Natural Gas Energy Efficiency Program

- The Hotel/Lodging Industry
Agenda

- Welcome
- Hotel EE Opportunities
- Natural Gas C&I Energy Efficiency Offerings
- Gas Equipment & End Uses Supported
  - Prescriptive Rebates
  - Custom Measures/Incentives
- Local EE Success Stories
- Energy Savings & more
Hotels - Energy Use Profile

In a typical hotel, space heating, water heating and lighting represent about three-fourths of the total energy use consumption, making those systems the best bets for energy savings.
Hotels – High Potential Gas EE Opportunities

HVAC & Hot Water

- Guest Room/Building Automation Systems – Occupancy sensors, setback thermostats, common spaces, conference rooms, offices, restaurants
- Condensing/High-Efficiency boilers/modular design, Boiler Combustion Controls Equipment
- Heat Recovery Systems – Exhaust Air, Laundry
- Laundry Equipment – efficient tunnel washer/dryer equipment, ozone injection systems (cold water)
- Insulation – Steam pipe, tanks, valves, etc.
- Steam Trap Survey/Repair Program
- Misc. – Low Flow Showerheads, faucet aerators, Kitchen/ Food Service Equipment, pre-rinse spray valve
C&I Energy Efficiency Offerings

- Core Principles
  - If it produces energy savings (relative to baseline and/or code) AND it is cost-effective ($ value of benefits > $ value of costs), then we support it

- What We Offer
  - Technical Assistance -- Energy Audits / Assessments / Modeling, Engineering Studies
  - Financial Assistance -- Incentives & Rebates

- EE Measures/Projects We Support
  - Prescriptive Measures - standardized approach to EE incentive delivery
  - New Construction Projects
    - Whole Building
    - Systems
  - Retrofit Projects
Equipment Types & End Uses Supported

- C&I Prescriptive Measures – majority of offerings & incentives unchanged vs. 2015, some changes include increased incentives for water heating measures (shower heads, aerators), WiFi thermostats added
  - HVAC – Furnaces, Boilers, Controls / Thermostats
  - Water Heating – Shower Heads, Faucet Aerators, Prescriptive WH to Upstream
  - Kitchen Equipment – Ovens, Fryers, Griddles, Steamers
  - Energy Management Systems
  - Pay for Performance - Retrocommissioning, Monitoring Based Commissioning

- C&I Custom Projects
  - New Construction
    - Whole Building (Ground-up new construction, major expansion/renovation)
    - Systems (new equipment, fit-outs, replacement on failure, End-of-Life)
  - Retrofit - Upgrades / improvements to existing equipment
# 2017 GasNetworks Form

## High-Efficiency Natural Gas Equipment Rebates

### HEATING EQUIPMENT

<table>
<thead>
<tr>
<th>CONDENSING BOILERS</th>
<th>RATING</th>
<th>REBATE</th>
<th>INFRARED HEATERS</th>
<th>RATING</th>
<th>REBATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1701 to 2000 MBH</td>
<td>90% Thermal Efficiency or greater</td>
<td>$10,000</td>
<td>All Sizes</td>
<td>Low Intensity</td>
<td>$750</td>
</tr>
<tr>
<td>1000 to 1700 MBH</td>
<td>90% Thermal Efficiency or greater</td>
<td>$7,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 to 999 MBH</td>
<td>90% Thermal Efficiency or greater</td>
<td>$4,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>301 to 499 MBH</td>
<td>90% Thermal Efficiency or greater</td>
<td>$2,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 300 MBH</td>
<td>95% AFUE* or greater</td>
<td>$1,500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 300 MBH</td>
<td>90% AFUE* or greater</td>
<td>$1,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FURNACE</th>
<th>RATING</th>
<th>REBATE</th>
<th>INTERGRATED CONDENSING BOILER / WATER HEATER</th>
<th>RATING</th>
<th>REBATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 150 MBH</td>
<td>97% AFUE* or greater &amp; ECM motor</td>
<td>$600</td>
<td>Minimum AFUE Rating of 95% with On-Demand Hot Water</td>
<td>Minimum AFUE Rating of 90%</td>
<td>$1,600</td>
</tr>
<tr>
<td>Up to 150 MBH</td>
<td>95% AFUE* or greater &amp; ECM motor</td>
<td>$300</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONDENSING UNIT HEATER</th>
<th>RATING</th>
<th>REBATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 300 MBH</td>
<td>90% Thermal Efficiency or greater</td>
<td>$750</td>
</tr>
</tbody>
</table>

