Notification Date: April 12, 2022

➢ Summary of 60-Day Notice: Compressed Air Efficiency

Public Service Company of Colorado ("the Company") posts this 60-Day Notice to make changes to the Compressed Air Efficiency product in response to the 2021 Comprehensive Evaluation.

The evaluation provided key findings in the areas of Net-to-Gross Ratios ("NTGR") for product measures as well as in trade-partner and customer experiences with the product. The Company will implement the following recommendations in 2022:

- Update the NTGR for Equipment Rebates to 90% and 89% for Efficiency Studies;
- Increase the frequency of communications with trade partners;
- Provide trade partners with project updates;
- Provide product contact information to trade partners;
- Document trade partner engagement processes for internal use;
- Host events and meetings for trade partners when possible;
- Evaluate direct marketing to end-users on product equipment;
- Provide updated customer-facing marketing materials to trade partners;
- Monitor rebate values and evaluate the opportunities for increased rebate amounts; and
- Encourage account representatives to provide study eligibility information to customers.

Table 1: Summary of Forecasted Impacts: Compressed Air Efficiency

	2022	
	As Filed	*Revised per 60-day*
Electric Savings (kWh)	5,550,053	6,029,410
Electric Demand Reduction (kW)	920	1,006
Budget*	$727,195	$727,195
MTRC Test Ratio	1.77	1.85

*Rebates only. While the anticipated expenditure impacts are forecasted, the Company acknowledges that this Notice does not change the filed budget.

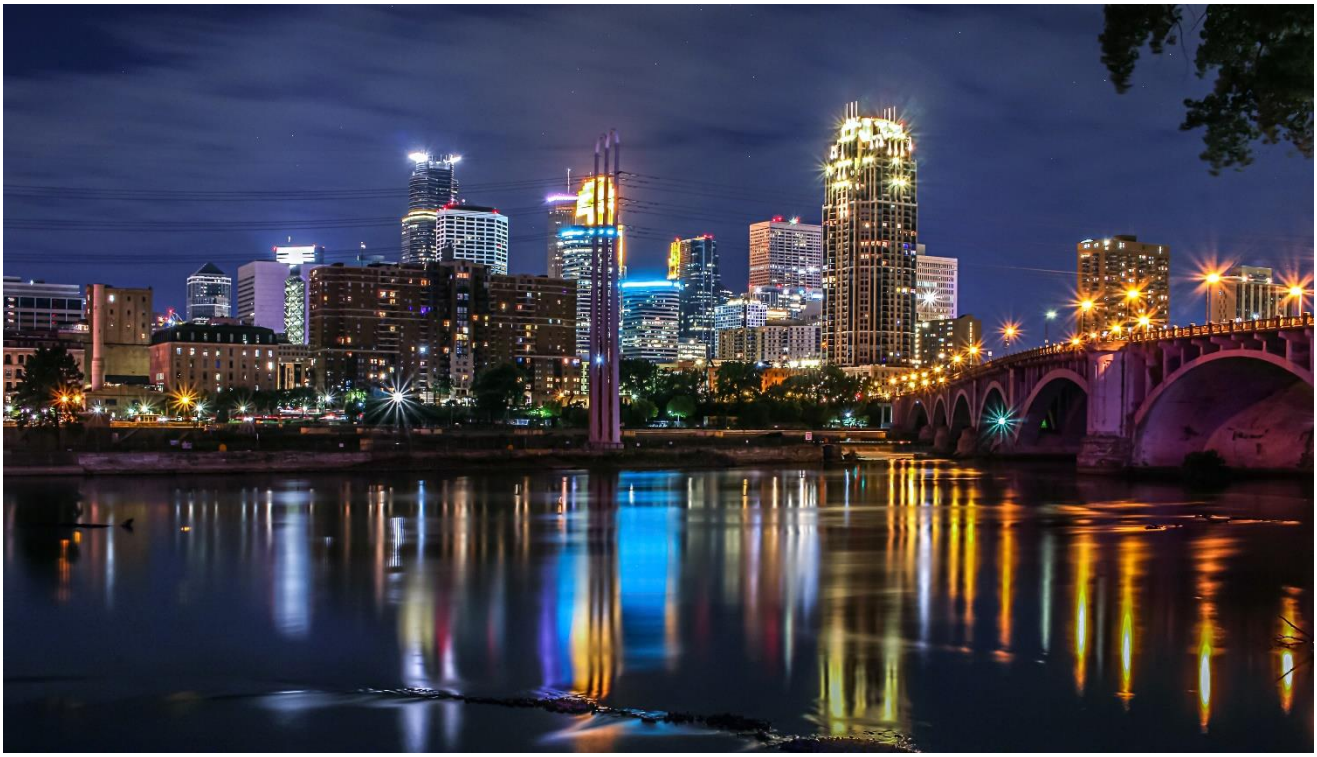
Detailed responses to each of the Comprehensive Evaluation recommendations can be found in the matrix included with the report.

Included with this Notice are the following documents:

- Redlined Technical Assumptions worksheet, and
- Updated cost-benefit analysis.

These documents can be found on our website at the following link:
http://www.xcelenergy.com/Company/Rates_&_Regulations/Filings/Colorado_Demand-Side_Management

February 22, 2022



Xcel Energy

Colorado Commercial & Industrial Compressed Air Product Impact & Process Evaluation

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EXECUTIVE SUMMARY

2021 Colorado C&I Compressed Air Product

Introduction

Xcel Energy contracted with TRC to evaluate the 2021 Commercial and Industrial (C&I) Compressed Air Product in Colorado. The Colorado Compressed Air Product provides compressed air efficiency studies and prescriptive or custom rebates for a variety of compressed air measures. The product is designed to address participation barriers and engage C&I customers who would not conduct a compressed air study or install efficient compressed air measures on their own.

As part of the process evaluation, TRC collected feedback on trade partner and customer experiences with the Compressed Air Product's Efficiency Studies and Equipment Rebates processes, identified motivations and barriers to participation in the products, explored ways to grow the compressed air market, and assess peer utility program practices. For the impact evaluation, TRC assessed the impact of the product on customer decision making. This summary includes the key findings and recommendations from our evaluation.

Methods

Participating customer survey (n=14)

Participating customer follow-up interviews (n=3)

Near-participating customer interviews (n=2)

Trade partner interviews (n=6)

Peer utility interviews (n=8)

Fielding:
July – September 2021

Summary of Findings

TRC estimated a retrospective **NTGR of 0.89** for the both Equipment Rebates and Efficiency Studies, based on participating customer and trade partner responses. We recommend applying a prospective **NTGR of 0.90** for Equipment Rebates and **NTGR of 0.89** for Efficiency Studies if recommendations are implemented.

Trade partners felt that **increased communications from Xcel Energy** would motivate additional trade partner participation and also **increase trade partner satisfaction** with their experience participating in the product.

Trade partners valued continuity and **experienced challenges due to product staffing changes**. Trade partners noted that when product staff turned over, there were sometimes **gaps in support or inconsistencies in product implementation**.

Trade partners provide **primary communication** to customers about the Compressed Air Product and trade partners expressed the need for **support in marketing** the product as a result. Peer utilities also mentioned **lack of end-user awareness** as a barrier.

Participating customers and trade partners reported **high satisfaction with rebate levels**. However, trade partners also felt that **past rebate levels were higher / more impactful**. Near-participating customers agreed **higher rebate levels** would increase their likelihood of participation. Colorado has some opportunity to increase rebates because average rebates are currently 45% of incremental costs – slightly below than the portfolio target of 60%

Near-participants had **low awareness** of the Compressed Air product and many customers who had formerly participated in a study **did not know they were eligible to complete an updated Efficiency Study**. Near-participant interviews found that general awareness of Xcel Energy products was low.

Product Influence

Retrospective Net-to-Gross Ratio: Equipment Rebates = (1 - Free Ridership) + (Spillover Ratio) + (Market Effects)

0.89 = (1- 0.12) + (0.00) + (0.01)

Score pulled by small number of participants with **low free-ridership**, whose projects accounted for a **large portion of savings**.

The evaluation team **found no evidence** of participating or near-participating spillover.

Trade partners felt the product **increased the amount of efficient equipment** they installed.

EXECUTIVE SUMMARY

2021 Colorado C&I Compressed Air Product

Product Influence

Retrospective Net-to-Gross Ratio: Efficiency Studies = (1 - Free Ridership) + (Spillover Ratio) + (Market Effects)

0.89 = (1- 0.12) + (0.00) + (0.01)

No respondent had a score below 0.60.

The evaluation team **found no evidence** of participating or near-participating spillover.

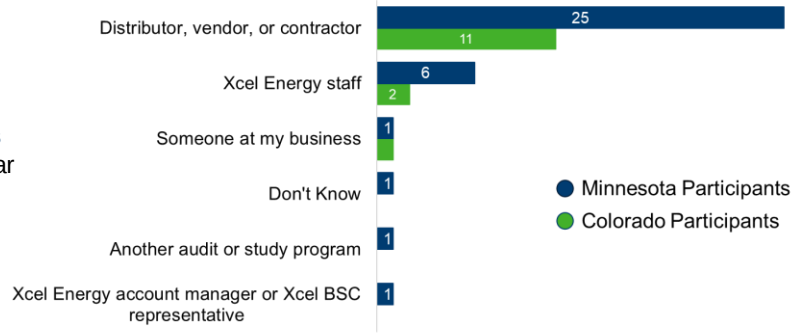
Trade partners felt they **would not conduct the same study** without support from the product

Awareness, Motivations, & Barriers to Participation

Awareness

Participating customers most frequently became aware of the Compressed Air Product through their **vendor or contractor (79%).**

Participating customers prefer to hear about similar rebate and product opportunities from Xcel Energy **via email (93%).**



Motivations

Participating customers said reducing the **dollar amount of energy bills** and **upgrading out-of-date equipment/materials** were the biggest motivations for product participation.

Among study participants, identifying opportunities to **improve the efficiency of their compressed air systems** was the biggest motivation for product participation.

Near-participants were most commonly motivated to replace or upgrade their compressed air systems **due to equipment failure/end-of-life or a need to expand system capacity.** Near-participants who previously conducted a study were motivated by identifying **opportunities to save energy and money** and the **no-cost audit.**

Barriers

Only two equipment rebate participants (and no study participants) reported that there was some factor holding them back from applying for an equipment rebate including: **high upfront costs of the equipment** and the **uncertainty around long-term savings.**

Across all near-participants—both those who previously participated in a study and those who considered participating in equipment rebates—a barrier was **lack of awareness** and **understanding of Xcel Energy products.**

Trade partners described several key barriers to participating in the Compressed Air product including: the **turnaround time** for approvals and rebates could be too long, difficulty in knowing **application status**, and **low end-user product awareness**.

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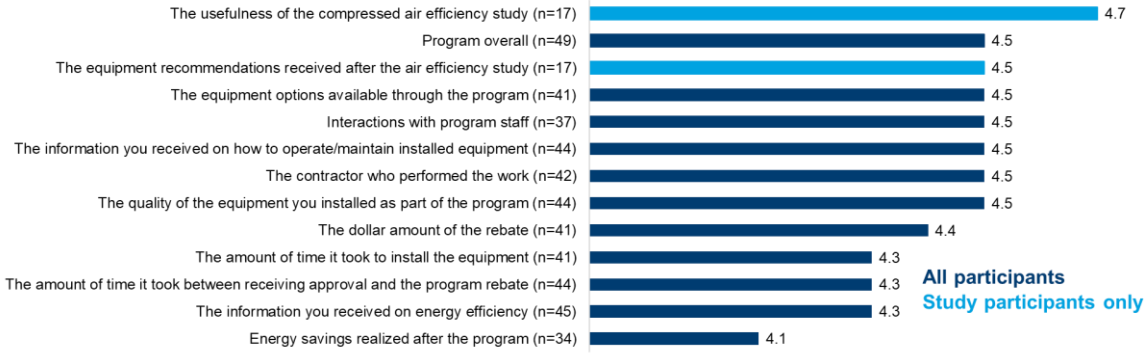
EXECUTIVE SUMMARY

2021 Colorado C&I Compressed Air Product

Experience & Satisfaction

Participating customers were **satisfied** with the product as a whole.

Efficiency Study participants were most satisfied with the **usefulness of the compressed air efficiency study.**



4.5 out of 5

On average, **participating customers** rated their satisfaction a **4.5 out of 5**, where 1 means "not at all satisfied" and 5 means "very satisfied."

When asked what they liked most about the product, **participating customers** said: its **simplicity**, the **rebate**, and **saving energy**

5 out of 5

All four prior Efficiency Study participants were "very satisfied" (rated a **5 out of 5**) with their previous study.

Trade Partners were **generally satisfied** with the product, with ten respondents rating it a **4 or a 5** out of 5.

Growing the Compressed Air Product

Trade partners provided several suggestions for additional equipment that could be included under the Compressed Air product, with a preference for expanding what **qualifies as prescriptive.**

Colorado trade partners provided some evidence that companies providing audits outside Xcel Energy's study offering **create competition for study providers** operating within the product. Three companies in Colorado mentioned that their **company performs leak check audits outside the product**. They also felt they could be further supported and participate more in the product with **increased communication from Xcel Energy**.

> *"We are not set up as a study provider through Xcel. We have all the equipment to do it, but we don't actually do the audit through Xcel…it's a lot of work to do the audit itself and hard to justify. Just not a high ROI for us."*

Peer Utility Program Experiences

Generally, peers found that simpler, **more streamlined program components** contributed to the **success of their programs**.

Opportunities identified by peer utilities for growing their programs most frequently related to **increasing outreach and marketing to end-users**.

Peers noted that it is sometimes difficult to **inform customers** of an opportunity to optimize their compressed air systems and convince them that upgrading to energy-efficient equipment is the right thing to do.

> *"Compressed air is a system that needs to be optimized, [I] supposed that customers don't realize that. We reach out to customers to try to get them to look at their systems more holistically. They need more education."*

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Conclusions & Recommendations

The evaluation team estimated a retrospective **NTGR of 0.89** for the both Equipment Rebates and Efficiency Studies, based on participating customer and trade partner responses. The evaluation team recommends Xcel Energy apply a prospective **NTGR of 0.90** for Equipment Rebates and **NTGR of 0.89** for Efficiency Studies if recommendations are implemented.

The evaluation team took the following findings into consideration when estimating the prospective NTGR of 0.90 for Equipment Rebates:

- **Additional trade partner communication and marketing support** could help trades better communicate the benefits provided by the product to customers.
- **Increased trade partner support could also drive additional custom projects,** which are associated with higher savings and were found to have a high NTGR.
- **There is some opportunity for Xcel Energy to increase their influence in the market** by increasing prescriptive rebates in Colorado.
- Due to the comprehensiveness of the study offering, it is **unlikely that a customer would conduct the same study without the product.**

Trade partners felt that **increased communications from Xcel Energy** would motivate additional trade partner participation and also **increase trade partner satisfaction** with their experience participating in the product.

Increase the frequency of communications with trade partners regarding product changes and other product updates.

- The COVID-19 pandemic prevented some communication (particularly in-person meetings) that would have occurred in a typical year. Increasing the frequency of communications can help re-engage trade partners and continue to build or strengthen the relationships with trade partners that are crucial to bringing customers to the product. Consider creating a communication that is delivered to participating trade partners on a monthly or quarterly basis, as feasible, that reminds trade partners of key product components – like rebate levels (or changes to rebate levels), how to submit applications, and who to contact with questions. This communication could also include frequently asked questions from trade partners, or ideas of how to use the product more effectively as a sales tool. Providing additional support to trade partners through a regular communication not only helps to build trust with trade partners but can also make the process of trade partner participation run more smoothly.

Provide trade partners with an update (phone, in-person, or via email) including the status of open projects and estimated review time of their projects, so they can communicate that information to their customers. Trade partners reported some frustration with the timeline of participation in the product, primarily because they felt confused about the status of their application and how long they should anticipate each step taking. They felt this sometimes affected their relationship with their customers and their ability to keep customers up-to-date on the progress of their compressed air project. Participating customers echoed these frustrations in satisfaction findings, where they rated their satisfaction with the time it took to install compressed air projects lowest among the product elements.

- In conversations with product staff, it was noted that there is a goal to eventually develop a trade partner portal that would allow a trade partner to log in and see the status of their projects. While that is being developed (project staff note it is still years away), quarterly or monthly communications via email, phone, or in-person conversation can help support trade partners by keeping them updated about the status of their projects.
- When developing a means to provide this feedback, Xcel Energy will need to ensure data privacy of customer records if sending updates via email. If feasible, this information should be communicated using a project ID instead of identifying customer information.

Use updates suggested in recommendations 1a and 1b to remind trade partners of who contact at Xcel Energy when they have questions or concerns.

- Providing more regular updates (monthly or quarterly, as suggested in the previous recommendations) gives the product team an opportunity to provide up-to-date contact information for Xcel Energy Compressed Air support if and when staff turnover does occur

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Conclusions & Recommendations

Trade partners valued continuity and **experienced challenges due to product staffing changes**. Trade partners noted that when Compressed Air product staff turned over, there were sometimes **gaps in support or inconsistencies in product implementation**.

Ensure processes for working with trade partners are well documented in internal material. Program processes can be detailed in internal product materials and a Customer Relationship Manager (CRM) could track communications with individual trade partners and their businesses. This way, even when there is staff turnover, new staff have the resources they need to make sure interactions with trade partners remain high-touch and consistent.

- Well-documented processes for working with trade partners (including preferences or approaches to working with individual trade partners) will help minimize disruption that trade partners feel when there is turnover or new product staff.

When possible, host trainings, lunches, and other in-person meetings to maintain high-touch relationships with trade partners.

- As mentioned in the previous Key Finding , many of these in-person meetings were impossible during the pandemic, but trade partners often mentioned these lunches and trainings during interviews as a good opportunity to build relationships with product staff. Keeping a regular cadence of in-person meetings once a year or so will allow new product staff to get to know and build rapport with trade partners even as turnover occurs.

Trade partners provide **primary communication** to customers about the Compressed Air Product and trade partners expressed the need for **support in marketing** the product as a result. Peer utilities also mentioned **lack of end-user awareness** as a barrier.

Consider direct marketing to end-users of compressed air equipment to drive customers to qualified trade partners.

- Product staff indicated that, while it is difficult to identify appropriate end-users of compressed air equipment (a reason why the product primarily relies on trade partners to bring customers to the product) there could be an opportunity to do outreach to customers assumed to have compressed air systems using North American Industry Classification System (NAICS) or Standard Industrial Classification (SIC) codes and send email marketing. Using these codes for end-user marketing efforts would help narrow down communications to target those customers in industries likely to use compressed air equipment.
- Marketing opportunities are also limited for individual products, and outreach may need to be strategic in terms of bundling with other offerings in order to market directly to end-users.

Provide trade partners with updated customer-facing marketing materials that highlight the cost and energy savings they could achieve with high-efficiency equipment.

- Current marketing materials for trade partners have not been refreshed in some time. There is an opportunity to update these and provide trade partners with printable/emailable materials to use when discussing the product with their customers. These materials should focus on helping trade partners communicate not only the benefits of the product, but also the monetary benefits of installing efficient equipment or performing a study to customers. This is an aspect of compressed air knowledge that peer utilities and trade partners both noted was particularly difficult when working with end-users.

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Conclusions & Recommendations

Participating customers and trade partners both reported **high satisfaction with rebate levels**. However, trade partners felt that past rebate levels were higher and more impactful, making the **previous equipment rebates easier to use as a sales tool**. Additionally, near-participating customers reported that **costs were a barrier** and echoed that **higher rebate levels** would increase the likelihood of their participation.

Monitor incremental prescriptive rebate amounts for Colorado to determine whether there may be opportunity to increase prescriptive rebate amounts

- Xcel Energy sets a target for the portfolio that rebates not exceed 60% of incremental costs on average. Currently, rebates for the Compressed Air Product in Colorado are at 45% of incremental costs, so there may be room in Colorado for a slight rebate increase. Product staff should continue to monitor incremental prescriptive rebate amounts and consider increasing the rebate for prescriptive equipment, keeping an eye on inflation and cost changes for efficient compressed air equipment. Trade partners reported feeling that the rebates had been more impactful in the past, so increasing rebate levels when able may increase trade partner support of and participation in the product.

Near-participants had **low awareness** of the Compressed Air product and many customers who had formerly participated in a study **did not know they were eligible to complete an updated Efficiency Study**. Near-participant interviews found that general awareness of Xcel Energy products was low.

Encourage account representatives to work closely with trade partners or product staff to engage with customers who are eligible for an updated study. Customers who are eligible for updated studies after five years are typically contacted by their Account Manager, but savings related to fixing leaks through studies are not always large enough to trigger a follow-up by the Account Manager.

- Product staff indicated that there is an opportunity to engage trade partners or other product staff who may have a more established relationship with the former study participant to reach out to them directly, rather than relying exclusively on Account Managers. This may relieve some of the burden put on Account Managers to track and follow-up with all previous study customers, and also may more effectively reengage these lapsed participants.

1 Introduction

Xcel Energy offers a comprehensive array of energy services and products to its customers, including demand side management (DSM). For its 2021 product evaluations, Xcel Energy sought to understand the role each product plays in changing the marketplace, to analyze that influence on customer choices, and to use the findings to improve customer experience and ensure industry-leading product performance. To accomplish this, Xcel Energy contracted with TRC to evaluate eleven products offered in Colorado and Minnesota in 2021.[1] This included the Commercial & Industry (C&I) Compressed Air Product in Colorado, discussed in this report. This introduction includes an overview of the product and the evaluation approach and describes the organization of the report.

1.1 Product Overview

The Colorado Compressed Air Product provides compressed air efficiency studies and prescriptive or custom rebates for a variety of compressed air measures. Two barriers to installing new compressed air measures for commercial and industrial (C&I) customers are the high costs associated with efficient compressed air equipment and lack of awareness of opportunities to improve the energy efficiency of compressed air systems. The Colorado Compressed Air Product is designed to address these barriers and engage C&I customers who would not conduct a compressed air study or install efficient compressed air measures on their own. To achieve the product's objectives, account and channel managers maintain relationships with trade partners, primarily through phone communication, site visits, and trainings (though these were limited during product year 2020 due to the COVID-19 pandemic).

Customers participate in the Compressed Air Product through three tracks:

1. **Compressed Air Efficiency Studies.** The Study track of the Compressed Air Product offers Supply-Side Studies. Trade partners conduct compressed air efficiency supply-side studies at C&I customer facilities to identify leaks and other inefficiencies, as well as opportunities for equipment upgrades. Trade partners are required to go through a pre-approval process to ensure they conduct studies to the product team's standards and to help trade partners understand what information is needed to conduct a study successfully. Customers are eligible for compressed air studies every five years and are either contacted by a trade partner or by Xcel Energy product staff once they are eligible for a new study. Table 1-1 below outlines the supply-side rebate amounts per study, based on the compressed air system's operating horsepower available to Xcel Energy C&I electric customers.

   When conducting a compressed air supply-side efficiency study, trade partners work with customers to benchmark the customer's existing system operation. This information is used to identify potential energy conservation opportunities, as well as identify and measure leaks to be fixed. The study is fully rebated once the customer fixes 75% of

[1] The products selected for evaluation include: ENERGY STAR New Homes (CO), C&I New Construction (CO), High Efficiency AC (CO), Home Lighting (CO), Compressed Air (CO), Compressed Air (MN), Commercial Efficiency (MN), Process Efficiency (MN), Low-Income Home Energy Squad (LIHES), Home Energy Savings Program (HESP), and Multi-Family Energy Savings Program (MESP).

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leaks. Customers who participate in a supply-side study are eligible for larger custom rebate amounts when purchasing recommended equipment than those who do not complete a study.

Table 1-1. Rebate Levels for Supply-Side Compressed Air Studies, CO

Operating Horsepower (HP)	Funding Level Per Study
500 hp systems and larger	$4,000 plus $20 per hp (capped at $25,000)
200 hp-499 hp systems	$3,000 plus $20 per hp
50 hp-199 hp systems	$2,000 plus $20 per hp
10 hp-49 hp systems	$250 plus $20 per hp
< 10 hp	Not available

Note: Study funding requires Xcel Energy preapproval and customer must fix at least of 75% of air loss caused by leaks to receive the rebate.

2. **Custom Rebates:** Custom rebates are available for compressed air projects that are not eligible for rebates through Xcel Energy's Compressed Air prescriptive track. These projects are often larger or more complex to complete than projects that are eligible for prescriptive rebates. Customers are frequently driven to participate in custom rebates after participating in studies, where trade partners identify custom and prescriptive measure opportunities. Custom savings account for the largest portion of the product's savings.

   Custom projects are reviewed and analyzed by product staff to determine claimed savings amounts. If a custom project is implemented and calls for monitoring and verification, claimed savings are trued up with actual savings by engineers. After savings are verified by Xcel Energy engineers, customers receive an equipment rebate by check.

3. **Prescriptive Rebates:** Prescriptive rebates are offered for a variety of compressed air measures. Compared to custom measure projects, projects that are eligible for prescriptive rebates are often smaller and more straightforward to complete. As with custom rebates, participants are often driven to install prescriptive measures and apply for rebates after participating in studies, where trade partners identify opportunities for further participation in the product through equipment upgrades. For prescriptive projects, applications do not require preapproval (as they do with custom projects) and are processed for rebates upon receipt by product staff. Table 1-2 below shows prescriptive rebate amounts for compressed air equipment in Colorado.

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Table 1-2. Prescriptive Compressed Air Measure Rebates Levels, CO

Measure	CO – Prescriptive Rebate Amount
Cycling Dryers	$1.50 per rated CFM for Cycling Refrigerated Dryers or Variable Speed Refrigerated Dryers 75scfm to 2799 scfm
Dryer Purge Controls	$1,000 per control set for controls that are 90 to 2499 scfm plus $1/dryer CFM per control
Mist Eliminators	$1 per rated CFM for mist eliminators 500 to 2299 scfm
No Air Loss Drain	$200/drain
New VSD Compressor	Beginning at $1,500 and up to $6,000 based on compressor size (10-49hp)
Compressor HP Reduction	$1,000 plus New VSD Compressor rebate.

Table 1-3 outlines customer product participation with the product and measure-level savings from January 2020 – April 2021. Overall savings were primarily driven by custom compressed air projects, which accounted for 46% of total product kWh savings.

Table 1-3. Colorado C&I Compressed Air Product Savings & Quantity, Jan 2020 – Apr 2021

Measure	kWh Savings		kW Reductions		Units	
	Quantity	% of total	Quantity	% of total	Quantity	% of total
Custom Efficiency - Compressed Air	1,864,765	46.0%	406.603	45.5%	16	12.3%
No Air Loss Drain	221,563	5.5%	30.503	3.4%	27	20.8%
VFD Air Compressor Upgrade	354,343	8.7%	112.8	12.6%	15	11.5%
CO - Compressed Air Efficiency Study	769,152	19.0%	114.069	12.8%	22	16.9%
VFD Air Compressor New	441,889	10.9%	144.745	16.2%	24	18.5%
Cycling Dryers	147,642	3.6%	19.822	2.2%	14	10.8%
VFD Compressor HP Reduction	182,621	4.5%	56.776	6.3%	6	4.6%
Mist Eliminators	70,692	1.7%	8.853	1.0%	6	4.6%
Total	**4,052,667**	**100%**	**894.171**	**1.0**	**130**	**100%**

Note: These numbers are based on aggregated data provided to TRC in May 2021.

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1.2 Evaluation Overview

The 2021 evaluation consists of an impact evaluation and a process evaluation. The impact evaluation focused on estimating a net-to-gross ratio (NTGR), while the process evaluation focused on customer and market actor experiences with the product.

The evaluation team designed a comprehensive evaluation of the Compressed Air Product to provide information on five key research objectives:

1. Estimate product influence on customers decisions (NTGR).
2. Collect feedback on **trade partner and customer experiences** with the compressed air efficiency study and rebate processes to understand motivations for participation, perceptions of the most successful or valuable aspects of the product, and most challenging aspects of the product.
3. Identify **barriers to participation** in the product, particularly by investigating why trade partners and customers may install equipment outside of the product.
4. **Explore ways to grow the compressed air market** by understanding the influence of the market on customers' decisions about compressed air technologies, determining the potential for increasing rebate limits to drive additional participation, identifying ways to expand marketing efforts for the product, and exploring the other compressed air technologies or equipment that might increase participation.
5. Understand **peer utilities' program practices**, including rebate levels and program design.

Table 1-4 presents an overview of the research topics and data sources used in our evaluation of the Colorado Compressed Air Product.

Table 1-4. Evaluation Summary Table

Primary Research Objectives	Participant Survey (n=35)	Near-Participant Interviews (n=6)	Trade Ally Interviews (n=10)	Peer Utility Interviews (n=8)
Estimate product influence on customers' decisions.	X	X	X	
Collect feedback on trade partner and customer experiences with the compressed air efficiency study and rebate processes.	X	X	X	
Understand customer decision-making and barriers to participating in air studies and installing compressed air measures.	X	X	X	
Explore ways to grow the compressed air market.	X		X	X
Understand peer utilities' program practices.				X

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Additionally, to increase our confidence in the accuracy of our NTGR, the evaluation team used responses from both Colorado and Minnesota Compressed Air Product participants to construct our estimate. Xcel Energy offers a Compressed Air Product in Minnesota, in addition to the Colorado product. Though there are minor differences between the instances of the products (see below for details), the evaluation team determined these differences were negligible. More significantly, the products are very similar in terms of design and incentive levels. Due to these fundamental similarities, and because free-ridership scores in each state were comparable to each other, we determined using both sets of responses was valid. Through this approach, we came closer to achieving a 90% confidence level than would have been possible had NTGRs been calculated separately for each state.

Table 2-1. Differences in Product Design by State

Colorado	Minnesota
♦ Territory has a smaller pool of customers to engage in the product. ♦ In 2020, the product introduced studies for 10-49 hp systems. ♦ Participation is primarily through the prescriptive side, and participation in studies is lower than in Minnesota. ♦ Demand-side studies not currently offered in Colorado due to lack of demand for this offering.	♦ Larger pool of participating customers. ♦ Has changed names two times – to Fluid Systems Optimization, when the product included other fluid systems like pumping and hydraulic systems. Limited participation and customer friendliness of the name prompted Xcel Energy to roll product back to just Compressed Air. ♦ Product is retiring horsepower reduction and early retirement prescriptive rebates due to limited cost-effectiveness. Colorado will align with Minnesota on prescriptive rebates starting April 1, 2021. ♦ Product offers both demand- and supply-side studies.

1.3 Report Organization

The following chapters organize the evaluation findings into two components: impact and process evaluation results. Further detail on the evaluation approach is presented in the following chapters.

- Chapter 2 reviews the approach and results of the net impact evaluation and the attribution of product impacts using a standard net-to-gross ratio (NTGR) analysis.
- Chapter 3 discusses the process evaluation components, including product experience and satisfaction, motivations and barriers to participation, and the Colorado Compressed Air market and opportunities for growth.
- We present conclusions and recommendations in Chapter 4.
- Supporting documents, such as the evaluation plan, data collection instruments, and task-specific findings, can be accessed in this report's appendices.

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2 Impact Findings

A central component of this evaluation was the estimation of the net-to-gross ratio (NTGR) for the Xcel Energy Compressed Air Product in Colorado. For demand-side management (DSM) products, the NTGR is a metric that estimates the influence of the product on the target market. It is used both as a benchmarking indicator of effectiveness and to adjust reported gross energy savings to account for energy efficiency that would occur in the absence of the product. NTGR results can indicate opportunities for Xcel Energy to adjust the design and implementation of its products to increase the cost-effectiveness of both individual products and the entire portfolio. The NTGR includes several factors that create differences between gross and net savings, such as free-ridership and spillover.

TRC estimated a retrospective NTGR based on data reported by customers and trade partners. We then recommended prospective NTGRs based on potential changes to the product's design and market conditions. Note that an NTGR of 1.0 may not be achievable in all cases, as eliminating all free-ridership may not be feasible for a program operating at significant scale. In addition, a variety of factors, including the maturity of the product, the maturity of the technologies it promotes, product intervention strategies, and cross-product coordination strategies, affect the achievable level of free-ridership. The evaluation team has taken care to present NTGR results with this context in mind.

This chapter presents:

- **Key Impact Findings –** The key findings section presents the recommended NTGR based on the evaluation team's synthesis of findings from market actors.
- **Net-to-Gross Approach –** The approach section presents an overview of the evaluation team's methods to calculating the recommended NTGR.
- **Retrospective Net-to-Gross Ratio Inputs –** This section presents qualitative and quantitative data that support the NTGR calculations.
- **Prospective Net-to-Gross Considerations –** This section presents findings the evaluation team considered when recommending its prospective NTGR.
- **Peer Utility Net-to-Gross Comparisons –** This section presents NTGR ratios across peer utilities included in this evaluation.

2.1 Key Impact Findings

This section presents a summary of the key findings from the impact evaluation for the Colorado Compressed Air Product, including retrospective and prospective NTGR recommendations. The evaluation team provides its estimated retrospective NTGRs, based on the quantitative and qualitative results of participating and non-participating customer and trade partner research. We then provide our recommended prospective NTGR, based on potential changes to the compressed air market and product design.

2.1.1 Retrospective Net-to-Gross Ratio

TRC estimated a separate retrospective NTGR for the Efficiency Study component and the Equipment Rebate component of the Compressed Air Product, based on differences in product

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design that impact the methodology for calculating the NTGR. We estimated a retrospective NTGR of 0.89 for both the Compressed Air Equipment Rebate component and the Compressed Air Study component. These scores were calculated based on participating customer and trade partner responses.

To estimate this NTGR, the evaluation team took the following steps:

- We first estimated overall free-ridership ratios of 0.20 (Equipment Rebate unweighted average) and 0.15 (Study unweighted average). These values are based on participating customer surveys and follow-up interviews with customers to determine whether data obtained through the initial survey should be adjusted.
- These results were weighted to be representative of the population by kWh and adjusted to 0.12 for Equipment Rebates and 0.12 for Efficiency Studies. The low free-ridership ratios were driven by custom projects with high savings – the top three largest custom projects all had a Free-Ridership Score of zero. Trade partner influence also drove down free-ridership, as they were rated as the most influential product factor by over half of participants. Additionally, trade partners themselves rated the influence of the product on their likelihood to sell efficient equipment and conduct product-eligible studies very highly. Lastly, the Product Component Scores for Efficiency Studies indicated that the product was extremely influential in motivating customers to conduct a study and fix their leaks.
- The evaluation team also analyzed spillover to determine if any survey respondents completed additional energy efficiency projects as a result of participating in the Compressed Air Product and without participating in an Xcel Energy rebate offering. We found no evidence of quantifiable spillover for either the Equipment Rebate Component or the Study component. Only one participant reported that they had purchased and installed efficient compressed air equipment outside the Compressed Air Product after participating. However, they said that their participation in the product did not influence their decision to install that equipment. Interview results with near-participants also indicated no evidence of spillover. Two of the eight near-participating interviewees reported they had installed compressed air measures outside the product; however, neither installation would have been efficient enough to qualify for a rebate.
- The evaluation team included a 1% adder for market effects to both the Equipment Rebate and the Study NTGRs. Trade partners did not describe strong evidence of the product influencing the compressed air market in Colorado or Minnesota, but some stated that they changed their sales strategy because of the product. This provides some evidence that the product is impacting trade partner practices beyond what is reflected in the Free-Ridership Score.
- To calculate the overall NTGR, the evaluation team subtracted the free-ridership ratio from 1.0, then added 1% for market effects. This brings both the Equipment Rebate NTGR to 0.89 and the Efficiency Study NTGR to 0.89. Detailed methodology for the NTGR calculation can be found in Section 2.2.

2.1.2 Prospective Net-to-Gross Ratio

Equipment Rebates

The evaluation team recommends that the current program practices support a prospective NTGR of 0.89 for Equipment Rebates. However, the product influence could increase, as

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evidenced by the higher recommended NTGR of 0.9 if recommendations related to providing additional trade partner communication and marketing support are met. Our review of peer utility NTGRs supports these values.

Efficiency Studies

The evaluation team recommends that the current program practices support a prospective NTGR of 0.89 for Efficiency Studies. As there are no known upcoming changes to program design that would impact the NTGR estimation for Efficiency Studies, the evaluation team recommends that program practices will continue to support a NTGR of 0.89 prospectively for Efficiency Studies.

2.2 Net-to-Gross Approach

The evaluation team developed the NTGR for the Colorado Compressed Air Product using a self-report approach, based on participating customer survey results in combination with additional research data inputs. The methodology used in this evaluation was built from the Core Nonresidential Protocol and the Study-Based Protocol in the 2020 Illinois Statewide Technical Reference Manual for Energy Efficiency Version 9.0, in Attachment A of Volume 4: Cross-Cutting Measures and Attachments (hereafter referred to as the "Illinois TRM").

