COMMERCE DEPARTMENT

Welcome

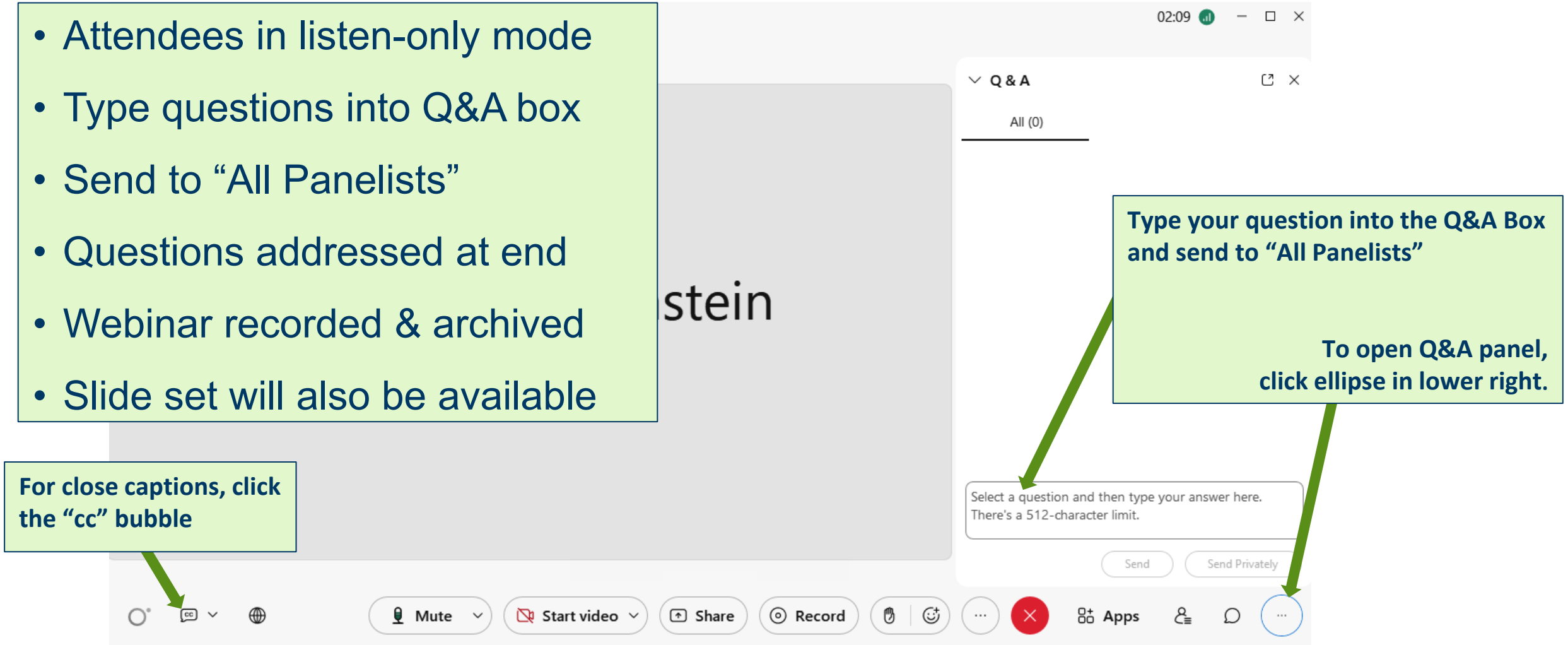
Conservation Applied Research & Development (CARD) Webinar

December 7, 2022

How do Small Commercial HVAC Contractors Make Decisions?

Webinar Basics

- Attendees in listen-only mode
- Type questions into Q&A box
- Send to “All Panelists”
- Questions addressed at end
- Webinar recorded & archived
- Slide set will also be available



How do Small Commercial HVAC Contractors Make Decisions?

COMMERCE DEPARTMENT
ENERGY RESOURCES



Mary Sue Lobenstein
Research Planning Director
MN Department of Commerce
marysue.Lobenstein@state.mn.us



Laura Silver
Principal State Program Administrator
MN Depart ’t of Commerce
laura.silver@state.mn.us

Presenter Introductions



Jake Fuller
Managing Consultant, Client Solutions
EcoMetric
jake@ecometricconsulting.com



Joe Van Clock
Associate
Apex Analytics
joevc@apexanalyticsllc.com



Jon Blaufuss
Senior Program Manager
Center for Energy and Environment
jblaufuss@mncee.org

