

Potential for  
HE Gas PAC  
CEE IPM  
September 29<sup>th</sup>, 2009

nationalgrid

The power of action.<sup>SM</sup>

# High Efficiency Gas PAC Potential

**Developing a Cost Effective Gas PAC heating system warrants investigation**

**Delivering energy savings to our mutual customers is a growing priority**

**Assuming technical challenges can be overcome concerns exist revolving around market potential and increased incremental costs.**

# Agenda

**Brief Introduction to National Grid**

**Overview of Potential Applications**

**Legislative Environment**

**Current Support Mechanisms**

**Opportunities for future support**

**Q & A**

# High Efficiency Gas PAC Potential

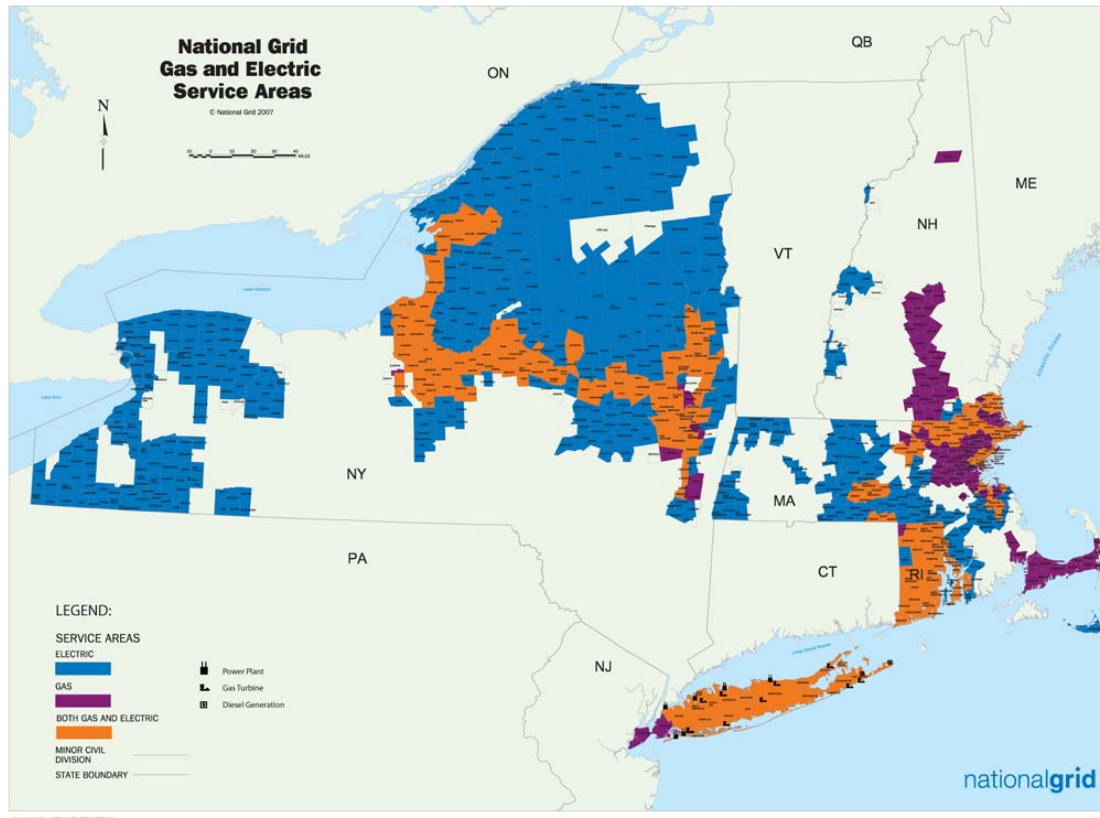
**This discussion will provide you with an idea of the on the ground need for new technologies, like the Gas PAC, to increase gas efficiencies in the Northeast.**

**Aid in justifying the time and cost of addressing the technical obstacles**

**Demonstrate some of the variables which point to a successful reception of this technology into the northeastern commercial marketplace**

