
Minnesota Energy Efficiency Potential Study: 2020–2029

Appendix H: Small Commercial Market Sector Study

Contract # 121430

Publication Date: March 27, 2019

Conservation Applied Research and Development (CARD) FINAL Report

Prepared for: Minnesota Department of Commerce, Division of Energy Resources
Prepared by: Center for Energy and Environment, Optimal Energy and Seventhwave



Prepared by:

Center for Energy and Environment

Carl Nelson
Jon Blaufuss
Christopher Plum
Josh Quinnell
Nick Brambilla
Elena Foshay

Jennifer Edwards
Rabi Vandergon
Audrey Partridge
Maureen Quaid
Mike Bull
Brady Steigauf

Optimal Energy

Phil Mosenthal
Matthew Socks

Seventhwave

Scott Pigg
Jeannette LeZaks
Doug Ahl

With input and assistance from ACEEE:

Marty Kushler, Maggie Molina, and Neal Elliott

Center for Energy and Environment
212 3rd Ave N, Suite 560
Minneapolis, MN, 55401
www.mncee.org

© 2018 Center for Energy and Environment. All rights reserved.

Contract Number: 121430

Prepared for Minnesota Department of Commerce, Division of Energy Resources:

Jessica Looman, Commissioner, Department of Commerce
Bill Grant, Deputy Commissioner, Department of Commerce, Division of Energy Resources

Adam Zoet, Project Manager
Phone: 651-539-1798
Email: adam.zoet@state.mn.us

ACKNOWLEDGEMENTS

This project was supported by a grant from the Minnesota Department of Commerce, Division of Energy Resources, through the Conservation Applied Research and Development (CARD) program, which is funded by Minnesota ratepayers.

DISCLAIMER

This report does not necessarily represent the view(s), opinion(s), or position(s) of the Minnesota Department of Commerce (Commerce), its employees or the State of Minnesota (State). When applicable, the State will evaluate the results of this research for inclusion in Conservation Improvement Program (CIP) portfolios and communicate its recommendations in separate document(s).

Commerce, the State, its employees, contractors, subcontractors, project participants, the organizations listed herein, or any person on behalf of any of the organizations mentioned herein make no warranty, express or implied, with respect to the use of any information, apparatus, method, or process disclosed in this document. Furthermore, the aforementioned parties assume no liability for the information in this report with respect to the use of, or damages resulting from the use of, any information, apparatus, method, or process disclosed in this document; nor does any party represent that the use of this information will not infringe upon privately owned rights.

Contents

Contents	2
List of Figures.....	3
List of Tables.....	4
Overview	5
Characteristics of small commercial sector in Minnesota	5
Results from the Potential Study	9
Program opportunities	13

List of Figures

Figure 1. Small business establishments and estimated employment, by business size category 6

Figure 2: Distribution of cumulative total achievable program potential for 2020-2029, by fuel and small commercial business segment..... 11

Figure 3: Top measures in terms of cumulative total achievable program potential for 2020-2029, by fuel and small commercial business type. 12

List of Tables

Table 1: Building characteristics of small commercial businesses – business area and number of stories . 7

Table 2: Ownership structure and building type 8

Table 3. Statewide electric program potential by small commercial segment, 2020-2029 9

Table 4. Statewide natural gas program potential by small commercial segment, 2020-2029 9

Table 5: Recommended implementation strategies and the challenges they address..... 14

Overview

The full report that this appendix supports, *Minnesota Energy Efficiency Potential Study: 2020-2029*, is available for download on the [project website](#).

Minnesota has a thirty-plus year history of leadership in energy efficiency policy and achievements. In order to continue to maximize the benefits of cost-effective energy efficiency resource acquisition by utilities, the project team, consisting of Center for Energy and Environment (CEE), Optimal Energy (Optimal) and Seventhwave, was commissioned to:

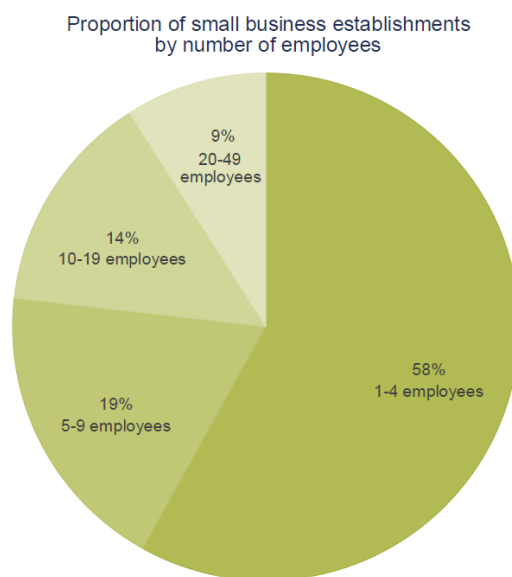
- Estimate statewide electric and natural gas energy efficiency and carbon-saving potential for 2020-2029;
- Produce data-driven and stakeholder-informed resources defining market segments, end uses, measures, and programs that could be targeted in the decade ahead to realize the state's cost-effective energy efficiency potential; and
- Engage stakeholders in order to help advance robust energy policies and energy efficiency programs in the state, and to inform future efficiency portfolio goals.

This appendix focuses on the small commercial sector, considered an underserved market because the sector is historically difficult to reach due to its dispersed nature and other market barriers. Some Minnesota utilities have energy efficiency programs that specifically target the small commercial sector, although most are driven by lighting-only retrofits. However, many utilities, especially gas utilities, do not have programs that target small businesses. As federal lamp standards become more stringent and market penetration of efficient products grows, lighting-only programs will have increasing difficulty achieving savings goals. It is with this backdrop that this potential study addresses the opportunities for small commercial businesses.

For purposes of this potential study, the project team separated small offices and small retail from their larger counterparts when developing the model. The project team also assumed that food service building segment can be categorized as small commercial since the majority of all food service establishments are less than 50,000 SF.

Characteristics of small commercial sector in Minnesota

According to the U.S. Census Bureau's 2013 County Business Patterns (CBP), there are roughly 138,000 small businesses in Minnesota, accounting for 94 percent of all businesses in the state and employing over one million people. The majority of small businesses in Minnesota employ fewer than five people and only one-tenth employ 20 or more (see Figure 1).

Figure 1. Small business establishments and estimated employment, by business size category

A recently completed CARD-supported study took a closer look at the small commercial sector to understand energy efficiency opportunities and savings.¹ Through a telephone survey of over 1,400 businesses and 100 onsite visits, the study examined the major end uses for four business types: retail, offices, food service, and groceries/convenience stores.

The study found that Minnesota small commercial businesses tended to occupy spaces that were smaller than 5,000 square feet and located in a one-story building (Table 1). There are very few buildings overall that occupied spaces larger than 50,000 square feet.

¹ LeZaks, J., S. Hackel, S. Schuetter, K. Swartz, M. Lord, and A. Lick. 2018. Small Commercial Characterization. Minnesota Department of Commerce, Division of Energy Resources.

Table 1: Building characteristics of small commercial businesses – business area and number of stories

	Retail	Food Service	Office
Business total area			
<i>Less than 5,000 square feet</i>	61%	60%	78%
<i>5-10,000 square feet</i>	10%	19%	10%
<i>10-25,000 square feet</i>	14%	11%	7%
<i>25-50,000 square feet</i>	6%	8%	3%
<i>More than 50,000 square feet</i>	9%	3%	1%
Building total stories			
<i>One story</i>	69%	90%	51%
<i>Two stories</i>	22%	5%	31%
<i>Three stories</i>	4%	2%	8%
<i>Four to nine stories</i>	4%	2%	7%
<i>More than 10 stories</i>	1%	2%	3%

The study also found a variety of ownership structures within the business segments (Table 2). For retail, food service and office business segments, it was more likely that they lease or rent their businesses space. Additionally, these building types are more likely to be located in multi-tenant or mall structures. Offices that are not in free-standing structures are more likely to be found in multi-tenant structures rather than malls.