Minnesota Applied Research & Development Fund

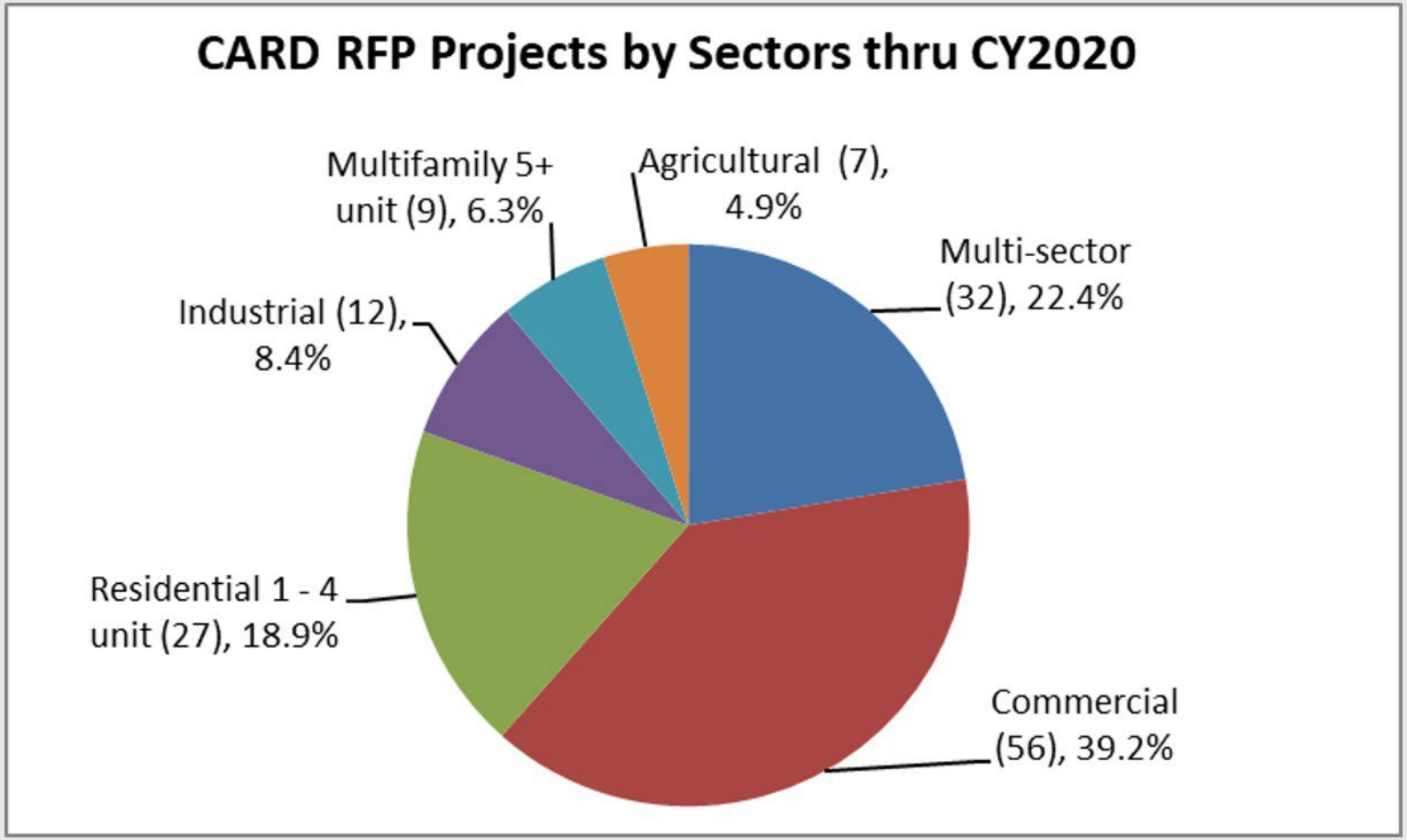
- **Purpose to help Minnesota utilities achieve 1.5% energy savings goal by:**
  - ***Identifying new technologies or strategies to maximize energy savings;***
  - ***Improving effectiveness of energy conservation programs;***
  - ***Documenting CO_2 reductions from energy conservation programs.***

Minnesota Statutes §216B.241, Subd. 1e

- **Utility may reach its energy savings goal**
  - **Directly through its Conservation Improvement Program (CIP)**
  - **Indirectly through energy codes, appliance standards, behavior, and other market transformation programs**

State Capitol Image: Courtesy Minnesota Department of Administration

CARD RFP Spending by Sector thru FY2020



RFP Summary

- 12 Funding Cycles
- 513 proposals
- 143 projects funded
- $31.2 million in research

Agenda

1. Objectives
2. Methodology
3. Key Findings
4. Recommendations
5. Questions

ECOMETRIC

Objectives



Understand the motivations, information sources, and decision-making processes of workers involved in HVAC installations.



