Building a Robust Commercial Water Heating Market

2010 Industry Partners Meeting Breakout Session

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Meeting Guidelines

- 100% Participation
- Parking Lot for items not on the agenda
- All Ideas are Valid and Valued
- Meeting Closure will Outline Next Steps
- For the Phone Line
  - *6 to Mute/unMute
  - DO NOT PUT CALL ON HOLD

This meeting will follow **CEE Guidelines for Program Meetings**

Meeting Objectives

- Articulate what the opportunities and challenges are to building a market for high efficiency commercial water heating
- Discuss ways in which industry and efficiency programs can best work together to support the stocking and upselling of high efficiency commercial technologies

Today's Agenda

- Gas Program Drivers
- Market Overview
- CEE Work to Date
  - Draft CEE Initiative Description
- Discussion: Industry and efficiency programs to share perspectives on:
  - The commercial market
  - Market challenges
  - Ways in which to work more effectively across industries

What Drives Commercial Gas Programs?

- Achieving mandated efficiency savings targets
  - Programs are often mandated to offer programs in their service territories
- Finding more opportunities to achieve claimed savings
  - Many traditional furnace programs going offline, so there is a need to find new savings

What other drivers are gas programs experiencing?

Introductions

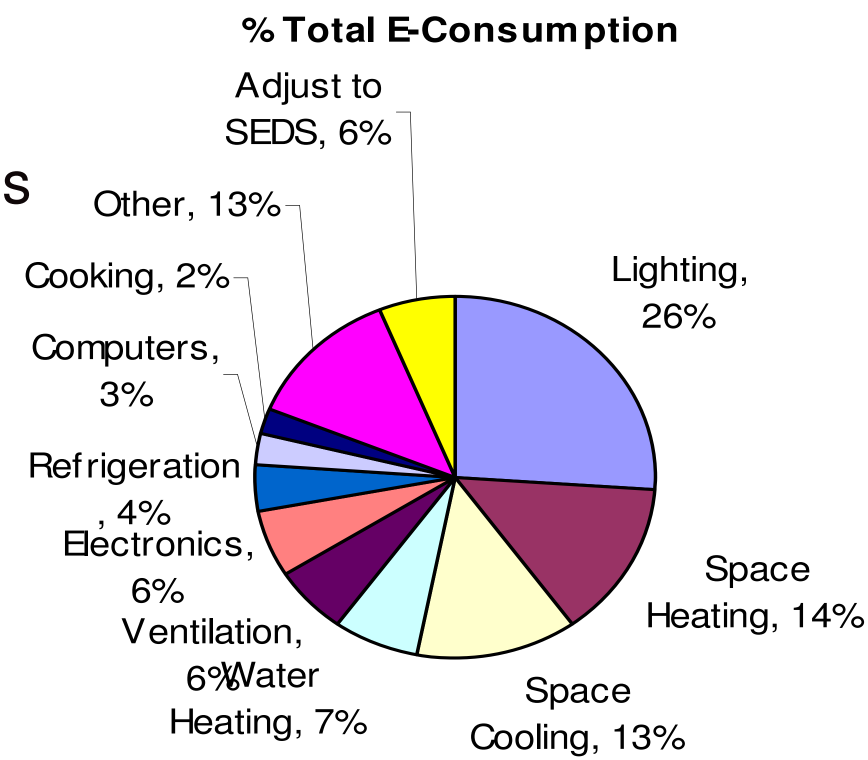
- Name
- Organization
- Your interest in commercial water heating
- What you hope to get out of this session

Defining the “Commercial” Scope

- Natural gas storage units above 75,000 Btuh/h and min TE of 80% or greater
- Still working to define the commercial natural gas tankless market as many efficiency programs offer rebates for residentially-sized units
- Not yet including other technologies within the current scope and not yet defining by market segment or application

Commercial Water Heating Energy Use

- 1.2 Quads or 7% of commercial energy use
- Natural gas water heating is ~ 3.2% of commercial energy use
- 8.2 million metric tons of carbon equivalent, which could be equated to the annual carbon dioxide emissions from 1.5 million passenger cars



Energy Savings Potential

- Market size is smaller in comparison to residential, but there is still significant savings potential to be realized.
- Condensing water heaters can capture ~90% of input energy, which translates into an approximate energy savings of up to 20%

What is your sense of the installed base for commercial water heaters across the U.S. and Canada?

