



CEE's Commercial Boiler Exploration

Developing a Framework for a Commercial
Boiler Systems Initiative

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Session Overview

- ▶ Introductions
- ▶ Background on CEE and Gas Committee
- ▶ Commercial Boiler Exploration and Framework
- ▶ Discussion
- ▶ Wrap-Up and Next Steps

Meeting Ground Rules

- ▶ 100% Participation
- ▶ Punctuality
- ▶ Parking lot for off topic issues
- ▶ All ideas are valid and valued
- ▶ Confidentiality
- ▶ Meeting closure will outline next steps

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

Introductions

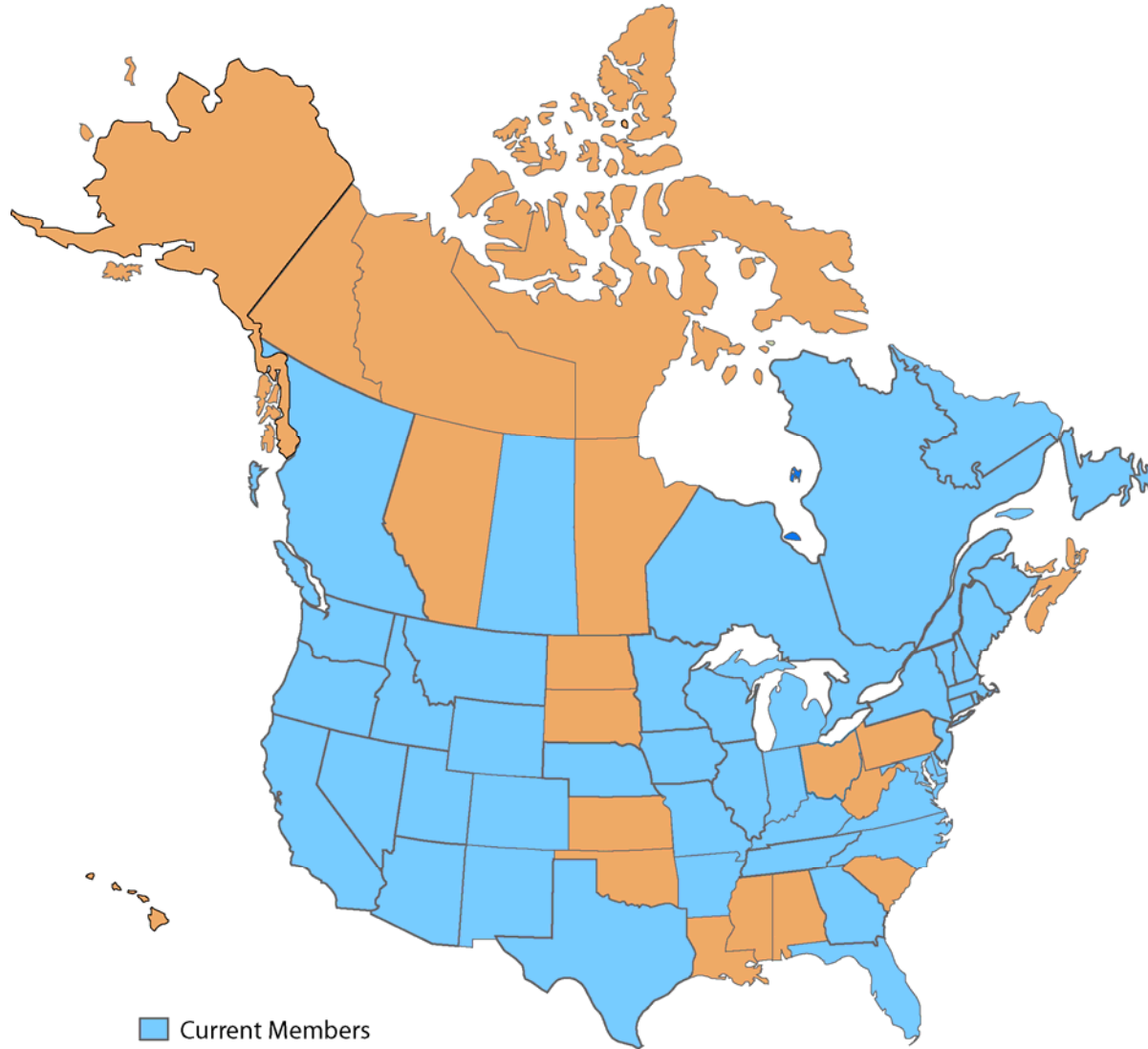
1. Name
2. Organization
3. Any specific objective you would like to meet by attending this workshop