# National Grid: an international electricity and gas company

## National Grid Electricity and Gas Service Areas - US



Largest utility in UK; second largest in US\*

- ◆ 50% UK, 50% US
- ◆ 50% Electricity, 50% Gas
- ◆ 50% Transmission, 50% Distribution
- ◆ 27,000-plus employees
- ◆ Almost 18 million customers

### Northeast US

- ◆ Distributes electricity to 3.3 million customers
- ◆ Services 1.1 million customers of Long Island Power Authority (LIPA)
- ◆ Provides natural gas to 3.5 million customers

\*Based on customer numbers; includes the servicing of LIPA's 1.1 million customers

# Energy Efficiency Background

## ***A little background:***

- ◆ *For over 20 years, National Grid has been delivering innovative electric and gas efficiency programs to our residential and business customers.*
- ◆ *More than 4.7 million National Grid customer projects completed in New England, saving more than \$3.6 billion in energy costs*
- ◆ *Efficiency programs save customers over \$250 million annually*
- ◆ *Over \$1 billion invested in efficiency to date*

## **Current efficiency budget of \$126 Million (electric and gas) in all states**

- ◆ Growth of approximately **50% a year** so that by **2012** the efficiency budget will be approximately **\$500 million**

# Market Potential for HE Gas PACs

**Based on CEE market categorization the most common size of equipment being installed are in the range of 5 to 10 ton units**

**They're typically the choice where first cost is a major motivating factor and square footage makes boilers or furnaces less attractive**

**Examples of locations : Some schools, Restaurants, Strip malls, Retail spaces, Pharmacies, Light manufacturing, Big Box stores, Malls**

# National Grid Customer Data

Gas Customers By Territory		
	Commercial	Residential
MA	69,542	757,230
RI	24,433	222,672
NH	10,508	72,788
NY	61,072	1,127,679
LI	58,412	487,981
UNY	50,799	543,667
<b>Total</b>	<b>274,766</b>	<b>3,212,017</b>

Electric Customers By Territory		
	Commercial	Residential
MA	169,051	1,117,093
RI	60,324	424,590
NH	7,291	34,893
UNY	173,222	1,457,402
<b>Total</b>	<b>409,888</b>	<b>3,033,978</b>

- National Grid provides Natural Gas to Approx. 274,00 commercial customers enterprise wide throughout MA, RI, NH and NY
- Each customer in the count can have several pieces of gas fired equipment
  - A joint incentive program opens up the potential further

# Marketing Analysis

## How Many potential applications exist?

### National Grid Maintains a Marketing Intelligence Department

- Using SIC – Standard Industrial Classifications – provided through info USA
- 6 digit industry classification system to target marketing and potential

### These codes we screened the list to narrow down the market potential for National Grid's territory

- The list included Schools, Restaurants, strip malls, Retail spaces, Pharmacies, Light manufacturing, Big Box stores, Malls

# Results

When the previous list of general building types was pulled from the SIC list this is the resultant data count

Provides an estimate of the number of businesses in NGrid's footprint that could potentially be serviced by rooftop heating and cooling

Also mentioned are the number not in NGrid gas territory but other MA gas utilities which can be consider since MA is moving to consistent state wide programs which would support the technology

STATE	NGRID GAS TERRITORY	NON NGRID GAS TERRITORY
MA	61986	34404
NH	8928	
NY	236283	
RI	20650	
TOTAL	327847	

# Massachusetts Legislative Environment

## Green Communities Act (2008)

- Program Administrators **MUST** provide incentives for ALL energy efficiency resources which are cost effective
  
- Program Administrators must file joint proposals yearly
  - Implies common programs are to be implemented across the state for both gas and electric utilities
  - Specifically mentions the intent to address cooperation for measures saving multiple fuels
    - We would be compelled by law to provide funding to support higher efficiency Gas PACs should they be introduced to market cost effectively
    - Currently we combine gas and electric interests and incentives on DCV , Hood Controls, and Energy Management Systems, insulation, windows etc.
  - Also designed to make applying for and receiving funds for energy efficiency easier and more consistent
  - Tremendous amount of work and effort going into preparing to meet these requirements by January 1<sup>st</sup> 2010 across MA

