Utility Incentives

MA, RI, NH, VT, ME, CT, Long Island NY, Gas in NYC

New construction and gas in Upstate NY.

Existing construction electric coming to upstate NY
Utilities and Efficiency

**Incentives**

- Gas and Electric
- All but municipal electric companies have them
- Incentives pool is doubling in MA and RI!!

**Technical support**

- Identify opportunities
- Co-fund energy studies and project budgets
Renewables vs. Efficiency

- Mass. Technology Collaborative handles Renewables
- Efficiency is more cost effective. Start here!

How about a 5 year solar PV payback!
Get your Share

Massachusetts approx.

$80 million for 2009 for Efficiency
How do the Incentives Work?

General Insights

1. Gas and electric not always from the same utility
2. No incentives from municipal electric companies
3. A customer may get only the gas or electric incentive
4. Gas and electric are determined quite differently
5. Gas incentives generally easier to determine
6. Electric incentives more lucrative
Gas Incentives

**Prescriptive**

- Steam traps
- New boilers
- Pipe insulation

**Custom**

- Examples: Heat recovery, boiler controls, ventilation rate reductions)
- Simple $1.00 per therm saved (RI is $1.50, NH is $2.25 per therm saved)
Incentives for high efficiency equipment

- Furnaces, up to $500
- Condensing unit heaters, up to $500
- Infrared heaters, up to $500
- Steam boilers, up to $700
- Direct fired heaters, up to $2,000
- Hydronic boilers, up to $5,000
- Condensing boilers, up to $15,000

Visit [www.thinksmartthinkgreen.com](http://www.thinksmartthinkgreen.com) for more detail
Efficiency Improvements for large boilers

Fire Tube Boiler with linkage controls
Efficiency Improvements for large boilers

Fire Tube boiler
with linkage
less controls

Approx. 5% Fuel Savings !!!
Laboratory

- solar heating system that heats ventilation air
- uses all-metal collector panels
- individual units are 6’ by 4’ and each produces 1000 watts of thermal energy
- length of the duct work is project specific

Solar Duct


- Cost approx
  - $70/ foot the ballasted version
  -
Electric Incentives

**Prescriptive**
- Lights
- VFD’s on fans and pumps

**Custom**
- Ventilation improvements
- Controls
- Hood upgrades
Custom Incentives: Electric

Cost Basis for determining incentives:

Retrofits / Energy Initiative Program

Project cost is all design and construction costs except sales tax
### National Grid Custom Incentive Tracks for Retrofit

<table>
<thead>
<tr>
<th>Program</th>
<th>Incentive as % of project cost</th>
<th>Special Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50%, 55%, 60%</td>
<td>Reduce Electric Use by; 25%, 20% or 25%</td>
</tr>
<tr>
<td>Comprehensive Chiller</td>
<td>80%</td>
<td>Requires a full compliment of measures including a chiller upgrade and all lighting must meet our efficiencies standards</td>
</tr>
<tr>
<td>Lab or other 100% fresh air HVAC systems</td>
<td>60%</td>
<td>Reduce ventilation volume (CFM) by 20% or more.  <strong>(limited time offer)</strong></td>
</tr>
</tbody>
</table>
Projects must meet minimum cost benefit tests (roughly 8 to 10 year payback)

- Maximum of $750,000/year for a single customer site
- Customer CUSTOM Incentives always have a Payback Limit
- Capped at a 1.5 year payback except for comprehensive chiller at 1 year
Electric Efficiency CUSTOM Incentives: Impact of 1.5 year payback cap

If there is no gas incentive, customer pays a minimum of the 1.5 times the projected annual energy savings (National Grid only, NSTAR has no payback lower limit)

Example:

Project Cost /Incremental Cost $100,000
Electric savings $50,000
Customer cost (1.5 x $50k) $75,000
Incentive $25,000