A Snapshot of CEE

- ▶ Formed in 1991 by administrators of ratepayer funded programs and nonprofits
- ▶ Objectives
 - Leverage collective efficiency resources (US & Canada) to move markets and capture greater savings
 - Share best practices
- ▶ CEE Today
 - CEE brings together 117 members from 37 states and 5 provinces
 - Governed by Board of Directors drawn from members
 - Staff of 26
 - \$3 million budget (75% members; 25% DOE and EPA)

Membership as of September 2009

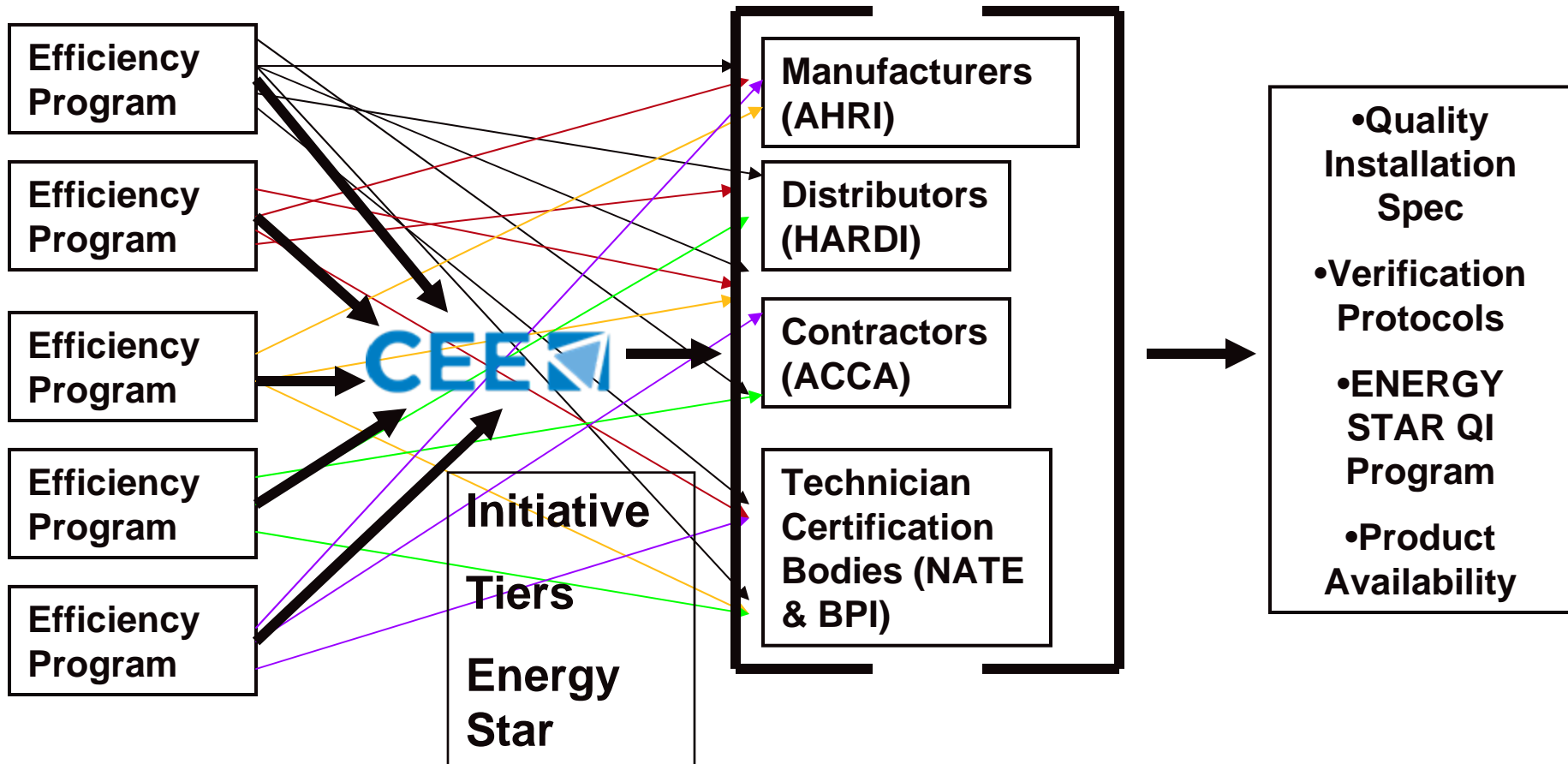


■ Current Members

CEE's Voluntary Initiatives

- ▶ Household Appliances
- ▶ Gas Furnaces/Boilers
- ▶ Gas Water Heating
- ▶ Residential Central AC/HP
- ▶ Consumer Electronics
- ▶ Residential Lighting
- ▶ Commercial HVAC
- ▶ Commercial Lighting
- ▶ Commercial Kitchens
- ▶ Commercial Washers
- ▶ Data Centers/Servers
- ▶ Motors/Motor Systems
- ▶ Water/Wastewater

Example: A Coordinated Approach



Efficiency is a \$4.5 Billion Industry

- ▶ Total budgeted for publicly funded electric & gas efficiency programs in 2008 in U.S. and Canada