Understand the "business side" of HVAC installation and design companies.



Ensure program interventions are:

- Meaningful to decision-makers.
- Responsive to market conditions.

ECOMETRIC

Objectives – Motivations, Info, and Decision-Making

Understand the motivations, information sources, and decision-making processes of workers involved in HVAC installations.

Motivations

- Favorite installations and systems to design?
- What brings them to work every day?
- Pain points?

Information

- Information sources (i.e., how-to, new technologies)?
- Required continuing education credits?

Decision-Making

- Path to purchase and installation? Employee involvement?
- Do they select projects? How?
- Who makes decisions? Differences in the approach?
- When are installations "above code"? Up and downsides?

ECOMETRIC

Objectives – HVAC Business

Understand the “business side” of HVAC installation and design companies.

Business Model

- What does a typical day look like?
- What sells, and why?
- Influences in the marketplace?
- Why do they sell certain product? Manufacturer relationships?
- Partner with other firms? What do the partners contribute?
- Structure of projects? Essential rules?

Staffing and Talent Pipeline

- Shortage of skilled workers? Drivers of shortage? Response?
- Preference for skilled or unskilled workers?

ECOMETRIC

Methodology – Overview

Literature Review

- Existing Market Research Reports
- Industry Websites



Primary Data Collection

- Market Actor List Development and Sampling
- Online Focus Groups
- In-depth Interviews
- Ride-Alongs



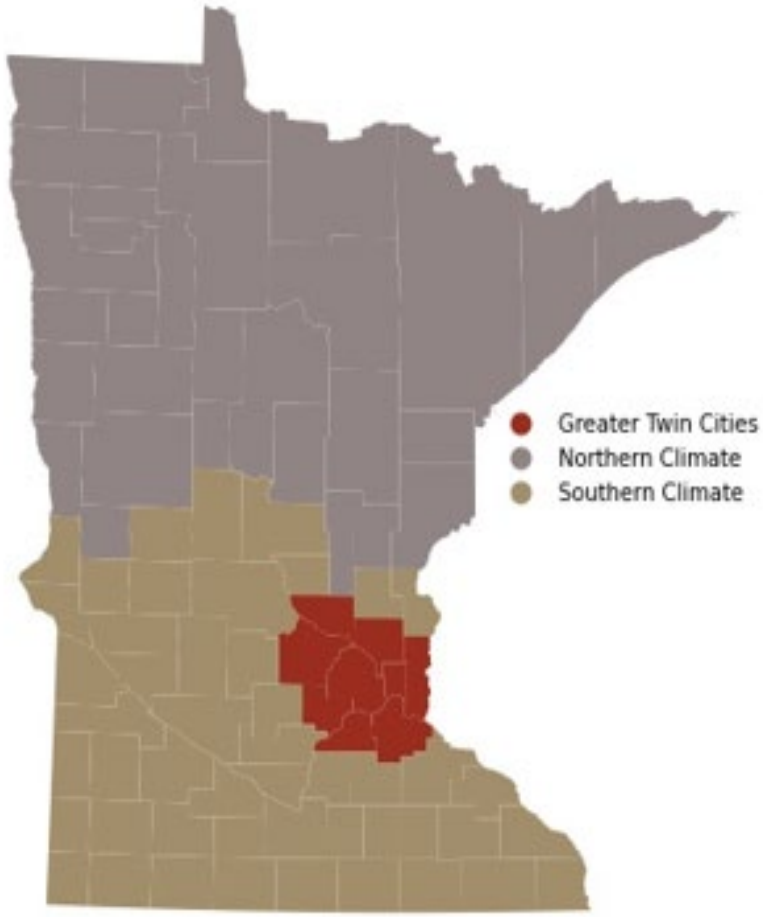
ECOMETRIC

Methodology – Literature Review

Literature Review

- Existing Market Research Reports
- HVAC Industry Websites

Methodology – Primary Data Collection



Market Actor List Development and Sampling

- Mergent Intellect online industry databases
  - North American Industry Classification System (NAICS) codes
  - Standard Industrial Classification (SIC) codes
- Geographic and climate zone fields

Region	HVAC Firms	Distribution
Twin Cities	1,981	48%
Northern MN	901	22%
Southern MN	1,254	30%
Total	**4,140**	

ECOMETRIC

Methodology – Primary Data Collection 1

Online Focus Groups

- **Three** groups segmented by company size and geographic location
- **9** HVAC contractors participated
- **90** minutes each
- Unable to recruit any companies working primarily in Northern Minnesota

Company Type	Respondents
Large Company, Twin Cities (≥10 employees)	5
Small Company, Twin Cities (<10 employees)	2
Companies working in Southern Minnesota (non-metro)	2
Total	**9**