Table 2: Ownership structure and building type

	Retail	Food Service	Office
Ownership structure			
<i>Lease their business space</i>	61%	60%	60%
<i>Own and occupy the whole building</i>	38%	39%	38%
<i>Own the building but lease out space</i>	1%	2%	2%
Building type			
<i>Free-standing</i>	38%	48%	44%
<i>Multi-tenant commercial</i>	31%	25%	48%
<i>Enclosed mall or strip mall</i>	34%	29%	11%

Results from the Potential Study

The results from the potential study modeling suggests that programs targeting these three business segments in the small commercial sector have the potential to achieve cost-effective first-year savings of 2.6% percent annual electric utility sales for small commercial businesses (Table 3) and 2.6% percent of natural gas sales (Table 4). This represents 31 percent of the total achievable electricity savings potential in the commercial sector and 39 percent of the total commercial potential for natural gas.

Table 3. Statewide electric program potential by small commercial segment, 2020-2029

Small commercial business segment	Projected average annual sales, 2020-2029 (GWh)	Incremental achievable program potential*	
		(GWh)	% of sales
Office	3,831	78	2.0%
Retail	1,918	49	2.6%
Food Service	3,993	127	3.2%
Total	9,742	254	2.6%

*Mean of first-year savings potential for 2020-2029

Table 4. Statewide natural gas program potential by small commercial segment, 2020-2029

Small commercial business segment	Projected average annual sales, 2020-2029 (Dth, thousands)	Incremental achievable program potential*	
		(Dth, thousands)	% of sales
Office	10,715	230	2.1%
Retail	10,424	228	2.2%
Food Service	18,662	331	1.8%
Total	39,801	788	2.0%

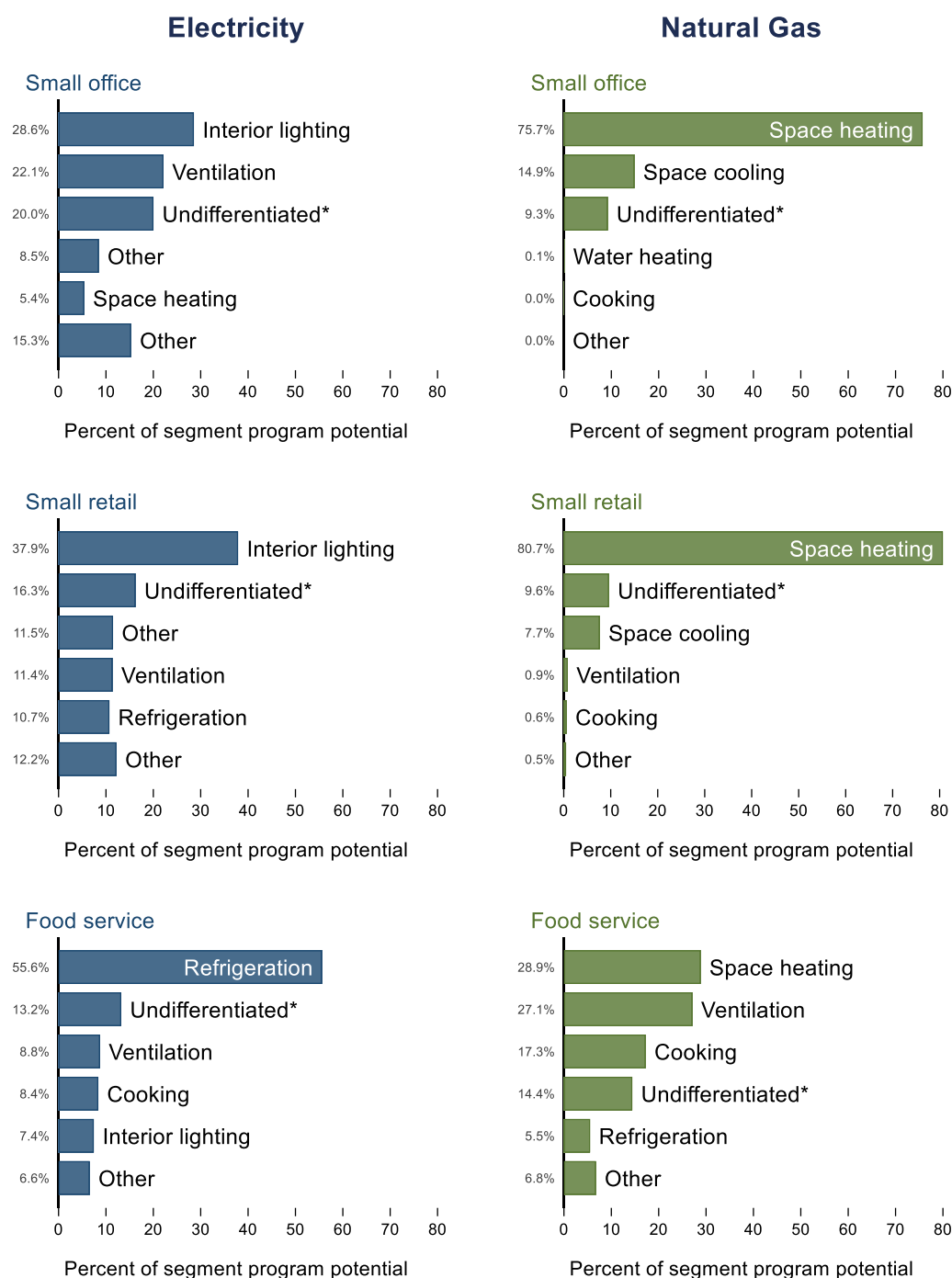
*Mean of first-year savings potential for 2020-2029