### OTHER MEASURE EQUIPMENT

| AFTER MARKET BOILER RESET CONTROLS | $225 |
| WIRELESS ENABLED THERMOSTATS      | up to $100 |
| PROGRAMMABLE THERMOSTATS         | up to $25 |
| STEAM TRAPS                       | $50   |
| SHOWER HEADS                      | 1.5 GPM or less up to $20 |
| FAUCET AERATORS                  | 1.5 GPM or less up to $8   |

*AFUE = Annual Fuel Utilization Efficiency, MBH levels are based on the unit's input. Equipment must meet program guidelines, rebates are given on a per-unit basis not to exceed purchase price. Effective September 1, 2015 rebates are no longer available for commercial water heating equipment through the prescriptive form for installations in Massachusetts.

---

Mass Save® and GasNetworks® are proud partners of ENERGY STAR®

A LIST OF QUALIFYING HEATING EQUIPMENT IS AVAILABLE AT www.ahridirectory.org | 800-232-0672
Kitchen Equipment

- High-Efficiency Combination Oven $1000
- High-Efficiency Rack Oven $1000
- High-Efficiency Conveyor Oven $1000
- ENERGY STAR® Fryer $1000
- ENERGY STAR® Commercial Convection Oven $1000
- ENERGY STAR® Commercial Steamer $1000
- ENERGY STAR® Commercial Griddle $500
- High-Efficiency Pre-Rinse Spray Valve $50/ea
Custom Project Applications

More than 50% of our savings are derived from Custom Projects

- Retrofit – Potential for up to 50% of the project cost
- New Construction – Potential for up to 75% of the incremental cost
- Projects are evaluated with a screening model for cost effectiveness
- Additional incentives may be available for more comprehensive solutions
- Technical Assistance funds may be available
NEW CONSTRUCTION PROJECT TYPES

1. **Ground-up new construction** (commercial, industrial and institutional)

2. **Major renovations, Additions, and Tenant Fit-outs** (code triggering)

3. **New equipment – End-of-Life**
Heating, Water Heating
End-of-Life

- Incremental Capital Cost $74K
- $27K Gas Incentive
- 10,800 Annual Therms Savings=$12K* 87% Combustion Efficiency vs code
- 3.9 Yr payback*

EE Upgrade Project: Install modular RBI Hi-Efficiency Boilers (6-4,000 MBH) & (1-2,500 MBH) DHW Htr, replacing (2) 600 HP CB Boilers
HVAC - RETROFIT

- Capital Cost $118K (800 rooms)
- $69K Gas Incentive
- 46,000 Annual Therms Savings=$53K
- 0.9 Yr payback (*not including Electric Incentive)

- EE Upgrade Project: Constant Exhaust Bathroom Fans, avg. guest room exhaust rate reduced from 81 to 40 cfm
HVAC - RETROFIT

- Capital Cost $212K (464 rooms)
- $79K Incentive (Gas $53K, Electric $26K)
- 35,000 Annual Therms Savings
- Total EE Savings $75K
- 1.7 Yr payback

EE Upgrade Project: Install 464 Occupancy Based Sensors, EMS Controls
Energy Efficiency Savings & More

- Best EE project solutions include Guest Comfort, Environmental Benefits, and Facility Maintenance concerns.