The data inputs to the NTGR analysis included:

- **Participating customer surveys –** focused on project-level effects, including free-ridership and participating customer spillover
- **Follow-up interviews with participating customers –** sought to clarify any conflicting information in the participating customer surveys
- **Trade partner interviews –** focused on determining overall market effects and whether trade partners were influenced by Xcel Energy
- **Near-participating customer interviews** – focused on understanding near-participating customer spillover

The evaluation team initially developed the participating customer survey sample to reach a 90% level of confidence with a minimum of +/- 10% relative precision. We calculated overall sample targets using a 90% confidence level, but because of the small population size, reaching these targets would have required a 46% response rate in Colorado[2] and a 21% response rate in Minnesota, which was higher than feasible. Additionally, to increase our confidence in the accuracy of our NTGR, the evaluation team used responses from both Colorado and Minnesota Compressed Air Product participants to construct the estimate. Xcel Energy offers a Compressed Air Product in Minnesota, in addition to the Colorado product. Once the Colorado and Minnesota responses were combined, the evaluation team ultimately achieved a response rate of about 14%, giving a confidence level of 87% and a margin of error of 10.9%. We contacted the entire population of participants in order to maximize the response rate and come as close to the 90% confidence level target as possible.

[2] To increase our confidence in the accuracy of our NTGR, the evaluation team used responses from both Colorado and Minnesota Compressed Air Product participants to construct our estimate, an approach agreed upon by Xcel Energy.

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The evaluation team also attempted to survey participating customers based on participation experiences – whether the customer completed any custom measure, a prescriptive measure (but no custom measures), or a study. Note that the reported confidence levels are based on the population size, not for each stratum. Table 2-1 shows the type of participation experience by participating customer survey respondents.

Table 2-1. Number of Compressed Air Product Participating Customer Survey Respondents by Strata

Strata	Population Size (CO)[1]	Population Size (MN)[1,2]	Total Population	Number of Completes (CO)	Number of Completes (MN)	Total Completes
Any Custom Measures	16	54	70	4	4	8
Prescriptive Measures	51	127	178	8	18	26
Study Only	16	87	103	2	13	15
Total	**83**	**268**	**351**	**14**	**25**	**49**

[1] *Project close dates range from January 2019 to April 2021.*

[2] *Includes both supply-side and demand-side studies.*

The evaluation team used self-reported data from participating customers to develop an initial NTGR. Data from the additional sources listed above were then used in constructing a logical narrative of product attribution, and in finalizing the prospective NTGR for the product.

The NTGR relies on three key components, a Free-Ridership Score, a Spillover Score, and a Market Effects Adder. The following sections define each of these key components and present how they are combined to estimate the NTGR.

2.2.1 Free-Ridership

Free-ridership is a measure of the amount of a product's claimed savings that would have occurred in the absence of the product. Free-ridership is assessed on a scale from 0 to 1, where 1 indicates that the product had 100% free-ridership and all product savings would have occurred without any of the product's rebates or assistance.

To determine free-ridership for both the Equipment Rebate and Study components of the product, the evaluation team started with the Core Nonresidential Protocol from the Illinois TRM, and wrote specific questions to assess four free-ridership components:

- **A Product Components Score**, based on the participating customer's perception of the importance of various product components in their decision to carry out the energy-efficient project (Equipment Rebates and/or the Efficiency Study)

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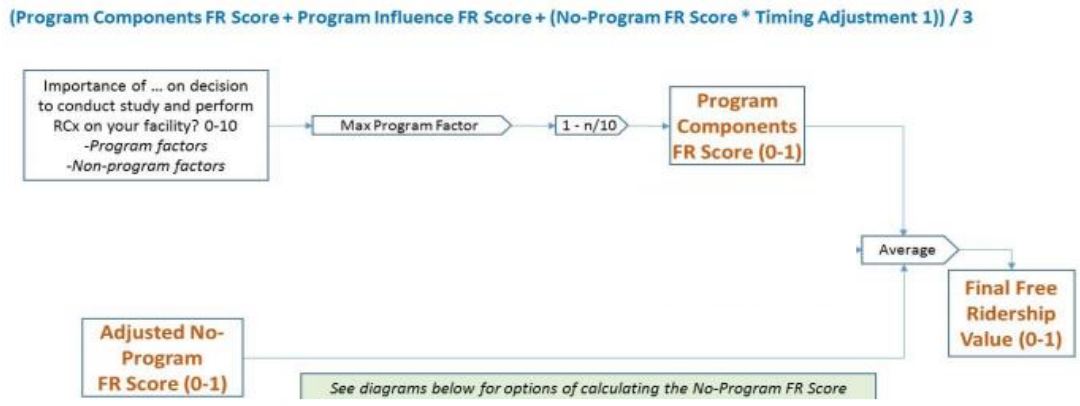
- **A No-Product Score**, based on the participating customer's intention to carry out the energy-efficient project (Equipment Rebates and/or the Efficiency Study) without product support[3]
- **A Timing Adjustment**, based on the participating customer's perception of when they would have carried out the project (Equipment Rebates and/or the Efficiency Study) in the absence of the product
- **A Quantity Adjustment**, based on the participating customer's intention to carry out the energy-efficient project (Equipment Rebates) with the exact same quantity without the product

The **No-Product Score** for the Study component included several additional questions specific to products with a study design, as outlined in the Study-Based protocol from the Illinois TRM. The evaluation team included and adapted these questions to fit the Compressed Air Product's design and better capture the influence that Xcel Energy has on a customer's decision to complete a study through the Compressed Air Product. These questions confirmed whether the customer would have taken the following actions in absence of the product: (1) Conducted a study looking at the same components as those offered by the Compressed Air Product,[4] and (2) Fixed the leaks in their compressed air system on their own. A flow chart showing how these questions were used to construct the No-Product Score is included in Appendix D.

When calculated, the Product Component Score and the No-Product Score assess the likelihood of free-ridership on a scale of 0 to 10, with the two scores averaged and the timing and quantity adjustments applied to create a final free-ridership ratio for both Equipment Rebates and Efficiency Studies, as shown in Figure 2-1 below.[5]

Figure 2-1. Free-Ridership Calculation Methodology



[3] To calculate the Product Component Score, the top-rated product factor rated on a scale of 0-10 is determined for each respondent. The value is then divided by 10 and subtracted from 1, so that the scale matches with the Non-Product Score scale.

[4] Components of the Compressed Air study component include: An ultrasonic leak survey, Characterization of the system's major components, Identification of system loading, Flow and metering results, Identification of leaks and unregulated demand, Identification of execution steps and cost estimates, Recommendations for improvements and follow-up steps

[5] The Product Component Score does not take into account what would have happened in the absence of the product, thus it typically underestimates free-ridership and is balanced by the No-Product Score.

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2.2.2 Spillover

Spillover is a measure of the amount of energy savings that occur due to the product that are not captured in the product's claimed energy savings.

To capture participating customer spillover, we asked participating customers for information about any additional efficient equipment installed outside the Compressed Air Product and for which they did not receive a rebate. The evaluation team asked spillover-related questions to both customers who installed compressed air measures and to those who completed an efficiency study. The surveys also probed for information on the importance of the Compressed Air Product in participating customer installation decisions and the likelihood that the additional, non-rebated measures would have been installed if they had not participated in the product.

2.2.3 Market Effects

The final component to the NTGR was a Market Effects Adder, which estimates additional savings that could be attributed to the Compressed Air market based on prolonged changes in the market due to the product's influence. To understand market effects, the evaluation team asked trade partners about the product's impact on the compressed air market in Xcel Energy's territory in Colorado and about any changes to the trade partner's business or sales practices based on the influence of the product.

2.2.4 Determination of Net-to-Gross Ratio

The evaluation team estimated the Colorado Compressed Air Product's initial NTGR for Equipment Rebates and Efficiency Studies using the formula shown in Equation 1 below:

Equation 1. Generalized Net-to-Gross Ratio

$$NTGR = 1 - (Free - Ridership) + (Spillover\ Ratio) + (Market\ Effects\ Adder)$$

Finally, the evaluation team utilized all the information collected about the product (through customer surveys and follow-up interviews, trade partner interviews, and near-participant interviews) to construct a logical, internally consistent, and coherent narrative of product attribution that attempted to identify all possible pathways of Xcel Energy influence, both through the Equipment Rebates and Efficiency Studies offered through the product. Based on these results, we recommended a final summative NTGRs for both Equipment Rebates and Efficiency Studies that are consistent with this narrative.

2.3 Retrospective Net-to-Gross Ratio Inputs

As described in the approach section, the recommended retrospective NTGR for equipment rebates is based on three primary data inputs: the Free-Ridership Score, the Spillover Score, and the Market Effects Adder. This section explores each of these results in more detail, including qualitative data that support the results.

While the final retrospective NTGR will combine results from Colorado and Minnesota, the inputs will sometimes show results by state for additional insight into the estimation of the input.

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2.3.1 Free-Ridership Results

This section presents results related to the four metrics (the Product Components Score, the No-Product Score, the Timing Adjustment, and the Quantity Adjustment (for Equipment Rebates only) used to estimate the final Equipment Rebate free-ridership value of 0.12 and the final Efficiency Study free-ridership value of 0.12.

Product Component Score

The evaluation team calculated Product Component Scores for both the Equipment Rebate and Efficiency Study tracks, by determining which aspects of the product were most influential in a participant's decision to participate in the Compressed Air Product. The evaluation team estimated the unweighted Product Components Score for Equipment Rebates as 0.14 and for Efficiency Studies as 0.13. These scores indicate that the product is highly influential in customer decisions to install equipment or conduct a study through the product. The following sections detail the attributes that contributed to these estimates.

Equipment Rebates

The evaluation team estimated the unweighted Product Components Score for the Compressed Air Product equipment rebates to be 0.14. To determine the Product Components Score, we asked participating customers to rate the influence of a variety of factors upon their decision to install efficient compressed air equipment. These factors each fall into one of three categories: automatic product factors, non-product factors, or non-automatic product factors.

- **Automatic product factors:** These are factors that can be attributed to Xcel Energy and/or the product's activities in all cases, including (1) the rebates offered by Xcel Energy, (2) the product-subsidized compressed air efficiency study, (3) the recommendations provided through the compressed air efficiency study, (4) an endorsement or recommendation by an Xcel Energy account manager or an Xcel Energy Business Solutions Center representative, (5) previous participation in a product, and (6) information received from any training or events conducted by Xcel Energy.
- **Automatic non-product factors:** These are factors that may influence a customer to install efficient compressed air equipment, but that are not related to the product. The evaluation team asked participating customers to rate the following non-product factors: (1) wanting to save energy, (2) minimizing upfront costs, (3) funding for energy efficiency projects from an outside source, (4) corporate policy or guidelines, and (5) environmental factors like reduced carbon emissions.
- **Non-automatic product factors:** These are factors that, depending on the specific situation, may be classified either as a product factor or as a non-product factor. Follow-up questions during the survey determined how to classify respondent answers. If survey respondents reported Xcel Energy played a role in these factors, the factor was included as a product factor for that participating customer. If Xcel Energy did not play a role in these factors, the factor was included as a non-product factor. Non-automatic product factors included: (1) contractor recommendation for efficient equipment, (2) recommendation of internal staff from own company, (3) previous experience with this type of equipment, (4) payback on investment, and (5) minimizing operating cost.

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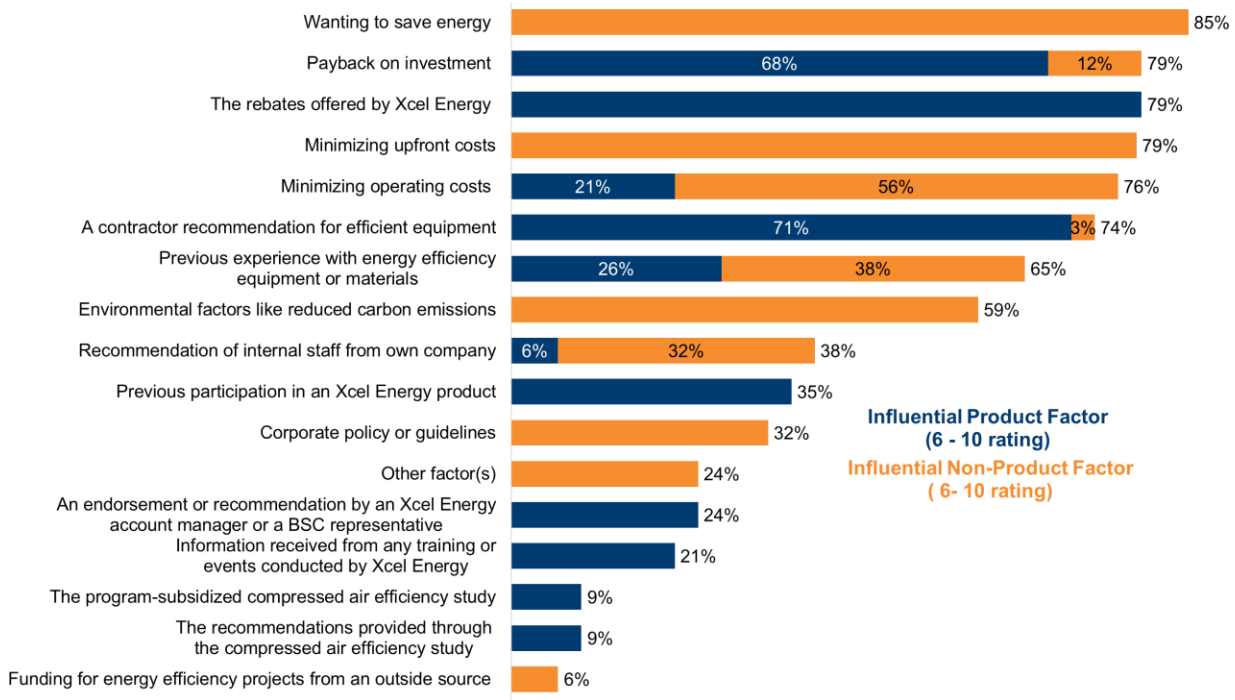
Each Equipment Rebate factor is shown in Figure 2-2 with product factors shown in blue and non-product factors shown in orange. Non-automatic product factors are shown in two colors, where each color denotes the percentage of respondents attributing that factor either to the product or not to the product. As shown in Figure 2-2, participating customers rated the following factors as being most important to their decision to participate in the Compressed Air Product equipment rebates: wanting to save energy, payback on investment, and the rebates offered by Xcel Energy. This indicated that, while Compressed Air customers are often motivated by energy savings (a non-product factor), they are also highly motivated by the financial benefits that are offered through the product.

The percentages reported in Figure 2-2 represent the proportion of Equipment Rebates participants (n=34 total between both Minnesota and Colorado) who rated a factor as "influential"" in their decision to participate in the Equipment Rebates through the product (i.e., rated the factor's influence a 6 or higher). When looking across states, respondents rated influential product and non-product factors similarly; the evaluation team did not find any major differences in responses. Additional details on product and non-product factors by state can be found in Appendix D.

Figure 2-2. Factors Influencing the Installation of Efficient Compressed Air Equipment by Participants



Note: The category of "Other" factors includes "less noise and cleaner equipment" (n=2), "replacing old equipment" (n=2), "availability of equipment" (n=1), and "talked to other purchasers of equipment" (n=1).

After averaging all of the Product Component Scores, the evaluation team determined an overall unweighted 2021 Compressed Air Product Component Score for the Equipment Rebates of 0.14. A Product Components Score closer to zero indicates that the product has a high level of influence, thus a score of 0.14 provides evidence of strong program influence into participant decision-making.

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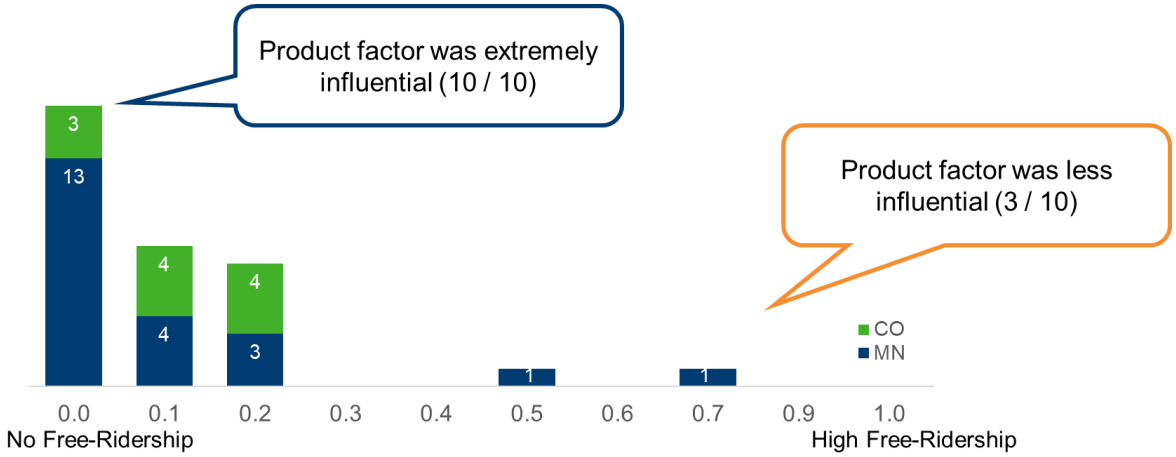
As shown in Figure 2-3, most respondents (n=31) provided product factor scores at or below 0.8, indicating a low level of free-ridership. The evaluation team flagged the two respondents whose product factors indicated higher free-ridership for a follow-up interview to better understand if they had understated the product's influence in their decision to apply for equipment rebates. We were unable to contact the participant who rated their maximum product factor a 5 but *were* able to get in touch with the participant who rated their maximum product factor a 3. The evaluation team decided to adjust the Free-Ridership Score down for the participant who rated their maximum product factor a 5, because in their original survey responses, the respondent mentioned the rebate had a large influence on their decision to participate in the Equipment Rebates component of the Compressed Air Product. The participant whose maximum product factor was a 3 mentioned in their follow-up interview that their compressor was dying and their participation in the Equipment Rebates track was "more to replace equipment than anything," downplaying the influence of the product in his decision to purchase an efficient compressed. While the participant did mention that they learned about the energy-efficient compressed air equipment through Xcel Energy, as well as through their contractor and vendor, the evaluation team determined that ultimately the participant would likely have purchased the same equipment without the influence of the product. In this case, the evaluation team decided not to adjust this participant's Free-Ridership Score.

Figure 2-3. Distribution of Equipment Rebate Product Component Scores, MN & CO



Efficiency Studies

The evaluation team estimated the unweighted Product Components Score for the Compressed Air Product's Efficiency Studies rebates to be 0.13. To determine the Product Components Score, we asked participating customers to rate the influence of a variety of factors on their decision to complete a Compressed Air efficiency study. As with the Equipment Rebates tracks, these factors each fall into one of three categories: automatic product factors, non-product factors, or non-automatic product factors.

To understand the influence of the Compressed Air Product on a respondent's decision to conduct an Efficiency Study through the product, the evaluation team asked respondents to rate various factors that could have influenced their decision to participate in the product. These factors included both product factors – which are directly related to either Xcel Energy or the

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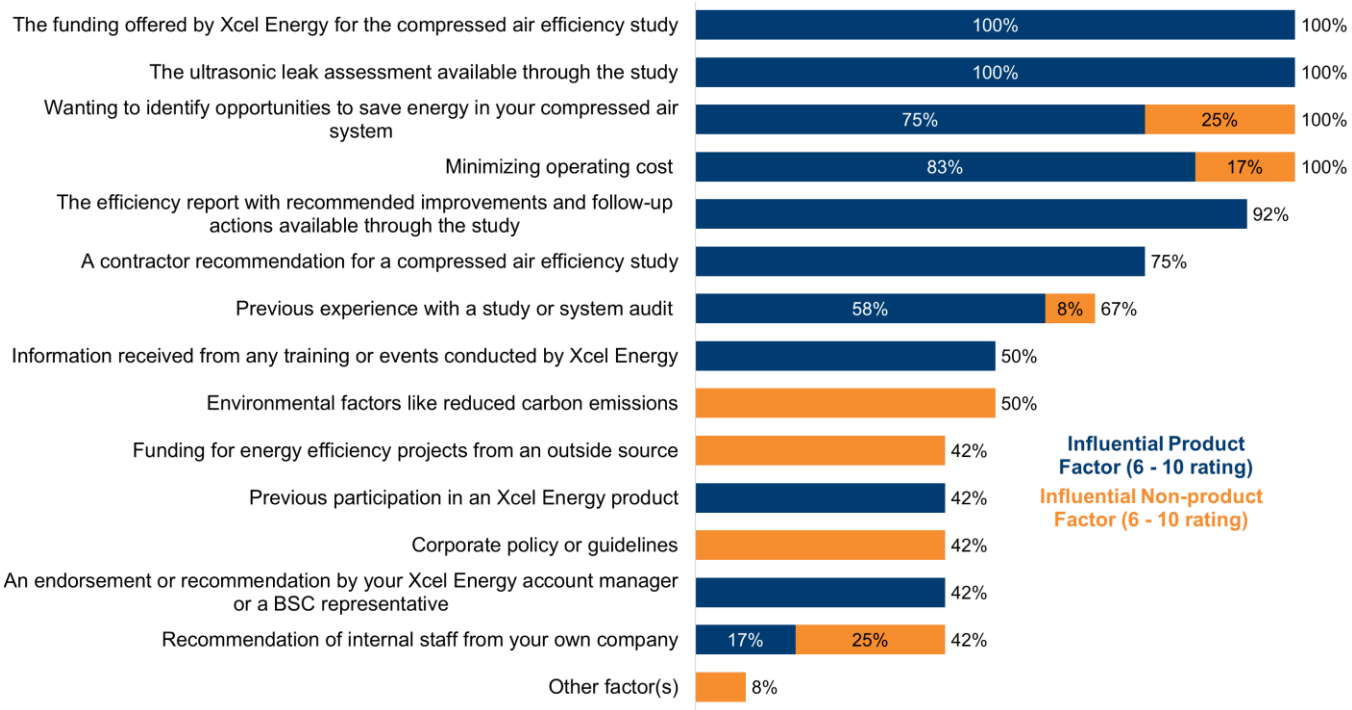
Compressed Air Product offerings (e.g., funding offered by Xcel Energy), or non-product factors, which were influences unrelated to the product (e.g., corporate green policy or guidelines).

Figure 2-4 shows an overview of all the factors that could have motivated a customer to participate in the product, and the percentage of respondents who said that a particular factor was highly influential in their decision-making process. Product factors are shown in dark blue and non-product factors are shown in orange. Non-automatic product factors are shown in two colors, where each color denotes the percentage of respondents attributing a given factor to either the product or not to the product. The percentages reported in Figure 2-4 represent the proportion of Efficiency Study participants, 13 total between both Colorado and Minnesota, [6] who rated a factor as "influential"" in their decision to participate in the Efficiency Studies track through the product (i.e., rated the factor's influence a 6 or higher). Participating customers rated the following factors as being most important to their decision to participate in a Compressed Air Product Efficiency Study: the funding offered by Xcel Energy for the study, the ultrasonic leak assessment through the study, wanting to identify opportunities to save money, and minimizing operating costs.

Figure 2-4. Factors Influencing the Decision to Conduct an Efficiency Study by Participating Customers



Using the same method to determine the Product Components Score as for Equipment Rebates, after averaging all of the Product Component Scores for Efficiency Studies the evaluation team determined an overall unweighted 2021 Compressed Air Product Component Score of 0.02 for the Efficiency Studies track. This indicates that the program had a very high level of influence into participant decision-making.

[6] One Efficiency Study respondent in Colorado did not answer the product factor questions due to a glitch in survey pre-testing. Therefore, the percentages in Figure 2-4 are out of 12 Efficiency Study participants in Minnesota.

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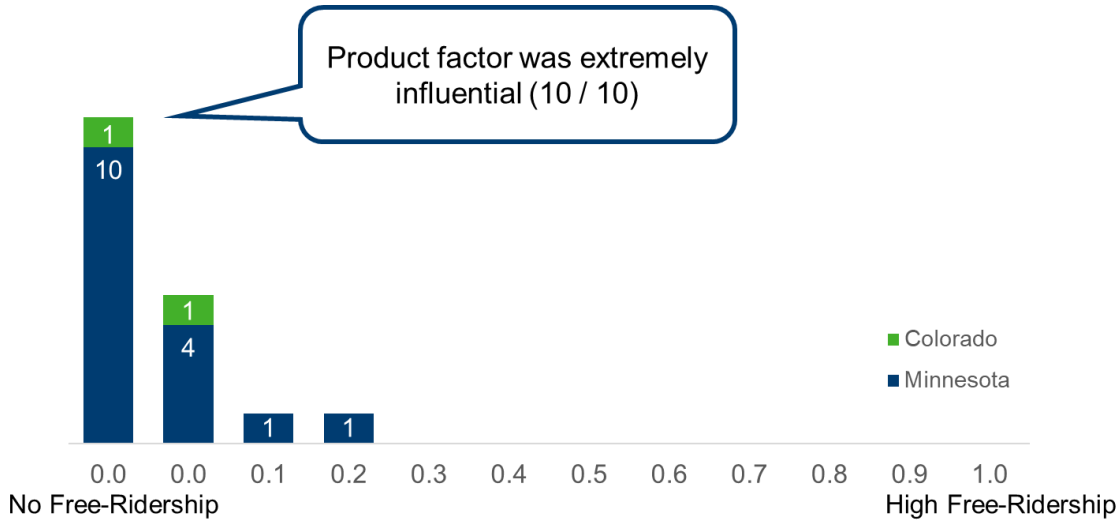
The distribution in Figure 2-5 shows the Product Component Scores across participants. As described above, these scores are calculated using the max product score – the score for the highest rated product component for each respondent. Product components were rated very highly by participants across the board – indicating low free-ridership[7].

Figure 2-5. Distribution of Product Components Scores for Efficiency Studies



Since the Product Component Score does not take into account what would have happened in the absence of the product, it typically underestimates free-ridership and is balanced by the No-Product Score. The evaluation team averaged the Product Components Score and the No-Product Score together to estimate an initial Free-Ridership Score for each Equipment Rebate and Efficiency Study participating customer respondent. The No-Product Score is described in the next section.

No-Product Score

The No-Product Score is a measure of how likely customers are to have installed identical equipment without the influence of the product. In contrast to the Product Components Score, which asks how influential the product was on a customer's decision to install equipment, the No-Product Score asks whether that decision would have been different absent the product. For both Equipment Rebates and Efficiency Studies, No-Product Scores were more widely distributed between scores indicating low free-ridership and high free-ridership than they were for Program Component Scores, which primarily indicated low free-ridership. The average unweighted No-Product Score for was 0.44 for Equipment Rebates and 0.32 for Efficiency Studies.

Equipment Rebates

When asked about the likelihood they would have installed exactly the same equipment without the incentive, information, and support from Xcel Energy's Compressed Air Product Equipment

[7] Five Efficiency Study respondents were not asked the product components score question battery due to a survey logic glitch in the pretest. These respondents were imputed with an average of the max product scores we collected for studies.

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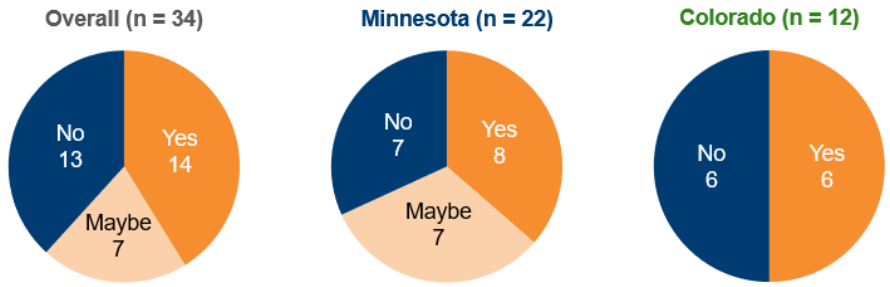
Rebates tracks, 62% (n=21) reported that they would have or might have completed the exact same project without the product, as shown in Figure 2-6.

Figure 2-6. Likelihood of Implementing Exact Same Project without Product, CO & MN

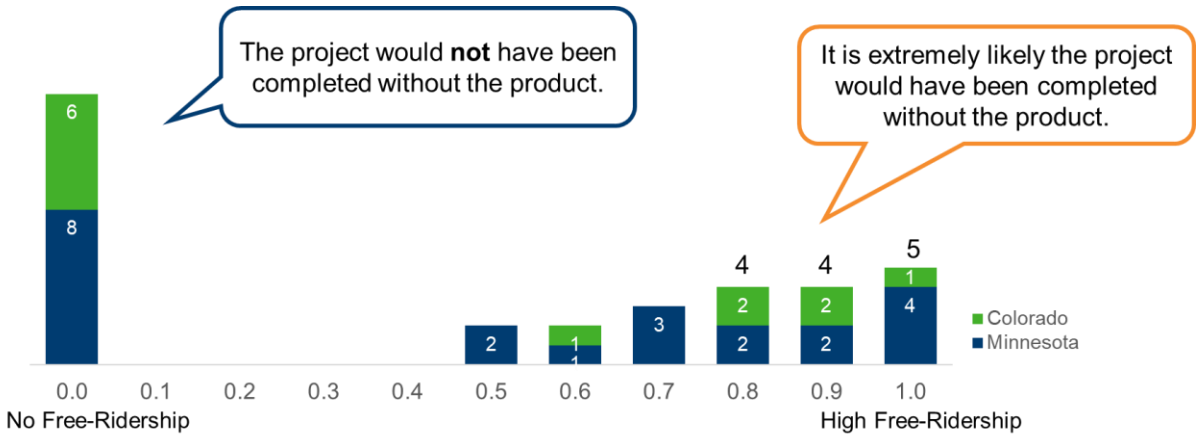


Overall, 38% of Equipment Rebate respondents reported that they would not have completed the exact same project if the Compressed Air Product did not exist. When asked why they would not have completed the exact same project, most mentioned cost: “Cost. [Our] old compressors were still running, but the rebate made it worth it to upgrade.”

Respondents in Colorado and Minnesota were both relatively split between those who said they would and those who said they would not implement the exact same project without the product. In Minnesota, almost a third of respondents were not sure, and responded “Maybe,” whereas no respondents in Colorado said “Maybe.”

When asked to rate their likelihood of installing exactly the same equipment without the incentive, information, and support from Xcel Energy’s Compressed Air Product Equipment Rebates tracks on a scale of 0-10, scores were widely distributed between customers reporting they would and those reporting they would not have installed the same measure without the product. The average unweighted No-Product Score was 0.44 out of 10, where 0 is not at all likely and 10 is extremely likely, as shown in Figure 2-7. Forty one percent (n=14) respondents rated their likelihood of completing the exact sample project as a zero, suggesting no free-ridership for those participants. Five total participants rated their likelihood as a ten out of ten, suggesting high free-ridership for those participants.

Figure 2-7. Equipment Rebate No-Product Score Distribution, CO & MN



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Efficiency Studies

As noted in the previous chapter detailing the approach, this No-Product Score for Efficiency Studies takes into account a few more factors than the Equipment Rebate score does, in an effort to capture the ways a participant could be motivated to fix their leaks that are unique to the studies track. The evaluation team based the construction of this score off of two questions: one that asked the likelihood of the customer fixing their leaks absent the product, the other asked how likely the customer was to do a study that involved each of the same component's found in Xcel Energy's s. Our assumption was that these components each provide some additional influence on the customer.

When asked the likelihood they would have conducted the Efficiency Study without the incentive, information, and support from the Xcel Energy Compressed Product Efficiency Study, most customers reported they were unlikely to have conducted the same study and fixed their leaks without the product, with an average score of 0.32, where 0 is not at all likely and 1.0 is extremely likely.

The distribution of No-Product Scores, shown in Figure 2-8, show the likelihood of the customer conducting the exact same study and fixing their leaks in the absence of the product. Low likelihood scores are to the left, indicating low or no free-ridership, and higher likelihoods are to the right, indicating higher free-ridership. No-Product Scores for Efficiency Studies are more widely distributed than scores for the Product Components Score and suggest there may be some more free-ridership than indicated by the Product Component Scores and in comparison to the No-Product Scores for the Equipment Rebate track. Of product participants who responded to the survey, 21% (n=3) reported they were very unlikely to have conducted the same study and fixed their leaks without the product, while 13% (n=2) said they were likely to have conducted the same study and fixed their peaks without the product. Respondents who stated that they felt somewhat likely to fix their leaks, reported they either perform regular maintenance that would include a leak check, or they would have conducted some sort of similar study that would have motivated them to fix their leaks.

The wide distribution of scores may reflect some misunderstanding of what types of compressed air efficiency studies are available outside of Xcel Energy's offering. Product staff and trade partners both indicated that the Efficiency Study offering is more comprehensive than other studies available to customers outside of Xcel Energy – it includes leak checks and requires leak fixes, but also includes other pathways for customers to identify efficiency improvements and suggestions for equipment upgrades. While the questions in the survey were written to highlight these components of the Compressed Air Efficiency Studies, if a participating customer was unaware that other study or leak check offerings in the market were less comprehensive, they may underestimate the influence of the product. The evaluation team used follow-up interviews and free-ridership adjustments to address some of these discrepancies, as described further in the next sections.

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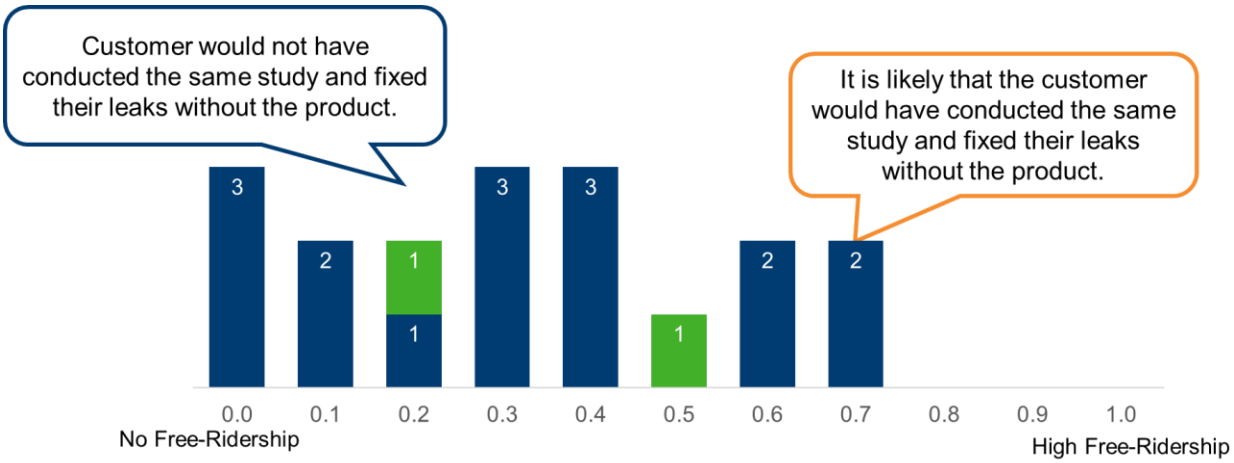
Figure 2-8. Efficiency Studies No-Product Score Distribution, CO & MN



Timing Adjustments

Equipment Rebates

The evaluation team made two timing adjustments for respondents who participated in the Equipment Rebates tracks, to account for equipment that was installed sooner than it would have been without the product. These adjustments lowered Free-Ridership Scores.

Efficiency Studies

The evaluation team made two timing adjustments for respondents who participated in Efficiency Studies, to account for respondents who identified and fixed the leaks in their system earlier than they would have without the product. These adjustments lowered Free-Ridership Scores.

Quantity Adjustments

Equipment Rebates

Based on prior compressed air research for Xcel Energy, the evaluation team found that the Xcel Energy Compressed Air Product equipment rebates can sometimes also influence customers to install more compressed air equipment than they would have in absence of the product. In light of these findings, the evaluation team asked participating customers if they installed more compressed air equipment because of the product. For this product, no respondents reported they had installed more equipment than they would have otherwise. The evaluation team therefore did not adjust any the Free-Ridership Scores for Equipment Rebates.

Free-Ridership Adjustments due to Consistency Checks

Equipment Rebates

As a consistency check, the evaluation team comprehensively reviewed responses for participants with conflicting Product Component and No-Product Scores (i.e., when respondents stated that they were highly influenced by a product factor but also that they would have been highly likely to complete the same project in the absence of the product. When discrepancies were found between these participants' responses, we followed up with respondents via phone.

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If we were not able to reach the respondent, their Free-Ridership Score was adjusted to best capture their qualitative as well as quantitative answers.

The evaluation team identified ten respondents for follow-up phone interviews. However, we were only able to interview five total respondents. Through these phone interviews and internal consistency checks, the evaluation team made eight score adjustments. All of these Free-Ridership Scores were adjusted down to account for instances where we determined that the respondent understated the influence of the product in their initial responses.

Additionally, after reviewing the product factors that participants identified as highly influential and analyzing responses from trade partner interviews, the evaluation team felt that respondents who said that trade partners who told the respondent about Xcel Energy's Compressed Air offering were likely overestimating their No-Product Score (the likelihood that they would complete the exact same project in the absence of the product). Trade partners, both those who completed projects through the Equipment Rebates tracks and those who conducted Efficiency Studies, stated that the product was important in influencing their decision to recommend that a customer install energy-efficient equipment at their facility. On average, trade partners said the amount of energy-efficient compressed air equipment they would sell would go down by approximately 30% if the product did not exist. Given the reported influence the product has on the sales practices of trade partners—and that customers are likely unaware of how the product has influenced the trade partner's practices—we adjusted Free-Ridership Scores for customers whose max product factor was a recommendation from their trade partner, but who said they were likely to have completed the same exact installation or study in the absence of the product. Four scores were adjusted down (less free-ridership) to account for overestimation of the No-Product Score.