Methodology – Primary Data Collection 2

In-depth Interviews

- **9** HVAC contractors participated
- **1** HVAC distributor participated
- Many contractors and distributors were too busy or uninterested in participating in the interview
- **4** architecture and engineering firms participated

Region	Small Firms (<10 employees)	Large Firms (≥10 Employees)	Total
Twin Cities	3	3	**6**
Northern MN	1	1	**2**
Southern MN	1	-	**1**
Total	**5**	**4**	**9**

Methodology – Primary Data Collection 3

Ride-Alongs

- Shadowed HVAC contractor
  - Small-to-medium commercial HVAC project
  - Observed interactions between contractor and commercial client, including system design and installation discussions
- Difficulty due to schedule conflicts and COVID-19 restrictions



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Key Findings – Market Actor Characteristics 1



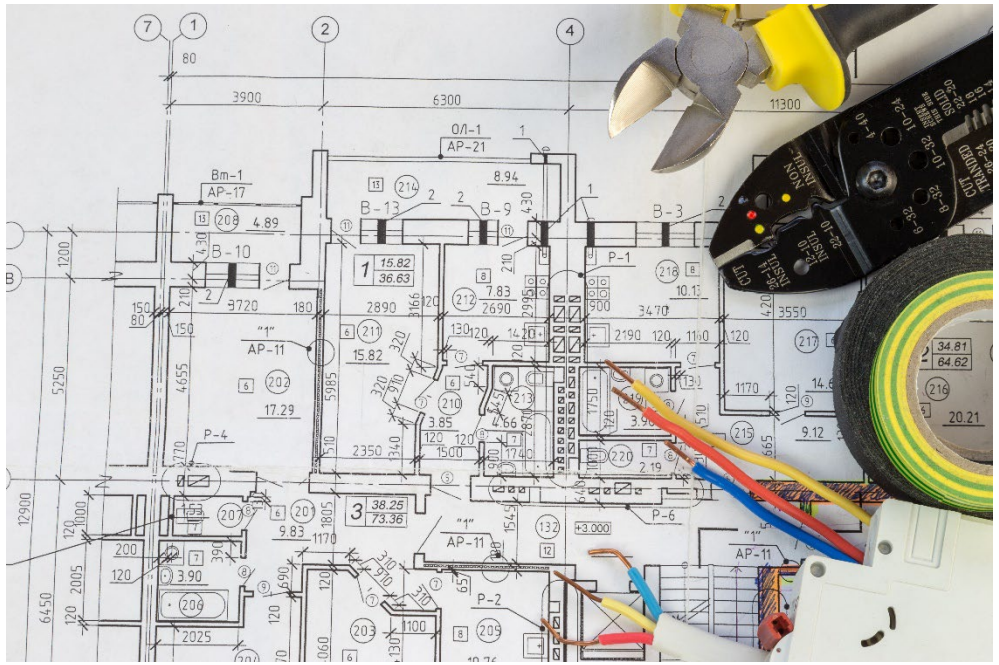
- Most architectural and engineering firms interviewed reported that **small-to-medium commercial buildings** make up at least **25%** of the buildings each firm works on.
- **Architects and engineers** described **two** key sources of satisfaction in their work
- The **two** primary motivators that **contractors** described include:
  - Achieving customer satisfaction
  - Solving technical problems

Key Findings – Market Actor Characteristics 2

- **HVAC suppliers** are a primary source of information for **HVAC contractors**.
- When **HVAC contractors** need to learn about the equipment they recommend, they primarily turn to their **vendors**.
  - Manufacturers – technical information related to specific installations as the complexity of equipment has increased
  - Internet – technical information