 - Gas Portion \$495 Million
- ▶ Gas budgets more than doubled from \$238 Million in 2006

Natural Gas Work at CEE



- ▶ In 2006, CEE committed to increase staff to 3 FTE
- ▶ The Gas Committee is building a natural gas program industry through
 - Support of current residential gas initiatives
 - Explorations to make program offerings more comprehensive
 - Supporting member program development
 - Coordination with other dual fuel efforts at CEE

Coordination with Industry on Initiatives

- ▶ High Efficiency Residential Gas Heating
 - Currently discussing adding a second boiler tier
 - Sent letter to industry for comment
- ▶ High Efficiency Residential Gas Water Heating
 - Joint communications effort with industry
 - Developing materials and best practices for outreach to installers



Gas Explorations

- ▶ Integrated Space and Water Heating Systems
- ▶ Commercial Water Heating
- ▶ Commercial Space Heating
 - Gas PAC Rooftop Units
 - Boiler Systems



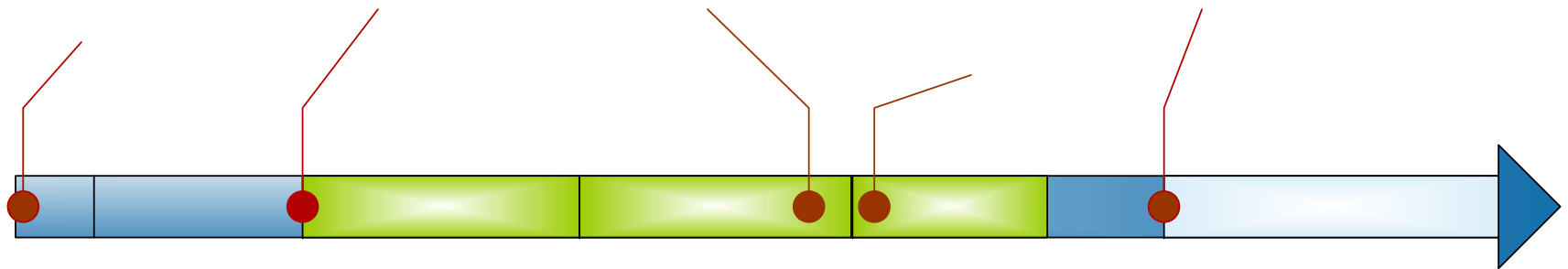
Commercial Boiler Systems Exploration The Framework