The original, unadjusted average Free-Ridership Score was 0.29. Free-ridership adjustments, taking the consistency checks and timing adjustment discussed above into account, resulted in the alteration of 12 scores. The evaluation team calculated the final adjusted, unweighted equipment rebate Free-Ridership Score to be 0.20.

Efficiency Studies

The evaluation team used the same process, as described in the previous section for Equipment Rebates, to conduct consistency checks and make timing adjustments for Efficiency Studies.

We conducted follow-up interviews via phone with three Efficiency Study customers to better understand their free-ridership-related responses, and we adjusted all three scores. One score was adjusted down to account for instances where it was determined that the respondent understated the influence of the product in their initial responses and two scores were adjusted down to account for timing adjustments.

Additionally, similar to the process used for Equipment Rebates, the evaluation team adjusted scores for respondents who said that trade partners told them about Xcel Energy's Compressed Air study offering and who also said they were likely to have completed the exact same study in the absence of the product.

Trade partners felt the Efficiency Studies track was important in influencing their decision to recommend conducting a study at the customer's facility, with five out of seven interviewed

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study providers rating the importance of the Efficiency Studies track as an 8 or above, on a scale of 0-10. Given the reported influence the product has on the sales practices of trade partners, and that customers are likely unaware of how the product has influenced the trade partner's practices, the evaluation team adjusted Free-Ridership Scores for customers whose max product factor was a recommendation from their trade partner, but who said they were likely to have completed the same exact study in the absence of the product. Three Efficiency Study participants rated trade partner recommendations as their max product factor, but two of these participants already had a Free-Ridership Score of zero and could not be adjusted any lower. The evaluation team adjusted the one remaining score down, to account for overestimation of the No-Product Score by participating respondents.

The original, unadjusted average Free-Ridership Score was 0.17 but free-ridership adjustments resulted in the alteration of four scores. Taking the above-mentioned consistency checks and the timing adjustment discussed above into account, the evaluation team calculated the final adjusted, unweighted Efficiency Study Free-ridership Score to be 0.15.

Final Free-Ridership

The evaluation team averaged the Product Components Score and No-Product Score and applied sampling weights to estimate Free-Ridership Scores for the Equipment Rebates and Efficiency Studies tracks. We weighted each individual free-ridership score by the proportion of its associated savings within the sample so that the score is representative of population-level savings. In other words, respondents with projects with a larger share of total kWh are weighted more heavily, as they have more influence on the total product savings. Large custom projects generally drove savings and, as a result, free-ridership. The three largest projects by kWh savings were all custom projects with low Free-Ridership Scores, and two of these projects also completed Efficiency Studies. This indicates that the influence and support of the Compressed Air product is considered important to large, custom projects, which drive savings for the product. It also provides evidence that Efficiency Studies are influential in motivating customers to implement these types of custom projects.

With the sampling weights applied, the free-ridership ratio for both Equipment Rebates and Efficiency Studies was 0.12.

2.3.2 Spillover Results

Spillover is a measure of the amount of energy savings that occur due to the product that are not captured in the product's claimed energy savings. To be eligible for spillover, customers must have:

1. Installed additional efficient compressed air equipment or other energy efficiency equipment after participating in the Compressed Air Product;
2. Not received rebates for this equipment (and not be in the process of applying for rebates); and
3. Been influenced to install this equipment by the Compressed Air Product.

The evaluation team interviewed both participating and near-participating customers to understand if spillover for the Compressed Air Product exists.

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Equipment Rebates

The evaluation team found no evidence of quantifiable spillover. One respondent did report that they had purchased and installed efficient Compressed Air equipment outside the Compressed Air Product after participating. However, they said that their participation in the product did not influence their decision to install that equipment.

Two near-participants reported installing compressed air equipment outside the product, but neither would have been efficient enough to qualify for a rebate. Therefore, we did not identify any near-participant spillover.

Efficiency Studies

The evaluation team found no evidence of quantifiable participant or near-participant spillover in Colorado or Minnesota.

2.3.3 Market Effects

Equipment Rebates

In addition to free-ridership and spillover, the evaluation team applied a 1% adder for market effects to the Equipment Rebate Free-Ridership Scores, due to the influence of the Xcel Energy Compressed Air Product Equipment Rebates on the Minnesota market. While this adder is not always relevant in impact evaluations, it is appropriate in cases where the product has had significant impact on the marketplace.

Trade partner interviewees felt that the Equipment Rebates tracks were important in influencing their decision to recommend that a customer install energy-efficient equipment at their facility, with an average importance rating of 8 out of 10 on a 0 to 10 scale, where 0 meant not at all important and 10 meant extremely important. On average, trade partners said the amount of energy-efficient equipment they would sell would go down by about 30% if the product did not exist.[8] These reflections are highlighted in the following two quotes:

> *"We're really happy the program exists, it's a sales tool."*
>
> *"The program is very important; customers wouldn't care about efficient equipment otherwise…. unless someone was obsessed with energy savings."*

While the evaluation team recognizes the impact the product has had on the Colorado market, it does not recommend including any more than 1% to the market effects adder since trade partners did not describe strong evidence of the product influencing the compressed air market in Colorado, but some stated that they changed their sales strategy because of the product.

Efficiency Studies

In addition to applying market effects to the Equipment Rebate Free-Ridership Scores, the evaluation team applied a 1% adder for market effects to the Efficiency Studies Free-Ridership Scores, due to the influence of the Xcel Energy Compressed Air Product Efficiency Studies on

[8] Note that this 30% increase in sales is not in addition to current savings, because the referenced projects all went through the Compressed Air product and are already accounted for.

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the Colorado market. The evaluation team again felt it was appropriate in this case, as we found evidence, described below, that the product has had significant impact on the marketplace.

Some trade partners who conducted studies said that the Compressed Air Product changed their sales practices so they could provide studies that were eligible but did not describe strong evidence of the product shifting the compressed air market in other ways in Colorado. Five out of the seven interviewed study providers rated the importance of the Efficiency Studies track as an 8 or above. Study providers reported being unlikely to perform the type of study eligible for the Compressed Air Product if the funding and support were not available, as shown in the following quotes[9]:

> *"We would definitely have to restructure the studies…and most customers wouldn't want to do a leak check at the pricing."*
>
> *"I would not be able to do my job as well…most of our customer base is replacement... the rebate dollars for the study help me make sure customers are getting the right size compressor. It makes me a better salesman... making sure I specify the right equipment."*

While the evaluation team recognizes the significant impact the product has had on the Colorado market, it does not recommend including any more than 1% to the market effects adder since trade partners did not describe strong evidence of the product influencing the compressed air market in Colorado, but some stated that the product influenced their decision to recommend conducting a study at their facility.

2.3.4 Retrospective Net-to-Gross Ratio

Equipment Rebates

Overall, the evaluation team found that the product significantly impacted participating customer decisions. Using the net-to-gross formula, we estimated an Equipment Rebates NTGR of 0.86. Equation 2 below shows the generalized formula we used to determine NTGRs.

Equation 2. Generalized Net-to-Gross Ratio

$$NTGR = 1 - (Free - Ridership) + (Spillover\ Ratio) + (Market\ Effects\ Adder)$$

Using this formula, Equation 3 shows the Equipment Rebates NTGR. The free-ridership ratio of 0.12 here is influenced by the three large custom projects conducted by participants that all reported the product was a major factor in their decision to carry out their projects. The evaluation team also found that no customers conducted additional projects as a result of their participation in the product, resulting in a spillover ratio of zero. We also added a 0.01 adder for market effects to account for the impact the product has had on the compressed air market over time.

Equation 3. Compressed Air Equipment Rebates Net-to-Gross Ratio

$$0.89 = 1 - (0.12) + (0) + (0.01)$$

[9] Note that savings are already being accounted for because trade partners are conducting these studies through the product.

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Efficiency Studies

Overall, the evaluation team found that the product significantly impacted participating customer decisions. Using the net-to-gross formula, we estimated an Efficiency Studies NTGR of 0.89. [10] Equation 2 above shows the generalized formula we used to determine NTGRs.

Using this formula, Equation 4 shows the Efficiency Studies NTGR. The free-ridership ratio of 0.12 here is influenced by the three large custom projects conducted by participants. The evaluation team also found that no customers conducted projects as a result of their participation in the product, resulting in a spillover ratio of zero. We also added a 0.01 adder for market effects to account for the impact the product has had on the compressed air market over time.

Equation 4. Compressed Air Efficiency Study Net-to-Gross Ratio

$$0.89 = 1 - (0.12) + (0) + (0.01)$$

2.4 Prospective Net-to-Gross Considerations

The evaluation team also examined market conditions and expected product changes to recommend a prospective NTGR. Findings indicate that Xcel Energy could continue to use the retrospective NTGR of 0.89 (for both Equipment Rebates and Efficiency Studies) prospectively. The following sections discuss the market conditions and expected product changes that impact the prospective NTGR.

2.4.1 Equipment Rebates

Alternatively, if Xcel Energy were to increase its efforts to support trade partners in communicating the benefits of compressed air efficiency to customers, either through direct-to-end-user marketing or by providing additional marketing materials to trade partner to use with customers, the evaluation team recommends using a prospective NTGR of 0.90 for Equipment Rebates. We feel that increased trade partner support would help increase the influence of the product on the customer decision-making process, driving scores in future NTGR estimations. This could further encourage participating customers to complete custom projects, which have a higher NTG ratio compared to prescriptive ones. Custom projects are often larger and more complex than prescriptive projects, and as a result can require greater involvement by trade partners, who might inform the participating customer of the custom opportunity and/or support the project through its completion.

2.4.2 Efficiency Studies

On the Efficiency Studies side, the evaluation team does not expect the product's influence to increase in the coming years. There are no planned changes to program design, or the way Xcel Energy's studies are performed that would impact the NTGR or create more influence than the existing effort. Additionally, we do not anticipate major changes in the market affecting participation in the product in a way that would impact or change the NTGR estimation. Even if

[10] Note that the NTGRs for Equipment Rebates and Efficiency Studies were estimated separately, but happened to calculate to the same value after weighting and adjustments.

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Xcel were able to engage more trades to begin offering studies through the product, we would expect overall product participation to increase, but influence to remain neutral.

At the same time, due to the comprehensiveness of the study, it is highly unlikely that a customer would conduct the same type of study without the product – something we heard from both participants and trade partners. Most participants are not free-riders, as indicated by the low Free-Ridership Score. We do not expect free-ridership to decrease, because the study is unique compared to what is offered in the market. Therefore, we expect influence to stay relatively similar to current levels and recommends that Xcel Energy continue to use the retrospective NTGR prospectively for Efficiency Studies.

2.5 Peer Utility Net-to-Gross Comparisons

The retrospective and prospective NTGR are in line with (and slightly higher than) peer utilities interviewed through this evaluation effort that reported a NTGR. As shown in Table 2-2, Utilities A, E, and F do not report a NTGR. Utility C is most comparable to Xcel Energy, from a program design perspective, and has a similar NTGR to the one estimated through this evaluation. Utilities B – F and H offer a study track, but Utilities A & G do not. The average NTGR reported by peers was .84, and the range of NTG scores is in line with the estimated ratio for Xcel Energy's program.

Table 2-2. Peer Utility Net-To-Gross Ratios

	Xcel Energy	A	B	C	D	E	F	G	H
Net-to-Gross Ratio	0.89	N/A	0.80	0.88	.90*	N/A**	N/A	0.86	0.77*
Study Offering	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

***NTGR estimated for broader C&I program, not specifically for compressed air offering**

****Utility accounts for 7% line loss in calculation of net savings**

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3 Process Evaluation

TRC conducted a process evaluation to determine how Xcel Energy can optimize the design and delivery of the Compressed Air Product to its customers. Specific research objectives of the process evaluation are listed in the bullets below:

- Collect feedback on trade partner and customer experiences with the Compressed Air Product's Efficiency Studies and Equipment Rebates processes.
- Identify motivation and barriers to participation in the products.
- Explore ways to grow the compressed air market.
- Understand peer utilities' program practices.

To accomplish these objectives, the evaluation team elicited feedback from product staff, participating customers, near-participating customers, trade partners in Xcel Energy Colorado and Minnesota territories, and peer utilities. This chapter presents key findings from our process evaluation, our approach to conducting this work, and detailed findings relating to each evaluation objective. Sub-sections for each objective include data from all relevant data collection efforts. The synthesis of findings places an emphasis on helping Xcel Energy to interpret research findings and identify actionable opportunities for improving product operations. These findings, along with findings from the impact evaluation, inform the conclusions and recommendations presented in the final chapter.

3.1 Key Findings

The evaluation team found that, overall, market actors were very satisfied with the current product operations, and staff reported product processes were running smoothly. Customers and trade partners both noted that the product was easy to participate in, and that they were happy with their experiences. Additional key findings from the process evaluation research included:

- **Product Experience:** Participating customers and trade partners were generally satisfied with the product. Participating customers rated no aspect of their experience with the product below a 4 out of 5. The availability of rebates and the ease of participating in the prescriptive product drove satisfaction for trade partners.
- **Motivations and Barriers:** Participating customers experienced few barriers to participation. Of the challenges mentioned, high upfront costs and getting approval from corporate were the main barriers. Trade partners described challenges with lack of customer awareness, communication on project timelines, and turnover of Xcel Energy support staff. Near-participating customers often stated that they would have participated in the product but were unaware that they were eligible. Near-participating customers also felt they would be motivated to participate in the product if rebate levels were higher.
- **Growing the Compressed Air Product:** While trade partners and participating customers both reported high satisfaction with the rebate levels, trade partners felt that increasing incentives would drive more participation. Trade partners in Colorado also

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reported competition from companies conducting leak check audits outside of the program.

In Section 3.2, we describe the overall approach used for the process evaluation research activities and, beginning in Section 3.3, we provide detailed results from all of these activities.

3.2 Approach

To accomplish the objectives for the Colorado Compressed Air Product process evaluation, the evaluation team completed a suite of intersecting and complementary research activities in 2021. Detailed information on the sampling approach used for the research can be accessed in the evaluation plan, found in Appendix A. The following discussion highlights the research topics contributed by each research activity: staff interviews, participating customer surveys, trade partner interviews, near-participating customer interviews, and peer utility interviews.

3.2.1 Staff Interviews

The TRC evaluation team conducted eight telephone interviews with Xcel Energy staff who manage and implement the Colorado Compressed Air Product, including:

- The Xcel Energy Product Manager
- Two marketing assistants
- Two channel managers
- Two account managers
- Two members from the Business Solutions Center
- Three compressed air engineers

When the Product Manager desired feedback from more than one staff member within a team, the evaluation team conducted the interview as a group. The staff interviews covered the following topics:

- Description of the product's process and goals
- Staff perceptions of the product's challenges and successes
- Product staff evaluation priorities

Appendix B.1 presents the interview guide used for these discussions and Appendix C.1 provides results specific to this research activity.

3.2.2 Participating Customer Surveys

The evaluation team conducted telephone surveys with participating customers using customer records from Xcel Energy for the sample frames. The evaluation plan used for this project can be found in Appendix A. The evaluation team spoke to 49 respondents (14 in Colorado and 35 in Minnesota) which provided an 87% level of confidence with a minimum of +/- 11% relative precision.

For the purposes of this evaluation, the evaluation team defined a participating customer as any customer who participated in the Compressed Air Product between January 2019 and April

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2021. The participating customer sample was stratified by the type of compressed air project completed through the product: prescriptive measure project, custom project, or a study-only project, but due to low response rates and limited sample, the evaluation team attempted to reach every contact record in the population. The participating customer survey was designed to address the following process objectives:

- **Awareness and Motivations:** Understand customer decision-making and barriers to participating in compressed air studies and installing compressed air measures.
- **Product Experience and Satisfaction:** Collect feedback on customer experiences with the Compressed Air Product Efficiency Studies and Equipment Rebates processes.
- **Compressed Air Growth:** Explore ways to grow the Compressed Air product within the compressed air market in Colorado.

Appendix B.2 contains the survey instrument used for the participating customer survey and Appendix C.2 provides results related specific to this research activity.

3.2.3 Non-Participating Customer Surveys

The evaluation team conducted telephone interviews with near-participating customers. We defined near-participants as any customer for whom a Colorado or Minnesota compressed air project opportunity was identified between January 2019 and April 2021, who either expressed interest in participating in the product (through studies or rebates) but did not ultimately do so, or who had a study done in a previous year but once eligible again, did not have another study done. The evaluation team experienced difficulty recruiting near-participants for this interview effort, and ultimately spoke to 10 total near-participants across Minnesota and Colorado. We worked with product staff to identify additional near-participants when the initial list for interview recruitment was exhausted, but still were not able to reach the target number of complete near-participant interviews. The evaluation team and product staff decided to end recruiting for interviews once the entire recruiting sample was exhausted.[11] The number of completed interviews does not provide a 90% level of confidence, and thus findings should be considered anecdotal.

The evaluation team conducted this research to assess the following key process evaluation objectives:

- **Barriers to participation:** The evaluation team assessed near-participant experiences and decision-making processes to understand why customers decided not to participate in the Compressed Air Product. This helped us understand why near-participants may decide to install measures outside of the product, and whether there are any particular aspects of the product process that prevent customers from participating. Additionally, we used these interviews to understand what barriers prevent a former study participant from re-performing a study when they are eligible once again.
- **Compressed Air Product growth:** The evaluation team asked near-participating customers about their awareness of the product, their understanding of compressed air efficiency studies, and their awareness of available measure rebates.

[11] The evaluation team defines an “exhausted” contact as one who has been contacted 4 or 5 times without response, or who refused an interview.

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- **Retrospective NTG Impacts:** The evaluation team asked near-participating customers if they installed compressed air equipment due to any influence from Xcel Energy outside of the rebate process. Circumstances where the Compressed Air Product may influence near-participants could include conversations with participating trade allies or discussions with product staff. This information supports potential spillover results among near-participants.

Appendix B.3 contains the survey instrument used for the non-participating customer interviews and Appendix C.3 provides results related specific to this research activity.

3.2.4 Trade Partner Interviews

In addition to the customer data collection efforts, the evaluation team conducted 16 in-depth interviews with trade partners (e.g., contractors, vendors, and distributors). The trade partner research addressed the following process topics:

- **Study and Rebate Experiences:** The evaluation team explored trade partners' awareness of compressed air efficiency studies and equipment. Trade partners' feedback on their level of awareness of and their experience with compressed air studies, measures, and the overall rebate process was helpful in understanding how they see themselves best engaging with the product.
- **Barriers to Participation:** The evaluation team asked trade partners about what they view as the biggest barriers to conducting studies and engaging with the product. We also gathered trade partner feedback on why customers who get approved for rebates sometimes do not go forward with the installation. This helped the evaluation team to understand what may motivate them to install compressed air equipment outside of the product. The evaluation team determined the tools trade partners find most helpful in motivating customers to participate in a compressed air efficiency study or to purchase compressed air measures, in addition to any barriers experienced in doing so. Additionally, we asked trade partners the reasons why those who participate in prescriptive and custom rebates do not always also elect to become qualified study providers through the product.
- **Compressed Air Growth:** The evaluation team explored whether there was compressed air equipment not included in the Compressed Air Product that customers expressed interest in and/or if there are particular types/brands of compressed air equipment that customers, or trade partners, prefer.
    - Specifically for Colorado's product, we explored if trade partners knew of other companies in Colorado who provide leak checks for compressed air systems that do not participate in the Compressed Air program.
- **Retrospective and Prospective NTG Impacts:** Finally, the team asked questions on product attribution, or the impact the product had on their decision to install and/or recommend compressed air equipment or conduct studies. This information supported the understanding of potential market effects Xcel Energy has had on market actors.

Appendix B.4 presents the interview guide used for our trade partner research, and Appendix C.4 provides results related specifically to this research activity.

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3.2.5 Peer Utility Benchmarking Interviews

Last, the evaluation team interviewed peer utilities. The objective of the peer utility benchmarking task was to understand how peer utilities approached key issues related to implementing compressed air programs. The evaluation team collaborated with the Xcel Energy Product Manager to identify ten peer utilities to include in its sample, of which the evaluation team spoke to eight. We considered the following criteria when selecting peer utilities: similar program designs, programs known to have best practices or tools Xcel Energy is interested in pursuing, utilities that operate in similar territories (including the geography, the number of customers, and/or the number of small businesses in its territory).

The evaluation team recruited staff in key management roles related to compressed air programs at peer utilities. Interviews with these staff focused on the same discussion topics explored in the interviews with Xcel Energy customers and trade partners, but emphasized the following research objectives specific to peer benchmarking interviews:

- **Overall program design and objectives**: Implementation strategies, approach to working with trade partners, rebate levels, and recent or planned changes to the program.
- **Program experiences:** Program strengths and challenges.
- **Marketing strategies used:** Increasing program awareness for new and existing customers, engaging trade partners, and encouraging study participants to implement measures.
- **Opportunities for growth:** Use of remote/continuous monitoring technology, opportunities for additional new/emerging measures.
- **Net-to-gross (NTG) savings approach**: NTG method, ratio applied, calculation details

Appendix B.5 presents the interview guide used for the peer utility research, and Appendix C.5 provides results related specifically to this research activity.

3.3 Detailed Findings

Below, the evaluation team presents findings related to each of the main process evaluation objectives: product experience, motivations & barriers, and compressed air market growth. Within these topics, we have included data from all relevant data collection efforts. Peer utility findings are interwoven into relevant chapters, rather than having standalone sections like Participant, Near-Participant, and Trade Partner findings. The synthesis of findings places an emphasis on helping Xcel Energy to interpret research findings and identify actionable opportunities for improving product operations.

3.3.1 Product Experience & Satisfaction

Customer experiences are primarily driven by interactions with trade partners, who communicate information on the product itself and the benefits of efficient compressed air equipment and systems. These participating customers primarily reported their experiences with the product to be positive. Trade partners also reported generally positive satisfaction with the product, though lower satisfaction was driven by perceptions of limited communication from Xcel

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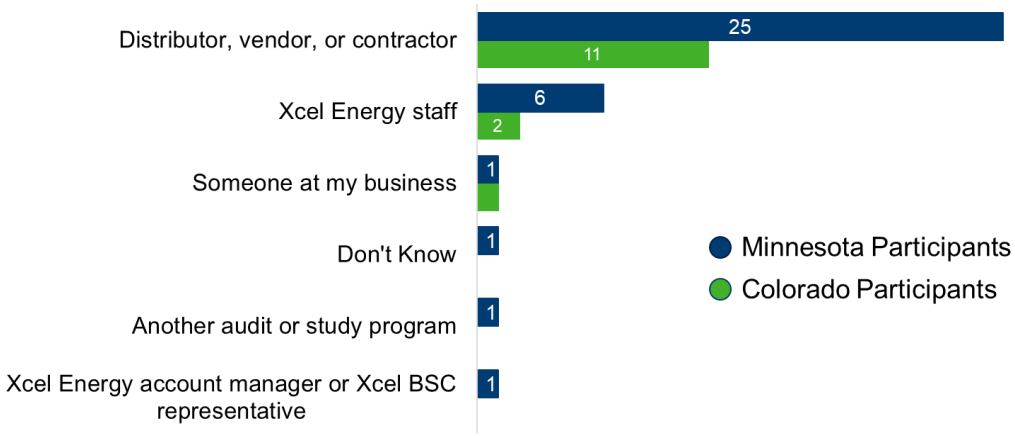
Energy and long turnaround times for project approvals and rebates. The next section provides detailed findings from participating customers, near-participants, and trade partners related to their experiences with the Compressed Air Product.

Participating Customer Awareness

Participating customers commonly reported learning about the Compressed Air Product through trade partners. Trade partners both informed participating customers of the product's offerings and informed customers of the ability to use efficient compressed air equipment to save energy at their facilities. This aligns with product design, whereby Xcel Energy provides support, training, and other resources to trade partners, who then communicate information about the Compressed Air Product to their customers.

As shown in Figure 3-1, most respondents in Colorado first became aware of the Xcel Energy Compressed Air Product through their distributor, vendor, or electrical mechanical contractor (79%, n =11).

Figure 3-1. Source of Participating Customer Compressed Air Product Awareness, CO & MN



Additionally, customers in both Colorado and Minnesota who participated in the product's Equipment Rebates track were generally aware of efficient compressed air equipment, with 68% (n=22) of respondents reporting that they were aware of compressed air equipment as an energy saving technology prior to their decision to participate in the product. Additionally, the majority of measure participants (59% or n=13) first became aware of the potential to use their compressed air systems to save energy at their facility through their vendor or contractor, who sold them their equipment.

When asked about how they prefer to receive information on new opportunities, the majority of participants in Colorado stated that they prefer to hear about similar rebate and product opportunities from Xcel Energy via email (n=13), as shown in Figure 3-2. Participant Preferences for Communication, CO & MN One respondent in Colorado preferred hearing about opportunities through their account manager.

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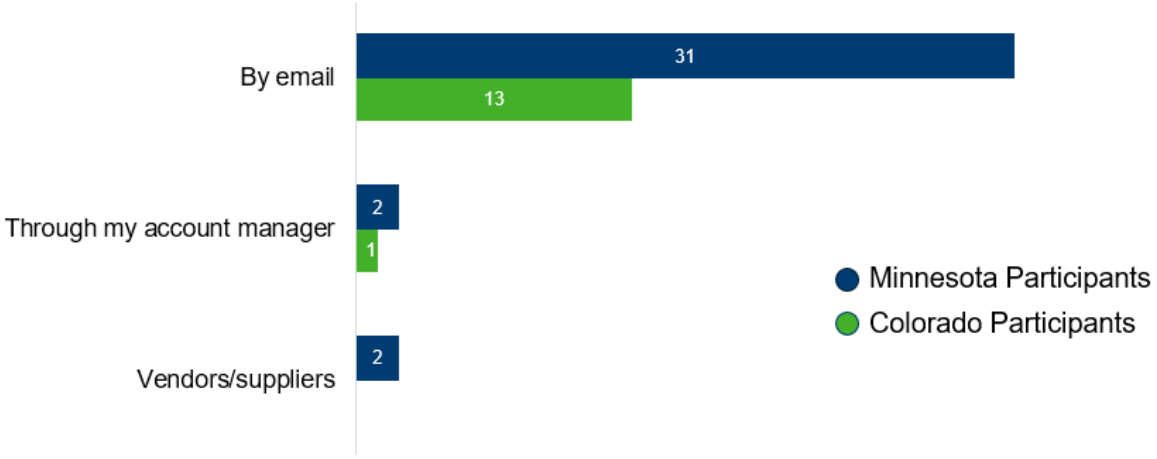
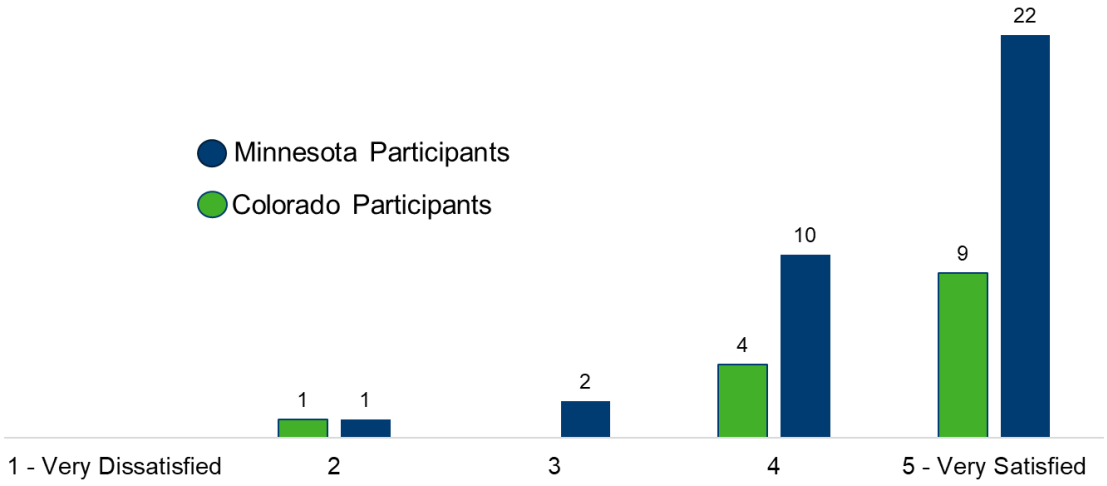
Figure 3-2. Participant Preferences for Communication, CO & MN



Participant Satisfaction

Overall, respondents reported being satisfied with the product, giving an average rating of 4.5 out of 5, where one means Very Dissatisfied and 5 means Very Satisfied. As shown in Figure 3-3, almost two-thirds of Colorado respondents (64%, n=9) rated their satisfaction with the product a 5 out of 5 and only one Colorado respondent rated their satisfaction below a 3 (neutral). This suggests that the experience of participating in the Compressed Air Product for end-users is primarily positive.

Figure 3-3. Participant Satisfaction with Product Overall, CO & MN



Participants from Colorado who conducted a study reported the highest satisfaction rating for the usefulness of the Compressed Air Efficiency Study, with an average satisfaction rating of 5 out of 5 (n=2, study participants in Colorado), as shown in Figure 3-4. Equipment Rebates and Efficiency Studies participants were both highly satisfied with the quality of the equipment installed through the program and the equipment options available for rebate. Each of these factors received an average satisfaction rating of 4.5 out of 5. In Colorado, the lowest satisfaction ratings were for the amount of time it took to amount of time it took between

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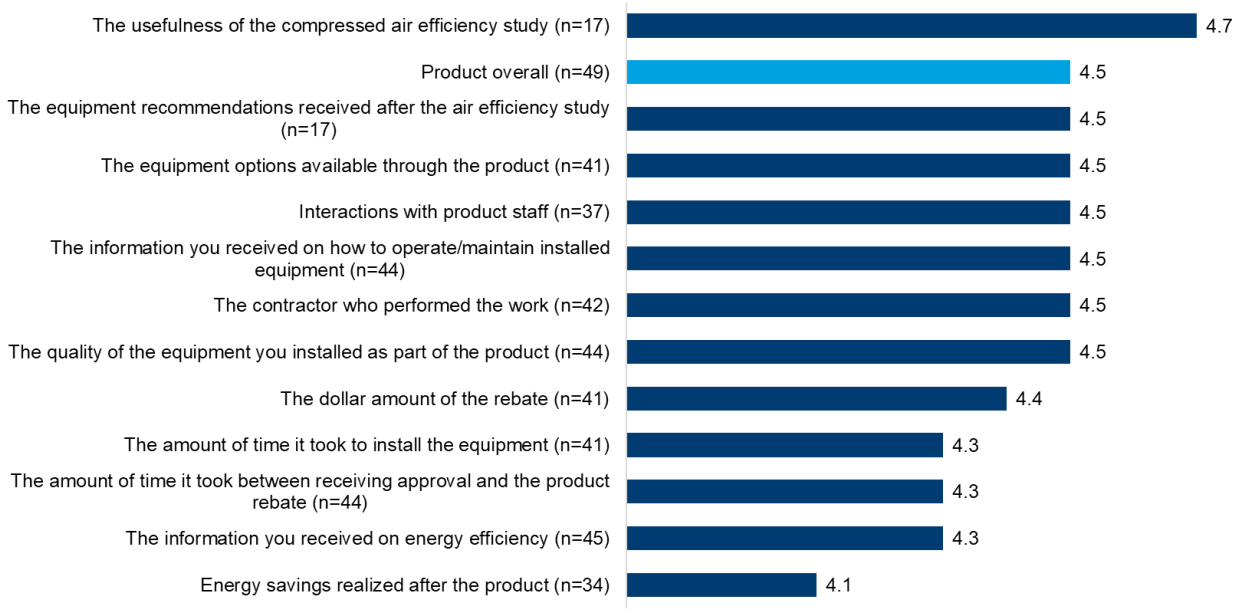
receiving product approval and receiving the program rebate. This factor received an average score of 4.0 out of 5 among measure and study participants. That participants are dissatisfied with the amount of time it took to have their project approved and receive a rebate aligns with findings from trade partners, who said their customers were sometimes frustrated that they could not provide them time estimates because the trade partners had not received them from Xcel Energy.

Figure 3-4. Participant Satisfaction with Product Components, CO & MN



Note: Reported N's include valid responses only and do not include "Don't Know" or "Not Applicable" responses.

Near-Participant Satisfaction

All four Compressed Air Efficiency Study participants who had not completed an updated study after becoming eligible again after five years ("dormant participants") were "very satisfied" with their previous experience with the product, rating it a 5 out of 5. Near-participants most commonly cited the rebates offered through the product as the greatest product benefit (n=6) followed by reduced operating costs (n=5). One dormant participant stated:

> "I got info that I needed. We were supplied with the leak testing …we fixed the leaks they found, which was good and saves us money. It did what I wanted it and could hope for it to do."

Overall, near-participants were less satisfied with their experience with Xcel Energy, reporting an average satisfaction 3.3 out of 5. Those lower scores were driven by a lack of interaction with their account manager. Two respondents could not recall ever being contacted by Xcel Energy about the product. Two near-participants who began the process of participating but did not ultimately do so were frustrated that they would not receive the rebate they had anticipated, after going through the verification step of participating in the Compressed Air Equipment Rebates, which lowered their satisfaction with Xcel Energy.

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> *"We were promised high energy performance, and Xcel took the rebate back and it will cost us a lot of money to do without the rebate. We had not considered that expense since they recanted what they told us they would incentivize."*

Trade Partner Satisfaction

Similar to participating customer findings, trade partners were also generally satisfied with the overall product, with ten respondents rating their satisfaction a 4 or 5 out of 5. Trade Partners attributed their satisfaction most often to the ease of participating in the prescriptive portion of the product (n=5) and the availability of incentives for driving customers towards more efficient equipment (n=6). One trade partner who rated their satisfaction highly stated:

> *"The prescriptive piece is making a difference, getting people to be more energy efficient. It's nice to give a spiff to reps like me for dealing with additional hassle of following the rebate process through."*

Four trade partners rated their satisfaction a 2 or 3 out of 5. These lower scores were driven by feelings that the overall product, study portion, and custom processes can be complicated and time-consuming. Trade partners provided examples of areas that can be complicated, including getting the right data to completed air studies, making sure it is in the right format, and communicating back and forth with Xcel Energy. Referring to the overall product, one trade partner stated:

> *"It would be nice if it were laid out more intuitively and we were kept up-to-date in a better way, even if we had to have a downloadable booklet with all the processes and that's how it's done, just dumb it down."*

Program Experiences from Peer Utilities

Peer utility programs varied in size and activity, from very active programs with multiple tiers of opportunities for engagement with customers (e.g., Custom, Prescriptive, Studies offered) to smaller, inactive programs and programs that are wrapped into larger utility programs (i.e., not offered as a stand-alone program).

Generally, peers found that simpler, more streamlined program components contributed to the success of their program. Four peer utilities stated that simplicity allowed their programs to operate efficiently and at low cost: "We try to keep the program simple and not overly complex." Two of these peers specifically noted that having to complete fewer custom applications was a strength of their program. Other peers felt that having various tiers or channels of participation in the program provided a better experience for customers: "The variety and the multiple tiers we implemented have really helped…it made it convenient for customers…if they are doing something, there is a good chance it will fit in relation to our rebates." This is in contrast to the peer utilities that valued the simplicity of their programs to enhance the customer experience.

3.3.2 Motivations & Barriers to Participation

Through participant surveys, near-participant surveys and trade partner interviews, the evaluation team collected feedback on what motivates participation in the Compressed Air

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Product and what barriers prevent product participation. Responses from participants, near-participants, and trade partners are summarized in the following sections.

Motivations

Better understanding of what motivates participants and trade partners to take part in the Compressed Air product helps pinpoint where there may be opportunities to target additional marketing or support in order to grow the product. Participating customers were primarily motivated by opportunities to save money or energy, updating their outdated systems and for those who participated in a study, identifying opportunities to make their systems more efficient. Trade partners and near-participants similarly reported being motivated by opportunities to either save money themselves or help their customers save money, through the rebates offered through the product.

Participant Motivations

Figure 3-5 below outlines the factors that most motived participants to engage with the Compressed Air Product. Among all participants, reducing the dollar amount of energy bills and upgrading out-of-date equipment/materials were the biggest motivations for product participation. For participants who completed studies, identifying opportunities to improve the efficiency of their compressed air systems was the biggest motivation for product participation. These findings indicate that the product is operating as designed – customers are motivated to participate in Equipment Rebates because they are interested in more efficient equipment but need support in reducing the cost of that equipment. On the Efficiency Studies side, participating customers are motivated to participate because they are interested improving the efficiency of their compressed air systems and want to identify upgrades or repairs. Additionally, this indicates that customers who participate in studies are likely to also be motivated to install equipment through the product, because they are specifically looking for ways to improve the efficiency of their compressed air equipment.