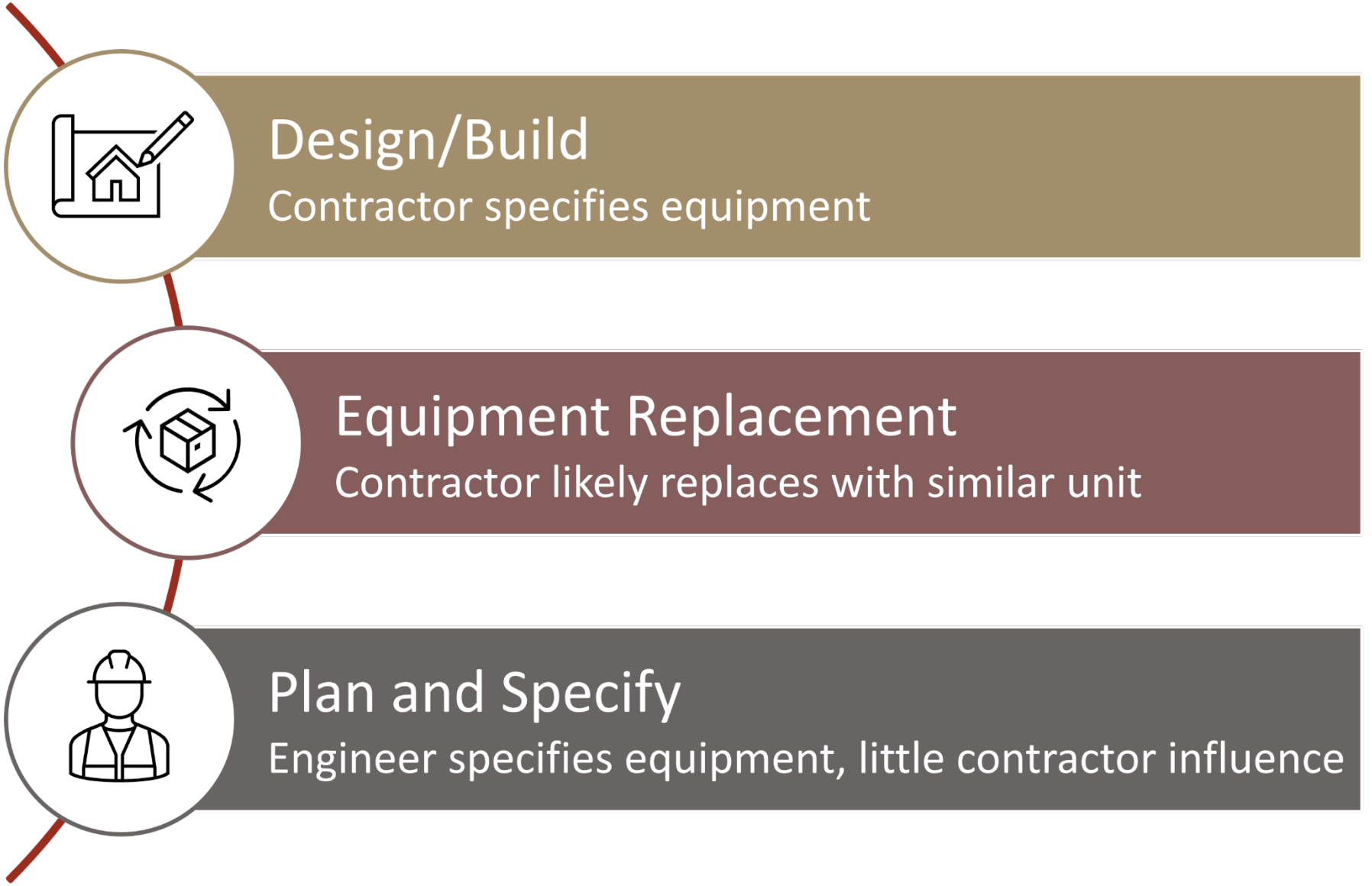


Key Findings – Market Actor Characteristics 3



- All **A&E respondents** look to **ASHRAE** and **distributor/manufacturer seminars** for information and training on the HVAC market. They are interested in learning about:
  - New HVAC technologies
  - Solutions
  - Market trends

Key Findings – HVAC Project Decision-Making

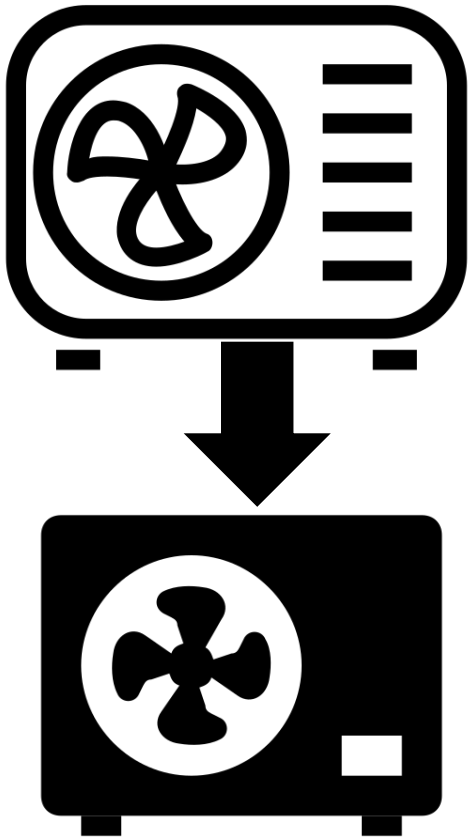


Key Findings – Design/Build

- **Design/build** projects:
  - Provide contractors the greatest flexibility to design an HVAC system. Key considerations include:
    - Physical characteristics of space
    - Use of space
    - Customer budgets
  - Require that contractors have the broadest capabilities
    - Experienced HVAC company staff typically lead design process
    - Contractors also rely heavily on manufacturers and distributors for equipment recommendations