Member Programs

- ▼ Alliant Energy
- ▼ Ameren Illinois
- ▼ AmerenUE
- ▼ Avista Utilities
- ▼ Bay State Gas Co
- ▼ Berkshire Gas Co
- ▼ Cascade Natural Gas
- ▼ CenterPoint Energy
- ▼ Con Edison
- ▼ Consumers Energy
- ▼ Detroit Edison
- ▼ Enbridge Gas
- ▼ Energy Trust of Oregon
- ▼ Gaz Metro
- ▼ National Grid
- ▼ New England Gas Co
- ▼ New Jersey Clean Energy
- ▼ Northeast Utilities
- ▼ Northern Utilities
- ▼ NSTAR Gas & Electric
- ▼ Pacific Gas & Electric
- ▼ Puget Sound Energy
- ▼ Questar Gas
- ▼ So Cal Gas
- ▼ Terasen Gas
- ▼ Union Gas
- ▼ Unitil Service Co
- ▼ Vectren
- ▼ Vermont Gas
- ▼ WE Energies
- ▼ Wisconsin Focus on Energy
- ▼ Xcel Energy

History of Commercial Boiler Efforts



Nov 7, 2006
Initiated Exploration

Jun 13, 2007
Discussed Potential Approach

Jul 12, 2007
Discussed Initiative Approach

Background Behind Framework

Key Considerations

- ▶ Currently there is not one performance metric that CEE is choosing to get behind
- ▶ A specification for the boiler itself is not enough – must consider system design
- ▶ Some programs need to get savings in non-condensing situations

Goal: Provide guidance towards appropriate high efficiency options for a given application

The Framework Scope

- ▶ Smaller Commercial Boilers
300 MBtu/h – 4,000 MBtu/h
- ▶ Steam and Hot Water Boilers
- ▶ Space Heating and Service Water Heating Applications
- ▶ Potential Focus Markets:
 - Education
 - Offices

Discussion of Scope

- ▶ Should CEE refined the scope to increase impacts? If so, how?
- ▶ Any other suggestions regarding the scope?

Proposed Approach

1. Is the boiler a low-pressure steam or hot water system?

STEAM

HOT WATER

2. Is the system design such that you can achieve less than 130 degree return water temperatures?

NO

YES

How to move to a hot water system:

How to move to a condensing system:

3. Is the boiler used for space heating or service water heating?

SPACE HEATING

SERVICE WATER HEATING

Guidance on Maximizing Efficiency of Low-Pressure Steam Systems

Guidance on Maximizing Efficiency of HW Space Heating Systems

Guidance on Maximizing Efficiency of HW (Service) Systems

Guidance on Maximizing Efficiency of Condensing Systems

Low Pressure Steam Spec

HE Non-Condensing Spec (Space Heating)

HE Non-Condensing Spec (Service Water)

Condensing Spec

Proposed Approach

Guidance on Potential Program Approaches

- ▶ Wide array of approaches currently
- ▶ Provide Case Studies/Templates for New and Existing Programs
 - Create greater consistency
 - Allowing some flexibility for the different needs across the regions

Discussion Questions

- ▶ What are your initial reactions to this approach?
- ▶ Specifically:
 - What aspects do you like?
 - Is there something CEE is overlooking?
 - How would you improve upon the current framework?

Efficiency Metrics

Key Consideration: A variety of metrics in market and CEE has not picked one to specify at this time

- ▶ Consensus that TE is more representative of potential savings than CE, **BUT** not all programs use TE
- ▶ Introduction of the ASHRAE 155P seasonal efficiency metric
- ▶ How to deal with residential boilers staged in commercial applications

Discussion Questions

- ▶ Suggestions for how CEE might proceed at this time?
- ▶ What are your thoughts on ASHRAE 155P and should CEE keep its “wait and see” approach?
- ▶ Are there concerns over not developing a performance specification at this time?

Discussion Questions

- ▶ As a manufacturer, what challenges do you face, or see, in creating a market for highly efficiency commercial boiler systems?
- ▶ Do you see opportunities for working with efficiency programs in addressing those challenges?

Discussion Questions

- ▶ As efficiency programs, what challenges are you facing in helping your commercial customers achieve energy savings with their boiler systems?
- ▶ What opportunities do you see in working with manufacturers to address some of these challenges?

Contact

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