Number of Models Available by Efficiency

Thermal Efficiency	# of Models
78	1
80	400
81	1
82	10
83	2
84	19
85	3
90	5
91	4
92	1
93	7
94	7
95	32
96	37
97	5
98	7
99	5

- Of those models registered in the AHRI directory, the majority of product available is 80% TE
- High efficiency concentration around 95-96% TE

2010 Water Heater Program Summary Data

- CEE compiles information from its membership each quarter to share with membership and industry

	Storage	Tankless	Solar	Indirect and Integrated	Custom
Rebates	33	26	5	19	n/a
Programs Offering Rebates	24	19	3	15	6

2009 Gas Water Heater Shipments

- In the U.S., shipments totaled 131,112 in 2009
- In Canada, about 20,000 units shipped per year
  - About 13,000 gas
  - About 7,000 electric

Type	2009 Totals	2008 Totals	% Change
Commercial Gas	75,487	88,265	-14.5
Commercial Electric	55,625	68,686	-19

Market Barriers

- Installation Challenges
- High First Cost
- Facility owners unaware of their building's daily hot water demand
- Facility owner or manager unaware of the benefits of high efficiency
- Supply chain unaware of the benefits of offering high efficiency

Are these barriers accurate? What others exist?

Major Applications

- CBECS recently published updated data on residential and commercial energy usage by water heater fuel type and application
- Based on this data, there are four main areas of savings opportunities:
  - Lodging (124 trillion Btu/y)
  - Health care (74 trillion Btu/y)
  - Food service (56 trillion Btu/y)
  - Education (37 trillion Btu/y)

CEE Work to Date

- Have held several calls to discuss the market and CEE member programs challenges
- Have begun to develop a CEE “Initiative” and Specification Tiers
- Have had preliminary discussions with members of industry about this market

Need for an Initiative

- Significant need to establish a consistent rubric for commercial water heating programs
  - Not a great deal of consistency across programs currently.
  - Efficiency levels are not particularly consistent with the efficiencies of the water heater models available in the market.
- Consistency across programs is needed so that we can speak to industry and consumers with one collective voice

Initiative Progress

- Have agreed to a general specification based approach for storage and tankless water heaters
- Addressing system design and application energy savings considerations post-initiative development
- Need better understanding of combustion safety and low NOx considerations

What are your thoughts on our direction to date?

Does addressing system design and application issues once we've set a general specification seem viable?

Key Areas of Consideration

Key areas of consideration include:

- Availability
- Cost Effectiveness
- Condensing technologies
- Tankless considerations
- Burner size
- Volume (tank size)

Are there other areas of consideration we should be discussing further?

Example: Tankless Considerations

- 18 total tankless rebates from CEE members
- Programs are offering residential-only rebates in their commercial programs

Efficiency	Rebates
0.708-0.78 EF	3
0.80 EF	3
0.82 EF	12
82-99% TE	0

What other considerations should we take into account when including tankless water heaters in efficiency programs?

Discussion

- How does the commercial market differ from residential both in terms of supply channel structure and upselling to end users?
  - What challenges or opportunities do these differences create?
- What are 3 primary challenges to building a market for high efficiency?
- What potential opportunities might there be to work more effectively across industries?

Wrap Up and Next Steps

1. Capitalize on opportunities to work more closely together that were mentioned here today
2. CEE to continue to develop initiative description; likely available for industry review in early 2011

Contact

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Extra Slides

NOx Voluntary Requirements

- Are there NOx emission requirements in your service territory?
- Would a spec provide useful guidance to your program?
- Should we provide general guidance rather than a spec?

Tier	Specification
Storage	≤ ?? parts per million
Tankless	≤ ?? parts per million

Commercial Tankless Availability

Mfx	TE	# Models	Type of Models
Bosch	N/A	N/A	No commercial models
Navien	98% TE	2	Condensing only
Nortiz	80-84% TE	2	Non-condensing only
Paloma	84% TE	1 series	Non-condensing only
Rinnai	Not listed	1 series	Non-condensing only
Takagi	80-84% TE	2	Non-condensing only

Initiative Goals

- High efficiency equipment is included in new construction building design plans by builders and developers
- High efficiency equipment is requested by building owners
- High efficiency equipment is promoted and sold to building owners by installers and builders, and
- High efficiency equipment is available from manufacturers, wholesalers and distributors

Initiative Objectives

- Increase the number of high efficiency models available
- Increase the percentage of sales of high efficiency equipment
- Build a market of sufficient size to help achieve the scale of production that will allow manufacturers to offer high efficiency equipment at an attractive price to consumers and
- Increase the number of installers, builders, retailers, distributors and wholesalers who promote high efficiency equipment