High Efficiency Gas Fired Packaged Air-Conditioners

Working Together to Define the Market Opportunity

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Natural Gas Program Manager
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New Orleans, LA

Session Overview

- Background on CEE Gas PAC Efforts and CEE/GTI Alliance
- Efficiency Program Perspective – Defining the Need
- Industry Perspective – Exploring the Challenges
- Discussion

After Lunch: Development of an ARTU

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**

Efficient Gas Rooftop Heating

Fred Gordon
Energy Trust of Oregon

Working Together with GTI

- General Partnership
- Background on GTI's Project
- More on Alliance
- Preparation for the Meeting
- Meeting Goals

CEE and GTI's Collaboration

- Goal: Bring together our respective strengths in areas of mutual interest for public benefit
  - GTI conducts research and development projects
  - CEE works to accelerate the market introduction and acceptance of new high efficiency products
- CEE and GTI signed a MOU on July 30, 2009
- Gas PACs identified as the first opportunity to work together

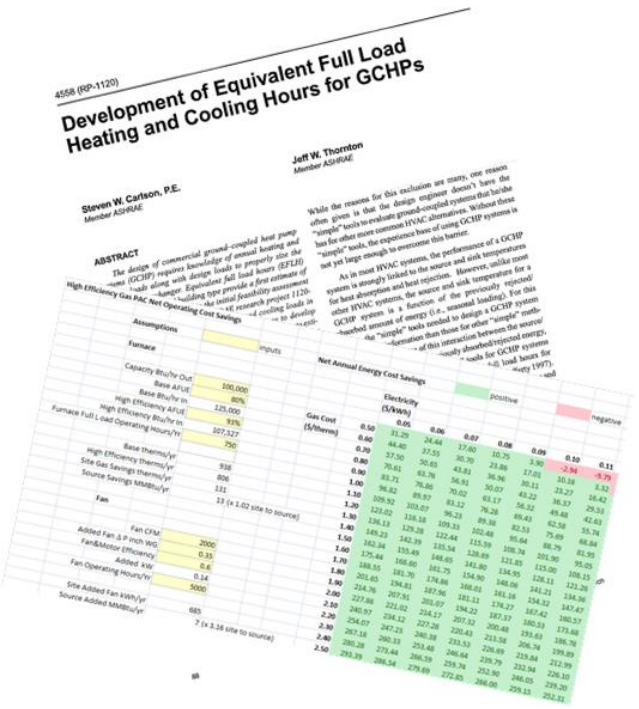
High Efficiency Gas Heating Rooftop Packaged Air Conditioner (Gas PAC) R&D Project

Doug Kosar
Gas Technology Institute

GTI High Efficiency Gas PAC Project

- Task 1. Condensing Furnace Specification dealing with
  - Technical issues of secondary heat exchanger & condensate
  - Economic issues of first cost and net operating cost savings
- Task 2. Condensing Furnace Section Laboratory Test
- Task 3. Prototype Field Test over the 2010-2011 winter

Net Operating Cost Savings – *How much are gas savings offset by added fan energy?*


4558 (RP-1120)