Key Findings – Replacement

- **Equipment Replacement** projects:



- Contractors typically specify equipment, but are limited by existing infrastructure
  → Most replacements are like-for-like
- Can be more favorable to energy efficiency
  - No competition with other building systems and features
  - Owners planning to hold building for medium/long term more likely to invest

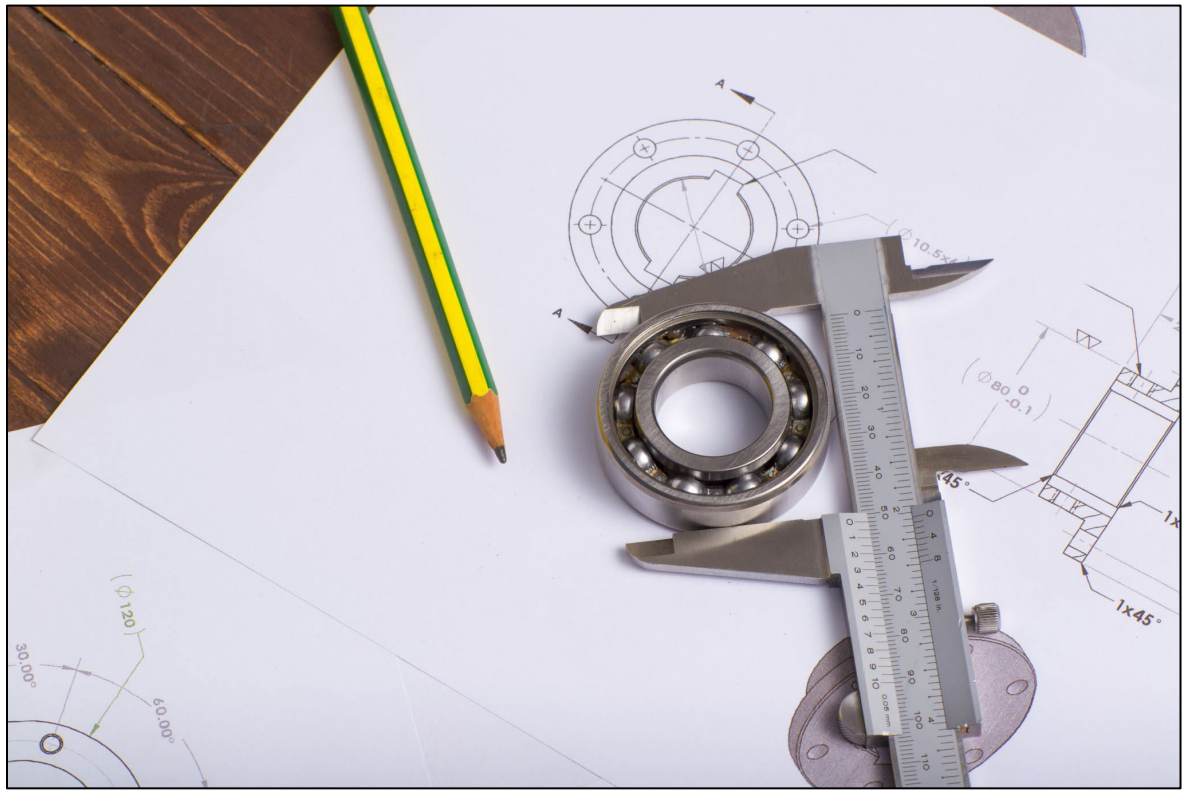
Key Findings – Plan and Specify

- **Plan and Specify** projects:
  - HVAC contractors have the least system design input
    - May suggest alternatives to differentiate bid
    - Limited opportunity to suggest alternatives once awarded project, often in context of value engineering
  - HVAC contractor relationship with client determines likelihood suggestions will be implemented

"If everybody is going to throw a number, we're not going to be the lowest. So, we give them options to either improve or cut the [installation costs] or cut the long-term costs"

Key Findings Continued

- Efficient systems generally **no more difficult** to install than standard systems.
- A small but **growing** group of customers were familiar with heat pumps.
- A&E firms worked with conservation programs to encourage energy efficiency in building designs.
- **Two** key factors that increase the likelihood a project will include efficient equipment:
  - Owner-occupied facilities
  - Publicly-owned or subsidized buildings