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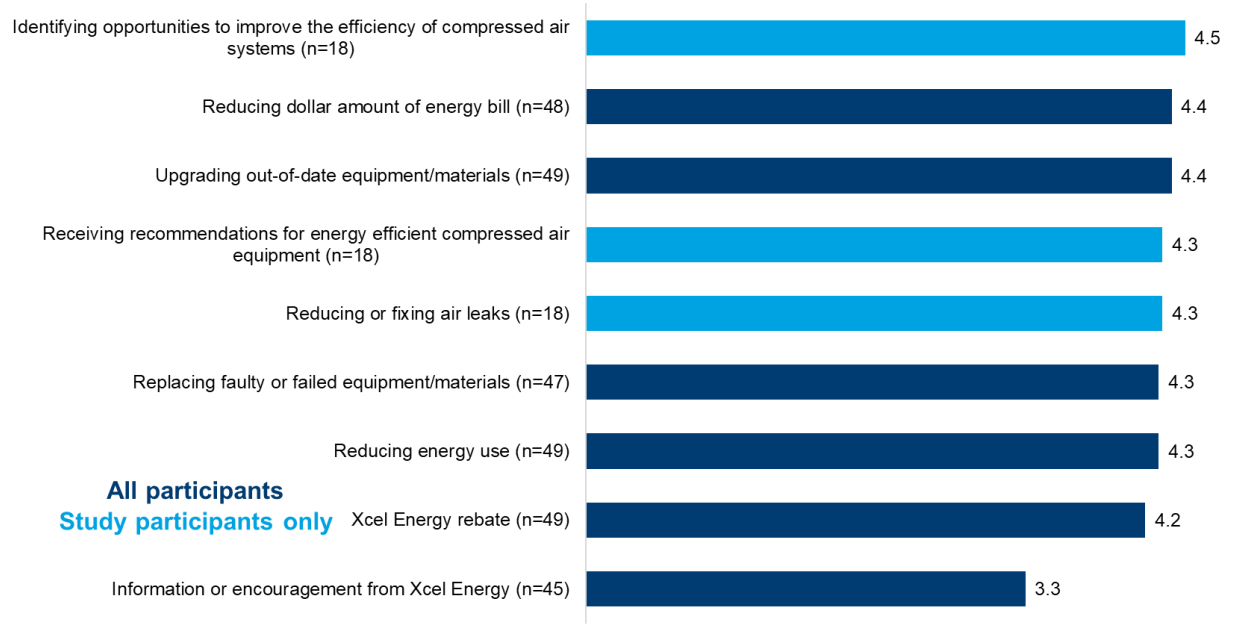
Figure 3-5. Motivations for Participation in the Compressed Air Product



Near-Participant Motivations

Near-participants who conducted a study through Xcel Energy in the past described a variety of factors that motivated them to participate. The most common response aligned with participating customer findings: their prime motivator was to identify opportunities to save energy and money in their compressed air system (n=2). Other motivations described by near-participants included the no-cost audit (n=1) and a need to demonstrate ROI (n=1) as factors that had motivated them to conduct a study. One respondent said:

> *"We are always looking for better ways of doing things and the big deal with the study is they will do it for you and give you suggestions for things. It's kind of foolish not to take advantage of those things."*

Near-participants who considered applying for equipment rebates but ultimately decided not to do so were primarily motivated to replace or upgrade their compressed air systems due to equipment failure/end-of-life or a need to expand system capacity (n=3). This again, is similar to motivations reported by participating customers, who said that upgrading out-of-date equipment was their primary motivator for participating in Equipment Rebates. One customer said:

> *"[We needed] to upgrade because the original compressors could not scale with the business...When we went to buy a new one, the VFD was a great decision for us. It's quiet and runs nice."*

Trade Partner Motivations

Trade partners who provide Efficiency Studies and Equipment Rebates both noted that rebates/incentives motivated their customers to participate and also motivated the trade partners themselves to complete projects through the product.

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Trade partners who provide studies through the Compressed Air Product felt that rebates are the primary drivers of efficiency studies – both for trade partners to offer and conduct them, and for customers to want the studies (n=5). Respondents felt that, because the Xcel Energy studies are more involved than a straightforward leak check, rebates make the studies worth providing. Describing the benefits of the rebates, one trade partner said:

> *"The ultimate goal of our company is to sell equipment, and audits are a way to position our company as an expert. For the most part, rebates are a big driver of doing the study. Without the rebate, there is no reason to do an Xcel Energy study."*

Trade partners are also motivated to offer efficiency studies because they provide detailed information to their customer and offer opportunities for system improvement. This can lead to sales for the trade partner or their company, as detailed by four trade partners in their interviews. Trade partners described how the efficiency study helps sell equipment: "It helps us sell equipment to customers. We go in and audit; once we audit, it's a shoo-in sale, we are going to sell something." Another said, "It helps me to sell compressors, period. If I do a study, I am guaranteed a sale."

Trade partners who provide Equipment Rebates through the Compressed Air Product also felt that rebates were the primary motivation for their Xcel Energy customers to participate in the product (n=9). Trade partners also felt the rebates were motivating for themselves as well, because they allowed trade partners to be better salespeople and sell better products to their customer that most closely meets their needs. Trade partners felt that customers who would not typically be able to install the best-fitting, more efficient equipment for their facility are able to do so because of the rebates. One respondent described this when they said,

> *"Main reason, typically VSD compressors are a little bit more in capital costs than…a fixed speed. So, you get a larger order total, which adds up towards my goals…And then second motivation would be that a customer purchasing that will actually typically save on their utility bill. So, it's advantageous for the customer to purchase a VFD."*

Barriers to Participation

The following section describes the barriers to product participation, as reported by compressed air market actors. Trade partners, near-participants, and peer utilities all described a lack of awareness and understanding of either the potential for improving efficiency in compressed air systems or the benefits of participating in the Compressed Air Product as a barrier to participation. Participants, on the other hand, said that lack of buy-in from stakeholders in their organization held them back from participating.

Participant Barriers

Only two participants in Colorado reported that there was some factor that held them back from participating in the Compressed Air Product. Though these customers ultimately ended up participating, suggesting that the benefits of participating ultimately outweighed these barriers, it is important to understand these barriers, because similar issues could be preventing other customers from participating at all. Of the participants who stated that they faced some barrier to participation, one was a prescriptive measure participant and the other was a custom measure participant.

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Barriers for these participants included:

- Upfront cost of the equipment.
- Overall skepticism if equipment upgrades would save money: "I was skeptical about whether it would actually save us money."

The barriers indicate that concerns about costs – both upfront and over time, are still a primary consideration, even with the rebate offering. As we will show in the following section, these cost concerns are also echoed by near-participants, who felt that cost barriers contributed to their choice not to participate in the product.

Near-Participant Barriers

Across all near-participants—both those who previously participated in a study and those who considered participating in equipment rebates—a barrier was lack of awareness and understanding of Xcel Energy products generally, and the Compressed Air Product specifically. Near-participants rated their awareness and understanding of both the Compressed Air Product and other Xcel Energy products low on a scale of familiarity with the products with an average of 2.8 out of 5. Only two out of eight near-participants considered themselves familiar with Xcel Energy products. One barrier to product awareness could be lack of product marketing to potential customers. A comment from one respondent underscores the need to continue to develop program marketing for a diversity of commercial and industrial customers to drive awareness:

> *"I see emails for certain things, I feel it doesn't usually apply to what we do as a smaller company. We lease space so we don't always have discretion."*

As part of product design, Xcel Energy account managers or the trade partners who perform the initial studies are supposed to contact eligible customers about re-conducting a study. However, no past study participants could recall being contacted by Xcel Energy to re-conduct an efficiency study after they became eligible again when five years had passed after their first study. This finding indicates that there may be some breakdown in the chain of communication, and there is an opportunity to make process improvements to more effectively alert customers when they are eligible for a new efficiency study.

Some near-participants also felt that identifying qualified trade partners was a barrier to participation. These customers had difficulty determining which trade partners could install equipment through the product. This is an interesting finding for several reasons - First because product design intends for trade partners to link businesses to the product, but also because it indicates some misunderstanding that participating customers can also submit rebates themselves. One respondent said, "Having people to recommend that could install it would have been very helpful."

Only one near-participating respondent could recall a previous conversation with Xcel Energy staff to discuss upgrades to their compressed air systems in detail. Some couldn't remember a conversation at all, others only vaguely. Two out of four near-participant respondents ultimately purchased compressed air equipment, but none of the equipment was efficient enough to qualify for the product. These participants provided a variety of reasons for choosing the equipment they did, including lower equipment price, reducing their overall energy costs (electric and diesel), reducing the noise level, reducing warm-up time, and increasing run times.

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Three out of four respondents who considered installing equipment through the product said the product had no influence or very little influence in their decision to purchase new compressed air equipment.

Trade Partner Barriers

Trade partners cited several barriers to participating in the Compressed Air Product, but primarily felt that slow turnaround times and insufficient communication are key barriers to participation. First, trade partners felt that the turnaround time for approvals and rebate receipt were too long (n=5). This barrier aligned with some of the reasons provided for low satisfaction scores from trade partners, which were driven by the complicated processes for custom projects and studies. Additionally, trade partners felt it was often difficult to understand the status of their applications (n=3). Trade partners noted that they could benefit from communication around the status of their applications, particularly so that they could then communicate those timelines to their customers:

> *"The [Xcel Energy] teams don't have a great way for vendors to stay notified about where they are in the process… which makes businesses not want to participate. It would be nice to have an estimate of turn-around time for the customer."*

Additionally, turnover of product staff at Xcel Energy has led to trade partners perceiving inconsistent levels of support for their Compressed Air Product projects throughout the years (n=5). Trade partners described having a difficult time knowing how to get support or who to talk to within Xcel Energy, which they attributed to staff turnover.

Lastly, trade partners felt that low awareness and knowledge of the product among end-users makes studies and custom projects difficult to sell (n=4). Trade partners sometimes felt like they had a hard time starting the conversation about those offering with customers and that it would be made easier if the customer came with some existing knowledge of the product. One trade partner described this barrier, stating, "The majority of people don't know about the program, it's a difficult thing to advertise… it's hard to push that narrative to people." They felt it required a big effort to provide all the education around the process for participating in those offerings, communicate the benefits, and help customers understand the costs and benefits.

Peer Utility Barriers

Three out of eight peer utilities felt that engaging end-use customers was the greatest barrier to participation in their program. The peers noted that it is sometimes difficult to inform customers that they have an opportunity for their compressed air systems to be optimized and convince them that upgrading to energy-efficient equipment is the right thing to do. Another peer felt that it was sometimes difficult to help a customer move through the process of participating in their program; the end user had barriers inside their organization that prevented them from moving forward and there was nothing the peer utility could do to overcome it. As noted above, this was also cited by trade partners as a barrier to their participation in the Compressed Air Product. One peer stated, "Compressed air is a system that needs to be optimized, [I] supposed that customers don't realize that. We reach out to customers to try to get them to look at their systems more holistically. They need more education."

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3.3.3 Opportunities for Growing the Compressed Air Product in Colorado

Product staff were interested in understanding how to increase participation and evolve the Compressed Air Product. One way staff have considered doing this would be to increase rebate levels. To understand if cost barriers remained a challenge for customers, the evaluation team asked customers and trade partners about current rebate levels. While we did not find that rebate levels were a problem for participating customers, trade partners believe they remain a barrier. Both participants and trade partners reported high satisfaction with current rebate levels, with both groups rating them a 4.4 out of 5. Despite this, eight trade partners also stated that they felt higher rebates would drive additional participation in the Compressed Air Product. Three trade partners expressed some dissatisfaction with the current rebate levels, specifically for the prescriptive and study tracks, noting in all cases that the rebate had been more impactful in the past. One trade partner stated, “Today’s current rebates just don’t give that wow factor…. the old type, you could present it that way… now it’s just a regular program that every utility offers.” Four near-participants also stated that, if rebate levels were higher, they may have been motivated to participate in the Compressed Air Product.

The evaluation team also probed customers and trade partners for suggestions to improve the program. While participating customers did not offer ideas for additional equipment that could be included in the future, trade partners and near-participating customers had a variety of suggestions.

Additionally, trade partners felt they could be further supported and would participate more in the product with increased communication from Xcel Energy. They described interest in the following communication channels:

- Email communication with product updates
- Product participation information available online, like in a downloadable booklet
- Communication on the status of rebates and applications, including estimates of rebate timelines, to provide to customers
- In-person and other industry events, like trainings and lunches

Trade partners also provided several suggestions for additional equipment that could be included under the Compressed Air Product, with a preference for expanding what qualifies as prescriptive. Increasing what qualifies in the prescriptive track may improve participation, because the prescriptive process for participation is more streamlined and simpler than participating through the custom process. Suggestions were varied and included:

- Increase horsepower range for prescriptive rebates on VSD Compressors (one trade partner said to 50hp, another recommended to 100hp).
- Increase receiver capacity eligible for the prescriptive track.
- Allow smaller CFM range for prescriptive rebates on purge controls for cycling dryers.
- Allow prescriptive rebates for high-efficiency, fixed-speed machines.
- Include air tanks in prescriptive track.
- Include load/no-load controls in prescriptive track.

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- Include water-lubricated VSD air compressor (being developed by US Air Compressor) in the prescriptive track.
- Include low-pressure drop filters in the prescriptive track.
- Include oversized filtration in the prescriptive track.
- Include controllers for multiple compressors in the prescriptive track.

Near-participants also provided actionable suggestions to grow the product. Respondents most frequently suggested increasing advertising (n=4) and reaching back out to dormant participants (n=4) as strategies that would motivate customers to reengage with the product. They also mentioned increasing rebate amounts, increasing transparency of rebate amounts by making the payback clearer to customers, and providing help identifying trade partners. Regarding trade partners, one near-participant reported a need for "finding and having the right contractor…the contractor should be more turnkey."

Trade Partner Perspectives on the Colorado Compressed Air Market

A question specific to the product's influence within the Colorado compressed air market was whether trade partners knew of other companies in Colorado who provide leak checks or studies for compressed air systems who do not participate in the Compressed Air Product. Trade partners did provide some evidence that companies providing audits outside Xcel Energy's study offering create competition for study providers operating within the program.[12] Additionally, we found that some trade partners who do not currently offer studies through the Xcel Energy product (but do participate in Equipment Rebates) reported conducting leak checks that were "less involved" than the Xcel Energy study.

One trade partner, describing competing audits at other companies, felt the competition to conduct audits prevented them from becoming a study provider with Xcel Energy. This trade partner said they currently do not offer studies through Xcel Energy's product because "there's so many companies that have invested in their own people and equipment who do [audits]…I guess we'd be competing."

Three companies in Colorado also mentioned that their company performs leak checks outside the product. The service is provided free of charge to their customers but is not as "involved" as the Xcel Energy offering:

> *"We are not set up as a study provider through Xcel. We have all the equipment to do it, but we don't actually do the audit through Xcel…it's a lot of work to do the audit itself and hard to justify. Just not a high ROI for us."*

This indicates that, anecdotally, not only do non-participating trade partners who offer studies outside the product create competition for Xcel Energy's Compressed Air Efficiency Study offering, but trade partners who participate in the Equipment Rebates but offer leak check or audits outside the product may be contributing to competition as well.

[12] Four out of ten interviewed trade partners provided information on competing audits in the state - because of the small number of trade partners who described it, this information should be considered anecdotal .

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Peer Utility-Identified Opportunities for Growth

Opportunities identified by peer utilities for growing their programs most frequently related to increasing outreach and marketing. The Xcel Energy product does not currently market consistently to end-users, though select account managers do reach out directly to end-users who are eligible for new studies.[13] Marketing the Xcel Energy product is complicated because the product does not have a good way to identify customers who have compressed air systems. One of the peers confirmed that this was a difficulty for their program as well but felt doing so was important because it would "be helpful to educate the customers." This program is attempting to contact facility managers to see what energy needs they have and use that information to identify compressed air-specific customers who could benefit from the program. Another type of outreach described by a peer was communicating with vendors to learn more about their experiences with that program and to see if they have measures they would like added to the program.

Two peer utilities stated that they actively look for new or emerging technologies in the industry to add to the program. One mentioned variable speed centrifuges as something they are interested in pursuing, but they noted that they have not seen it on the market yet. Note that this measure was not included in the list of suggestions provided by interviewed trade partners.

Xcel Energy product staff were particularly interested in learning whether continuous monitoring was a technology peer utilities were pursuing. The evaluation team found that few peers (n=3 out of 8) mentioned offering continuous monitoring, and two of these did not offer continuous monitoring through their compressed air program, but rather through a more holistic monitoring-based program. One peer said that continuous monitoring was offered under their energy management programs, and the other said it was offered by a third-party contractor they use for leak detection (their program does not directly offer leak detection and repair, because they focus primarily on controls). This peer mentioned that the program did offer it in the past but is not aware of any discussions to reinstate continuous monitoring as part of the program. In general, while there was little evidence of interest in pursuing continuous monitoring by peer compressed air programs, one peer utility felt that they were seeing a transition from new measures, toward system maintenance. This peer was seeing fewer equipment rebates and an increasing amount of savings attributed to audits and leak repairs. This could indicate that though there is not much interest in continuous monitoring systems presently, we could be seeing an early trend towards incorporating more holistic monitoring of multiple systems into utility offerings.

[13] The product has also marketed directly to end-users in the past through the Compressed Air Challenge trainings but has not done so for the past four years.

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4 Conclusions & Recommendations

This chapter presents TRC's key findings and associated recommendations regarding the Xcel Energy Compressed Air Product in Colorado. All recommendations are based on key findings from our evaluation research and are designed to reflect the context of future product years, acknowledging expected changes in the market and planned product changes.

Overall, the evaluation team found that the Compressed Air Product is operating smoothly, and both customers and trade partners were generally satisfied with their experiences with the product. The evaluation team also found that the product influenced customers to perform compressed air efficiency studies as well as install efficient compressed air equipment within the Xcel Energy Colorado service area. Despite high satisfaction, the evaluation team identified several recommendations to improve satisfaction and sustain product influence. The remainder of this chapter presents key findings and recommendations.

- **Key Finding 1: Trade partners felt that increased communications from Xcel Energy would motivate additional trade partner participation and also increase trade partner satisfaction with their experience participating in the product.** Trade partners described interest in the following channels of increased communication with the Compressed Air product: (1) Email communication with product updates, (2) Information on how to participate in the product available online, like in a downloadable booklet, (3) Communication on the status of rebates and applications, including estimates of rebate timelines, to provide to customers, and (4) In-person and other industry events, like trainings and lunches.
  - **Recommendation 1a: Increase the frequency of communications with trade partners regarding product changes and other product updates.**
    - The COVID-19 pandemic prevented some communication (particularly in-person meetings) that would have occurred in a typical year. Increasing the frequency of communications can help re-engage trade partners and continue to build or strengthen the relationships with trade partners that are crucial to bringing participants to the product. Consider creating a communication that is delivered to participating trade partners on a monthly or quarterly basis, as feasible, that remind trades of key product components – like rebate levels (or changes to rebate levels), how to submit applications, and who to contact with questions. The communication could also include frequently asked questions from trade partners, or ideas of how to use the product more effectively as a sales tool. Providing additional support to trade partners through a regular communication not only helps to build relationships and trust with trade partners but can also make the process of trade partner participation run more smoothly, if they are more aware of how best to participate.
  - **Recommendation 1b: Provide trade partners with an update (phone, in-person, or via email) including the status of open projects and estimated review time of their projects, so they can communicate that information to their customers.** Trade partners reported some frustration with the timeline of participation in the product, primarily because they felt confused about the status of product and how long they should anticipate each step taking. They felt this sometimes affected their relationship with their customers, and their ability to keep customers up to date on

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the progress of their compressed air project. Participants echoed these frustrations in satisfaction findings, where they rated their satisfaction with the time it took to install compressed air projects lowest among the product elements.

- In conversations with product staff, it was noted that there is a goal to eventually develop a trade portal that would allow a trade partner to log in and see the status of their projects. While that is being developed (project staff note it is still years away), quarterly or monthly communications via email, phone, or in-person conversation can help support trade partners by keeping them updated about the status of their projects.
- When developing a means to provide this feedback, Xcel Energy will need to ensure data privacy of customer records if sending updates via email. If feasible, this information should be communicated using a project ID instead of identifying customer information.

◊ **Recommendation 1c: Use updates suggested in recommendations 1a and 1b to remind trade partners of who contact at Xcel Energy when they have questions or concerns.**

- Providing more regular updates (monthly or quarterly, as suggested in the previous recommendations) gives the product team an opportunity to provide up-to-date contact information for Xcel Energy Compressed Air support if and when staff turnover does occur.

♦ **Key Finding 2: Trade partners valued continuity and experienced challenges due to product staffing changes.** Trade partners noted that when Compressed Air product staff turned over, there were sometimes gaps in support or inconsistencies in product implementation. These inconsistencies could be confusing and trade partners sometimes described feeling de-motivated to participate as a result.

◊ **Recommendation 2a: Ensure processes for working with trade partners are well documented in internal material.** Program processes can be detailed in internal product materials and a Customer Relationship Manager (CRM) could track communications with individual trades partners and their businesses. This way, even when there is staff turnover, new staff have the resources they need to make sure interactions with trade partners remain high-touch and consistent.

- Well-documented processes for working with trade partners (including preferences or approaches to working with individual trade partners) will help minimize disruption that trade partners feel when there is turnover or new product staff.

◊ **Recommendation 2b: When possible, host trainings, lunches, and other in-person meetings to maintain high-touch relationships with trade partners.**

- As mentioned in Key Finding 1, many of these in-person meetings were impossible during the pandemic, but trade partners often mentioned these lunches and trainings during interviews as a good opportunity to build relationships with the product and product staff. Keeping regular cadence of in-person meetings once a year or so will allow new product staff to get to know and build rapport with trades even as turnover occurs.

♦ **Key Finding 3: Trade partners provide primary communication to customers about the Compressed Air Product.** Customers are often unaware of the product

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before speaking with a trade partner, and trade partners expressed the need for support in marketing the product as a result. Peer utilities also mentioned lack of end-user awareness as a barrier – it was sometimes hard to identify customers who would benefit from upgraded compressed air equipment and to sell efficient equipment to someone who wasn't aware of the benefits of the equipment or of the product.

- **Recommendation 3a: Consider direct marketing to end-users of compressed air equipment to drive customers to qualified trade partners.**
  - Product staff indicated that, while it is difficult to identify appropriate end-users of compressed air equipment (a reason why the product primarily relies on trade partners to bring customers to the product) there could be an opportunity to do outreach to customers assumed to have compressed air systems using North American Industry Classification System (NAICS) or Standard Industrial Classification (SIC) codes and send email marketing. Using these codes for end-user marketing efforts would help narrow down communications to target those customers in industries likely to use compressed air equipment.
  - Marketing opportunities are also limited for individual products, and outreach may need to be strategic in terms of bundling with other offerings in order to market directly to end-users.
- **Recommendation 3b: Provide trade partners with updated customer-facing marketing materials that highlight the cost and energy savings they could achieve with high-efficiency equipment.**
  - Current marketing materials for trade partners have not been refreshed in some time. There is an opportunity to update these and provide trade partners with printable/emailable materials to use when discussing the product with their customers. These materials should focus on helping trade partners communicate not only the benefits of the product, but also the monetary benefits of installing efficient equipment or performing a study to customers. This is an aspect of compressed air knowledge that peers and trade partners both noted was particularly difficult when working with end-users.

- **Key Finding 4: Participating customers and trade partners both reported high satisfaction with rebate levels.** Despite this, trade partners felt that past rebate levels were higher and more impactful, making the previous equipment rebates easier to use as a sales tool. Additionally, near-participating customers reported that costs were a barrier and echoed that higher rebate levels would increase the likelihood of their participation.
  - **Recommendation 4a: Monitor incremental prescriptive rebate amounts for Colorado to determine whether there may be opportunity to increase prescriptive rebate amounts.**
    - Xcel Energy sets a target for the portfolio that rebates not exceed 60% of incremental costs on average. Currently, rebates for the Compressed Air Product in Colorado are at 45% of incremental costs, so there may be room in Colorado for a slight rebate increase. Product staff should continue to monitor incremental prescriptive rebate amounts and consider increasing the rebate for prescriptive equipment, keeping an eye on inflation and cost

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changes for efficient compressed air equipment. Trade partners reported feeling that the rebates had been more impactful in the past, so increasing rebate levels when able may increase trade partner support of and participation in the product.

- **Key Finding 5: Near-participants had low awareness of the Compressed Air product and many customers who had formerly participated in a study did not know they were eligible to complete an updated Efficiency Study.** Near-participant interviews found that general awareness of Xcel Energy products was low, and was particularly low for the Compressed Air product. Customers are eligible to conduct a study at their facility every five years, but most interviewed near-participants were not aware they had become eligible again for a study. These near-participants often said they would be interested in conducting an updated study, if they had known they were eligible.
  - **Recommendation 5a: Encourage account representatives to work closely with trade partners or product staff to engage with customers who are eligible for an updated study.** Customers who are eligible for updated studies after five years are typically contacted by their Account Manager, but savings related to fixing leaks through studies are not always large enough to trigger a follow-up by the Account Manager.
    - Product staff indicated that there is an opportunity to engage trade partners or other product staff who may have a more established relationship with the former study participant to reach out to them directly, rather than relying exclusively on Account Managers. This may relieve some of the burden put on Account Managers to track and follow-up with all previous study customers, and also may more effectively reengage these lapsed participants.

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Appendices

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Appendix A: Evaluation Plan

Appendix A contains the evaluation plan used to guide this investigation. To support the 2021 process and impact evaluation of Xcel Energy efficiency products, the TRC evaluation team will be conducting a process and impact evaluation of the Colorado (CO) and Minnesota (MN) Compressed Air products. This memo provides a plan for the 2021 Colorado and Minnesota Compressed Air evaluation based on staff feedback during the evaluation kick-off meeting, staff interview findings, and review of program documentation. This evaluation plan includes the following sections.

- Product Overview
- Evaluation Overview
- Data Collection Activities and Sampling Plans
- Net-to-Gross Approach

A.1 Evaluation Plan

The Colorado and Minnesota Compressed Air products provide compressed air efficiency studies and prescriptive or custom rebates for a variety of compressed air measures. Two barriers to installing new compressed air measures for C&I customers include the high costs associated with efficient compressed air equipment and lack of awareness of opportunities to improve the energy efficiency of compressed air systems. The Colorado and Minnesota Compressed Air products are designed to address these barriers and engage C&I customers who would not conduct a compressed air study or install efficient compressed air measures on their own.

Customers participate in the Compressed Air products through three tracks:

1. **Compressed Air Efficiency Studies**: Trade partners conduct compressed air efficiency supply-side studies at C&I customers' facilities to identify leaks and other inefficiencies, as well as opportunities for equipment upgrades. Trade partners are required to go through a pre-approval process to ensure they conduct studies to the product team's standards, and to help trade partners understand what information is needed to conduct a study successfully. Customers are eligible for compressed air studies every five years and are either contacted by a trade partner or by Xcel Energy product staff once they are eligible for a new study. Table 1 outlines the supply-side rebate amounts per study based on the compressed air system's operating horsepower available to Xcel Energy C&I electric customers.

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Table 1. Available Rebate Amounts for Supply-Side Compressed Air Studies in CO & MN

Operating Horsepower (HP)	Funding Level Per Study
500 hp systems and larger	$4,000 plus $20 per hp (capped at $25,000)
200 hp-499 hp systems	$3,000 plus $20 per hp
50 hp-199 hp systems	$2,000 plus $20 per hp
10 hp-49 hp systems	$250 plus $20 per hp
< 10 hp	Not available

Note: Study funding requires Xcel Energy preapproval and customer must fix at least of 75% of air loss caused by leaks to receive the rebate.

When conducting a compressed air efficiency study, trade partners work with the customer to benchmark the customer's existing system operation. This information is used to identify potential energy conservation opportunities, as well as measure leaks to be fixed. The study is fully funded once the customer fixes 75% of leaks. Customers who participate in a study are eligible for larger rebate amounts when purchasing recommended equipment than those who do not complete a study.

2. **Custom Rebates**: Custom rebates are available for compressed air projects that are not eligible for rebates through Xcel Energy's Compressed Air prescriptive offering. These projects are often larger or more complex to complete than projects that are eligible for prescriptive rebates. Customers are frequently driven to participate in custom rebates after participating in studies, where trade partners identify custom and prescriptive measure opportunities. Custom savings account for the largest portion of the products' savings.

   Custom projects are reviewed and analyzed by product staff to provide claimed savings amounts. If a custom project is implemented and calls for monitoring and verification, claimed savings are trued up with actual savings by engineers. After savings are verified by Xcel Energy engineers, customers receive equipment rebate by check.

3. **Prescriptive Rebates**: Prescriptive rebates are offered for a variety of compressed air measures for both the Colorado and Minnesota products. Compared to custom measure projects, projects that are eligible for prescriptive rebates are often smaller and more straightforward to complete. As with custom rebates, participants are often driven to install prescriptive measures and apply for rebates after participating in studies, where trade partners identify opportunities for further participation in the products through equipment upgrades. For prescriptive projects, application do not require preapproval (as they do with custom projects) and are processed for rebate upon receipt by product staff. As shown below in Table 2 and Table 3, rebates levels between the two states are relatively similar, but are slightly higher in Minnesota.

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Table 2. Prescriptive Compressed Air Measure Rebates Available in Colorado

Measure	CO - Prescriptive Rebate Amount
Cycling Dryers	$1.50 per rated CFM for Cycling Refrigerated Dryers or Variable Speed Refrigerated Dryers 75scfm to 2799 scfm
Dryer Purge Controls	$1,000 per control set for controls that are 90 to 2499 scfm plus $1/dryer CFM per control
Mist Eliminators	$1 per rated CFM for mist eliminators 500 to 2299 scfm
No Air Loss Drain	$200/drain
New VSD Compressor	Beginning at $1,500 and up to $6,000 based on compressor size (10-49hp)
Compressor HP Reduction	$1,000 plus New VSD Compressor rebate.

Table 3. Prescriptive Compressed Air Measure Rebates Available in Minnesota

Measure	MN - Prescriptive Rebate Amount
Cycling Dryers	$2 per rated scfm
Dryer Purge Controls	$1,500 plus $1/scfm per control set
Mist Eliminators	$1.50 per rated scfm for mist eliminators that are 125 to 2299 scfm
New VSD Compressor	$150/horsepower
No Air Loss Drain	$200/drain

To achieve the product's objectives, account managers and channel managers maintain relationships with trade partners primarily through phone communication, site visits, and trainings (though these were limited during program year 2020 due to the COVID 19 pandemic).

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Table 4 and Table 5 outline customer product participation with the Colorado and Minnesota product and measure-level savings in 2020, respectively.

Table 4. CO C&I Compressed Air Product, January 2020 – April 2021

Measure	kWh		kW		Units	
	Quantity	% of total	Quantity	% of total	Quantity	% of total
Custom Efficiency - Compressed Air	1,864,765	46.0%	406.603	45.5%	16	12.3%
No Air Loss Drain	221,563	5.5%	30.503	3.4%	27	20.8%
VFD Air Compressor Upgrade	354,343	8.7%	112.8	12.6%	15	11.5%
CO - Compressed Air Efficiency Study	769,152	19.0%	114.069	12.8%	22	16.9%
VFD Air Compressor New	441,889	10.9%	144.745	16.2%	24	18.5%
Cycling Dryers	147,642	3.6%	19.822	2.2%	14	10.8%
VFD Compressor HP Reduction	182,621	4.5%	56.776	6.3%	6	4.6%
Mist Eliminators	70,692	1.7%	8.853	1.0%	6	4.6%
Total	**4,052,667**	**100%**	**894.171**	**1.0**	**130**	**100%**

Note: Table includes the population of participating customers receiving rebates between January 2020 and December 2020. These numbers are based on aggregated data provided to TRC in March 2021.

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Table 5. MN C&I Compressed Air Product, January 2020 – April 2021

Measure	kWh Savings		kW Reductions		Units	
	Quantity	% of total	Quantity	% of total	Quantity	% of total
VFD Air Compressor New	1,156,393	6.2%	349.1	10.7%	51	11.9%
Average Custom Project	10,406,956	56.0%	1,812.7	55.6%	57	13.3%
MN - Compressed Air Efficiency - Study	4,488,833	24.1%	611.1	18.8%	110	25.6%
No Air Loss Drain	684,306	3.7%	97.7	3.0%	77	17.9%
Cycling Dryers	532,841	2.9%	72.2	2.2%	63	14.7%
VFD Air Compressor Upgrade	487,670	2.6%	168.0	5.2%	32	7.4%
Mist Eliminators	298,955	1.6%	39.7	1.2%	25	5.8%
VFD Compressor HP Reduction	217,070	1.2%	65.1	2.0%	7	1.6%
Dew Point Controls	183,618	1.0%	26.5	0.8%	4	0.9%
MN - Compressed Air Efficiency - Leaks & Waste 2	134,252	0.7%	16.7	0.5%	4	0.9%
Total	**18,590,894**	**100%**	**3,259**	**100%**	**430**	**100%**

Note: Table includes the population of participating customers receiving rebates between January 2020 and April 2021. These numbers are based on aggregated data provided to TRC in May 2021.

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Evaluation Overview

The 2021 evaluation will consist of a process evaluation and an impact evaluation. The process evaluation will focus on customer and market actor experiences with the product, while the impact evaluation will focus on estimating a net-to-gross (NTG) ratio. This section presents the objectives of the two components of the evaluation. It is followed by a more detailed description of the evaluation activities.

Process Evaluation

The evaluation team discussed process evaluation priorities during the kickoff meeting[1] and staff interviews.[2] During those conversations, several process-related themes emerged.

- Overall, the two Compressed Air products, in Colorado and Minnesota, have been consistent in their delivery of annual savings, product design, and incentive levels, which some product staff cite as a driver of success.
- Product staff are diligent in tracking customers' study eligibility, which reoccurs every five years.
- Overall product feedback is positive both from the trade partner and customer perspective.
- Trade partner expertise helps customers better understand the value of studies by educating customers on the long-term benefits and potential energy savings associated with product participation. Certain trade partners have studies built into their business models while others focus just on equipment sales.
- Product participation is straight-forward and relatively simple from the customers' perspective, based on feedback from product staff.
- Trade partners are the main driver for engagement with the products and play a large role in the products' success.
    - Colorado has a smaller pool of customers with whom to engage than Minnesota, resulting in lower study participation rates.
- Though the Minnesota and Colorado Compressed Air products are similar in terms of design and incentive levels, they differ in several key ways:

[1] The kickoff meeting was held in January 2021.
[2] Staff interviews took place in February and March 2021.

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Colorado	Minnesota
♦ Territory has a smaller pool of customers with whom to engage in the product. ♦ In 2020, the product introduced small studies (10 hp or less). ♦ In 2020, the product introduced studies for 10-49 hp systems. ♦ Participation is primarily through the prescriptive side, and participation in studies is lower than in Minnesota. ♦ Demand-side studies not currently offered in Colorado due to lack of demand for this offering.	♦ Larger pool of participating customers. ♦ Has changed names two times – to Fluid Systems Optimization, when the product included other fluid systems like pumping and hydraulic systems. Limited participation and customer friendliness of the name prompted Xcel to roll product back to just Compressed Air. ♦ Product is retiring horsepower reduction and early retirement prescriptive rebates due to limited cost effectiveness. Colorado will align with Minnesota on prescriptive rebates starting April 1, 2021. ♦ Product offers both demand- and supply-side studies.

These topics are mapped to the following **objectives of the process evaluation**:

- Collect feedback on trade partner and customer experiences with the **compressed air efficiency study and rebate processes.**
  - Assess the trade partner and customer experience to understand motivations for participation, perceptions of the most successful or valuable aspects of the products, and most challenging aspects of the products.
  - Understand what motivates trade partners and customers to participate in the products.
- Identify **barriers to participation** in the products, particularly by investigating why trade partners and customers may install equipment outside of the products.
  - Understand why some trade partners are not interested in becoming approved study partners
  - Understand if trade partners feel their feedback is applied adequately in the evolution of the products.
  - Determine what barriers prevent customers from participating in the products.
- Explore ways to grow the compressed air market.
  - Understand the influence of the market on customers' compressed air decisions.
  - Determine the potential for increasing rebate limits to drive further customer and trade partner participation.
  - Identify ways to expand marketing efforts for the products.
  - Explore the role continuous monitoring could play in identifying prescriptive and customer measures

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- Identify how the products could incorporate demand-side aspects; Look for information on the end-uses of compressed air equipment and ways to further reduce compressed air use.
  - Nationwide studies have identified this as an area for improvement.

- Understand peer utilities' program practices.
  - Understand if peer utilities adjust their rebates amounts as compressed air equipment prices fluctuate.
  - Compare rebate amounts offered by Xcel Energy with peer utility rebates.
  - Explore peer utilities' experiences with remote monitoring and understand how peers quantify savings for continuous monitoring.

Impact Evaluation

The objective of the impact evaluation of the Compressed Air products is to develop a net-to-gross (NTG) ratio documenting the extent to which product activities influenced customer purchasing decisions. The evaluation team proposes to use participant interviews, non-participant interviews as well as trade partner interviews to estimate the compressed air products' NTG (both retrospective and prospective). Accordingly, the **objectives of the impact evaluation** include:

- Determine NTG ratio for compressed air studies and rebates.
- Identify major drivers of free-ridership.
- Assess participant spillover.
- Assess market effects of the compressed air products.

The full NTG approach is detailed in a later section of this document.

