Return of 10% or greater, the incentive will be the lesser of:
  - \$1.60 per therm of estimated annual savings
  - 50% of total project installed cost
  - buy down to a one year pay-back

Note: Retro-fit gas & electric custom projects must exceed ASHRAE Standard 90.1-2007 by at least 2%, where applicable





## Program Project Commitment Periods

- **Pre-approved technologies ----- 12 months for existing facilities**
- **Custom measures ----- case by case**
- **New construction projects ----- 18 Months**
- **Extension with TRC's ----- 6 months written approval**







## More Recent Incentive Programs

- Local Government Energy Audit Program
- Pay for Performance Program
- Direct Install Program





## Local Government Energy Audit Program

- **For municipal and county government entities (including K-12 public schools & county colleges), NJ state colleges & universities, and Internal Revenue Code designated 501(c)(3) non-profits, all with a peak demand over 100 kW for the past 12 months**
- **We pay 100% of audit fee. You install recommended upgrades costing at least 25% of the audit fee, otherwise you must return 25% of the incentive.**
- **Per calendar year annual cap of \$100K per entity, with most schools and municipal facilities treated separately.**





## Approved Engineering Firms for Local Government Audit Program

- Camp Dresser & McKee, Inc.
- Clough Harbour & Associates, LLP
- Concord Engineering Group, Inc.
- Dome-Tech, Incorporated
- Steven Winter Associates







## Pay For Performance

- **Customers with annual peak demand > 100 kW can choose a pre-qualified Program Partner (no kW limit for government entities, hospitals, public colleges, non-profits & low income/HUD housing)**
- **Program partner performs an ASHRAE Level II Audit & develops an energy reduction plan confirmed by EPA Portfolio Manager. Partner must submit proof of computer modeling expertise**
- **Incentives linked directly to energy savings with a 15% reduction as the minimum goal, based on simulation analysis**
- **Incentives paid to customer in 3 phases. Final payment after 12-month post-construction benchmarking report validates savings**



## Pay for Performance (cont'd)

### Milestones for Payments (\$1mm available per utility meter)

1. After approval of energy reduction plan – based on \$0.10 per square foot, ranging from \$5K to \$50K, capped at 50% of annual energy costs
2. After installation of recommended ECMs: \$0.09 - 0.11/kWh saved and \$0.90 - 1.25/therm saved, capped at 25% of project cost
3. After acceptance of 1-year post-construction benchmarking report: \$0.09 – 0.11/kWh saved and \$0.90 – 1.25/therm saved, capped at 25% of project cost

Note: Pay for Performance - New Construction is based on the design being at least 15% more efficient than ASHRAE Standard 90.1-2007







## Direct Install Program

- Retrofit program for utility customers with an annual peak demand of 100 kW or less
- Incentives for pre-qualified contractors to install prescribed measures (passing total cost resource test) to encourage early replacement of eligible electric and gas-fired equipment.
- Incentives up to 60% of the installed project cost paid directly to the installing contractor with customer paying the remaining 40%.
- Incentive capped at \$50K per project and \$250K per entity
- Capacity limits apply, such as 500 MBH boilers and 15-ton RTUs







## Approved Direct Install Contractors

- **Donnelly Energy Solutions – (Morris County, Somerset, Hunterdon, Sussex)**  
Jesse Fallick Phone: 973-672-1800 x106
- **Hutchinson Mechanical Services – (Burlington, Monmouth, Ocean, & Camden Counties)**  
Ed Hutchinson or Mike Hutchinson Phone: 888-777-4501
- **H.T. Lyons, Inc. – (Warren)**  
Matthew Zanzalari: Phone: 1-800-367-7099
- **Lime Energy – (Essex, Bergen, Passaic & Hudson Counties)**  
Karan Raina: Phone: 917-975-7191
- **South Jersey Energy Service Plus – (Cumberland & Cape May, Atlantic Counties)**  
Robert Senski: Phone: 866-720-2555
- **Tri-State Light & Energy, Inc. – (Union, Middlesex, & Mercer Counties) – Note Tri-State can not perform work for local government entities in Mercer**  
Greg Shields or Alan Rhode: Phone: 610-789-1900
- **Carrier – (Salem, Gloucester, & Local Gov't in Mercer)**  
Mike DiChiaro: Phone: 973-227-4311
- **National Resource Management – Refrigeration Only – (Entire State)**  
Carol Tobian: Phone: 732-742-7958





## For More Information

- Commercial & Industrial Market Manager  
TRC Energy Services, Inc. (866) NJSMART
- Senior Project Consultant, EAM Associates  
Doug Shattuck, P.E. (732) 267-1174

[njcleanenergy.com/ssb](http://njcleanenergy.com/ssb)

