Efficient Gas Rooftop Heating- CEE History and Context

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CEE Involvement- Why?

- Program are expected by regulators to accelerate gas savings
- Gas rooftop efficiency was marked as a priority at 2006 gas strategy summit
- 3rd biggest non-industrial end-use, after home heat and home water heat.
- Only current efficiency options for gas rooftops: Demand-controlled ventilation and better T-stats

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From 2006 summit notes

COMMERCIAL SPACE HEATING, GAS-PACK ROOFTOP UNITS

Goal: Accelerate the development of high-efficiency gas packs so that at least two different manufacturers offer efficient options within two years.

Challenges: (abridged)

- No market demand. Tenant/landlord split incentive. Little energy-efficiency industry interest and no programs.
- No manufacturer interest in building them due to liability concerns of condensate.
- Unclear about potential issues for outdoor units versus typical indoor condensing furnaces.
- Typical unit replacement is on an emergency basis.

From 2006 summit notes

Action Items (abridged):

- Convene key constituents
- Perform testing that presents concrete savings numbers.
- Perform a market assessment,
- Develop an efficiency specification.
- Develop a plan to either provide incentives for manufacturers or end-users.
- Engage manufacturers by using existing CEE relationships to discuss the need and potential demand for new technology

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Why Might it Be Feasible

- Condensing rooftop heaters available as custom for larger sizes.
- Prior GRI study indicated feasibility
- Canadian field test indicated significant savings.
- Customer interest in efficiency has grown each year.
- Green builders might provide an “opening wedge”- rewarded for meeting LEED and other specifications

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Quote from NRC study

"Custom-built PMZ units containing condensing furnaces are more efficient in heating than conventional RTUs. For the two PDSB schools Green Glade and James Bolton, the estimated annual natural gas savings are 15,300 m3 and 15,100 m3, respectively. The simple payback periods are 7.8 years and 7.9 years, respectively."

Note: costs will change with mass production.

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Why Isn't This Simple?

- Cost issues- sheet metal, more expensive components.
- Questions regarding increased fan losses.
- This is not a one-type-fits-all idea, and manufacturers profit best from standard products
  - Some climates and building types have modest heating loads and would not benefit.
  - Split incentives for rental property ***but we're making headway on rentals with electric programs.***
  - Condensate issue must be addressed.
- Price premium vs. customer value unclear to manufacturers.

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What We've Done To Date

- Extensive manufacturer discussions
- Canadian prototype work
- GTI/CEE alliance

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What We Hope to Do Today

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

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