Data Collection Activities and Sampling Plans

To meet the above objectives, we will conduct a variety of data collection activities. These are listed in Table 6 and explored more in this section. The evaluation team has already conducted interviews with Xcel Energy staff members (Table 6, Task Reference 1) to help understand specific needs for this evaluation.

For customer research, the evaluation team will conduct phone surveys with participating customers (Table 6, Task Reference 2). These surveys will inform prospective and retrospective NTG estimates, as well as customer-related process questions. The evaluation team also plans to conduct interviews with non-participating customers, defined as those customers who engaged with the Compressed Air product but did not go on to participate or those who had a study done previously but did not redo the study once eligible again after five years. (Table 6, Task Reference 3).

For trade partner research, the evaluation team will conduct phone interviews with participating trade partners (Table 6, Task Reference 4) to understand their experiences with conducting studies and implementing compressed air measures. As part of this task, the evaluation team will also speak with trade partners who have participated through the rebate portion of the product, but who are not currently eligible to provide studies, to understand any barriers to

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becoming a qualified study provider to better understand barriers to becoming a study provider through the product.

Finally, peer utility benchmarking interviews (Table 6, Task Reference 5) will help Xcel Energy understand how other organizations are supporting C&I compressed air measures.

Table 6. MN & CO Compressed Air Products Research Summary

Task Ref.[1]	Research Task	Included in Original Scope?	Target Sample Size (CO)	Target Sample Size (MN)	Research Objectives
1	Staff Interviews	✓	8		Inform evaluation plan
2	Participating Customer Surveys (phone)	✓	38	55	Study and rebate experiences, NTG
2b	Participating Customer Interviews (phone)	✓	10	10	Perceptions/awareness, customer decision making & barriers, product experience/satisfaction, NTG
3	Non-Participating Customer Interviews (phone)	✓	21	51	Barriers to participation, compressed air growth, NTG (specifically market effects)
4	Trade Partner Interviews (phone)	✓	20	20	Study and rebate experiences, barriers to participation, compressed air growth, NTG and market effects
5	Peer Utility Benchmarking Interviews (phone)	✓	8-10 utilities		Compare rebate amounts and adjustments, understand experience with remote and continuous monitoring

[1] *The sample sizes included for participating customer surveys, non-participating customer interviews and trade partner interviews should be considered stretch targets. Additional information on target sample sizes is included the in respective section for each data collection activity.*

Staff Interviews

In February and March 2021, the evaluation team conducted eight interviews with Xcel Energy staff to inform this evaluation plan, discuss products' goals, and review the products' processes, challenges, and successes. Those interviewed included one product manager, two marketing assistants, two channel managers, two account managers, two BSC representatives, and three compressed air engineers. These interviews were conducted over the telephone and took between 30 minutes and one hour to complete. These meetings, combined with the kickoff meeting, allowed the evaluation team to create a focused evaluation plan with defined data collection activities.

Participating Customer Surveys

The evaluation team will use participating customer telephone surveys with Colorado participants (n=38) and Minnesota participants (n=55) to meet both process and impact objectives. These surveys will focus on the following topics:

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- **Study & Rebate Experiences:** The evaluation team will assess how participating customers became aware of the compressed air studies and product-eligible measures to better understand how participating customers learn about the product. It will also ask participating customers about their motivations to perform studies at their businesses and apply for rebates, to better understand reasons why participating customers decide to participate and if any particular product elements drive motivation. The evaluation team will discuss participating customers' experiences and satisfaction with various aspects of the study and rebate process.
- **Retrospective NTG Impacts:** The team will ask participating customers questions on product attribution, meaning the impact the product, including both the compressed air study and the equipment rebates, had on their decision to purchase compressed air measures. We will also ask about potential additional energy efficient equipment installed without an Xcel Energy rebate but because of their experience with the compressed air study and rebate offerings.

For the participating customer surveys, the evaluation team will speak with customers who participated in the compressed air product between 2019 and Quarter 1 of 2021. The evaluation team will attempt to survey a representative mix of participants based on participation and will recruit from the entire population of participants to attempt to reach a 90% confidence level. A participant categorized as "Any Custom Measure" has completed at least a custom measure, but may also have participated in a study or a prescriptive measures. A participant categorized as "Prescriptive Measures" has installed some prescriptive measure but has not implemented any custom measures. They may also have participated in a study. "Study Only" participants have completed a study but did not implement any recommended measures or install any other prescriptive or custom measures (see Table 7). These strata will be used to understand qualitative findings from surveys based on the channel of participation, but will not be used to calculate separate Net-to-Gross ratios due to the small expected sample sizes.

Table 7. Stratification of Sample for Participating Customer Interviews (Jan 2019-Mar 2021)

Strata[1, 2]	Population Size (CO)	Target Sample Size (CO)	Population Size (MN)[3]	Target Sample Size (MN)
Any Custom Measures	16	7	54	11
Prescriptive Measures	51	24	127	26
Study Only	16	7	87	18
Total	**83**	**38**	**268**	**55**

[1] The overall sample targets in this table were calculated using a 90% confidence level. To reach these targets would require a 46% response rate in Colorado and a 21% response rate in Minnesota, which is likely infeasible. The evaluation team expects a response rate of about 15%, which would give a sample size of 12 in Colorado and 40 in Minnesota. The evaluation team will contact the entire population of participants in order to maximize the response rate and come as close to the 90% confidence level target as possible.

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[2] The sample size targets are based on achieving 90% confidence based on each state's population size, but not for each stratum.

[3] Includes both supply-side and demand-side studies

Participating Customer Interviews

The evaluation team recommends selecting up to 10 customers per state from the participating customer surveys and conducting in-depth interviews with these customers. These interviews will be reserved for survey respondents who had conflicting responses on NTG questions so that the evaluation team can dive deeper into their decision-making processes and clarify their free-ridership and/or spillover.

Non-participating Customer Interviews

The evaluation team recommends conducting 72 non-participating customer telephone interviews across Colorado (n=21) and Minnesota (n=51) to meet process objectives. For the purposes of this research, non-participating customers are defined customers based on two different categories (as shown in Table 7):

1. Customers who expressed interest in participating in the product (through studies or rebates) but did not ultimately do so.
2. Customers who had a study done in a previous year but once eligible again, did not have another study done.

These interviews will be conducted over the phone and will focus on the following three topics:

- **Barriers to participation:** The evaluation team will assess customer experiences and decision-making processes to understand why customers decide not to participant in the Compressed Air product. This will help the evaluation team understand why participants may decide to install measures outside the product, and whether there are any particular aspects of the product process that prevent customers from participating. Additionally, the evaluation team will use these interviews to understand what barriers prevent a former study participant from re-performing a study when they are eligible once again.
- **Compressed Air growth:** The team will ask non-participating customers about their awareness of the product, their understanding of compressed air efficiency studies, and their awareness of available measure rebates.
- **Retrospective NTG Impacts:** The team will ask non-participating customers if they installed compressed air equipment due to any influence from Xcel Energy outside of the rebate process. Circumstances where the Compressed Air product may influence non-participants could include conversations with participating trade allies or discussions with product staff. This information will support potential spillover results among non-participants.

The evaluation team will attempt to interview non-participating customers from 2019 through Quarter 1 of 2021 (see Table 8). The strata in the table below will be used to understand qualitative findings from interviews based on the channel of participation, but will not be used to calculate separate Net-to-Gross ratios due to the small expected sample sizes.

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Table 8. Stratification of Sample for Non-Participating Customer Interviews (Jan 2019 – March 2021)

Strata	Population Size (CO)	Target Sample Size (CO)	Population Size (MN)	Target Sample Size (MN)
Customers who engaged with the Compressed Air product but who did not participate[1]	16	11	91	23
Customers who completed a study previously and are currently eligible but have elected not to participate[2]	14	10	113	28
Total	**30**	**21**	**204**	**51**

[1] Customers labeled "Closed/Lost - Customer Does Not Want to Proceed" in Salesforce.

[2] Includes customers who were eligible to repeat a study in 2018 or 2019 but have not done so. Customers who became eligible in 2020 or 2021 may still be deciding whether to conduct a new study or not.

[3] The overall sample targets in this table were calculated using a 90% confidence level. To reach these targets would require a 70% response rate in Colorado and a 25% response rate in Minnesota, which is likely infeasible. The evaluation team expects a response rate of about 10%, which would give a sample size of 3 in Colorado and 20 in Minnesota. The evaluation team will contact the entire population of non-participants in order to maximize the response rate and come as close to the 90% confidence level target as possible.

[4] The sample size targets are based on achieving 90% confidence based on each state's population size, but not for each stratum.

Trade Partner Interviews

The evaluation team will utilize trade partner interviews to meet both process and impact objectives. We will attempt to conduct forty interviews with participating trade partners across Colorado (n=20) and Minnesota (n=20). These interviews are integral for exploring the following topics.

- **Study and Rebate Experiences**: The evaluation team will explore trade partners' awareness of compressed air efficiency studies and equipment. Trade partners' feedback on their level of awareness and their experience with compressed air studies, measures, and the overall rebate process will be valuable in understanding how they see themselves best engaging with the product. Specifically, the evaluation team will seek to understand how trade partners differ in their approach to custom versus prescriptive measures when working with customers.
- **Barriers to Participation:** The evaluation team will ask trade partners about what they view as the biggest barriers to conducting studies and engaging with the product. They will also gather trade partner feedback on why customers who get approved for rebates sometimes do not go forward with the installation. This will help the evaluation team to understand what may motivate them to install compressed air equipment outside of the product. We will determine the tools trade partners find most helpful in motivating customers to participate in a compressed air efficiency study or to purchase compressed air measures, in addition to any barriers they experience in doing so. Additionally, the evaluation team will identify reasons why trade partners who participate in prescriptive and custom rebates do not always also elect to become qualified study providers through the program.

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- **Compressed Air Growth:** The evaluation team will explore if there is compressed air equipment not included in the products in which customers express interest and/or if there are particular types/brands of compressed air product the customers, or trade partners, prefer. The evaluation team will also explore the following topics for each state's product:
  - Colorado: The evaluation team will understand trade partners' experiences with companies providing leak checks outside the product and whether these companies impact the ability for participating trade partners to engage with the product and recruit participants.
  - Minnesota: The evaluation team will explore how trade partners successfully engage with the product in a competitive compressed air environment.
- **Retrospective and Prospective NTG Impacts:** Finally, the team will ask questions on product attribution, or the impact the product had on their decision to install and/or recommend compressed air equipment. This information will support the understanding of potential market effects Xcel Energy has had on market actors.

The evaluation team plans to interview seven trade partners as part of this effort, as shown in Table 9. The interviews will target two groups of trade partners: those who provide studies, and those who have participated through the rebate portion of the product but are not qualified to provide studies. The evaluation team will attempt to conduct these interviews after the participating customer interviews so that we can follow-up with trade partners that customers identified as being particularly influential to a customer's decision-making process.

Table 9. Compressed Air Trade Partner Target Interviews, by Interview Strata

Trade Partner Type	Population Size (CO)	Target Sample Size (CO)	Population Size (MN)	Target Sample Size (MN)
Study Provider Participants[1]	11	7	8	3
Rebate Participants[2]	21	13	38	17
Total	**33**	**20**	**46**	**20**

[1]*Study providers are able to conduct air studies and offer rebates.*

[2]*Includes installers, sales, or manufacturing trade partners.*

[3] *The sample targets of 20 per state require a response rate of 61% in Colorado and 43% in Minnesota, which may be infeasible. These targets should be considered stretch targets. The evaluation team expects a response rate of about 20%, which would give a sample size of 7 in Colorado and 9 in Minnesota. The evaluation team will contact the entire population of trade partners in order to maximize the response rate.*

Peer Utility Benchmarking Interviews

The objective of the peer utility benchmarking task is to understand how peer utilities approach key issues related to implementing compressed air programs. The evaluation team will collaborate with the product manager to identify 8-10 peer utilities to interview. The team will consider the following criteria when selecting peer utilities: similar program designs, programs known to have best practices or tools Xcel Energy is interested in pursuing, utilities that operate

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in similar territories (including the geography, the number of customers, and/or the number of small business in its territory).

The evaluation team will work to recruit staff in key management roles related to compressed air programs at peer utilities with a target sample size of eight to ten interviews representing peers to Colorado and Minnesota. These interviews will generally focus on the same discussion topics being explored in the interviews with Xcel Energy customers and trade partners, but will emphasize the following research objectives specific to peer benchmarking interviews:

- **Understand how peer utilities structure their rebates,** and determine if peer utilities adjust their rebates amounts as compressed air equipment prices fluctuate.
- **Compare rebates** amounts offered by Xcel Energy with peer utility rebates.
- **Explore peer utilities' experiences with remote monitoring** and understand how peers quantify savings for continuous monitoring.
- **Understand peer program designs, program strengths and challenges faced.**

Table 10 outlines the peer utilities that the evaluation team identified to potentially include in the peer utility sample. These utilities were identified using ESource, a database of utility demand-side management programs, and Google searches. Results were then compared to the peer utility list provided by Xcel Energy in May 2020. The product manager will review these utilities and identify additional peer utilities for consideration prior to conducting the interviews.

Table 10. Peer utilities To Include in The Peer Utility Sample

Utility	Air Study	Prescriptive Rebates	Custom Rebate	Xcel Energy Peer Utility
Ameren IL	x	x	x	x
Avista WA		x		
Black Hills Energy CO	x	x	x	
Consumers Energy		x	x	x
Dominion Energy VA	x	x		x
Otter Tail Power Company MN	x	x	x	
PECO		x	x	x
PG&E	x	x	x	
Rocky Mountain Power UT		x	x	

Note: Utilities marked as "Xcel Energy Peer Utility" appear on the Xcel Energy Peer Utility List provided to TRC in May 2020.

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The evaluation team will develop a peer utility interview guide that is customized to the desired benchmarking components, to be provided to Xcel Energy for approval prior to beginning any data collection. Finally, the evaluation team will summarize the results of the benchmarking analysis in a summary within the final evaluation report.

Net-to-Gross Approach

The NTG assessment aims to estimate the percent of savings achieved that can be attributed to product actions, or a NTG ratio. The NTG value includes multiple metrics, which are described in the sections below. To do so, the evaluation team will primarily use participating customer interviews, trade partner interviews, and nonparticipating customer interviews to assess product attribution, including free-ridership, spillover, and market effects metrics. The team will base its methodology on the most recent Illinois Technical Reference Manual (TRM)[3] as this type of approach is used extensively in other jurisdictions both by our team and outside industry experts, and it has been the basis for our evaluations conducted for Xcel Energy since 2017.

The evaluation team will estimate a retrospective and prospective NTG value. Using multiple sources of information, including interviews with participating/non-participating customers and trade partners, we will synthesize available data to develop the final NTG ratios to ensure that we provide the most accurate and reliable estimate of NTG. The remainder of this section presents the evaluation team's method to estimating the retrospective and prospective NTG ratios.

Retrospective NTG

The evaluation team will estimate a retrospective NTG by examining free-ridership, spillover, and market effects. The evaluation team will rely primarily on data collected from customers, along with additional qualitative input from trade partners. The evaluation team will then synthesize these results to estimate a NTG ratio for the product. This section describes how the evaluation team will estimate these components of the retrospective NTG ratios.

Free-ridership. Free-ridership is a measure of the amount of a product's claimed savings that would have occurred in the absence of the product. Free-ridership is assessed on a scale from 0 to 1, where 1 indicates that the product had 100% free-ridership and all product savings would have occurred without any of the product's rebates or assistance.

To determine free-ridership, the evaluation team will apply the Study-Based Free-Ridership from the Illinois TRM, which follows the Core Non-Residential Free-Ridership Protocol, with one exception; the following questions will be included preceding questions on the counterfactual likelihood.

[3] Illinois Energy Efficiency Stakeholder Advisory Group. Illinois Statewide Technical Reference Manual, Version 9.0, Volume 4, Attachment A: IL-NET-TO-GROSS Methodologies, Volume 4. September 25, 2020. https://ilsag.s3.amazonaws.com/IL-TRM_Effective_010121_v9.0_Vol_4_X-Cutting_Measures_and_Attach_09252020_Final.pdf

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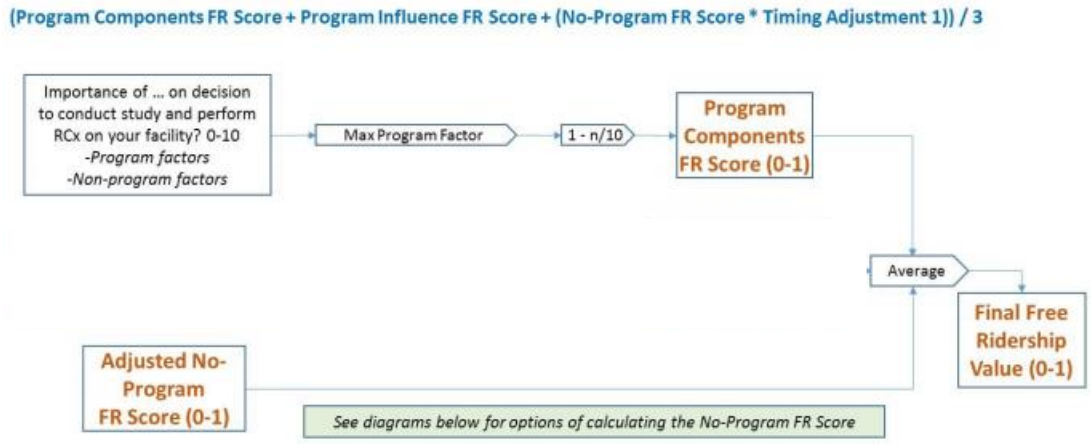
- A 0-10 scale question about the likelihood that the participant would have conducted the study absent the program
- A yes/no question determining whether the participant performs regular maintenance on the equipment treated through the program.
- If the response to the previous question is "yes," include a yes/no question to determine if the maintenance always includes the treatment provided through the program.
- A yes/no question to determine if the participant had prior awareness of the performance issues identified through the study.
- A 0-10 scale question about the participant's level of familiarity with the recommended actions to rectify the performance issue.

The evaluation team will write specific questions to assess three free-ridership components:

- A **Program Components Score,** based on the participants' rating of the importance of various factors on the decision to implement energy efficiency measures and;
- A **No-Program Score**, based on the participating customer's intention to carry out the energy-efficient project without product funds.

When scored, these components assess the likelihood of free-ridership on a scale of 0 to 1. These two scores are averaged together and then adjusted to account for whether the product influenced the customer to adjust the number of measures installed. This adjustment then produces the final free-ridership score. Figure 1 describes the logic used for calculating free-ridership.

Figure 1. Study-Based Free-Ridership Methodology



The evaluation team will assess free-ridership primarily using participating customer surveys and will integrate trade partner interviews where applicable. Specifically, when participating customer interview respondents rate the trade partner as highly influential on the decision to install a measure or perform a study but indicate free-ridership elsewhere in the interview, the evaluation team will attempt to recruit those trade partners for the interviews and assess the program's influence on their practices. The purpose of the interview is to determine if the

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program's influence was directed at the trade partner, rather than the customer, and to appropriately track that influence on the project overall. The evaluation team will then use qualitative adjustments for the rest of the customers.

The evaluation team will calculate the No-Program Score using two options for pathways, detailed below in Figures 2 and 3. The team will select one of the options that best represents the findings to use in the NTG ratio calculation, but will report both estimates.

Figure 2. No-Program Free-Ridership Score Option #1

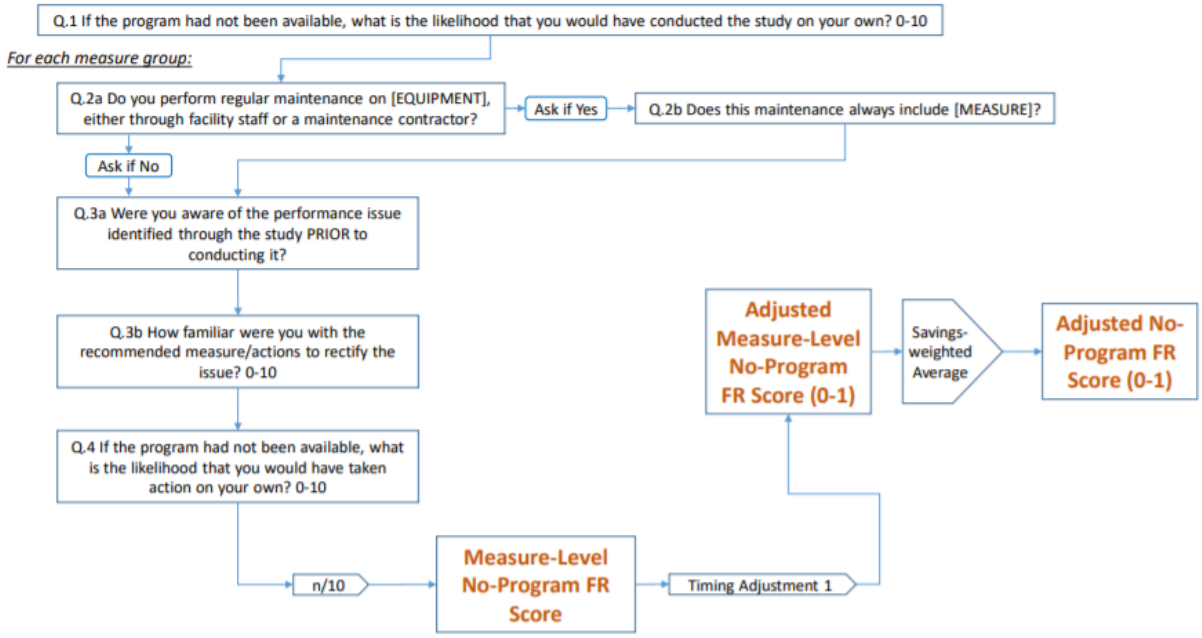

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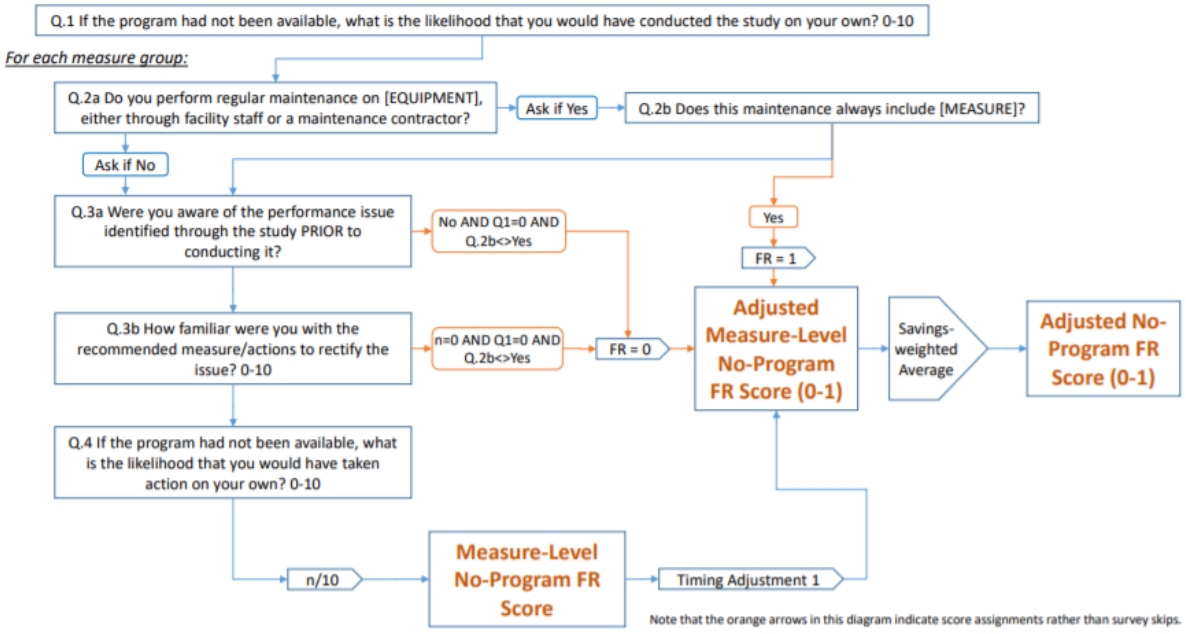
Figure 3. No-Program Free-Ridership Score Option #2



Participant Spillover. The spillover metric represents additional savings achieved as a result of program activities, outside of rebated measure savings, by program participants. The evaluation team will incorporate two measure attribution scores; the first incorporates the influence the program had on the purchase of this additional measure (measure attribution score #1), and the second incorporates likely actions taken in absence of program participation (measure attribution score #2). The spillover score, as calculated below,[4] must be greater than five in order for the additional measure to qualify for spillover. When this criterion is met, the savings are added to program attributable savings.

$$Spillover\ Score = \frac{Measure\ Attribution\ Score_1 + (10 - Measure\ Attribution\ Score_2)}{2}$$

Nonparticipant Spillover. The evaluation team will estimate nonparticipant spillover by using the IL TRM "Nonparticipant Spillover Measured from Customers" Protocol (NPSO Protocol).[5] We define nonparticipants as those customers who have no record of having completed a Compressed Air Efficiency Study in the past three years (customer became eligible for a study in 2018 or 2019 but did not complete one) or having implemented eligible compressed air measures. The interview will ask non-participating customers if they have completed any qualifying projects or studies but did not participate in the compressed air product for that project.

[5] IL TRM Version 9, Volume 4, page 66-68.

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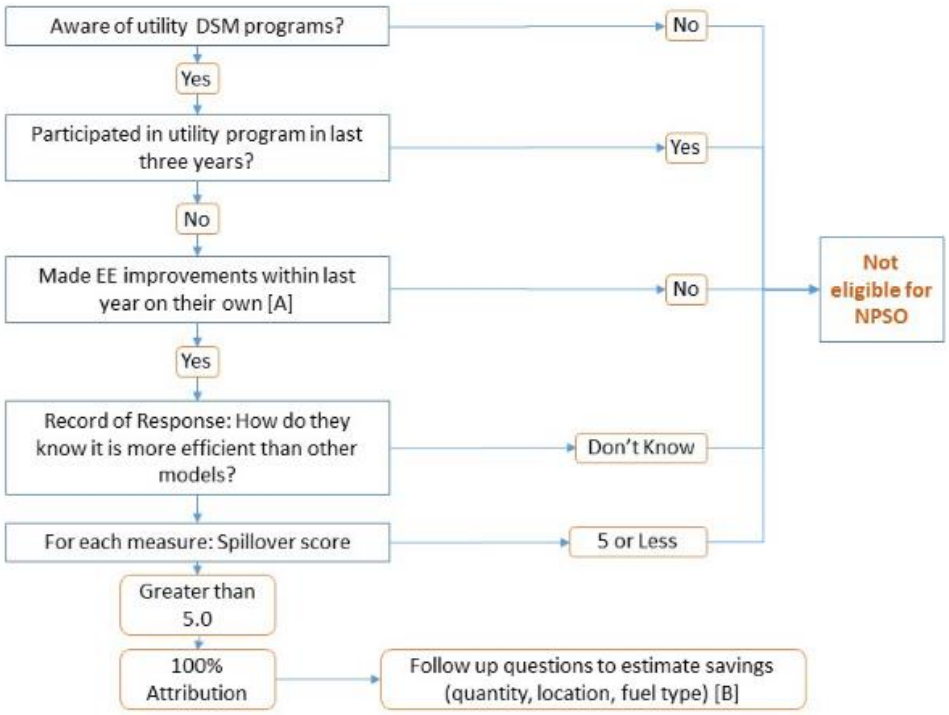
To determine spillover-qualified equipment, the evaluation team will first determine whether the non-participating customer knew about Xcel Energy's energy efficiency programs and/or marketing messages. If the non-participating customer is aware, the interview will ask if they or anyone in their business made an energy efficiency improvement within the last year, and if so, what improvements they made. Responses to these questions will generate a list of potential spillover measures (shown at point "[A]" in Figure 2). Non-participating customers will be asked how they know the measure is more efficient than other models. If the respondent can name an efficiency level that is above the minimum federal standard, or if they identify a technology that we can confirm is above the minimum federal standard, it will count towards NPSO.

Figure 4. Non-Participant Spillover Question Logic[6]



Similar to participant spillover, the evaluation team will incorporate two measure attribution scores; the first incorporates the influence the utility had on the purchase of this additional measure (measure attribution score #1), and the second incorporates whether the non-participating customer would have installed the measure had they not been influenced by the program (measure attribution score #2). The spillover score, as calculated below,[7] must be greater than five in order for the additional measure to qualify for spillover.

[6] As depicted in the IL TRM Version 9, Volume 4, Figure 4-1, page 67.

[7] IL TRM Version 7, Volume 4, page 35-36.

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$$NPSO\ Score = \frac{Measure\ Attribution\ Score_1 + (10 - Measure\ Attribution\ Score_2)}{2}$$

Market Effects. The trade partner interviews will offer important insights into market effects of the compressed air product. Such "market effects" signify a transformation in the underlying structure and functioning of the market. Market effects can take many forms and may result from product impacts in a market over time. Examples of market effects include trade partners changing their business models based on the influence of the product—for instance, a trade partner may be more likely to promote high efficiency compressed air equipment to residential customers knowing that a rebate is available for customers. Over time, the contractor builds this into their general approach to marketing and selling cooling measures. The interviews will include questions to assess any long-lasting changes to trade partner practices. Additionally, the evaluation team will review the analysis to ensure no double-counting has occurred between market effects estimation and non-participant spillover (a form of market effects).

Estimating NTG Ratio. By design, our final NTG estimate recommendation includes data from mixed methods research – both quantitative data and qualitative data. The initial NTG estimates will be calculated separately and estimated using participating customer interview responses, trade partner reported NTG interview responses, and non-participating customer interview responses. The formula to calculate the retrospective NTGR is as follows:

$$NTGR = 1 - (Free - Ridership) + (Spillover\ Ratio) + (Market\ Effects\ Adder)$$

After the initial NTG estimates are calculated, we will then use the quantitative and qualitative data to construct a logical, internally consistent, and coherent narrative of program attribution that attempts to identify all possible pathways of Xcel Energy influence. We will rely on the following data sources to construct the NTGR:

- Participating customer interviews
- Non-participating customer interviews
- Trade partner interviews

Based on these results, we then may adjust the NTG to create a final recommended NTG ratio that is consistent with this narrative and is informed by the overall purpose and design of the product. The final NTG recommendation is based on the professional judgment of our team after considering all available quantitative and qualitative data.

Prospective NTG

The team will recommend a prospective NTG ratio that will be forward-looking and reflect upcoming changes to the market and known changes to the product. The NTG ratio will reflect any recommended adjustments to the retrospective NTG ratio based on evidence from the

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evaluation findings, including results from participants, trade partners, staff interviews, and peer utilities. Trade partners will be asked about the importance of the rebates in driving participation in the compressed product in Colorado and Minnesota. In developing our final recommended NTG ratio, the evaluation team will follow the Illinois TRM protocol which recommends that the evaluation team assess each data collection activity based on considerations of the likely bias, accuracy, and representativeness of the findings. Additionally, we will use input from the staff interviews to inform potential future changes to the product and incorporate those into the final NTG estimate. We may also incorporate results from the benchmarking research into prospective NTG values used in other states to inform the estimate.

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Appendix B: Data Collection Documents

Appendix B contains materials related to data collection including the peer utility interview guide, staff interview guide, non-participant interview guide, participant interview guide, and trade partner interview guide.

B.1 Staff Interview Guide

This guide is to be used to interview staff associated with Xcel Energy's DSM products as part of the TRC Companies 2021 evaluation of the Xcel Energy DSM products. The interviews will be semi-structured, with these questions serving as a basic guide for experienced TRC Companies staff during one-on-one phone interviews.[8] As a guide for semi-structured interviews, these questions will not necessarily be asked verbatim, but will serve as a roadmap during the conversation.

Staff Interview Research Questions or Objectives

List the research questions that this research task is designed to address.

- Assess the extent to which the product design supports product objectives and customer service/satisfaction objectives
- Understand Xcel Energy's current Compressed Air offerings
- Assess the degree to which product resources are sufficient to conduct product activities with fidelity to the implementation plan
- Collect staff feedback on implementation successes and challenges
- Identify themes and issues for possible revisions to the standard evaluation plan

Section A: Introduction

[If staff did not attend the kick-off meeting:] First we would like to give you some background about who we are and why we want to talk with you today. TRC Companies is an independent consulting firm that works with electric and gas utilities to review and improve product operations and delivery. Xcel Energy contracted with us to perform an evaluation of their portfolio of energy efficiency products, and we're currently in the process of conducting interviews with product managers and key staff involved in designing and delivering the Compressed Air Product to improve our understanding of Xcel Energy's DSM products and their influence on customers. We also want to understand how our research can be useful for you as Xcel Energy product staff and incorporate your priorities into our study so that the results are as useful as possible.

[ALL] Thank you for taking the time to speak with us today. My objective for this meeting today is to gain a deeper understanding of the Compressed Air Product, what Xcel Energy hopes to achieve through implementing this product, how it operates, and a bit about your experiences with the Compressed Air Product. We are interested in asking you some questions about the Compressed Air Product so we can benefit from your knowledge and experience to improve our understanding. I have a set of questions that should take approximately 45 minutes. We will

[8] Some interviews may be conducted jointly if someone's role recently changed or if more than one person performs the role.

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combine the information you provide with information gathered from other interviews before reporting summarized information back to Xcel Energy.

Before I begin, is it alright if I record the conversation for note taking purposes? [RECORD IF ALLOWED AND CONFIRM YOU ARE RECORDING ONCE RECORDING BEGINS]. Thanks, we are recording now.

A1. First, can you take a moment and explain your role and scope of responsibilities with respect to the Compressed Air Product? [IF ALREADY KNOWN, REWORD TO CONFIRM]

[PROBE]

Approximately how long have you held this position?

What previous positions did you hold?

Whom do you report to in the overall org structure?

Section B: Product Goals

I'd like to be sure I understand the goals of the Compressed Air Product, both overall and specific.

B1. Can you take me through the key goals for the Compressed Air product?

[For staff outside of the Customer Solutions team] Can you take me through the key goals for the Compressed Air product, as it relates to your role?

B1a. Can you describe the product's savings goals? Do you have specific goals for individual components of the product (e.g., upstream vs. downstream, by measure type)? [**PROBE:** In the kickoff meeting it was mentioned that the biggest portion of savings come through custom projects, are there any goals for number of custom projects vs. prescriptive projects?]

B1b. Any other, non-energy goals? [**PROBE:** In the kickoff you underscored the importance of both demand and supply-side studies, in understanding the facility and how the product is working, are there any goals specific to studies – increasing participation, providing demand-side studies in CO?]

B1b1. Any more immediate goals? For example, participation goals, customer engagement goals, improving customer satisfaction? Changing customer awareness of or attitudes about energy efficiency measures?

B1b2. Any longer-term goals? For example, reducing greenhouse gas emissions? Altering market behaviors?

B2. Have any of these goals changed in the last few years?

B2a. What was the rationale for changing them?

B2b. In your opinion, how have these changes affected the product's operations or its outcomes?

B2c. Where these changes a result of internal factors (to Xcel Energy), external factors, or a combination of both?

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B3. Have any of these goals changed in 2020?

B3a. What was the rationale for changing them? Probe: COVID-related changes?

B3b. In your opinion, how have these changes affected the product's operations or its outcomes?

B4. What are "indicators of success" for the Compressed Air product? [**PROBE** for indicators specific to each of the streams of the product]

B4a. What are interim indicators that the Compressed Air product is or is not meetings its objectives or goals?

B4b. You mentioned in the kickoff that the trade network is important to the product's success – Could you expand on that? How do trades factor into the success of the program? [**PROBE:** For goals or indicators related to trades; participation in MN vs. CO? – Historically more participation in MN]

B5. What influences, if any, do you think the Compressed Air has had on the market?

Section C: Product Activities

I would like to make sure I have a solid understanding of how this product operates and talk through the different components of the product. If there are any formal documentation and/or websites that you can refer me to as we walk through these next questions, I'd appreciate getting that information.

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

C1. Can you describe the incentives and/or tools the product uses to achieve its goals, with incentives including both monetary incentives as well as services provided directly by someone on behalf of Xcel Energy: **[PROBE: I understand three are three streams of incentives –** A prescriptive program, a custom program and studies. Could you walk me through each of those streams?]

C1a. How do these incentives compare to compressed air incentives at peer utilities?

C2. Have any of these incentives changed in the last few years?

C2a. If yes - What was the rationale for changing them?

C2b. If no- Do you anticipate any changes in the near future?

C3. What activities do product and implementer staff engage in to achieve product goals?

Marketing?

Financial Assistance?

Applications?

Technical Assistance?

Education?

Contractor/Trade Partner Support? [**PROBE**: trainings, informational materials, etc.?]

Drop Ship/Direct Install?

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C3a. What tools are used to reach out to customers and/or market partners?

C3b. Are these product activities modeled on another product or set of products?

C4. Have any of these activities changed in the last few years?

C4a. What was the rationale for changing them?

C4b. In your opinion, how have these changes affected the product's operations or its outcomes?

C4c. Have you measured how these changes impacted savings or participation?

C5. What are the participation steps from a customer perspective?

Section D: Strengths and Challenges

Next, I'd like to get your feedback on how the product is running.

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

D1. In your opinion, what are the strengths of the Compressed Air as it is currently being run?