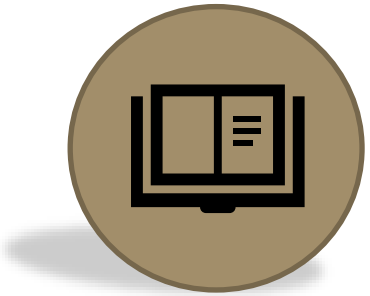
Key Findings – Business Considerations

Referrals and repeat business from end-users and general contractors are a key source of business

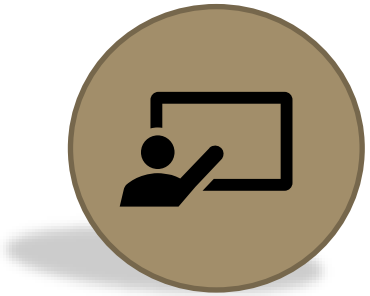
Project-level profitability depends on avoiding call-backs

Contractors seek and scope projects that they can confidently complete to the customer's satisfaction

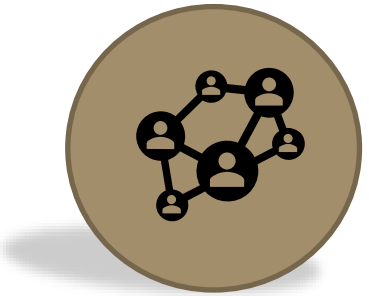
Recommendations



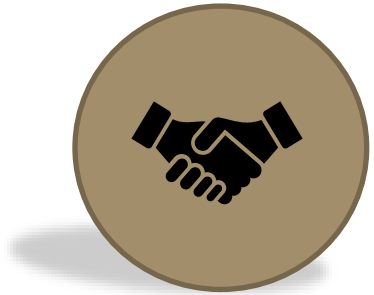
Develop case studies showcasing the energy and non-energy benefits to customers of efficient technologies.



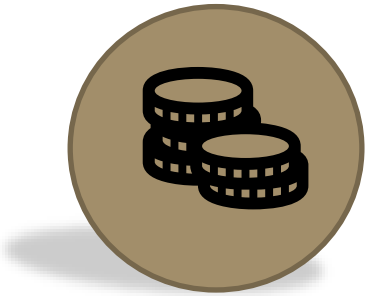
Promote workforce training with a focus on high-efficiency HVAC equipment.



Leverage existing relationships between HVAC contractors and distributors and manufacturers.

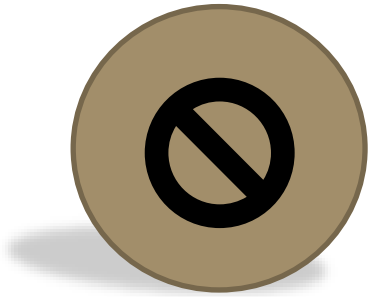


Work to strengthen relationships with distributors.

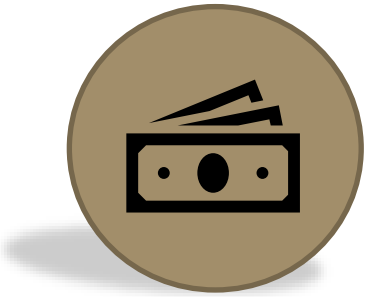


Move rebates for high-efficiency RTUs upstream.

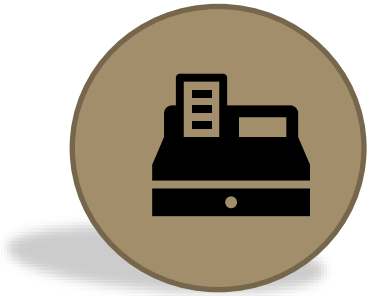
Recommendations continued



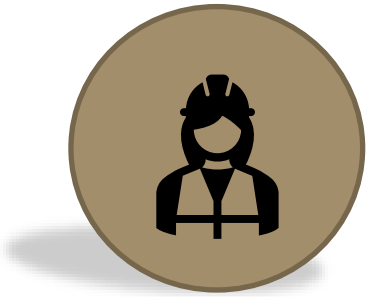
Recognize that there may be limitations to the midstream approach.



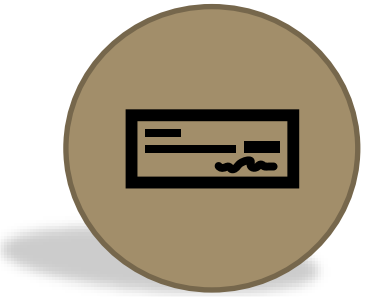
Incentivize early replacement of RTUs.



Recognize potential technology and cross-selling opportunities.



Commercial efficiency programs should pursue contractor-focused market intervention strategies.



Commercial efficiency programs should include financial support for HVAC tune-ups and other pathways.

Questions?

How do Small Commercial HVAC Contractors Make Decisions?