In terms of energy end-use, each business segment shows electric potential in a variety of end uses (Figure 2). For all three segments, undifferentiated electrical measures, such as integrated building design that affects multiple end uses, offer significant potential. In small offices and small retail, interior lighting measures and ventilation measures are dominant. And for food service, refrigeration comprises the most potential for electrical savings.

For natural gas measures, space heating dominates the potential in the retail and office segments. Additionally, undifferentiated measures also show significant potential. In food service, the potential savings are more evenly split between space heating, ventilation, cooking and measures that affect multiple end uses.

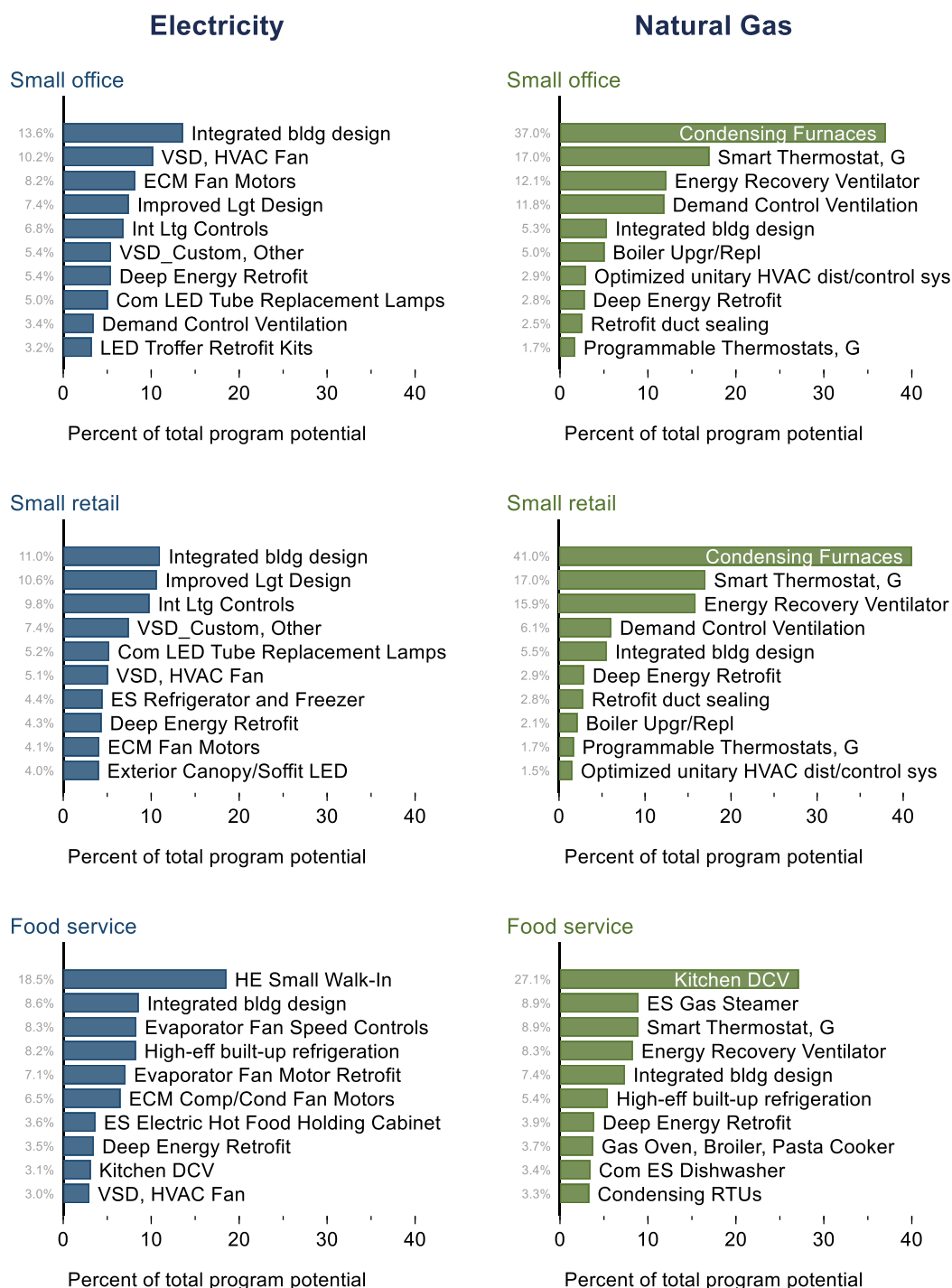
Error! Reference source not found. shows the top ten measures for each business segment in order of their relative potential impact. Measures categorized as “other” include ECM circulators, water pumps, dishwashers and custom measures.