D1a. What would you say is working well in terms of product design or implementation?

[**Probe:** Xcel's compressed air efficiency program is one of the few stand-alone compressed air programs, how has it been able to be successful?]

D2. What are the most significant challenges for this product at this point?

[Probe: Barriers to conducting compressed air studies, further engaging trade partners, understanding other compressed air programs, overlap with other programs at Xcel (mentioned as a barrier in program documentation – addressed through "internal processes")

Any challenges caused by COVID-19 pandemic? How does the pipeline of projects look this year?

D3. What feedback, if any, do you receive from customers on the product? (PROBE FOR CUSTOMER ENGAGEMENT/ CUSTOMER SATISFACTION)

D4. What do you believe are the biggest barriers to getting customers to participate in this product? [**PROBE** for effectiveness of current outreach activities and sources, any information from Trade Partners]

D5. Are there any specific opportunities for improvement in the design or implementation of the product? Please describe.

[Probe: Opportunities to improve customer satisfaction with the product? Opportunities to improve trade ally engagement?]

D6. What would you like to see changed in how the product is designed or run, if anything?

D6a. Do you think there are any roadblocks preventing these changes from happening?

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Section E: Resources

E1. What resources do you rely on to implement the product?

E1a. Product, implementer, sales staff? [**PROBE:** trainings for staff or trade partners?]

E1b. Management and product direction?

E1c. IT tools and data tracking tools?

E1d. Other resources?

E2. Are these resources sufficient to implement the product as designed? [**PROBE:** Does Salesforce provide enough project tracking support?]

E2a. [IF NO] How could the product design/implementation change to be more efficient?

E2b. [IF NO] What additional resources, if any, would help you implement the product as designed?

E3. Have any of these product resources changed in the last few years?

E3a. What was the rationale for changing them? Any COVID related changes?

[PROBE: Changes to training structure due to COVID (if not already mentioned)?

E3b. In your opinion, how have these changes affected the product's operations or its outcomes?

[Probe: Will you implement any COVID-related changes long-term e.g., virtual meeting with trade partners?]

Section F: Product Tracking and Reporting

I understand that you are using Salesforce as your primary product tracking tool. I'd like to understand how product activities are tracked to understand what data might be available to us in our evaluation.

[TAILOR BASED ON WHAT IS ALREADY KNOWN]

F1. What kind of documentation is available for the different product? Implementation plans? Product manuals? Process maps?

F2. What kinds of data are collected for the Compressed Air product?

F3. Are there any data that you would like to collect for the Compressed Air product but haven't been able to?

F4. Are there any data/documentation not tracked in Salesforce that might be helpful for the evaluation?

F5. As part of our evaluation, we may want to speak to "near-participants," customers/distributors that were eligible to participate in the product, showed some interested in product participation, but didn't participate for whatever reason. Would these customers/distributors all be tracked in Salesforce?

F6. [For Engineering Staff] What kind of baseline does the product use to estimate energy savings? [PROBE FOR CODE VS. COMMON PRACTICE]

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Section G: Closing

G1. Based on the kickoff meeting, some of the topics we are planning to prioritize include <Comparing Xcel compressed air offerings to other utilites; Opportunities for constant monitoring and leak fixes (are there other utilities that offer this?); Understand why trade partners aren't making use of compressed air studies; Customer experience – how involved are they, ease of application; How customers make their equipment decisions – Is there typically a person engaged in facility and decision-making that has authority in determining these investments> Does this align with your understanding?

G1a. Do you have anything you would like to add to these priorities, remove from this set of priorities, or change about these priorities?

G2. Do you have particular questions that you would like to see answered by the evaluation? Why are these questions important?

G3. Do you have any other comments, concerns or suggestions about the product that we didn't discuss that you would like to make sure I know about?

G4. Are there any particular product staff members you would like to make sure we talk with?

G5. Do you have any peer utilities that you'd like us to include in the peer utility benchmarking interviews? Peer utilities could either include utilities that have been identified by internal or external parties as exemplary or utilities with a similar climate, customer mix, etc. to understand their practices. [PROBE: In the last compressed air evaluation, the evaluators contacted Ameren Illinois, Dayton Power & Light, Duke Energy, Wisconsin Focus on Energy, Tacoma Power]

G5a. What criteria is most important to you when selecting a peer utility (e.g. similar climate, similar time in market, etc.)?

G5b. What performance indicators are you interested in the evaluation benchmarking?

Thank you very much for taking the time in assisting us with this evaluation. If I come up with any additional questions that come from this interview, do you mind if I send you an email or give you a quick call?

B.2 Non-Participant Interview Guide

To support the process and impact evaluation of the 2021 Xcel Energy's energy efficiency programs, the TRC evaluation team will conduct telephone interviews with near-participants. The evaluation team defines near-participants as any customer for whom a Colorado or Minnesota Compressed Air project opportunity was identified between January 2019 and April 2021, but who either expressed interest in participating in the product (through studies or rebates) but did not ultimately do so, or who had a study done in a previous year but once eligible again, did not have another study done. The research will be conducted to assess key process and impact evaluation objectives, including customer satisfaction, product awareness, barriers to participating, and spillover.

Section Intro: Introduction and Screening

Intro1. Hello, this is <NAME> from TRC on behalf of Xcel Energy to assessing their compressed air energy efficiency program. We are speaking with facilities that have

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compressed air systems to help Xcel Energy improve their Compressed Air program and better suit the needs of businesses like yours. This interview should take about 30 minutes on average, and as a small token of appreciation, we will send you a $25 gift card after completing the interview. Your responses will remain confidential, meaning that your name and company name will not be attributed to your answers. To assist in notetaking and data analysis, is it ok to record this conversation? The recording will be kept confidential and will not be shared with anyone outside of our evaluation team.

Yes **(BEGIN RECORDING)**

No **(DO NOT RECORD, TAKE NOTES)**

Intro2. To confirm, you are the person most familiar with your company's compressed air systems, correct?

Yes

No (Ask to speak to appropriate person at company or for their contact information, TERMINATE)

Section A: Awareness and Spillover

First, I'd like to gather some information about your role at your organization.

A1. What is your occupational title within your company?

A1a. How long have you been in this position?

A2. How would you describe your company's line of business?

[**PROBE:** What sector is your business? e.g., food service, agriculture, manufacturing, etc.]

Next, I'd like to understand a little more about your awareness of Xcel Energy's energy efficiency programs.

A3. On a scale of 1 to 5, with 1 being unfamiliar and 5 being very familiar, how familiar would you say you are with Xcel Energy's energy efficiency rebate programs in general?

A3a. Have you participated in Xcel Energy's Compressed Air rebate program in the past? [IF YES] Do you recall for which equipment you received a rebate?

A4. How did you first become aware of Xcel Energy's rebates for Compressed Air [equipment/studies]? [**PROBE:** Contractor, Distributor, Xcel Energy staff?]

[IF PREVIOUS_STUDY != 1]

A4a. What initially motivated you to consider installing energy efficient equipment through the Compressed Air program?

[IF PREVIOUS_STUDY = 1]

A4b. What motivated you to initially perform a compressed air energy efficiency study through Xcel Energy's Compressed Air program in <YEAR>?

A5. What do you think is the most beneficial aspect of the Compressed Air program?

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A6. When you first became aware of the Compressed Air program, what were your initial perceptions of the program?

Near-Participant Compressed Air Equipment Implementation

[ASK NEAR-PARTICIPANTS, FOR DORMANT, SKIP TO A15]

A7. Our records show that you discussed purchasing and installing compressed air equipment with either an Xcel Energy representative or with a contractor some time on or around <MONTH> of <YEAR>. Do you recall the discussion to purchase and install this equipment?

A7a. Did you eventually purchase the <OPPORTUNITY_DESCRIPTION>?

[IF A7a = NO]

A7b. Did you purchase other equipment instead of the <OPPORTUNITY_DESCRIPTION>?

[IF A7b = YES]

A7c Was this equipment more energy efficient, less energy efficient, or approximately the same efficiency as the <OPPORTUNITY_DESCRIPTION>?

What factors did you consider when deciding to install the equipment you chose? [PROBE up-front costs, efficiency, ROI, brand]

[ASK IF A7b = NO]

A7d. Could you tell me a bit about why you decided not to purchase the <OPPORTUNITY_DESCRIPTION> or similar equipment?

[ASK IF A7a = YES OR A7b = YES]

A8. Why did you decide to purchase the equipment you chose?

A8a. Did you eventually install the equipment you purchased?

[PROBE IF A8 = NO]

When will you install the equipment you purchased?

Do you intend to submit a rebate application for the equipment that you purchased?

[ASK IF A8a = YES]

A9. When you installed the equipment, did you receive a rebate through Xcel Energy?

[ASK IF A9 = NO]

A9a. Why didn't you receive a rebate through Xcel Energy for installing this equipment?

[ASK IF A7a or A7b = YES]

A10. Thinking back on the equipment you purchased and installed, could you please give me a brief description of the specification of that equipment?

When the equipment was installed

Number of measures installed (if applicable)

Make or Model

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Efficiency

[ASK IF A7a or A7b = YES]

A11. Thinking about all of the reasons you chose to install the <OPPORTUNITY_DESCRIPTION>, did your knowledge of the rebates or resources available through Xcel Energy have ANY INFLUENCE on your decision to install the energy efficient equipment?

[ASK IF A11 = YES]

A12. Using a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential, how much influence did your knowledge of the rebates or resources available through Xcel Energy have on your decision to install your energy efficient equipment?

[ASK IF A11 = YES]

A13. Just to make sure that we understand you correctly, please answer the following hypothetical question. If you had you NOT known about rebates or resources available through Xcel Energy, would you still have installed your energy efficient equipment? Please use a scale of 0 to 10, where 0 means you definitely WOULD NOT have installed your energy efficient equipment and 10 means you definitely WOULD have done so.

[ASK IF A11 = YES]

A14. In your own words, can you explain HOW your knowledge of the rebates or resources available through Xcel Energy influenced your decision to purchase or install your energy efficient equipment?

Dormant Participants Compressed Air Efficiency Study Implementation

[ASK DORMANT-PARTICIPANTS, FOR NEAR-PARTICIPANTS, SEE A7]

A15. Our records show that you participated in a compressed air efficiency study through Xcel Energy some time on or around <MONTH> of <YEAR>. Do you recall your participation in the study?

[IF INTERVIEWEE DOES NOT RECALL]

A15a. To confirm, your company worked with a contractor to identify leaks in your compressed air system and received a rebate from Xcel Energy to cover the cost of that study, do you recall this?

A16. Xcel's Compressed Air program allows customers to conduct a compressed air efficiency study through the program once every five years. Have you been contacted by Xcel Energy recently (in the past year or so) to conduct an updated study?

[IF YES]

A16a. About how long ago were you contacted?

A16b. How were you contacted? [PROBE for email, phone call, etc.]

A17. Did you eventually decide to have an updated study or leak check performed on your compressed air system?

[IF YES] Who conducted that study? Why did you decide to have a study performed?

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A17a. What did that study include? [PROBE for ultrasonic leak check, equipment recommendations?]

A17b. Did you install any equipment as a result of that study?

[IF YES] What equipment did you install?

A18. Do you conduct any routine maintenance or checks on your compressed air equipment? [PROBE: Did you begin conducting maintenance or checks after having the compressed air efficiency study conducted at your facility in <MONTH> <YEAR>?

[ASK IF A17 = NO]

A19. Why did you decide not to have an updated study performed on your compressed air system?

[PROBE: Didn't have time, didn't want to shut down facility, concerns about COVID safety, not concerned about leaks, systems was recently updated, too expensive, etc.]

A19a. Are you planning to perform a study on your compressed air system in the future? Why or why not?

[IF A19a=YES]

A19b. When are you planning on performing a study on your compressed air system?

[IF A17=YES]

A20. How influential was the compressed air efficiency study in your decision to begin routinely performing maintenance and leak checks?

[ASK IF A17=YES]

A21. Why didn't you receive funding through Xcel Energy for conducting the study outside of Xcel's compressed air program? What barriers prevented you from submitting your study through the Compressed Air program and receiving study funding?

[ASK IF A17 = YES]

A22. Thinking about all of the reasons you chose to conduct a study at your facility, did your knowledge of the resources available through Xcel Energy's Compressed Air Program have ANY INFLUENCE on your decision to participate in a study outside of the program?

[ASK IF A22 = YES]

A22a. Using a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential, how much influence did your knowledge of the resources available through Xcel Energy's Compressed Air Program have on your decision to to participate in a study outside of the program?

[ASK IF A20 = YES]

A22b. Just to make sure that we understand you correctly, please answer the following hypothetical question. If you had you NOT known about study funding or other resources available through Xcel Energy's Compressed Air Program, would you still have participated in a study outside of the program? Please use a scale of 0 to 10, where 0

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means you definitely WOULD NOT have conducted a study outside of the program and 10 means you definitely WOULD have done so.

[ASK IF A22a = YES]

A22c. In your own words, can you explain HOW your knowledge of the study funding or resources available through Xcel Energy's Compressed Air Program influenced your decision to participate in a study outside of the program?

Section B: Barriers to Participation

Next, we'd like to better understand the barriers that you feel impact your ability to participate in the Compressed Air program.

B1. Next I am going to ask you about aspects of the program that may have posed a challenge to participating in the Compressed Air program. Using a scale from 1 to 5, where 1 is "not at all a challenge" and 5 is "very much a challenge", please indicate the extent to which you see the following as a challenge to participating in the Xcel Energy Compressed Air program.

[PROBE: IF B1 a-j > 3 "Why do you rate it that way?"]

B1a. Lack of knowledge about the Xcel Energy Compressed Air program

B1b. Lack of knowledge regarding eligibility for the Xcel Energy Compressed Air program

B1c. Lack of knowledge regarding rebate amounts

B1d. Amount of time it takes to install equipment/shutting down operations to install

B1e. Finding a trustworthy contractor to perform a study and or install equipment [equipment installations/a compressed air study]

B1f. Upfront Equipment cost

B1g. Long Payback periods for your business

B1h. Existing long-term capital improvement plans or competing budget priorities

B1i. [IF Dormant] Amount of time it takes to conduct a study

B1j. **[IF Dormant]** Amount of time it takes to get reimbursed for a study

B2. Is there any other factor that you see as a challenge to participating in the Xcel Energy Compressed Air program?

[IF YES] Please describe that factor.

B2a. On a scale from 1 to 5, where 1 is "not at all a challenge" and 5 is "very much a challenge", please indicate the extent to which you see that factor as a challenge to participating in Xcel Energy energy efficiency rebate programs. [PROBE

[IF B2a > 3)

B2b. Why do you rate it that way?

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B3. What do you feel was the **greatest** barrier that prevented you from [(IF NEAR)installing equipment through Xcel Energy's Compressed Air program/(IF DORMANT)conducting an updated study through Xcel Energy's Compressed Air program]?

B4. How could Xcel Energy improve the program in a way that would encourage you to participate in the Compressed Air program in the future?

Section C: Satisfaction

Thank you for your patience; we have only a few questions left.

C1. What is your preferred method of communication from Xcel Energy about opportunities for participation in their energy efficiency programs?

C2. How frequently do you communicate with your Account Manager OR Business Solutions Representative about energy efficiency opportunities at your business?

C2a. Is that too much, just enough, or too little amount of communication with your Account Manager or Business Solutions Representative?

[ASK ALL]

C3. I'm going to ask you to rate your satisfaction with a few aspects of Xcel Energy. For each, please rate your satisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied," or let me know if it is not applicable to your company. Please feel free to add additional context to your answer as you see fit. How would you rate your satisfaction with:

[IF PREVIOUS_STUDY = 1]

C3a. Your previous experience participating in a Compressed Air study through Xcel Energy? (From 1-5)

C3a_1. Why did you provide that satisfaction rating?

[If C3a< 3]

C3a_2. Why weren't you satisfied with your experience participating in a Compressed Air study through Xcel Energy?

C3b. Xcel Energy as an energy provider? (From 1-5)

[If C3b< 3]

C3b_1. Why weren't you satisfied with Xcel Energy as a provider?

C3c. Your interactions with your account manager or business solutions representative.

[If C3b< 3]

C3c_1. Why weren't you satisfied with your account manager or business solutions representative?

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Closing

CLOSE1. These are all the questions I have. Is there anything we haven't covered today that you think would be important for Xcel Energy to understand as they consider ways to improve their Compressed Air program?

CLOSE2. As a thank you for your input, we'd like to send you a $50 Tango Gift Card . What is the best email to send the gift card to—this could be you or anyone else of your choosing:

[COLLECT CONTACT INFORMATION]

B.3 Participant Survey Instrument

To support the 2021 process and impact evaluation of Xcel Energy efficiency products, the TRC evaluation team will conduct telephone surveys with participating customers. For the purposes of this survey, the evaluation team defines a participating customer as any customer who participated in the Compressed Air product between January 2019 and Quarter 1 of 2021. The research will assess key process and impact evaluation objectives, including customer satisfaction, motivations for participating, barriers to installation, free-ridership, and spillover.

Section Intro: Introduction and Screening

Intro1. Hello, this is **<INTERVIEWER NAME>** calling from Ewald and Wasserman, a national research firm working with Xcel Energy. I'm hoping to speak to someone in your business who would be familiar your company's participation in Xcel Energy's Compressed Air program between 2019 and 2021. Our records show that you received **<PARTICIPATION DESCRIPTION>** as part of the Xcel Energy **<PROGRAM>** program in **<DATE>.** May I speak with **<CONTACT>?**

1. Yes, that would be me.
2. Yes, let me transfer you to the correct person **[IF NAME GIVEN, ENTER AS <CONTACT>; REPEAT QUESTION INTRO1 WITH NEW RESPONDENT]**
3. No, they are not available right now.
4. No, you have the wrong number.
5. No, other reason (SPECIFY).
98. DK **[TERMINATE]**
99. REF **[TERMINATE]**

[ASK IF INTRO1=1 OR 5]

Intro2. Are you the person at your firm who is most familiar with the Xcel Energy **<PROGRAM>** program, or at least as familiar as anyone else?

1. Yes.
2. No, they are not available right now.
3. No, that's someone else.
4. No, that person no longer works here.

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5. Not applicable – this business did not participate in any such program. **[TERMINATE]**

98. DK **[TERMINATE]**

99. REF **[TERMINATE]**

[ASK IF INTRO2=4]

Intro3. Is there someone else at your business who would be knowledgeable about your participation in Xcel Energy's **<PROGRAM>** program?

1. Yes.

2. No **[TERMINATE]**

98. DK **[TERMINATE]**

99. REF **[TERMINATE]**

[ASK IF INTRO2=2-3 OR INTRO3=1]

Intro4. What is this person's name?

1. [RECORD CORRECT PERSON'S NAME AS **<CONTACT>**]

98. DK **[TERMINATE]**

99. REF **[TERMINATE]**

[ASK IF INTRO4=1]

Intro5. Would I reach that person by dialing the same number I used to connect with you: **<PHONE>**?

1. Yes

2. No, use a different number (RECORD HERE AS **<PHONE>**) **[THANK AND TERMINATE; REDIAL NEW SAMPLE CASE]**

98. DK **[TERMINATE]**

99. REF **[TERMINATE]**

PROGRAMMER NOTE: Only those for whom Intro1=1 or Intro2=1 should get to this screen; the rest would end at Intro5 as they will need to be made into new sample cases and called back at a later time.

[ASK IF INTRO1=1 OR INTRO2=1]

Intro6. Great! (IF NEEDED: Again, we're Ewald and Wasserman, a national research firm calling on behalf of Xcel Energy). I would like to invite you to participate in a short survey that will help Xcel Energy improve the **<PROGRAM>** program to best suit the needs of businesses like yours. The survey takes about 20 minutes on average, and as a small token of appreciation, we are offering a $25 gift card that you will receive after completing the survey. Your responses will remain confidential, meaning that your name and company name will not be attributed to your answers.

Is now a good time or should we call you back?

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1. No objection – fine to continue

2. Objection **[RESOLVE AND RESCREEN AS NECESSARY]**

99. REF **[TERMINATE]**

Section A: Firmographics and Participation

First, I'd like to gather some information about your involvement with the Xcel Energy **<PROGRAM>** program and your role at your organization.

[ASK ALL]

A1. What is your occupational title within your company?

(ASK OPEN END)

DK

REF

[ASK ALL]

A2. Were you the primary contact between your organization and the Xcel Energy program staff?

1. Yes

2. No

98. DK

99. REF

[ASK IF A2 = 2]

A2a. Who was the primary contact?

1. Someone else at my firm **(Ask name and title)** _____

2. Other _____

98. DK

99. REF

A3. According to our records, you participated in the compressed air progam through a/an **<PARTICIPATION_DESCR>.** Is that correct?

[DO NOT READ TO CUSTOMER - For survey house: This should capture the count of each measure received. e.g. 1 compressed air efficiency study, 1 no air loss drain, and 2 cycling dryers

1. Yes

2. No, update [OPEN END, RECORD VERBATIM]:

98. DK

99. REF

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[ASK ALL]

A4. Had your organization previously participated in the Xcel Energy **<PROGRAM>** program before **<DATE>**?

Yes

No

98. DK

99. REF

A4a. [IF A4= 1] In which compressed air offerings did your organization participate previously?

Compressed air efficiency study/studies [PROBE FOR YEAR]

Prescriptive rebate(s) [PROBE FOR EQUIPMENT REBATED & YEAR]

Custom rebate(s) [PROBE FOR EQUIPMENT REBATED & YEAR]

98. DK

99. REF

[ASK ALL]

A5. Had your organization previously participated in any other Xcel Energy energy efficiency program before **<DATE>**?

Yes, **[SPECIFY]**

No, never participated in an Xcel Energy program

98. DK

99. REF

Section B: Awareness

Next I would like to ask you some specific questions about **<MEASURE_NAME>.**

B1. [ASK IF STRATA !=STUDYONLY] I'd like to understand a little more about how you became aware of **<MEASURE_NAME>**. Were you aware of this technology as an energy saving measure prior to your decision to participate in this program?

1. Yes

2. No

98. DK

99. REF

B2. [ASK IF STRATA !=STUDYONLY] I'd like to understand how you first became aware of high efficiency compressed air equipment. How did you **first** become aware of the potential to use **<MEASURE_NAME>** to save energy at your facility? (DO NOT READ. ASK OPEN END, PROBE TO CATEGORIZE. SELECT ONE)

1. Through Xcel Energy staff (engineers, or program staff)

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2. Through Xcel Energy account managers

3. Through the contractor or vendor who sold you this equipment

4. Through another contractor or vendor (NOTE: Please verify this is not through the same contractor who completed their project / sold them equipment for the project)

5. Through previous participation in the program

6. Through the Xcel Energy website or other media promotions

7. Through the internet or personal research

8. Through internal staff (NOTE: Please verify this is staff internal to the customers' company, not Xcel Energy or their contractor)

9. Through an Xcel Energy event, expo, or demonstration

10. Through Xcel Energy marketing materials or flyer

11. Through participation in another Xcel Energy program.

12. Other _____

98. DK

99. REF

B3. And how did you first become aware of Xcel Energy's **<PROGRAM>** program? (DO NOT READ. ASK OPEN END)

Contractor

Distributor, vendor, or electrical mechanical contractor

Xcel Energy staff

Xcel Energy account manager or Xcel Business Solutions Center representative

Xcel Energy website or other media promotions (TV, mass media ads)

Xcel Energy event, expo, or demonstration

Xcel Energy marketing materials or flyer

Another business / word of mouth

Another audit or study program

Someone at my business

Online (not Xcel Energy)

Social media (e.g. Facebook, Twitter, LinkedIn)

Television advertisement

14. Other _____

98. DK

99.REF

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B4. What initial perceptions did you have of the **<PROGRAM>** program when you first heard about it?

(ASK OPEN END)

DK

REF

B5. What is your most preferred method for hearing about similar opportunities from Xcel Energy?

Through my account manager

By email

By direct mail

With utility bill (online or mail insert)

Social media

Xcel Energy website

Other [SPECIFY]

98. DK

99. REF

B5a. What is your least preferred method for hearing about opportunities such as this program?

[if B5 !=1] Through my account manager

[if B5 !=2] By email

[if B5 !=3] By direct mail

[if B5 !=4] With utility bill (online or mail insert)

[if B5 !=5] Social media

[if B5 !=6] Xcel Energy website

Other (SPECIFY)

98. DK

99. REF

Section C: Barriers and Motivations

Now I'd like to gather some information about your decision to participate in the **<PROGRAM> program**.

C1. Please rate the importance of the following in terms of your decision to participate in the **<PROGRAM>** program, using a 1 to 5 scale where 1 is "Not at all important" and 5 is "Very important."

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You can also tell me if something was not applicable to your experience or if you don't kn ow:

(1) Not at all important - (3) - (5) Very important 77=N/A, 98=DK 99=REF

(RANDOMIZE)

[ASK if STUDY_FLAG = YES] Reducing or fixing air leaks

[ASK if STUDY_FLAG = YES] Identifying opportunities to improve the efficiency of compressed air systems

[ASK if STUDY_FLAG = YES] Receiving recommendations for energy efficient compressed air equipment.

Reducing energy use

Upgrading out-of-date equipment / materials

Replacing faulty or failed equipment / materials

Xcel Energy rebate that discounts efficient compressed air equipment

Reducing dollar amount of energy bill

Information or encouragement you received from Xcel Energy

C1a. Was there any other factor that influenced your decision to participate in the **<PROGRAM>** program?

1. Yes (SPECIFY)

2. No (skip to C2)

98. DK (skip to C2)

99. REF (skip to C2)

[ASK IF C1a = 1]

C1a_1. And how important was that factor in terms of your decision to participate in the **<PROGRAM>** program, using a 1 to 5 scale where 1 is “Not at all important” and 5 is “Very important”?

[NUMERIC OPEN END]

98. DK

99. REF

C2. Were there any factors holding you back from participating in the **<PROGRAM>** program?

(PROBE IF NECESSARY: understanding how to apply for the rebate, high upfront costs of equipment, restrictions related to the COVID-19 pandemic.)

1. Yes (SPECIFY)

2. No

98. DK

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99. REF

C3. [ASK IF STRATA = STUDYONLY] Do you plan on implementing any of the energy efficiency recommendations made during your compressed air efficiency study?

1. YES

2. NO

98. DK

99. REF

C4. [ASK IF C3 = 2] What prevents you from implementing the energy efficiency recommendations made during your compressed air efficiency study?

(OPEN END)

DK

REF

Section D: Free-Ridership

D0_1. (INTERVIEWER: PLEASE READ THE FOLLOWING SLOWLY AND CAREFULLY)

Making decisions can sometimes be relatively simple, involving one major factor, like price. Or, they can be relatively complex involving multiple factors such as price, information provided by your utility, and concerns about high electricity bills.

[SELECT HALF OF PARTICIPANTS TO RANDOMLY BE READ D0_2 BEFORE D0_3; FOR THE OTHER HALF, READ D0_3 BEFORE D0_2]

D0_2. [SHOW IF D0_2 READ FIRST: "As part of this project, Xcel Energy offered you:" ; SHOW IF D0_2 READ SECOND: "There might be other things that influenced your decision such as materials provided by Xcel Energy. As part of this project, Xcel Energy offered you:"]

[RANDOMIZE THE FOLLOWING LIST]

- An incentive or rebate
- Information through marketing or informational and educational materials about the benefits of installing energy efficient equipment
- [IF STUDY_FLAG = YES] A compressed air efficiency study that identified opportunities for increasing the efficiency of your system and identified leaks.
- Trainings or events related to optimizing compressed air systems.
- Technical assistance or other technical support provided by Xcel Energy, by your contractor, or support from prior participation in an Xcel Energy program.

D0_3. [SHOW IF D0_3 READ FIRST: "Many factors may" ; SHOW IF D0_3 READ SECOND: "There might be other things, not related to the program that might also"] have influenced your decision to install energy efficient equipment. For example, maybe:

- High electric bills,
- Company policies,

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- Vendor or contractor recommendations,
- Your own experiences with energy efficient equipment, or
- Your own research on energy efficient equipment.

There are of course many other possible reasons.

[ASK D1 – D5 IF STRATA != STUDYONLY]

D1. Next, I'm going to ask a few questions about your decision to install energy efficient compressed air equipment at your facility versus less efficient equipment. Please rate the importance of each of the following factors on your decision to install energy efficient compressed air equipment or systems using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". Now, how important was…

(RANDOMIZE D1a-D1t, REPEAT SCALE AS NECESSARY)

[NUMERIC OPEN END, 0-10]

77. NA

98. Don't know

99. Refused

D1a. The rebates offered by Xcel Energy

D1b. [ASK IF STUDY_FLAG = YES] The program-subsidized compressed air efficiency study

D1c. [ASK IF STUDY_FLAG = YES] The recommendations provided through the compressed air efficiency study

D1d. A contractor recommendation for efficient equipment

[ASK IF D1d >5 AND D1d <77]

D1d_1. Did the vendor or contractor who recommended the equipment also discuss the rebates available through Xcel Energy's <PROGRAM> program?

Yes

No

98. DK

99. REF

D1e. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative

D1f. Recommendation of internal staff from your own company

[ASK IF D1f >5 AND D1f <77]

D1f_1. Did this internal staff complete a compressed air efficiency study through Xcel Energy or have knowledge of a study performed previously at your facility?

1. Yes

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2. No

98. DK

99. REF

D1g. Wanting to save energy

D1h. Minimizing upfront costs

D1i. Your previous participation in an Xcel Energy program

D1j. Funding for energy efficiency projects from an outside source (SPECIFY SOURCE & AMOUNT)

D1k. Information received from any training or events conducted by Xcel Energy

D1l. Your previous experience with energy efficiency equipment or materials

[ASK IF D1l >5 AND D1l <77]

D1l_1. Was this experience through an Xcel Energy program?

1. Yes

2. No

98. DK

99. REF

D1m. Corporate policy or guidelines

D1n. Environmental factors like reduced carbon emissions

D1o. Payback on the investment

[ASK IF D1o >5 AND D1o < 77]

D1o_1. Did the Xcel Energy rebate factor into whether the payback timeline was acceptable?

1. Yes

2. No

98. DK

99. REF

D1p. Minimizing operating cost

[ASK IF D1p>5 AND D1p<11]

D1p_1. Did Xcel Energy provide you with information on minimizing operating costs?

1. Yes

2. No

98. DK

99. REF

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[ASK IF D1p_1=1]

D1p_2. In your own words, how important was the information provided by Xcel Energy on minimizing operating costs in your decision to install this equipment?

[OPEN-END, VERBATIM]

DK

REF

D1s. Were there any other factors that were important to your decision to install energy efficient compressed air equipment?
(ASK OPEN END)

1. Yes (SPECIFY, RECORD VERBATIM)

2. No additional factors

98. DK

99. REF

[ASK IF D1s = 1]

D1s_1. How important was [factor specified] on your decision to install energy efficient equipment or systems using a scale from 0 to 10, where 0 means “not at all important” and 10 means “extremely important”. Again, the bigger the number, the greater the influence.

[NUMERIC OPEN END, 0 – 10]

77. NA

98. DK

99. REF

[CREATE INTERNAL VARIABLE: Max_ProgramFactor.

IF D1d_1=1 OR D1f_1=1 OR D1l_1=1 OR D1o_1=1 OR D1p_1=1, SET Value = max(D1a, D1b, D1c, D1d, D1e, D1f, D1i, D1k, D1l, D1o, D1p.

ELSE, SET Value= max(D1a, D1b, D1c, D1d, D1e, D1i, D1k).]

Program Factors:

D1a, D1b, D1c, D1e, D1i, D1k

If D1d_1 = 1, include D1d as program factor

If D1f_1 = 1, include D1f as program factor

If D1l_1 = 1, include D1l as program factor

If D1o_1 =1, include D1o as program factor

If D1p_1 = 1, include D1p as program factor

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[ASK IF MULTI_PREMISE = YES]

D1_1. Our records indicate that you have implemented projects through Xcel's Compressed Air program at several locations. Thinking back to the projects you implemented at your other facilities, did you use the same decision-making process when deciding to install energy efficient compressed air equipment as you just described?

1. Yes, I used the same decision-making process at other facilities

2. No, I used a different decision-making process at other facilities

98. DK

99. REF

[ASK IF D1_1 = 2]

D1_1a. How did your decision-making process differ at your other facilities?

[OPEN END, VERBATIM]

[ASK IF STRATA != STUDYONLY]

D2. Now I'd like you to imagine that the Xcel Energy <PROGRAM> program, including the incentive, information, and support was not available. Would you have installed the *exact same number, type, model, and efficiency* of the <MEASURE_NAME> as you did? If you are not sure, please let me know.

Yes

Maybe / not sure

3. No

77. Would not have installed <MEASURE_NAME> at all

99. REF

[ASK IF D2 = 3, 77]

D2a. Why would you not have installed the *exact same number, type, model, and efficiency* of equipment?

[OPEN END, RECORD VERBATIM]

DK

REF

[ASK IF D2 = 3, 77]

D2a_1. What would you have installed instead and why?

[OPEN END, RECORD VERBATIM]

DK

REF

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[ASK IF D2=1,2,REF, ELSE SKIP TO D6]

D2b. Using a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely", please rate the likelihood that you would have installed the *exact same number, type, model, and efficiency* of equipment if the Xcel Energy **<PROGRAM>** program was not available.

[NUMERIC OPEN END, 0 - 10]

DK

REF

PROGRAMMING NOTE:

if (ans = 0) skp D5

if (ans = 1) skp D5

if (ans = 2) skp D5

if (ans = 7) skp D4

if (ans = 8) skp D4

if (ans = 9) skp D4

[ASK IF D2b=10]

D3. To clarify, you just told me that it is extremely likely that you would have installed the *exact same number, type, model, and efficiency of equipment* if you did not have any support, information, or rebates from the <PROGRAM> program.

Is that correct, or do you want to change the likelihood that you would have installed the *exact same equipment* without support from Xcel?

1. Yes, rating is correct.

2. No, rating is incorrect, want to change likelihood [LOOP BACK TO D2b]

98. DK

99. REF

[ASK IF D2b = 7-9 and Max_ProgramFactor > 7]

D4. You just rated your likelihood to install energy efficient equipment without any support or incentives from the <PROGRAM> program as a(n) <RESTORE RESPONSE FROM D2b> out of 10, suggesting that the program was not very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a <Max_ProgramFactor> out of 10, suggesting that the program was very important. Is this correct or should I go back and change one of your answers?

1. Correct – leave answers as is

2. Change the likelihood of installing energy efficient equipment without the program [RETURN TO D2b]

3. Change the influence of the program factors

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98. DK

99. REF

[ASK IF D2b < 3 and Max_ProgramFactor < 3]

D5. You just rated your likelihood to install energy efficient equipment without any support or incentives from the <PROGRAM> program as a(n) <RESTORE RESPONSE FROM D2b> out of 10, suggesting that the program was very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a <Max_ProgramFactor> out of 10, suggesting that the program was not very important. Is this correct or should I go back and change one of your answers?

1. Correct – Leave answers as is

2. Change the likelihood of installing energy efficient equipment without the program [RETURN TO D2b]

3. Change the influence of the program factors

DK

REF

[ASK IF D4 = 3 OR D5 = 3]

D5FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)

The rebates offered by Xcel Energy (you said <D1a> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[ASK IF STUDY_FLAG = YES] The program-subsidized compressed air efficiency study (you said <D1b> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[ASK IF STUDY_FLAG = YES] The recommendations provided through the compressed air efficiency study (you said <D1c> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D1d_1 = 1] A contractor recommendation (you said <D1d> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative (you said <D1e> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D1f_1 = 1] Recommendation of internal staff from your own company (you said <D1f> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

Your previous participation in an Xcel Energy program (you said <D1i> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

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Information received from any training or events conducted by Xcel Energy (you said <D1k> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D1l_1 = 1] Previous experience with energy efficient equipment or materials (you said <D1l> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D1o_1 = 1] Payback on the investment (you said <D1o> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D1p _1 = 1] Minimizing operating cost (you said <D1p> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[ASK IF STUDY_FLAG = YES]

D6. Next I would like to ask you about your decision to have a compressed air efficiency study conducted at your business. Please rate the importance of each of the following factors on your decision to have a compressed air efficiency study conducted at your business using a scale from 0 to 10, where 0 means “not at all important” and 10 means “extremely important”. The bigger the number, the greater the influence. If you don’t know, just say “I don’t know”. Now, how important was…

(RANDOMIZE D6a-D6o, REPEAT SCALE AS NECESSARY)

[NUMERIC OPEN END, 0-10]

77. NA

98. Don’t know

99. Refused

D6a. The funding offered by Xcel Energy for the compressed air efficiency study.

D6b. A contractor recommendation for a compressed air efficiency study

[ASK IF D6b >5 AND D6b <77]

D6b_1. Did the vendor or contractor who recommended the equipment also discuss the funding for the study available through Xcel Energy’s <PROGRAM> program?

Yes

No

98. DK

99. REF

D6c. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative

D6d. Recommendation of internal staff from your own company

[ASK IF D6c >5 AND D6f <77]

D6d_1. Did this internal staff complete a compressed air efficiency study through Xcel Energy or have knowledge of a study performed previously at your facility?