- Energy Efficiency Programs – not free, cost of doing nothing (Rate G-54 includes EE charge $0.38/MMBtu).

- Added EE Benefits/Considerations for Rate G-54 Customers on Seasonal Ratchet Charge (MDCQ):
  - Winter Peak Shaving Savings – lower utility delivery rate, lower commodity costs.
  - Summer Cooling Potential (hybrid chiller plant).
Energy Efficiency Program Cost

Not Free – Use it or Lose it!

<table>
<thead>
<tr>
<th>Rate Class</th>
<th>Units</th>
<th>RAEE</th>
<th>EE</th>
<th>Low Income EE</th>
<th>2013-15 EE Prior Recon Adjustment</th>
<th>Capacity Credit</th>
<th>Broker Imbalance Penalty Credit</th>
<th>SQI Penalty</th>
<th>Attorney General Consultant Costs</th>
<th>Pension &amp; PBOP Costs</th>
<th>Residential Assistance Adjustment</th>
<th>Targeted Infrastructure Reinvestment</th>
<th>Gas System Enhancement Program</th>
<th>Total LDAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential &amp; Outdoor Gas Light</td>
<td>5/Therm</td>
<td>$0.0035</td>
<td>$0.1149</td>
<td>$0.0270</td>
<td>$0.0203</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0246</td>
<td>$0.0163</td>
<td>$0.0663</td>
<td>$0.0284</td>
<td>$0.3013</td>
</tr>
<tr>
<td>C/I G-41B/41E Small</td>
<td>5/Therm</td>
<td>$0.0031</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0200</td>
<td>$0.0148</td>
<td>$0.0595</td>
<td>$0.0233</td>
<td>$0.1729</td>
</tr>
<tr>
<td>C/I G-42B/42E Medium</td>
<td>5/Therm</td>
<td>$0.0023</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0149</td>
<td>$0.0110</td>
<td>$0.0523</td>
<td>$0.0225</td>
<td>$0.1501</td>
</tr>
<tr>
<td>C/I G-43B/43E Large</td>
<td>5/Therm</td>
<td>$0.0019</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0131</td>
<td>$0.0090</td>
<td>$0.0486</td>
<td>$0.0209</td>
<td>$0.1437</td>
</tr>
<tr>
<td>C/I G-44B Xlarge</td>
<td>5/Therm</td>
<td>$0.0015</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0101</td>
<td>$0.0078</td>
<td>$0.0395</td>
<td>$0.0171</td>
<td>$0.1254</td>
</tr>
<tr>
<td>C/I G-51B/51E, &amp; Street Light</td>
<td>5/Therm</td>
<td>$0.0031</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0200</td>
<td>$0.0148</td>
<td>$0.0595</td>
<td>$0.0233</td>
<td>$0.1729</td>
</tr>
<tr>
<td>C/I G-52B/52E Medium</td>
<td>5/Therm</td>
<td>$0.0023</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0149</td>
<td>$0.0110</td>
<td>$0.0523</td>
<td>$0.0225</td>
<td>$0.1501</td>
</tr>
<tr>
<td>C/I G-53B/53E Large</td>
<td>5/Therm</td>
<td>$0.0019</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0131</td>
<td>$0.0090</td>
<td>$0.0486</td>
<td>$0.0209</td>
<td>$0.1437</td>
</tr>
<tr>
<td>C/I G-54B Xlarge</td>
<td>5/Therm</td>
<td>$0.0015</td>
<td>$0.0465</td>
<td>$0.0159</td>
<td>$(0.0012)</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0000</td>
<td>$0.0101</td>
<td>$0.0078</td>
<td>$0.0395</td>
<td>$0.0171</td>
<td>$0.1254</td>
</tr>
</tbody>
</table>
THANK YOU!

David P. Clark
Lead Energy Efficiency Representative
National Grid
1260 Brayton Point Road
Somerset, MA 02755
T# 508-730-4120
C# 401-368-8179
david.clark@nationalgrid.com