In this case incentive is capped at 25% vs. 45%
Examples

**Parlex:**
- Free cooling
- No moving parts
- Paid 100% with gas and electric incentives

**Tenant issue from noisy chiller**

**Lab ventilation safety**
- Better efficiency consistent with better lab hood operation

**High Performance Hood conversion**
- Paybacks 1.5 years or less
Accelerated Lighting

- Applications by September 1
- Installation by December 1, 2009
- Incentives nearly doubled
- We provide complete Turnkey service
KILL YOUR PARABOLICS!!
18 cell, 3 lamp parabolic fixture
• 2’x2’ or 2’x4’

- Obsolete design concept (No more CRT’s)
- Dark gloomy wall and ceiling appearance
- Outdated styling
- Uneven light distribution

Save $21/year
Quick low cost conversion kit
High Efficiency Low Glare

Lense type 1

Lense type 2

2RT5R
2' x 2' Relight
2 Lamp

Efficiency: 84.8%

Efficiency: 85.8%

Incentive Amount Per Fixture: $114

Applications Due: September 1, 2009
Lighting

FROM 18 cell, 3 lamp parabolic fixture

TO 2 Lamp Advanced Glare Reducing Diffuser Retrofit Kit
Warehouse

![Warehouse Image](image-url)
“I have higher priorities than saving energy”!

Leverage Energy incentives to accomplish higher priorities

1. Efficiency may be a side benefit

2. What are you replacing or upgrading already?

3. What HVAC / process challenges do they need money to address?

4. What new equipment or expansion of facilities are you planning?
How much does a customer get!

Electric:

- Caps may apply: Cap of $750,000 per customer per year. (Nat. Grid)

- Fixed / Prescriptive Programs
  - Lighting
  - Variable speed drives
  - Energy Management systems
  - Air compressors (single compressor systems)
How much does a customer get!

Electric Efficiency Custom Program

- Typical is up to 45% of installed cost.
  - Never below a 1.5 year payback on electric savings (National Grid only)
  - Almost anything that saves electricity
  - Requires an approved energy study and budget
  - Get utilities involved early!
Best of Commercial Industrial Efficiency

- Replace HID lighting fixtures with Fluorescent (save 40% plus)
- Install occupancy sensors on lighting in storage warehouses
- Install window film
- Install water side economizers
- VFD’s on cooling towers
- VFD’s to replace of differential pressure valves
- Change constant flow to variable flow pumping (HW, CHW, CW)
- Process cooling with CHW instead of CW
Best of Commercial Industrial Efficiency

- Excessive ventilation: Use sensors of spot solutions
- Heat recovery (process heat or air compressors for space heating)
Compressed Air: Best of the Best

“No Brainers” you’ll find

◆ Air compressors in air conditioned spaces (80% of power used is heat)
◆ Compressed air used when a blower is adequate
◆ LEAKS!
◆ Compressors left on 7x24
◆ Water cooled compressors cooled with chilled water.
◆ The most efficient of 2 compressors on stand by
Training

◆ All should have Fundamental knowledge of compressed air

◆ Training through Massachusetts Energy Efficiency Partnership
  – Compressed Air Basics
  – MAEEP.org

◆ Building Operator Certification
Existing Manufacturing
Sample opportunities for utility incentives

**Variable ventilation rates**

- VFD fans
- Worker presence sensors for ventilation
- VOC or Carbon Monoxide sensors

**Add spot ventilation to lower general ventilation**

**Heat recovery from ventilation systems**

**Low pressure drop air filters**

**Solar wall Solar Duct to preheat ventilation air**
Existing Manufacturing

Leverage Efficiency incentives for EH&S or production benefits

- Healthier safer process may well be more efficient
- Use utility incentives to fund potentially 45% or more of process change with EH&S as a “side” benefit.
- Electric utility pays up to 45% plus gas incentives
- Potential for payback of 1.5 years or less.
Existing Lab Buildings
Ventilation System Opportunities

Reduced unoccupied ventilation rates

Simple rebalancing and reset for new uses

High performance hood conversions

- (40% to 50% lower cfm)
- No variation, fewer malfunctions from VAV
- Paybacks in 3

“No Vent” Carbon filter storage cabinets/ hoods.
Thank you

Fran Boucher
Senior Energy Engineer
National Grid
francis.boucher@us.ngrid.com