Figure 2: Distribution of cumulative total achievable program potential for 2020-2029, by fuel and small commercial business segment



*Measures that affect multiple end uses

Figure 3: Top measures in terms of cumulative total achievable program potential for 2020-2029, by fuel and small commercial business type.



Program opportunities

The small commercial sector presents unique challenges to utility program administrators. Business owners or managers often can devote little extra time to thinking about energy because of competing demands. They are cost-conscious which means they would like to save money on energy costs but may not have access to the capital funds to do anything about it. Moreover, they need to have confidence that any investment they make has a positive impact on their customers and bottom line. Based on these challenges, the recent small commercial characterization identified customer-focused program approaches that can be used by program administrators to help overcome barriers to participation.² They are summarized in Table 5.

² LeZaks, J., S. Hackel, S. Schuetter, K. Swartz, M. Lord, and A. Lick. 2018. Small Commercial Characterization. Minnesota Department of Commerce, Division of Energy Resources.

Table 5: Recommended implementation strategies and the challenges they address

Implementation approach	Description
Vertically integrated program	Addresses varied and holistic nature of the measures. A vertically integrated program allows the program administrator to be nimble and flexible in finding the appropriate trade allies from a variety of trades, and it can streamline the process for a business from identifying energy efficiency opportunities to moving through a program.
Needs-based marketing and outreach	Engages customers because the program targets issues that matter most. Customers can be heavily segmented, with customer needs identified by not only segment (e.g. occupant comfort for restaurants, profit margin for grocery) but also by specific end uses (e.g. those customers with high plug loads). Follow-up allows for multiple points of entry into the program to address the ebbs and flows of the business cycle.
Ally with trusted information channels (e.g. business associations)	Provides marketing through trusted networks such as business organizations or local chambers of commerce. A successful program engages with customers on many levels. Programs need to be nimble enough to help customers that may speak a different language or have different values and approaches to business.
Easy financing options	Provide alternatives to high capital expenditures. Even when a small business is doing well, cash flow is still often a concern.
Selling non-energy benefits (e.g. productivity, comfort)	More motivation beyond simply saving money. Communicate benefits of comfort, convenience and improvements in business process.
Customer journey to deeper savings	Allows for the flexibility that is needed for small businesses. Have a planned and straightforward process for a customer to move from low-cost direct-install measures to more capital-intensive project.
Using residential marketing channels	Improved outreach connection to busy small business owners. Many small businesses may be more aware of their utility's residential offerings.