Development of Equivalent Full Load Heating and Cooling Hours for GCHPs

Steven W. Carlson, P.E.
Member ASHRAE

Jeff W. Thornton
Member ASHRAE

ABSTRACT

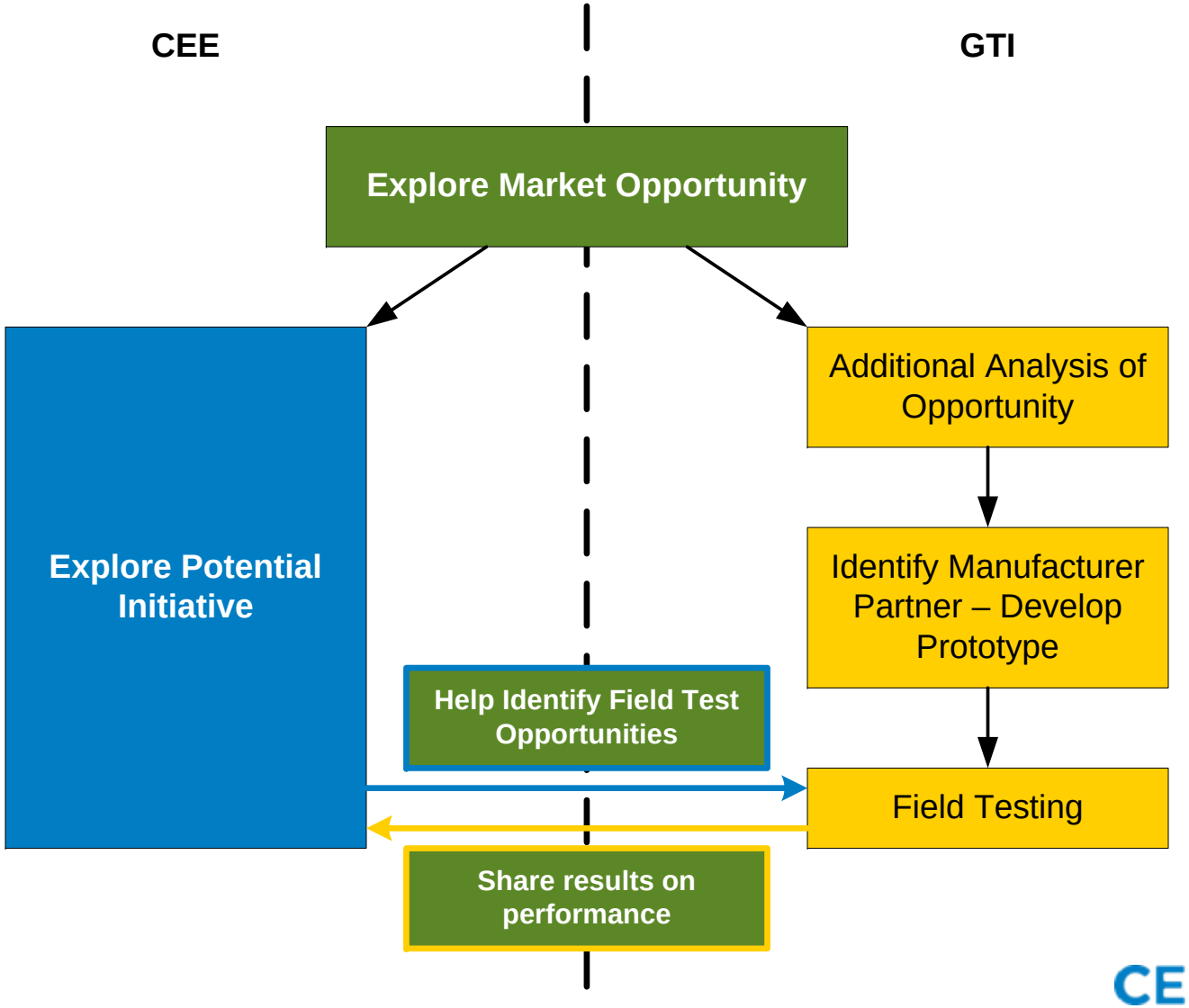
"Equivalent full load hours (EFLH) based on climate and building type provide a first estimate of annual loads that is useful in the initial feasibility assessment"

- Forming consensus economics
  - Dialogs with manufacturers
  - Representative building load & HVAC performance parameters
- Supporting analytical activities
  - Simplified EFLH spreadsheets to guide initial discussions
  - Detailed hourly simulations to implement manufacturer driven consensus modeling parameters

Actual Runtimes – *Should we monitor gas burner and fan runtimes at representative sites?*

- Under consideration for winter of 2009-2010
- Inexpensive datalogging
  - Current switches on
    - Gas valves (1 or 2 stage)
    - Supply fan
  - Stand alone state loggers record runtimes
- Select building types and climatic locations validate baseline energy use

CEE and GTI Gas PAC Alliance



Preparation for Today

- Discussions with members to better understand the need
- Conversations with manufacturers
  - Explain the meeting and goals of Alliance
  - Understand previous analysis on operating parameters (operating times, heating capacities)
  - Build consensus on these parameters

Today's Goals

We will not reach a conclusion on viability in the next three hours, but maybe we can…..

- Provide info on heating loads in key climates
- Sharpen discussion of cost vs. benefits.
- Clarify potential market needs and program support
- Discuss how GTI/CEE Alliance can best help
- Get a better sense of next key steps

Member Need

Domenic Musco
National Grid

Industry Perspective:
Improving Rooftop Gas Heating Efficiencies

Richard Lord
United Technologies - Carrier

Workshop Wrap-Up

- CEE's Gas Committee will meet to discuss potential next steps
- CEE and GTI may continue some conversations with manufacturers to clarify discussions
- GTI will continue its analysis to determine whether to move to the next phase

ARTU Workshop After Lunch!

Contact

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