# Massachusetts Efficiency Environment

## **SIMULTANEOUSLY:**

- Performance Goals are rising year on year by 30% between 2010 and 2012
  - We need to dig deeper and present new and better opportunities to customers to meet increased participation and savings requirements
  
- Program Funding Budgets expected to rise by 50% year on year reaching about \$500 Million by 2012 across National Grid's footprint
  - Does not include other MA utilities who will share joint programs
  - Scheduled to dramatically increase incentives in MA for 2010 to help promote efficiency
  
- National Grid is retooling some of its assets
  - Currently working to train and prepare gas sales force and electric account managers (across territories) to be able educate customers and identify efficiency opportunities
  
  - **THIS SIGNALS A FUNDAMENTAL CHANGE IN APPROACH**
  - Efficiency is becoming as much a focus as growth with incentives for sound implementation

# Current Support Mechanisms

**National Grid has a variety of methods to providing incentives for High Efficiency Heating Equipment.**

**There are incentives in place designed to encourage high efficiency furnaces and additional money for high efficiency furnaces with ECM's**

**These are designed to cover 50% of the incremental cost between standard, or code efficiency, and higher efficiency models. Future incentives slated to increase to potentially 75%**

**Consideration could be given to any measures that improve efficiency of these units through our existing custom program**

- **First year therms savings based incentive which varies by state**

# Current Support Mechanisms

## Technology Demonstration Program

- Specifically designed to examine new or under utilized technologies for potential future incentives and savings potential
- Includes a Measurement and Verification plan for the new measure
- Designed to capture usable data so we can find the best ways to support these technologies Solar Thermal, Combustion Controls, etc.
- This program could function as a support mechanism for prototypes

## Continuously improving and creating new programs achieve more and deeper savings

- In 2009 alone, National Grid added two new programs to target untapped savings markets in our territory
  - Commercial Kitchens and Save Steam Now
  - New measures
- **Working with Gas Technologies institute to continue to develop gas technologies**
  - I.e.) super boiler, HE gas Griddle and wok, also providing funding toward HE RTU investigation

# COOL CHOICE

## Currently offering Incentives for higher SEER(EER) AC rooftops through Cool Choice Program

- Statewide program in MA and other states
- Generally seen units from 5 to 30 tons
- \$80 - \$175/ton incentive for meeting the Efficiency requirements
- **Since 2007 have paid out about \$900,000 to purchase about 12100 tons on just rooftop units**
  - This presents an opportunity to apply joint incentives
  - There is a growing group of end users with this equipment interested and **willing to pay for** improved efficiency



# Potential Future Support Mechanisms

**In the spirit of integration among gas and electric utilities HE Unitary equipment is the first**

- Combining the higher rated AC components with HE gas furnace in one unit would allow leverage of both growing budgets
- Expanding cool choice to provide incentive for gas efficiency
- Using programs to assist in M & V to assist in data collecting

# Recent Real Examples

## **Property Management Firm, Cape Cod, MA – September 16<sup>th</sup> 2009**

- owns 6 million sq ft office space
- purchasing 27.5 tons; 13 seer units
- Inquiring on gas efficiency

## **Light Manufacturing Company, Leominster, MA – September 8<sup>th</sup> 2009**

- converting old warehouse to light manufacturing
- Floor space at a premium, inquired on efficiency programs

# Now more than ever....

**Acknowledging the technical challenges:**

**Customer market potential is significant and increasing**

**Increased budgets, incentives, goals and income to utilities is changing focus**

**New legislation laying the groundwork for continued EE work**

**Integration means more opportunities to reach customers in more places and more ways; internal and external**

**I'd recommend continued efforts to investigate and develop Gas PAC efficiency to fill this void in demand side management**

# THANK YOU

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