1. Yes

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2. No

98. DK

99. REF

D6e. Wanting to identify opportunities to save energy in your compressed air system

D6e_1. Did Xcel Energy provide you with information on identifying opportunities for saving energy in your compressed air system?

1. Yes

2. No

98. DK

99. REF

D6f. The ultrasonic leak assessment available through Xcel Energy's compressed air efficiency study.

D6g. The efficiency report with recommended improvements and follow-up actions available through Xcel Energy's compressed air efficiency study

D6h. Your previous participation in an Xcel Energy program

D6i. Funding for energy efficiency projects from an outside source (SPECIFY SOURCE & AMOUNT)

D6j. Information received from any training or events conducted by Xcel Energy

D6k. Your previous experience with a study or system audit

[ASK IF D6k >5 AND D6k <77]

D6k_1. Was this experience through an Xcel Energy program?

1. Yes

2. No

98. DK

99. REF

D6l. Corporate policy or guidelines

D6m. Environmental factors like reduced carbon emissions

D6n. Minimizing operating cost

[ASK IF D6n>5 AND D6n<11]

D6n_1. Did Xcel Energy provide you with information on minimizing operating costs?

1. Yes

2. No

98. DK

99. REF

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[ASK IF D6n_1=1]

D6n_2. In your own words, how important was the information provided by Xcel Energy on minimizing operating costs in your decision to install this equipment?

[OPEN-END, VERBATIM]

DK

REF

D6o. Were there any other factors that were important to your decision to have an Xcel Energy compressed air efficiency study conducted at your facility?
(ASK OPEN END)

1. Yes (SPECIFY, RECORD VERBATIM)

2. No additional factors

98. DK

99. REF

[ASK IF D6o = 1]

D6o_1. How important was [factor specified] on your decision to have an Xcel Energy compressed air efficiency study conducted at your facility using a scale from 0 to 10, where 0 means “not at all important” and 10 means “extremely important”. Again, the bigger the number, the greater the influence.

[NUMERIC OPEN END, 0 – 10]

77. NA

98. DK

99. REF

[CREATE INTERNAL VARIABLE: Max_ProgramFactor.

IF D6b_1=1 OR D6d_1=1 OR D6e_1=1 OR D6k_1=1 OR D6n_1=1, SET Value = max(D6a, D6b, D6c, D6d, D6e, D6f, D6g, D6h, D6j, D6k, D6n.)

ELSE, SET Value= max(D6a, D6c, D6f, D6g, D6h, D6j).]

Program Factors:

D6a, D6c, D6f, D6g, D6h, D6j

If D6b_1 = 1, include D6b as program factor

If D6d_1 = 1, include D6d as program factor

If D6e_1 = 1, include D6e as program factor

If D6k_1 =1, include D6k as program factor

If D6n_1 = 1, include D6n as program factor

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[ASK IF MULTI_PREMISE = YES]

D6_1. Our records indicate that you have had studies conducted through Xcel's Compressed Air program at several locations. Thinking back to the studies you had conducted at your other facilities, did you use the same decision-making process when deciding to have a compressed air efficiency study conducted as you just described?

1. Yes, I used the same decision-making process at other facilties

2. No, I used a different decision-making process at other facilities

98. DK

99. REF

[ASK IF D6_1 = 2]

D6_1a. How did your decision-making process differ at your other facilities?

[OPEN END, VERBATIM]

D7. *As a reminder, Xcel Energy's compressed air efficiency study includes an ultrasonic leak survey, and an efficiency report that characterizes the system's major components, identifies system loading, provides flow and metering results, identifies leaks and unregulated demand, identifies execution steps and cost estimates and recommends improvements and follow-up actions.*

If the incentive, information, and support from the Xcel Energy <PROGRAM> program were not available, what is the likelihood that you would have conducted the same type of compressed air efficiency study, that includes each of those same components on your own?

Please use a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely". If you don't know, just say "I don't know".

Not at all likely

…

10. Extremely likely

98. Don't know

99. Refused

PROGRAMMING NOTE:

if (ans = 0) skp D10

if (ans = 1) skp D10

if (ans = 2) skp D10

if (ans = 7) skp D9

if (ans = 8) skp D9

if (ans = 9) skp D9

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[IF likelihood in D7 >6 and <11]

D7a. To clarify, what is the likelihood that, without the incentive, information, and support from Xcel Energy's Compressed Air program, the study you would conduct at your facility would include the following components? Please continue to use a 0 to 10 scale, where 0 means "not at all likely" and 10 means "extremely likely". If you don't know, just say "I don't know".

D7a_1. An ultrasonic leak survey

D7a_2. Characterization of the system's major components

D7a_3. Identification of system loading

D7a_4. Flow and metering results

D7a_5. Identification of leaks and unregulated demand

D7a_6. Identification of execution steps and cost estimates

D7a_7. Recommendations for improvements and follow-up steps

[ASK IF D7=10]

D8. To clarify, you just told me that it is extremely likely that you would have conducted the *exact same compressed air efficiency study* if you did not have any support, information, or rebates from the <PROGRAM> program.

Is that correct, or do you want to change the likelihood that you would have conducted the *exact same compressed air efficiency study* without support from Xcel?

1. Yes, rating is correct.

2. No, rating is incorrect, want to change likelihood [LOOP BACK TO D7]

98. DK

99. REF

[ASK IF D7 = 7-9 and Max_ProgramFactor > 7]

D9. You just rated your likelihood to conduct a compressed air efficiency study without any support or incentives from the <PROGRAM> program as a(n) <RESTORE RESPONSE FROM D7> out of 10, suggesting that the program was not very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a <Max_ProgramFactor> out of 10, suggesting that the program was very important. Is this correct or should I go back and change one of your answers?

1. Correct – leave answers as is

2. Change the likelihood of conducting a compressed air efficiency study without the program [RETURN TO D7]

3. Change the influence of the program factors

98. DK

99. REF

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[ASK IF D7 < 3 and Max_ProgramFactor < 3]

D10. You just rated your likelihood to conduct a compressed air efficiency study without any support or incentives from the <PROGRAM> program as a(n) <RESTORE RESPONSE FROM D7> out of 10, suggesting that the program was very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a <Max_ProgramFactor> out of 10, suggesting that the program was not very important. Is this correct or should I go back and change one of your answers?

1. Correct – Leave answers as is

2. Change the likelihood of conducting a compressed air efficiency study without the program [RETURN TO D7]

3. Change the influence of the program factors

DK

REF

[ASK IF D9 = 3 OR D10 = 3]

D11FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)

The funding offered by Xcel Energy for the compressed air efficiency study. (you said <D6a> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[Ask if D6b_1 = 1] A contractor recommendation for a compressed air efficiency study (you said <D6b> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative (you said <D6c> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D6d_1 = 1] Recommendation of internal staff from your own company (you said <D6d> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D6e_1 = 1] Wanting to identify opportunities to save energy in your compressed air system (you said <D6e> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

The ultrasonic leak assessment available through Xcel Energy's compressed air efficiency study (you said <D6f> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

The efficiency report with recommended improvements and follow-up actions available through Xcel Energy's compressed air efficiency study. (you said <D6g> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

Your previous participation in an Xcel Energy program(you said <D6h> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

Information received from any training or events conducted by Xcel Energy (you said <D6j> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

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[If D6k_1 = 1] Your previous experience with a study or system audit (you said <D6k> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

[If D6n_1 = 1] Minimizing operating cost (you said <D6n> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]

D12. Do you perform regular maintenance on your compressed air equipment, either through facility staff or a maintenance contractor?

Yes

No

98. DK

99. Refused

[ASK IF D12=1]

D12a. How often do you perform maintenance?

[OPEN END, RECORD VERBATIM]

98. DK

99. Refused

D13. Were you aware of the leaks or other performance issues identified through the study PRIOR to conducting it?

Yes

No

98. DK

99. Refused

[ASK IF D13=1]

D13a. Were you aware of general performance issues with the system or were you aware of specific equipment that was performing poorly?

Aware of general performance issues with the system

Aware of specific equipment that was performing poorly.

98. DK

99. Refused

D14. Were you familiar with the recommended measures or actions needed to fix the leaks in your compressed air system?

Yes

No

98. DK

99. Refused

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[ASK IF D14=1]

D14a. Were you aware generally of actions or steps available to fix leaks in compressed air systems, or were you aware of specific actions to address fixes your system needed?

Aware of general actions to fix leaks in compressed air system.

Aware of specific actions needed to fix my compressed air system.

98. DK

99. Refused

D15. If the incentive, information, and support from the Xcel Energy <PROGRAM> program were not available, what is the likelihood that you would have fixed the leaks in your compressed air system on your own? Please use a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely". The bigger the number, the greater the influence. If you don't know, just say "I don't know".

Not at all likely

…

10. Extremely likely

98. Don't know

99. Refused

Section S: Spillover

Next, I'd like to ask you about other types of energy efficiency equipment you may have purchased since participating in the **<PROGRAM>** program with Xcel Energy.

S1. Since your participation in the **<PROGRAM>** program in <DATE>, has your company installed any efficient compressed air equipment without a rebate from Xcel Energy? When I say "efficient compressed air equipment," I mean equipment that is eligible for an Xcel Energy rebate.

Yes

No

98.DK

99.REF

[ASK IF S1=1, ELSE SKIP TO S7]

S1a. Why did you not apply for an Xcel Energy rebate for purchasing these efficient **<PROGRAM>** products?

[OPEN END]

DK

REF

[ASK IF S1=1, ELSE SKIP TO S7]

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S2. Did your experience with the efficient compressed air products you installed through the Xcel Energy **<PROGRAM>** program influence your decision to install some or all of the additional efficient equipment on your own?

1. Yes
2. No
98. DK
99. REF

[ASK S3 IF S2=1, ELSE SKIP TO S7]

S3. What type of compressed air equipment did you install? For example, was it… [LIST ALL TYPES, ALLOW MULTIPLE]

1. VFD Air Compressor
2. No Air Loss Drain
3. Cycling Dryer
4. Upgraded VFD Air Compressor
5. Mist Eliminator
6. Dew Point Controls
7. Or something else? **<SPECIFY>**

98.DK
99.REF

[ASK S4 IF S3=1-7, ELSE SKIP TO S7]

[ASK S4a-S4b IF S2 = 1 FOR UP TO TWO MEASURES, CODING RESPONSES WITH S4_1 and S4_2 FOR FIRST AND SECOND MEASURES, RESPECTIVELY]

I have a few questions about the **[S4_1/S4_2]** equipment that you installed.

S4a. Approximately how many of **[S4_1/S4_2]** did you install?

[NUMERIC OPEN END]
98. Don't Know
99. REF

S4b. Please describe the **SIZE**, **TYPE**, and **OTHER ATTRIBUTES** of **[S4_1/S4_2].**

[OPEN END, RECORD VERBATIM]
DK
REF

[ASK S5 IF S3=1-7, ELSE SKIP TO S7]

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S5. How important was your experience in the **<PROGRAM>** program in your decision to install the additional equipment on your own? Please use a scale from 0 to 10, where 0 is "not at all important" and 10 is "extremely important".

[NUMERIC OPEN END (0-10)]

98. DK

99. REF

[ASK S6 IF S3=1-7, ELSE SKIP TO S7]

S6. If you had not participated in the **<PROGRAM>** program, how likely or unlikely is it that you would have installed these additional efficient products, using a scale from 0 to 10, where 0 means you definitely WOULD NOT have installed and 10 means you definitely WOULD have installed them?

[NUMERIC OPEN END (0-10)]

98. DK

99. REF

S7. Since your participation in the **<PROGRAM>** program**,** have you installed any additional energy efficient equipment, <u>other than</u> energy efficient compressed air equipment?

1. Yes

2. No

98.DK

99.REF

[ASK S8 IF S7=1]

S8. Did you receive a rebate for some or all of this equipment through Xcel Energy or any other energy efficiency program?

1. Yes, we received a rebate for **all** of the equipment

2. Yes, we received a rebate for **some** of the equipment

3. No

98.DK

99. REF

[ASK S8a IF S8=2-3]

[IF S8=2: Thinking only about the equipment for which you did **NOT** receive a rebate,] Do you know if this equipment was eligible for a rebate through an Xcel Energy program?

1. Yes, the equipment was rebate-eligible through an Xcel Energy program.

2. No, the equipment was not rebate-eligible through an Xcel Energy program.

98. DK

99. REF

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[ASK S9 IF S8=2-3, ELSE SKIP TO E1]

S9. **[IF S8=2:** Thinking only about the equipment for which you did **NOT** receive a rebate,] Did your experience with the Xcel Energy **<PROGRAM>** program influence your decision to install some or all of these efficient products?

1. Yes

2. No

98.DK

99.REF

[ASK S10 IF S9=1, ELSE SKIP TO E1]

S10. What equipment did you install? Please provide as much detail as you can. (PROBE FOR NUMBER INSTALLED, EQUIPMENT TYPE, EFFICIENCY, SIZE)

1. (OPEN END)

98.DK

99.REF

[ASK S11 IF S=1, ELSE SKIP TO E1]

S11. How important or not important was your experience in the **<PROGRAM>** program in your decision to install this equipment using a scale from 0 to 10, where 0 is “not at all important” and 10 is “extremely important”?

[NUMERIC OPEN END, 0 – 10]

98. DK

99. REF

[ASK IF S9=1, ELSE SKIP TO E1]

S12. If you had not participated in the **<PROGRAM>** program, how likely or unlikely is it that you would have installed these additional efficient products, using a scale from 0 to 10, where 0 means you definitely WOULD NOT have installed and 10 means you definitely WOULD have installed them?

[NUMERIC OPEN END, 0 – 10]

98. DK

99. REF

Section E: Experience and Satisfaction

Next, I want to ask you a few questions about your experience with the program, and how the program’s processes worked for you.

E1. I am going to ask you to rate how easy or difficult the following tasks associated with the **<PROGRAM>** program were to complete, using a scale from 1 to 5, where 1 is “very difficult” and 5 is “very easy”. You may also tell me if something was not applicable to

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your experience. How would you rate the ease of… **(PAUSE AFTER EACH FOR RESPONSE. REPEAT SCALE IF NEEDED).**

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

98. DK

99. REF

(RANDOMIZE)

E1a. The equipment installation through a contractor

E1b. The process of completing the program application

E1c. Meeting program deadlines

E1d.[SHOW IF STUDY_FLAG = YES] The process of participating in a compressed air efficiency study

E1e. Receiving help from **<PROGRAM>** program representatives when needed

E1f. Determining the right equipment for your business

[For any E1 < 3]

E2a – E2f. Why was it not easy to **<RESTORE QUESTION WORDING FROM E1a – E1f>**

E3. Thank you for your patience; we have only a few questions left. I'm going to ask you to rate your satisfaction with various aspects of the program. For each, please rate your satisfaction or dissatisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied." You can also let me know if it is not applicable to your project. How would you rate your satisfaction with: **[RANDOMIZE E3a - l, PAUSE AFTER EACH FOR RATING, REPEAT SCALE IF NECESSARY]**

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

98. DK

99. REF

(RANDOMIZE)

E3a. The quality of the equipment you installed as part of the program

E3b. The contractor who performed the work

E3c. The information you received on how to operate / maintain installed equipment

E3d. The information you received on energy efficiency

E3e. The amount of time it took between receiving program approval and receiving the program rebate

E3f. The amount of time it took to install the equipment

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E3g. Your interactions with program staff

E3h. Energy savings realized after the program

E3i. The equipment options available through the program

E3j. [SHOW IF STUDY_FLAG = YES] The equipment recommendations you received after completing your compressed air efficiency study

E3k. [SHOW IF STUDY_FLAG = YES] The usefulness of the compressed air efficiency study

E3l. The dollar amount of the rebate

[ASK E3_1 IF E3a-l < 3]

E3_1 Why weren't you satisfied with **<RESTORE QUESTION WORDING FROM E3A – E3L>**

[OPEN END]

98. DK

99. REF

E4. Thinking about your experience from start to finish, how would you rate your satisfaction or dissatisfaction with the **<PROGRAM>** program as a whole? (IF NEEDED: Please use the same scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied")

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

98. DK

99. REF

[ASK IF E4 < 3]

E4a. Why weren't you satisfied with your experience with the **<PROGRAM>**program**?**

[OPEN END]

DK

REF

[ASK IF E4 = 3 or 4]

E4b. What else could Xcel Energy do to improve your satisfaction with the **<PROGRAM>** program**?**

[OPEN END, RECORD VERBATIM]

DK

REF

[ASK ALL]

E5. What did you like most about your experience with the **<PROGRAM>** program**?**

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[OPEN END, RECORD VERBATIM]

NA

DK

REF

E6. To what extent do you think you experienced the following as a result of program participation? Please use a scale from 1 to 5, where 1 is "not at all" and 5 is "very much"

1. Financial savings

2. Energy savings

3. Reduced maintenance on your compressed air equipment

4. Increased workplace comfort

5. Improved equipment performance

6. Improved 'green' image

7. Improved equipment appearance

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

98. DK

99. REF

E7. Using the same scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", how would you rate Xcel Energy as an energy provider?

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

98. DK

99. REF

E10. Is there any compressed air equipment that is not currently eligible for rebates through Xcel Energy's Compressed Air program that you wish was eligible?

1. Yes [SPECIFY]

2. No

98. DK

99. REF

Section CLOSE: Closing

[ASK ALL]

CLOSE1. Is there anything we didn't cover that you'd like to mention or discuss about your experiences as a participant in the <PROGRAM> program?

Yes [SPECIFY]

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No

98. DK

99. REF

CLOSE2. These are all the questions I have. As a thank you for your input, we'd like to email you, or someone of your choosing, a $25 Amazon gift card. We just need a bit of information to email the gift card to the intended recipient.

[COLLECT CONTACT INFORMATION]

[IF CONTACT ASKS OR if CONTACT CANNOT ACCEPT GIFT CARD]

We also have an option to donate the $25 to United Way.

[IF CONTACT ASKS FOR MORE INFO ABOUT UNITED WAY] United way is a worldwide non-profit that focus on education, income, and health which they believe are the building blocks for a good quality of life. They have local chapters throughout the US.

B.4 Trade Partner Interview Guide

Section A: Introduction/Background Information

Thank you for agreeing to talk with me today. I expect this conversation to take about half an hour. To help me capture your responses accurately, is it okay if I record this call? The recording will be used for my note-taking purposes only. It won't be shared with Xcel Energy.

Do you have any questions before I start?

First, I want to take 5 minutes to better understand your role and set the stage for the rest of the questions.

A1. Our records show [COMPANY NAME] has been involved in a project that participated in the Xcel Energy Compressed Air program, is this correct? [Provide details as appropriate from data about interviewee]

IF NO: MARK AS NON-PARTICIPANT AND END CALL.

IF YES: Were you personally involved in the project(s)?

IF YES: MARK AS PARTICIPANT.

IF NO: ASK TO SPEAK TO SOMEONE AT THE FIRM WHO HAS BEEN INVOLVED.

A2. What is your title or role at COMPANY NAME [**PROBE:** Owner, Engineer, Contractor, Field Technician, Project Manager, etc.]

A3. What are your primary responsibilities at COMPANY NAME?

A4. Can you briefly describe your company's work? [**PROBE FOR SPECIFIC SPECIALTIES**.]

A5. What types of customers does COMPANY NAME typically serve? [**PROBE:** In general, do you serve commercial, industrial, schools, manufacturing, etc.?]

(POTENTIAL FOLLOW-UP QUESTIONS)

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Has this changed over time?

[**IF YES:**] Has your company's participation in Xcel Energy's Compressed Air Program influenced any changes in the services you deliver or the customers you serve?

A6. How many employees does your company have that work in the Xcel Energy service territory?

A7. What work did you complete as a part of the projects(s) that participated in the Xcel Energy Compressed Air program?

Section B: Awareness and Perception of Program

B1. How did you initially learn about opportunities to participate in the Compressed Air Program?

- Is this your preferred method for hearing about opportunities?
- What are other ways that you like to hear about Xcel Energy Trade Partner opportunities?
- What program information was most useful for you when deciding to participate in the Compressed Air Program? [**PROBE:** incentive levels, materials, application process]

B2. When you first learned about the Compressed Air program, what were your initial perceptions of the program?

Section C: Motivations/Barriers to Participate in Product

C1. What is the main reason you have chosen to complete projects through Xcel Energy's Compressed Air Program?

[IF STUDY PROVIDER] What is the main reason you have chosen to provide compressed air efficiency studies through Xcel Energy's Compressed Air program?

a. Have your motivations/reasons changed over the years?

b. If yes, how so?

C2. We'd like to know how valuable different parts of the Compressed Air program are to you. I'll read a list of different components of the program that Xcel provides. Please rate how valuable of each of these program components are in supporting your participation in the Compressed Air program, using a 1 to 5 scale where 1 means "Not at all valuable" and 5 is "Very valuable."

- Marketing to customers
- Support for rebate applications
- Support for study providers
- Online rebate applications
- Awards for high-performing trade partners
- Support from the Trade Partner managers
- Events discussing changes to the program and other trainings.

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C3. Did you experience any major challenges to becoming a qualified trade partner through the Compressed Air program? [IF YES] Could you tell me about those challenges?

[IF TRADE PARTNER DOES NOT PROVIDE STUDIES]

C4. What prevents you from becoming qualified to provide compressed air efficiency studies through Xcel Energy's program? [PROBE: Do you have any interest in become a qualified study provider? Why or why not?]

C5. What are some things that make it difficult for you to participate in the Compressed Air program, if anything?

Section D: Trade Partner Marketing

D1. What sales techniques do you use to attract compressed air customers? [**PROBE**: brochures, cold calls, ads, door to door, preference for certain manufacturers]

D1a. What factors do you consider when deciding whether to recommend energy efficient compressed air equipment to a customer?

D2. At what point in the project do you talk to your customers about the Compressed Air Program?

D3. What factors do you consider about a customer when deciding whether to recommend efficient compressed air equipment to them? [**PROBE:** the condition of their system, the system's horsepower]

D3a. Are there types or brands of compressed air equipment that you prefer to recommend to your customers?

D4. What do you think motivates customers to participate in the program?

D5. Do rebates/incentives ever come up in sales discussions with customers?

[**IF YES**:]

- When in the conversation are rebates/incentives typically mentioned [**PROBE:** introduction, discussion of costs, etc.]?
- Who typically brings up rebates/incentives [**PROBE:** customer or trade partner]?
- To what extent does discussing rebates/incentives help or hurt the sale?
- Are there ever instances when you don't mention rebates/incentives during sales discussions with customers?

  When?

  What are the reasons why?

D6. Have you ever sold any projects that you know were eligible for rebates to Xcel Energy customers without using the incentives/rebates as a sales tool?

D6a. Are there cases where you suspected there was a rebate but weren't sure and proceeded without verifying eligibility?

What are the reasons why?

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D7. How do you receive updates about the program?

Is there anything else Xcel Energy could do to improve communication about program updates?

D8. Have you ever used the Xcel Energy online equipment rebate application?

On a scale from 1 to 5, where 1 is very rarely and 5 is very often, how often do you use the electronic rebate application?

[IF 1 OR 2} Why do you rarely use the electronic application?

What are the benefits of the electronic rebate application?

Have you had any issues using the electronic application?

[IF YES] What were they?

[IF TRADE PARTNER PROVIDES STUDIES]

D9. On the study side, how comfortable are you with the current application process?

What, if anything, has been difficult about going through the study application process?

Would you be interested in an online application form for study rebates? Do you think you would use an online application?

[ASK ALL]

D10. Have you used any of the resources from the Compressed Air website? If yes, how often do you use them?

Section E: Motivations/Barriers to Install EE/Conduct Studies

E1. Can you describe how much involvement you typically have with the program? This would include interaction with Xcel Energy staff, filling out program paperwork, providing invoices, or fulfilling other requirements.

- How much do you do versus how much does the customer do?
- Do you, or someone from your company, typically complete the rebate application? Or is it the customer who completes the rebate application?
- Can you please describe the rebate application process? [**PROBE** for satisfaction with application process and opportunities to improve]
- Generally, do you bill the customer the full cost of the equipment and send the rebate later or do you discount the customer upfront and receive the rebate as a partial payment?
- **[IF BILL FULL COST]** What prevents you from offering an equipment discount to the customer and receiving the rebate payment from Xcel Energy later? (Probe for timing of rebate)
- **[If timing of rebate receipt is a barrier]** What would be a reasonable timeline to receive the rebate, from verification of the final application to receiving the rebate?
- Does your approach to working with customers differ at all when you are working on a project that will require a custom application versus a prescriptive application?

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- [IF YES] Does this ever factor into your decision to recommend energy efficient equipment?

[REPEAT THE FOLLOWING SET OF QUESTIONS FOR EQUIPMENT IMPLEMENTATION AND THEN FOR STUDIES, IF TRADE PARTNER PARTICIPATES BOTH WAYS]

E2. **(IF PARTICIPATED MORE THAN ONE YEAR)** About how many {compressed air projects / compressed air efficiency studies] do you submit per year, on average?

Thinking back to 2020, would you say your involvement increased, decreased, or stayed the same compared with previous years?

[**PROBE:** Would you say the number of [projects/studies] you have completed through the program increased, decreased or stayed the same?]

[**PROBE:** Would you say the size/scope of [projects/studies] you have completed through the program increased, decreased or stayed the same?]

[**IF INCREASE/ DECREASE**:] What are the reasons why your involvement has increased/decreased? Probe if COVID-related: do you think the change will be permanent or will involvement return to pre-2020 levels?

E3. What can Xcel Energy do to increase your participation?

E3a. Do you think trade partners would be more motivated to participate in the program if the program rebates were higher?

E3c. Are there (other) challenges related to [selling energy efficient compressed air equipment AND/OR conducting compressed air efficiency studies]?

E4. What messages resonate best with customers when selling compressed air equipment? What about when conducting studies?

[IF TRADE PARTNER IS STUDY PROVIDER]

E4a. After conducting a study, how often do customers install the recommended equipment from their study? And do you typically perform those installations?

E5. What, if anything, about the program keeps you from participating more?

E6. Xcel Energy is investigating the potential benefits of, and customer interest in, different technologies.

Have you installed any compressed air continuous monitoring equipment?

How familiar are you with continuous monitoring equipment for compressed air?

E7. Are customers interested in installing continuous monitoring equipment for their compressed air systems?

[IF E7=YES] What do customers like about continuous monitoring?

[IF E7=YES] Under what circumstances are customers interested in installing continuous monitoring?

[IF E7=NO] How familiar are customers with continuous monitoring?

PROBE: Are they aware of the energy savings potential?

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[IF E7=NO] Under what circumstances might these customers be interested in installing continuous monitoring?

E8. What would cause you to install more continuous monitoring equipment for compressed air systems than you currently do?

E9. Is there any other compressed air equipment that Xcel Energy's Compressed Air program does not current offer, that you would be interested in seeing included?

Section F: Evolving Market Place

[ASK ALL]

F3. Do you do any work outside of [Colorado/Minnesota]? In what states/regions?

a. About what percent of the compressed air equipment you sell in this state/region is considered energy efficient?

F4. [FOR COLORADO TRADE PARTNERS] Do you know of other companies in Colorado who provide leak checks for compressed air systems (or something similar) but do not participate in the Compressed Air program?

[IF YES] Do these companies impact your ability to engage with the product and recruit customers?

F5. [FOR MINNESOTA TRADE PARTNERS] Do you consider the market for compressed air to be competitive in Minnesota? [PROBE: Do you feel like you compete for customers with other companies providing compressed air services?]

[IF YES] How do you successfully engage with the Compressed Air program, given the competitive environment? What do you do that sets you apart from other companies providing compressed air services? How does Xcel Energy's Compressed Air program factor into that strategy?

F6. What role, if any, does the Xcel Energy Compressed Air program play in the compressed air market in [Colorado/Minnesota]?

F6a. Has this changed over time? In what ways?

F7. What do you see as new/emerging energy efficiency opportunities for compressed air customers?

F8. What do you see as trends in the marketplace for energy efficiency programs serving compressed air customers?

Section G: Free-Ridership

G1. On a scale of 0 to 10 where 0 is NOT AT ALL IMPORTANT and 10 is EXTREMELY IMPORTANT, how important was the Xcel Energy Compressed Air Program, **including incentives as well as technical assistance, education, and other program services**, in influencing your decision to recommend that CUSTOMER [install the energy efficient equipment they did/conduct a compressed air efficiency study?]

G2. How important was your firm's past participation in the Compressed Air Program in recommending that CUSTOMER [install this energy efficient equipment/conduct this study at their facility?]

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[ASK TO TRADE PARTNERS WHO IMPLEMENT MEASURES, ELSE SKIP TO G5]

G3. About what percent of the equipment you sell is eligible for a rebate under the Compressed Air Program?

G4. Now imagine that the Xcel Energy program were not available, and you were not able to offer rebates for equipment or have any program support. About what percent of the compressed air equipment you sell do you think would be energy efficient?

What other effects would this have on your business? **[PROBE:** employees, sales techniques, number of clients, time it takes to sell projects]

[ASK TO TRADE PARTNERS WHO PROVDE STUDIES]

G5. About what percent of the compressed air efficiency studies you provide are eligible for a rebate under the Compressed Air Program?

G6. Now imagine that the Xcel Energy program were not available, and you were not able to offer rebates for studies or have any program support. How would that change the type of studies you provide, or **the components of the compressed air studies you provide**?

What other effects would this have on your business? **[PROBE:** employees, sales techniques, number of clients, time it takes to sell projects]

Section H: Satisfaction

H1. Using a scale from 1 to 5, where 1 is extremely dissatisfied and 5 is extremely satisfied, please rate your satisfaction with the following items:

H1a. Your **overall satisfaction** with the program?

H1b. Compressed Air program **staff**?

H1c. The amount of the incentives available for compressed air equipment?

[IF STUDY PROVIDER]

H1d. The amount of funding available for **compressed air efficiency studies?**

H2. Your experiences with the rebate **process** for compressed air equipment?

H3. What is the Compressed Air Program doing well that they should keep doing?

H3a. What do you feel is the most beneficial aspect of the Compressed Air program?

H4. What recommendations do you have for improving the program? [PROBE: Is there anything else you can think of that Xcel could do to increase participation in the program?]

H4a. Do you feel that increasing incentives would promote increased customer participation?

Would it promote additional trade partner participation?

H4b. Have you ever communicated any recommendations or feedback for the Compressed Air program to Xcel Energy staff?

[IF YES]

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H4c. Did you feel that your feedback was received well? Did you feel your feedback was adequately considered or incorporated into program updates?

H5. Have you had any feedback from your customers about their experiences with the Compressed Air Program that you think Xcel Energy should know?

Section I: Closing

I1. Is there anything we didn't cover that you'd like to mention or discuss about your experiences working with the Compressed Air Program?

I2. Thank you. Those are all the questions I have today. [THANK AND TERMINATE]

B.5 Peer Utility Interview Guide

Section A: KPIs/Program Design

A1. First, we'd like to talk through the basic design and organization of the compressed air offering. **[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH ON PROGRAM]**

Can you describe the offering at a high level? [**PROBE** for study component; measure component]

b. What are the program's overall objectives?
c. Is your program run by utility staff or a third-party implementer? *(ex: Franklin Energy, DNVGL, Clear Result)*
d. Have there been any recent changes to the program?
e. Are there any program changes being considered for the future?

A2. Next, I'd like to talk about your program's compressed air incentives.

[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH. CAN ASK QUESTIONS BELOW OR ASK RESPONDENT IF OK TO FOLLOW UP VIA EMAIL]

What types of measures do you offer?

- Studies? [**PROBE**: Both demand-side and supply-side?]
  - Is there a requirement to fix leaks in order to receive the rebate? **[IF YES]** What percent of leaks must customers fix?
- Prescriptive measures?
- Custom measures?
  - Are rebate levels greater for customers who have completed a study?
- Do you currently offer incentives for remote or continuous monitoring?

[IF YES] Please walk me through the implementation process for remote/continuous monitoring.

- Can you recommend a web page or other resource where I can find a list of your available measures and their incentive values?

  [IF NO] What specific measures are offered? What are the incentive levels for each measure?

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- Do the program's rebate levels change from year to year?
- Do rebate levels change as equipment prices fluctuate?
  - **[IF YES]** How do you track prices and determine rebate levels?

A3. **[IF PROGRAM OFFERS CUSTOM MEASURES:]** How do you set baselines for custom measures?

What documentation is needed?

A4. **[IF PROGRAM OFFERS STUDIES]** With regards to studies:

- Do study providers typically recommend compressed air measures to customers as part of the study process? **[IF YES]** What types of leads do studies typically generate
- [**PROBE**: prescriptive measure installations, custom measure installations, additional customer contacts]
- What is the eligible timeframe of the study/assessment 1 year, 3 years, 5 years? Do these timeframes vary by opportunity identified?
- What are the parameters of the study? Who conducts the study [PROBE: internal staff, contracted program implementer, third-party vendor]?
- From the time of study completion, what percentage of your customers implement the opportunities identified in the study within one year, 2 years, 3 years, more than 3 years?
- What strategies have you employed to try and get customers to implement after they receive an audit/study?
- Does the program claim savings for fixing compressed air leaks identified through the study?

A5. The next few questions discuss how your program works with trade partners:

- About how many trade partners are active in your program?
- What roles do trade partners play in driving customer participation in the program?
- Are there eligibility requirements trade partners must meet in order to participate in your program?
  - **[IF YES]** How do these differ for customers who provide studies versus those who implement custom or prescriptive measures?
- About what proportion of trade partners who implement custom or prescriptive measures are also eligible to provide studies?
- From your perspective, what barriers do trade partners face to participation in your compressed air program?
- What channels do you use to engage trade partners? What is the cadence of engagement? [**PROBE**: emails, phone calls, meetings or awards ceremonies?]
- Which of these channels do you consider to be the most effective at engaging trade partners?
- What incentives (if any) do you offer directly to trade partners?
  - [**PROBE**: Training? Trade partner bonuses? Prizes/competitions?]

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Section B: Savings Goals & Cost

Next, I'd like to talk about the participation and energy savings achieved through the program in 2020.

[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH. CAN ASK QUESTIONS BELOW OR ASK RESPONDENT IF OK TO FOLLOW UP VIA EMAIL]

B1. How many projects were completed in 2020?

(If applicable) How many compressed air studies were completed in 2020?

How many incentive applications were submitted in 2020?

B2. What were the program's energy savings goals in 2020? (MWh)?

(If applicable) How much of the program's savings are attributable to remote/continuous monitoring?

B3. Are these goals based on gross or net savings?

- Did/will you apply a NTG ratio to these savings?
- What NTG ratio do you use?
- What methods are used to calculate NTG ratio?
- Are NTG ratios estimated at the program level, measure level, or both?

B4. How much net/gross energy savings did the program report in 2020? (Actuals)

B5. What was the total energy efficiency portfolio goal in 2020?

B6. We'd like to know more about the budget or total operating costs of your program to get a sense of the utility cost of energy savings. Ideally, this includes program incentives, salaries of program staff (including support staff who may not work on the project full-time), marketing, consulting, and other overhead.

a. What is the program's total operating budget?

b. If sub-programs exist, how does this break down between sub-programs?

B7. What type of cost effectiveness test is applied to the program?

- If Total Resource Cost (TRC), what was the TRC in 2020?
- If Societal Cost Test, what was the SCT in 2020?

Section C: Program Participation

Next, I'd like to talk about program outreach and marketing.

[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH ON PROGRAM]

C1. What steps does the utility take to engage potential program participants?

Probe as needed: What marketing practices do you use to increase customer awareness of the program?

What has been the most effective?

What has been the least effective?

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Do you target certain types of customers?

C2. What do you think motivates customers to participate in your program [**PROBE:** How do customers become aware of the program?]

C3. What, in your opinion, are the biggest barriers to participation for customers?

Section D: Program Strengths and Challenges

Next, I'd like to talk about the program's strengths and challenges.

[ASK/CONFIRM BASED ON HOLES IN BACKGROUND RESEARCH ON PROGRAM]

D1. What do you view as the program's greatest strengths?

D2. What are some challenges the program faces?

What has been done to address those challenges?

D3. What are the opportunities you see for growth in the program?

- **Probes**: Remote/continuous monitoring?
- Marketing and outreach?
- Support connections between trade partners and customers?
- New/emerging compressed air technologies?

Section E: Closing

E1. Great! Thank you so much for your time. Those are all the questions we have for you today. Before we finish, do you have any questions for me, or anything else you would like to add?

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Appendix C: Data Collection Findings

Appendix C contains materials related to data collection findings including peer utility benchmarking memo, staff interview memo, non-participant results memo, participants results memo, and secondary market memo.

C.1 Staff Interview Memo

To support the process and impact evaluation of the 2021 Xcel Energy DSM products, the TRC Companies (TRC) evaluation team conducted telephone interviews with key staff managing and implementing the Xcel Energy DSM products. The interview objectives were to collect staff feedback on product experiences and evaluation priorities. Members of the TRC evaluation team interviewed the following key staff managing and implementing the Xcel Energy 2021 Colorado (CO) and Minnesota (MN) Compressed Air products. When the Product Manager desired feedback from more than one staff member within a team, the evaluation team conducted the interview as a group.

Xcel Energy Staff:

- One Product Manager
- Two Marketing Assistants
- Two Channel Managers
- Two Account Managers
- Two Business Solutions Center Representatives
- Three Compressed Air Engineers

This memo contains our summary of the key takeaways, a description of the product, an inventory of the product's strengths and barriers, and feedback on evaluation priorities.