Jake Fuller
jake@ecometricconsulting.com



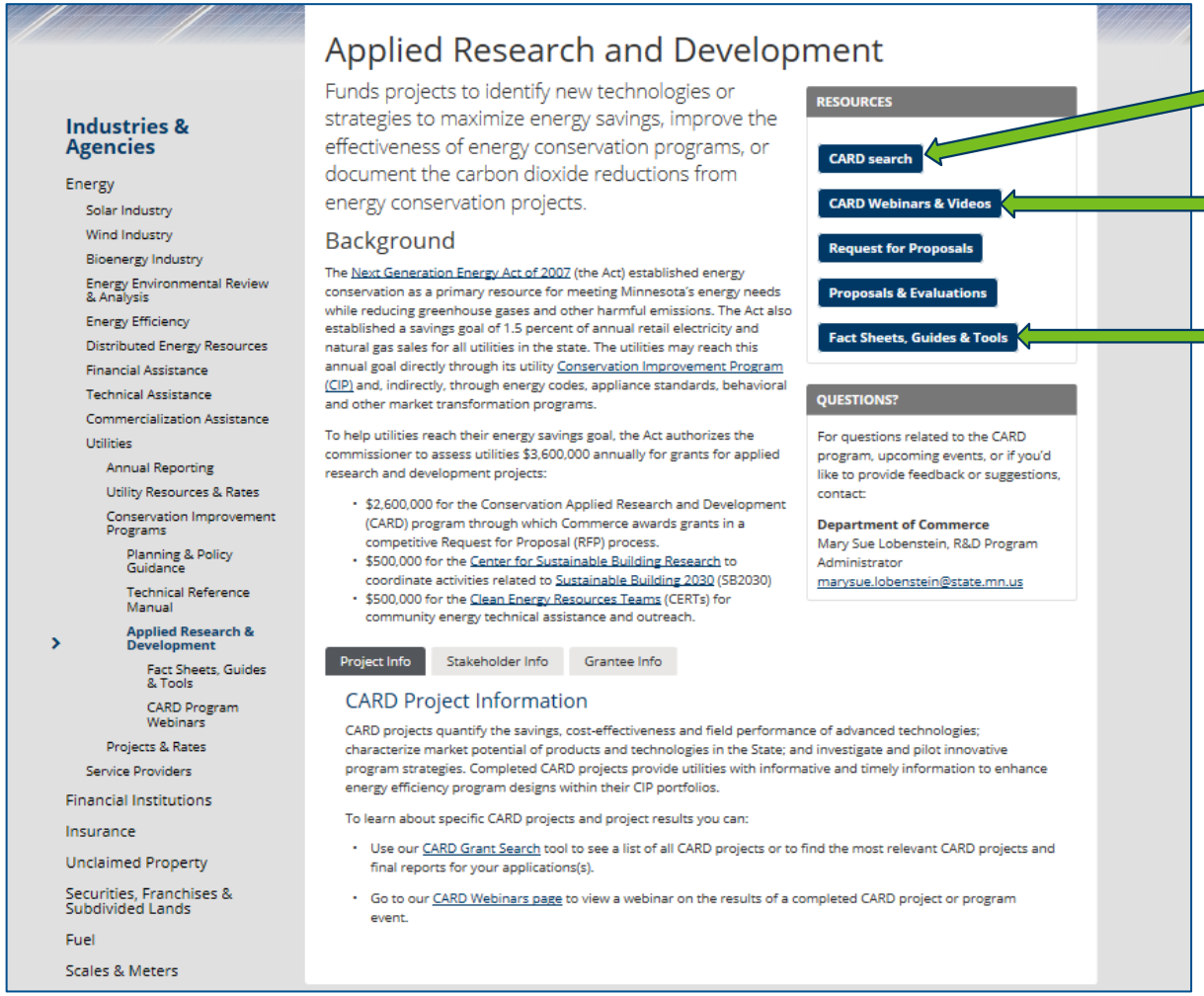
Joe Van Clock
joevc@apexanalyticsllc.com



Jon Blaufuss
jblaufuss@mncee.org

Send us your questions using the Q&A panel

CARD Project Resources



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For **Webinars** use **CARD Webinars & Videos** Quick Link

For **Other** research documents use **CARD Fact Sheets, Guidelines & Tools** Quick Link

Webinar Recording & Final Report available in couple months

R&D Web Page (https://mn.gov/commerce/industries/energy/utilities/cip/applied-research-development/)

Thanks for Participating!

Upcoming CARD Webinars:

- **Currently there are no CARD Webinars scheduled.**

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Mary Sue Lobenstein | R&D Program Administrator

marysue.Lobenstein@state.mn.us | 651-539-1872

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