Key Takeaways

Below are key takeaways from staff experiences with the CO and MN Compressed Air products. These key takeaways provide a summary of the product context and feedback received during both the kick-off meeting and the subsequent staff interviews.

- Overall, the two Compressed Air products, in CO and MN, have been consistent in their delivery of annual savings, product design, and incentive levels, which some product staff cite as a driver of success.
- Trade partners are the main driver for product engagement and play a large role in the product's success.
  - CO has a smaller pool of customers with whom to engage than MN, resulting in lower study participation rates.
- Though the MN and CO Compressed Air products are similar in terms of design and incentive levels, they differ in several key ways:

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Colorado	Minnesota
♦ State has a smaller pool of customers with whom to engage in the product. ♦ Product recently introduced small studies (10 hp or less). ♦ Participation is primarily through the prescriptive side, and participation in studies is lower than in MN. ♦ Demand-side studies not currently offered in CO due to lack of demand for this offering.	♦ Larger pool of participating customers. ♦ Has changed names two times – to Fluid Systems Optimization, when the product included other fluid systems like pumping and hydraulic systems. Limited participation and customer friendliness of the name prompted Xcel to roll product back to just Compressed Air. ♦ Product is retiring horsepower reduction and early retirement prescriptive rebates due to limited cost effectiveness. CO will align with MN on prescriptive rebates starting April 1, 2021. ♦ Product offers both demand- and supply-side studies.

- Product staff are diligent in tracking customers' study eligibility, which reoccurs every five years.
- Overall product feedback is positive both from the trade partner and customer perspective.
- Trade partner expertise helps customers better understand the value of studies by educating customers on the long-term benefits and potential energy savings associated with product participation. Certain trade partners have studies built into their business models while others focus just on equipment sales.
- Product participation is straight-forward and relatively simple from the customers' perspective.

Product Goals, Activities, and Resources

The following bullets present the evaluation team's understanding of the product based on staff interview results and review of available product documentation.

Goals and objectives

- Energy objectives:
  - The 2019/2020 savings goals and actuals from the products' filings and summary data are outlined in Tables 1 and 2, for Minnesota and Colorado, respectively.

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Table 1. Minnesota Compressed Air Product Energy Savings Goals & Actuals.

	kWh	kW	Participation
2019 Goals	14,117,816	1,930	347
2020 Goals	14,117,816	1,930	347
2020 Actuals	7,541,525	1,128	210

Table 2. Colorado Compressed Air Product Energy Savings Goals & Actuals.

	kWh	kW	Participation
2019 Goals	3,566,851	566	64
2020 Goals	3,748,646	597	72
2020 Actuals	1,517,347	365	58

- Non-energy objectives include the following:
  - The products' main non-energy objective is to support Xcel Energy's overall carbon reduction goals.
- Other non-energy priorities include:
  - Increasing product engagement in Colorado.
  - Continuing leadership among peer compressed air programs nation-wide.
  - Adapting the products to customers' needs as they change and evolve.
  - Continuing to engage trade partners with the products and maintain strong relationships that drive product success.
  - Providing additional information to customers through the study process, by identifying maintenance and operation savings opportunities in reports.

Activities

- Customers initially engage with the products through two primary channels:
  - Customers reach out to Xcel Energy staff or trade partners when they are replacing or upgrading old compressed air equipment and are looking for rebates.
  - Trade partners or product staff follow-up with previous customers once they are eligible for a new study after five years have passed since the last study.

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- There are three channels for participation in the Compressed Air products: compressed air studies, prescriptive rebates, and custom rebates.
  - Study providers identify opportunities for equipment upgrades and often direct customers towards prescriptive and custom rebate opportunities through the study results.
- Studies are performed by trade partners and are funded in full after the customer fixes 75% of leaks.
  - Customers are eligible for compressed air studies every five years.
  - Trade partners conduct studies at customers' facilities to establish a benchmark of the customer's existing system operation. This information is used to identify potential energy conservation opportunities, as well as measure leaks to be fixed in order to reduce excess demand caused by leaks in the system.
  - Trade partners work with customer to schedule flow monitoring and leak detection.
  - After a leak is identified, study providers use estimates to determine how much energy it costs the customer and to predict the customer's potential energy savings when the leak is fixed.
- After pre-approval of applications, the product team reaches out to customers and, if desired by the customer, trade partners with the rebate amount for which the customer is eligible.
- For prescriptive projects, applications do not require pre-approval and will be processed for rebate upon receipt by product staff. Custom projects are reviewed and analyzed by product staff to provide claimed savings amounts. If a custom project is implemented and calls for monitoring and verification, claimed savings are trued up with actual savings by engineers. After savings are logged, customers receive equipment rebate by check.
- Customers who participate in a study are eligible for larger rebate amounts when purchasing recommended custom equipment than those who do not complete a study.
- The timeline for progression through the product varies based on factors including (but not limited to) engineer bandwidth, complexity of the submitted application, and trade partner level of engagement.
- Customer relationships are managed by account managers and the Business Solutions Center (BSC) depending on customer size and engagement level.
  - Some customers engage with the Compressed Air products through holistic products (like the Strategic Energy Management (SEM) and Process Efficiency products), in which case savings are attributed to the holistic product rather than Compressed Air.
- Both trade partners and customers fill out rebate applications, though they are primarily completed by trade partners.
  - Applications are beginning to transition to an online platform.
- Trade partners are required to go through a pre-approval process to ensure they conduct studies to the products' standards, and to help vendors understand what information is needed to conduct a study successfully.

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- Account managers receive emails with updates on their customers' progression through the product as applications and incentives are approved.
- Trade relations and channel managers maintain relationships with trade partners primarily through phone communication, site visits, and industry and product trainings (though these were limited during program year 2020 due to the COVID 19 pandemic). Updates or changes to the products provide a good opportunity for channel managers to re-engage with trades.

Resources

- Product staff use Salesforce to track project pipelines, project progression and customer contacts.
  - Staff use the Salesforce tool "Einstein Analytics" to track projects and provide information on sales leads.
- The trade partner link on Xcel Energy's website provides trade-friendly marketing information on the products. Trades can use this information, including case studies and marketing collateral, to help sell compressed air products to customers.

Product Strengths and Challenges

During interviews, staff identified the following strengths and challenges to implementing the Colorado and Minnesota Compressed Air products in 2020. Overarching strengths include factors that product staff identified as supporting the success of the products; challenges include factors that product staff identified as preventing the products from reaching their goals.

Strengths

- Product staff is receptive to trade partner feedback and implements it to the best of their ability.
- The BSC actively identifies new customers for the products.
- The Compressed Air products have a closely knit group of trade partners who are familiar with the products and are crucial to promoting the products with their customers.
- The process for participating in the Compressed Air products has become more straightforward and streamlined through the years for both trade partners and customers.
- Incentivizing the installation of a high-efficiency compressed air system at a customer's site strengthens Xcel Energy's relationship with both customers and trade partners.
- The strong, contractor-driven nature of the products strengthens the reach and impact of the products by promoting customer engagement.
- Generous rebate amounts drive customers to learn more about the products and participate more frequently.
- Engineers effectively and accurately validate trade partner estimates of potential energy savings for customers to maximize their rebate amount. This provides legitimacy to the product and increases trust between Xcel Energy and customers.
- Channel managers and Account Managers engage trade partners using a variety of methods – phone calls, emails, in-person visits – allowing Channel Managers and Account Managers to more effectively connect and recruit trade partners to the products.

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- Compressed Air is one of the most efficient products when it comes to custom rebate turnaround, compared to other Xcel Energy products.
- The application process is straightforward and streamlined for trades and customers.

Challenges

- Colorado lags behind Minnesota in terms of industrial market presence.
- Turnaround times may vary throughout the program year, and for studies are heavily reliant on when a customer is able to fix their leaks. Due to this variability in turnaround times, there is not a consensus among product staff on if the timelines are too long or are relatively short when compared to other products.
- Customers sometimes perceive compressed air equipment only as an aspect of their business, not an opportunity for energy savings.
- Customers do not want to shut down a line or completely close their business/production to fix leaks.
  - They view staying open as more beneficial than the cost savings associated with fixing leaks.
- There is a perceived large time investment on the customer's side to collect, monitor, and evaluate study data.
- While some staff felt the application was straightforward, other staff felt that it is not customer friendly.
- There is limited entry of new trade partners into the products.
- Trade partners are sometimes hesitant to invest the time and money to be certified to conduct studies through the product, because the value of the product is not clear to them or it is not built into their business model.
- While the products' study offering itself does not appear to have competitors from outside of the trade pool (because the open trade network allows any qualified trade to become approved to conduct studies if they desire), there are companies offering just a leak check rather than an in-depth, comprehensive study and, though the value between the two offerings is different, could compete with Xcel's compressed air study offering for customers.
- There currently is limited outside marketing for the products, with the focus on working through trade to reach new customers.
- The COVID-19 pandemic posed a safety risk for trades visiting customers on-site during the first half of 2020. As a result, there was limited trade-customer interaction during that time.
- Customers' budgets and budget timelines can be restrictive and limit product participation.
- Larger customers have a time-consuming budget approval process that can delay projects.
  - Decision-makers are not always present during the studies, which lengthens the approval process.

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- Some trade partners are better than others in developing positive customer relationships and efficiently installing the compressed air equipment.
- Product staff sometimes need to coach or verify data with trade partners through their studies, which can lengthen the review process.
- Trade partners are not always knowledgeable about all equipment end-uses.
- At the end of the calendar year, resources are often spread thinner within the portfolio, and can cause delays in processing times, causing frustration among participants.

Feedback on Evaluation Priorities

During interviews, staff identified research topics they would like the evaluation to address. The following bullets compile these topics along with additional topics that the evaluation team identified based on staff interview findings. The evaluation team will consider these research topics when prioritizing portfolio-wide evaluation needs and as able, incorporate them into the final evaluation plan for the 2020 CO and MN Compressed Air products.

- Explore specific program process and delivery improvement opportunities.
  - Understand the influence of the market on customers' compressed air decisions.
  - Determine the potential for increasing rebate limits to drive further customer participation while remaining cost-effective.
    - Collect feedback from near participants.
  - Identify ways to expand marketing efforts for the product.
  - Explore the role continuous monitoring could play in identifying prescriptive and customer measures
  - Identify how the product could incorporate demand-side aspects; Look for information on the end-uses of compressed air equipment and ways to reduce compressed air use further.
    - Nationwide studies have identified this as an area for improvement.
- Understand peer utilities' program practices.
  - Understand if peer utilities adjust their rebates amounts as compressed air equipment prices fluctuate.
  - Compare rebates amounts offered by Xcel Energy with peer utility rebates.
  - Explore peer utilities' experiences with remote monitoring and understand how peers quantify savings for continuous monitoring.
- Understand trade partners' perceptions of the program.
  - Understand why some trade partners are not interested in becoming approved study partners.
  - Understand if trade partners feel their feedback is applied adequately in the evolution of the product.

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C.2 Non-Participant Results

To support the process and impact evaluation of the 2021 Xcel Energy efficiency products, the TRC evaluation team conducted telephone interviews with 8 non-participating customers. For these interviews, we defined non-participating customers as any customer for whom a Colorado or Minnesota Compressed Air project opportunity was identified between January 2019 and April 2021, but who either expressed interest in participating in the product (through studies or rebates) but did not ultimately do so, or who had a study done in a previous year but once eligible again, did not have another study done. The research was conducted to assess key process and impact evaluation objectives, including customer satisfaction, product awareness, barriers to participating, and spillover. The next section presents the key research topics, and findings for the Commercial and Process Efficiency non-participating customer interviews.

Section A: Awareness and Spillover

First, I'd like to gather some information about your role at your organization.

A1. What is your occupational title within your company?

- Owner/Executive (n = 4)
- Operations (n = 3)
- Environmental Health and Safety (n = 1)

A1a. How long have you been in this position? (n = 8)

- 13.25 years average
- 45 years max
- 1.5 years min

A2. How would you describe your company's line of business?

[PROBE: What sector is your business? e.g., food service, agriculture, manufacturing, etc.]

- Manufacturing (n = 6)
- Service (n = 2)

Next, I'd like to understand a little more about your awareness of Xcel Energy's energy efficiency programs.

A3. On a scale of 1 to 5, with 1 being unfamiliar and 5 being very familiar, how familiar would you say you are with Xcel Energy's energy efficiency rebate programs in general? (n = 6)

- 2.83 out of 5 average
- 5 maximum
- 1 minimum

A3a. Have you participated in Xcel Energy's Compressed Air rebate program in the past? [IF YES] Do you recall for which equipment you received a rebate?

- Air compressors (n = 4)

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- VFDs (n = 3)
- Leak check (n = 1)

A4. How did you first become aware of Xcel Energy's rebates for Compressed Air [equipment/studies]? [PROBE: Contractor, Distributor, Xcel Energy staff?]

- Vendor (n = 3)
- Account manager (n = 2)
- Past experience with other Xcel products (n = 2)
- Email from Xcel Energy (n = 1)

[IF PREVIOUS_STUDY != 1]

A4a. What initially motivated you to consider installing energy efficient equipment through the Compressed Air program?

- Reduce operating expenses (n = 2)
- Increase capacity (n = 1)
- End of life (n = 1)

[IF PREVIOUS_STUDY = 1]

A4b. What motivated you to initially perform a compressed air energy efficiency study through Xcel Energy's Compressed Air program in <YEAR>?

- Demonstrate ROI (n = 1)
- Continuous improvement (n = 1)
- Program literature (n = 1)
- Don't know (n = 1)

A5. What do you think is the most beneficial aspect of the Compressed Air program? [MULTIPLE RESPONSES ACCEPTED]

- Rebates (n = 5)
- Reduced operating expenses (n = 4)
- Leak testing (n = 2)
- Understand capacity requirements (n = 2)

A6. When you first became aware of the Compressed Air program, what were your initial perceptions of the program?

- Desire to understand new and interesting ideas/technologies (n = 4)
- Surprised by cost of inefficient equipment and leaks (n = 1)
- Free service (n = 1)
- Not as easy as residential programs (n = 1)

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[ASK NEAR-PARTICIPANTS, FOR DORMANT, SKIP TO A15]

A7. Our records show that you discussed purchasing and installing compressed air equipment with either an Xcel Energy representative or with a contractor some time on or around <MONTH> of <YEAR>. Do you recall the discussion to purchase and install this equipment?

- Yes (n = 2)
- Could vaguely remember but not in great detail (n = 2)

A7a. Did you eventually purchase the <OPPORTUNITY_DESCRIPTION>?

- Yes (n = 2)
- N0 (n = 2)

[IF A7a = NO]

A7b. Did you purchase other equipment instead of the <OPPORTUNITY_DESCRIPTION>?

- Yes (n = 2)
- No (n = 2)

[IF A7b = YES]

A7c Was this equipment more energy efficient, less energy efficient, or approximately the same efficiency as the <OPPORTUNITY_DESCRIPTION>?

What factors did you consider when deciding to install the equipment you chose? [PROBE up-front costs, efficiency, ROI, brand]

- Less efficient (n = 1)
- Noise (n = 1)
- Availability (n =1)

[ASK IF A7b = NO]

A7d. Could you tell me a bit about why you decided not to purchase the <OPPORTUNITY_DESCRIPTION> or similar equipment?

- Increased overall energy costs relative to diesel (n = 1)

[ASK IF A7a = YES OR A7b = YES]

A8. Why did you decide to purchase the equipment you chose?

- Equipment age (n = 2)

A8a. Did you eventually install the equipment you purchased?

[PROBE IF A8 = NO]

- Yes (n = 2)

[ASK IF A8a = YES]

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A9. When you installed the equipment, did you receive a rebate through Xcel Energy?

- Yes (n =2)

[ASK IF A7a or A7b = YES]

A10. Thinking back on the equipment you purchased and installed, could you please give me a brief description of the specification of that equipment?

When the equipment was installed

Number of measures installed (if applicable)

Make or Model

Efficiency

- One or two 100-125 hp compressors (n =2)

[ASK IF A7a or A7b = YES]

A11. Thinking about all of the reasons you chose to install the <OPPORTUNITY_DESCRIPTION>, did your knowledge of the rebates or resources available through Xcel Energy have ANY INFLUENCE on your decision to install the energy efficient equipment?

- No (n = 2)
- Very little (n = 1)

[ASK IF A11 = YES]

A12. Using a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential, how much influence did your knowledge of the rebates or resources available through Xcel Energy have on your decision to install your energy efficient equipment?

- 1 out of 10 (n = 1)

[ASK IF A11 = YES]

A13. Just to make sure that we understand you correctly, please answer the following hypothetical question. If you had you NOT known about rebates or resources available through Xcel Energy, would you still have installed your energy efficient equipment? Please use a scale of 0 to 10, where 0 means you definitely WOULD NOT have installed your energy efficient equipment and 10 means you definitely WOULD have done so.

- 9 out of 10 (n =1)

[ASK IF A11 = YES]

A14. In your own words, can you explain HOW your knowledge of the rebates or resources available through Xcel Energy influenced your decision to purchase or install your energy efficient equipment?

- Justify ROI (n = 1)

Dormant Participants Compressed Air Efficiency Study Implementation

[ASK DORMANT-PARTICIPANTS, FOR NEAR-PARTICIPANTS, SEE A7]

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A15. Our records show that you participated in a compressed air efficiency study through Xcel Energy some time on or around <MONTH> of <YEAR>. Do you recall your participation in the study?

- Yes (n = 4)

A16. Xcel's Compressed Air program allows customers to conduct a compressed air efficiency study through the program once every five years. Have you been contacted by Xcel Energy recently (in the past year or so) to conduct an updated study?

- No (n = 4)

A17. Did you eventually decide to have an updated study or leak check performed on your compressed air system?

- No (n = 4)

A18. Do you conduct any routine maintenance or checks on your compressed air equipment? [PROBE: Did you begin conducting maintenance or checks after having the compressed air efficiency study conducted at your facility in <MONTH> <YEAR>?

- Yes (n = 4)

[ASK IF A17 = NO]

A19. Why did you decide not to have an updated study performed on your compressed air system?

[PROBE: Didn't have time, didn't want to shut down facility, concerns about COVID safety, not concerned about leaks, systems was recently updated, too expensive, etc.]

- Minimal usage (n = 1)
- No awareness (n = 1)

A19a. Are you planning to perform a study on your compressed air system in the future? Why or why not?

- Interested (n = 1)

Section B: Barriers to Participation

Next, we'd like to better understand the barriers that you feel impact your ability to participate in the Compressed Air program.

B1. Next I am going to ask you about aspects of the program that may have posed a challenge to participating in the Compressed Air program. Using a scale from 1 to 5, where 1 is "not at all a challenge" and 5 is "very much a challenge", please indicate the extent to which you see the following as a challenge to participating in the Xcel Energy Compressed Air program.

B1a. Lack of knowledge about the Xcel Energy Compressed Air program

- 2.42 out of 5 average (n = 7)
- 5 maximum

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- 1 minimum

B1b. Lack of knowledge regarding eligibility for the Xcel Energy Compressed Air program

- 2.57 out of 5 average (n = 7)
- 4 maximum
- 1 minimum

B1c. Lack of knowledge regarding rebate amounts

- 2.85 out of 5 average (n = 7)
- 5 maximum
- 1 minimum

B1d. Amount of time it takes to install equipment/shutting down operations to install

- 2.57 average out of 5 (n = 7)
- 5 maximum
- 1 minimum

B1e. Finding a trustworthy contractor to perform a study and or install equipment [equipment installations/a compressed air study]

- 2.57 average out of 5 (n = 7)
- 5 maximum
- 1 minimum

B1f. Upfront Equipment cost

- 2.42 average out of 5 (n = 7)
- 4 maximum
- 1 minimum

B1g. Long Payback periods for your business

- 2.8 average out of 5 (n = 6)
- 4 maximum
- 1 minimum

B1h. Existing long-term capital improvement plans or competing budget priorities

- 1.83 average out of 5 (n = 6)
- 3 maximum
- 1 minimum

B1i. [IF Dormant] Amount of time it takes to conduct a study

- 2 average out of 5 (n = 4)
- 4 maximum

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- 1 minimum

B1j. [IF Dormant] Amount of time it takes to get reimbursed for a study

- 2.25 average out of 5 (n = 4)
- 4 maximum
- 1 minimum

B2. Is there any other factor that you see as a challenge to participating in the Xcel Energy Compressed Air program?

[IF YES] Please describe that factor.

- No (n = 4)
- Timing (n = 1)
- Communication with program staff (n = 1)

B2a. On a scale from 1 to 5, where 1 is “not at all a challenge” and 5 is “very much a challenge”, please indicate the extent to which you see that factor as a challenge to participating in Xcel Energy energy efficiency rebate programs. [PROBE

- 3 average out of 5 (n = 3)
- 3 maximum
- 3 minimum

B3. What do you feel was the greatest barrier that prevented you from [(IF NEAR)installing equipment through Xcel Energy’s Compressed Air program/(IF DORMANT)conducting an updated study through Xcel Energy’s Compressed Air program]?

- Low awareness (n = 3)
- Time commitment (n = 2)
- Preventive maintenance was sufficient (n = 1)
- Low ROI (n = 1)
- Funding (n = 1)

B4. How could Xcel Energy improve the program in a way that would encourage you to participate in the Compressed Air program in the future?

- Contact former study participants (n = 2)
- Increase advertisement (n = 2)
- Increase rebate amounts (n = 2)
- Make payback clearer (n = 1)
- Identify trade partners (n = 1)

Section C: Satisfaction

Thank you for your patience; we have only a few questions left.

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C1. What is your preferred method of communication from Xcel Energy about opportunities for participation in their energy efficiency programs?

- Email (n = 1)
- Mail (n = 1)

C2. How frequently do you communicate with your Account Manager OR Business Solutions Representative about energy efficiency opportunities at your business?

- No knowledge (n = 3)
- Once per quarter (n = 3)
- Yearly (n = 1)
- One time (n = 1)

C2a. Is that too much, just enough, or too little amount of communication with your Account Manager or Business Solutions Representative?

- Enough (n = 4)
- Not enough (n = 3)

[ASK ALL]

C3. I'm going to ask you to rate your satisfaction with a few aspects of Xcel Energy. For each, please rate your satisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied," or let me know if it is not applicable to your company. Please feel free to add additional context to your answer as you see fit. How would you rate your satisfaction with:

[IF PREVIOUS_STUDY = 1]

C3a. Your previous experience participating in a Compressed Air study through Xcel Energy? (From 1-5)

- 5 out of 5 (n = 4)

C3a_1. Why did you provide that satisfaction rating?

- Smooth process (n = 4)
- Good information (n = 2)
- Leaks fixed (n = 1)

C3b. Xcel Energy as an energy provider? (From 1-5)

- 4 out of 5 average (n = 7)
- 5 maximum
- 1 minimum

C3c. Your interactions with your account manager or business solutions representative.

- 3.33 out of 5 average (n = 6)
- 5 maximum

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- 1 minimum

Closing

CLOSE1.These are all the questions I have. Is there anything we haven't covered today that you think would be important for Xcel Energy to understand as they consider ways to improve their Compressed Air program?

- Pleased with service (n = 1)
- Don't know (n = 4)
- Increase awareness of product (n = 1)
- n/a (n = 2)

C.3 Participant Survey Results

Introduction

This appendix presents results from the participating customer survey for the 2021 Commercial and Industrial (C&I) Minnesota and Colorado Compressed Air Product Evaluation. Specific research topics which this participant survey is designed to address are the following:

- **Awareness and Motivations:** The evaluation team will discuss how C&I customers became aware of the Compressed Air Product to better understand how participating customers learn about the product. It will also describe customers' motivations to participate in the Compressed Air Product and barrier customers faced in product participation.
- **Product Experience/Satisfaction:** The evaluation team will discuss participating customers' experience with and satisfaction with various aspects of the product, Efficiency Studies, and prescriptive/custom compressed air opportunities. Additionally, we will also ask customers if there are other resources or tools customers want or need to make it easier for them to participate and/or to improve their satisfaction.
- **Explore ways to grow the compressed air market:** The evaluation team will discuss the influence of the market on customers' compressed air decisions and the role continuous monitoring could play in identifying prescriptive and customer measures.
- **Retrospective NTG Impacts:** The evaluation team will ask participating customers questions on product attribution, or the impact the product had on their decision to purchase high efficiency compressed air equipment and/or participate in the Efficiency Study offered by the product. We will also ask about potential efficient compressed air measures installed without an Xcel Energy rebate because of the Compressed Air product (spillover).

Survey Results

Section A: Firmographics and Participation

First, I'd like to gather some information about your involvement with the Xcel Energy **<PROGRAM>** program and your role at your organization.

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[ASK ALL]

A1. What is your occupational title within your company?

Verbatim Response	
MN	CO
Account manager	CEO
CEO/President/Owner	Chief Technology Officer
Controller	Division manager
Director of maintenance	Engineer
Facilities engineer	Maintenance supervisor
Facilities Manager	Mechanical engineer
General manager	Owner
Lead maintenance	Process engineer
Maintenance manager	Project engineer
Maintenance Manager	Site engineer
Maintenance supervisor	Vice president
Maintenance technician	Vice president of operations
Manager	
Master electrician	
Materials coordinator	
Office manager	
Operations director	
Operations manager	
Operations Manager	
Owner	
Plant manager	
President	
Production manager	
Purchasing manager	
REF	

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Sales engineer
Senior manufacturing manager
Systems manager
Vice president of operations

[ASK ALL]

A2. Were you the primary contact between your organization and the Xcel Energy program staff?

	MN Count	CO Count	Total	Valid Percent
Yes	32	12	44	90%
No	3	2	5	10%
Don't know	0	0	0	0%
Refused	0	0	0	0%
Total	35	14	49	100%

[ASK IF A2 = 2]

A2a. Who was the primary contact?

Verbatim Response	
MN	CO
Allan H. - Plant Manager	Controller and maintenance manager (no longer at company)
Harlan Fisher, Retired	Blackhawk
Lyn--accounting	

A3. According to our records, you participated in the compressed air program through a/an **<PARTICIPATION_DESCR>.** Is that correct?

[DO NOT READ TO CUSTOMER - For survey house: This should capture the count of each measure received. e.g. 1 compressed air efficiency study, 1 no air loss drain, and 2 cycling dryers

	MN Count	CO Count	Total	Valid Percent
Yes	34	14	48%	97%

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No	1	0	1%	13%
Don't know	0	0	0	0%
Refused	0	0	0	0%
Total	35	14	49	100%

Verbatim Response

MN	CO
30 horsepower US Air air compressor	

[ASK ALL]

A4. Had your organization previously participated in the Xcel Energy **<PROGRAM>** program before **<DATE>**?

	MN Count	CO Count	Total	Valid Percent
Yes	14	1	44	31%
No	19	13	5	65%
Don't know	2	0	0	4%
Refused	0	0	0	0%
Total	35	14	49	100%

A4a. [IF A4= 1] In which compressed air offerings did your organization participate previously?

	MN Count	CO Count	Total	Valid Percent
Compressed air efficiency study/studies	8	1	9	47%
Prescriptive rebate(s)	6	0	6	32%
Custom Rebate(s)	1	0	1	5%
Don't know	3	0	3	16%
Refused	0	0	0	0%
Total	18	1	19	100%

Verbatim Response

MN	CO

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10-15 years ago	2015
2014	
2018	
2019	
Don't recall the year	
I don't recall the year. Because I wasn't involved then. But that was over five years ago.	
Last summer (2020) efficiency study	
We have four buildings. It was a different building and it was many years ago. Do not remember if we got a rebate.	
2018. Do not recall the equipment.	
4 or 5 years ago	
Compressors and zero loss air drains. Don't recall the year.	
No loss air drain, VFD air compressor, Mist eliminators	
Rebate for study and potential rebate for equipment	
VFD Compressor (2019)	
2018. Do not recall the equipment.	

[ASK ALL]

A5. Had your organization previously participated in any other Xcel Energy energy efficiency program before **<DATE>**?

Verbatim Response

MN	CO
Air handling	Installation of Variable Frequency Drives
Compressed air efficiency study	Lighting
Energy-diffusion pumps	Lighting - HID to fluorescent
LED lighting upgrade	Solar panels
LED lights	We had gotten some rebates on lighting but no inspections
Lighting	
Lighting and air conditioner	

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Previous study in 2006 for compressed air

Rebates for lighting

Replaced fluorescent lights with LEDs

We have participated in prescriptive rebates for variable speed drives and lighting program rebates.

We put in LED lights probably about four years ago now. That was one right there. Just buying more efficient air compressor, there was rebate there previously. That's the main ones.

Section B: Awareness

Next I would like to ask you some specific questions about **<MEASURE_NAME>.**

B1. [ASK IF STRATA !=STUDYONLY] I'd like to understand a little more about how you became aware of **<MEASURE_NAME>**. Were you aware of this technology as an energy saving measure prior to your decision to participate in this program?

	MN Count	CO Count	Total	Valid Percent
Yes	15	9	24	71%
No	5	3	8	25%
Don't know	2	0	3	6%
Refused	0	0	0	0%
Total	22	12	34	100%

B2. [ASK IF STRATA !=STUDYONLY] I'd like to understand how you first became aware of high efficiency compressed air equipment. How did you **first** become aware of the potential to use **<MEASURE_NAME>** to save energy at your facility? (DO NOT READ. ASK OPEN END, PROBE TO CATEGORIZE. SELECT ONE)

	MN Count	CO Count	Total	Valid Percent
Through Xcel Energy staff (engineers, or program staff)	0	1	1	3%
Through Xcel Energy account managers	0	0	0	0%
Through the contractor or vendor who sold you this equipment	13	7	20	59%
Through another contractor or vendor	2	1	3	9%
Through previous participation in the program	0	0	0	0%
Through the Xcel Energy website or other media promotions	0	0	0	0%

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Through the internet or personal research	1	3	4	12%
Through internal staff	1	0	1	3%
Through an Xcel Energy event, expo, or demonstration	0	0	0	0%
Through Xcel Energy marketing materials or flyer	0	0	0	0%
Through participation in another Xcel Energy program	0	0	0	0%
Other, SPECIFY:	4	0	4	12%
DK	1	0	1	3%
REF	0	0	0	0%
Total	22	12	34	100%

B3. And how did you first become aware of Xcel Energy's **<PROGRAM>** program? (DO NOT READ. ASK OPEN END)

	MN Count	CO Count	Total	Valid Percent
Contractor	3	0	3	6%
Distributor, vendor, or electrical mechanical contractor	22	11	33	67%
Xcel Energy staff	6	2	8	16%
Xcel Energy account manager or Xcel Business Solutions Center representative	1	0	1	2%
Xcel Energy website or other media promotions (TV, mass media ads)	0	0	0	0%
Xcel Energy event, expo, or demonstration	0	0	0	0%
Xcel Energy marketing materials or flyer	0	0	0	0%
Another business / word of mouth	0	0	0	0%
Another audit or study program	1	0	1	2%
Someone at my business	1	1	2	4%
Online (not Xcel Energy)	0	0	0	0%
Social media (e.g. Facebook, Twitter, LinkedIn)	0	0	0	0%
Television advertisement	0	0	0	0%
Other, SPECIFY	0	0	0	0%
DK	1	0	1	2%
REF	0	0	0	0%

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Total	35	14	49	100%

B4. What initial perceptions did you have of the **<PROGRAM>** program when you first heard about it?

Verbatim Response

MN	CO
DK	DK
Fairly simple	I just thought it was a great idea
I did not have any initial perceptions	I thought it was a good idea
I think it was the deciding factor for the upgrade - the old compressor was still working but the program made the upgrade a no-brainer	I thought it was great
I thought it was good idea and would help make things more efficient	It looked pretty straightforward, the vendor laid out the rebate and calculations.
I thought it was a good idea	
I thought it was a good idea. We were in the market for one, and could save energy.	It was fine. Perception was good
I thought it was fantastic	It was good. We were interested from the beginning
I thought it was good	Pretty straightforward, anything that can save money is a good thing
I thought it was good and would help	Seemed pretty simple
I was wondering what the time involved would be	Sounded fantastic
It's good way to get some work done and save some money	Sounded like a good idea, made the decision to buy a new compressor easier
It seemed worthwhile doing	Thought it was great and was hoping it was easy
It sounded like a good deal and from there we have been doing it every 5 years.	Vendor did all the work
It was fantastic	We thought it was a good idea to save energy and see what the weaknesses were in our system
It was good	
It was interesting, cool technology	
It was very easy and helpful since they did it all	
It was very good and helpful	

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Money savings

Positive

Positive - great idea

Positive, benefits...we would have bought one regardless but it added value

REF

Seemed like a fantastic program that Xcel was going to give us a rebate for the purchase of a major piece of equipment if we just bought one that was energy efficient. Good front side getting the rebate, good back side with the long term savings for using more efficient equipment.

That it would save the company money in the long run

Thought it was a good program and they have good reputation

Thought it was good

Wanted to save money - price and availability of product was appealing

We thought it sounds great; I think the price of the air compressor itself was slightly more than $4800, and we got a $3000 rebate for buying a new one. So that paid for itself pretty good.

We were excited about it; very positive;

We were excited to take advantage of it

We were hoping to find things that would help us be more efficient

B5. What is your most preferred method for hearing about similar opportunities from Xcel Energy?

	MN Count	CO Count	Total	Valid Percent
Through my account manager	2	1	3	6%
By email	31	13	44	67%
By direct mail	0	0	0	16%
With utility bill (online or mail insert)	0	0	0	2%
Social media	0	0	0	0%
Xcel Energy website	0	0	0	0%

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Other, SPECIFY	2	0	2	0%
DK	0	0	0	0%
REF	0	0	0	2%
Total	35	14	49	100%

B5a. What is your least preferred method for hearing about opportunities such as this program?

	MN Count	CO Count	Total	Valid Percent
Through my account manager	0	0	0	0%
By email	1	0	1	2%
By direct mail	4	4	8	16%
With utility bill (online or mail insert)	6	0	6	12%
Social media	2	1	3	6%
Xcel Energy website	0	0	0	0%
Other, SPECIFY	15	6	21	43%
DK	7	3	10	20%
REF	0	0	0	0%
Total	35	14	49	100%

Verbatim Response

MN	CO
Having to go online to look them up	Phone call
Meetings	Text
Phone call	
Sales call	
Sales rep	

Section C: Barriers and Motivations

Now I'd like to gather some information about your decision to participate in the **<PROGRAM> program**.

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C1. Please rate the importance of the following in terms of your decision to participate in the **<PROGRAM>** program, using a 1 to 5 scale where 1 is “Not at all important” and 5 is “Very important.” You can also tell m -
e if something was not applicable to your experience or if you don't know:

(1) Not at all important - (3) - (5) Very important 77=N/A, 98=DK 99=REF

(RANDOMIZE)

1. [ASK if STUDY_FLAG = YES] Reducing or fixing air leaks

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	0	0	0	0%
3	3	0	3	17%
4	5	1	6	33%
5-Very important	8	1	9	50%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	16	2	18	100%

2. [ASK if STUDY_FLAG = YES] Identifying opportunities to improve the efficiency of compressed air systems

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	0	0	0	0%
3	1	0	1	6%
4	7	0	7	39%
5-Very important	8	2	10	56%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	16	2	18	100%

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3. [ASK if STUDY_FLAG = YES] Receiving recommendations for energy efficient compressed air equipment.

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	0	0	0	0%
3	2	1	3	17%
4	6	0	6	33%
5-Very important	8	1	9	50%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	16	2	18	100%

4. Reducing energy use

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	1	1	2	4%
3	4	1	5	10%
4	13	7	20	41%
5-Very important	17	5	22	45%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

5. Upgrading out-of-date equipment / materials

	MN Count	CO Count	Total	Valid Percent

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1-Not at all important	0	0	0	0%
2	0	0	0	0%
3	4	1	5	10%
4	12	6	18	37%
5-Very important	19	7	26	53%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

6. Replacing faulty or failed equipment / materials

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	1	0	1	2%
2	2	0	2	4%
3	3	1	4	8%
4	11	5	16	33%
5-Very important	17	7	24	49%
Not applicable	1	1	2	4%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

7. Xcel Energy rebate that discounts efficient compressed air equipment

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	3	1	4	8%
3	6	2	8	16%
4	7	6	13	27%

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5-Very important	19	5	24	49%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

8. Reducing dollar amount of energy bill

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	0	0	0	0%
2	0	1	1	2%
3	4	0	4	8%
4	13	5	18	37%
5-Very important	17	8	25	51%
Not applicable	0	0	0	0%
DK	1	0	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

9. Information or encouragement you received from Xcel Energy

	MN Count	CO Count	Total	Valid Percent
1-Not at all important	6	0	6	12%
2	0	1	1	2%
3	13	4	17	35%
4	8	7	15	31%
5-Very important	4	2	6	12%
Not applicable	4	0	4	8%
DK	0	0	0	0%
REF	0	0	0	0%

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Total	35	14	49	100%

C1a. Was there any other factor that influenced your decision to participate in the **<PROGRAM>** program?

	MN Count	CO Count	Total	Valid Percent
Yes, SPECIFY	5	1	6	12%
No	30	13	43	88%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

Verbatim Response

MN	CO
I thought we might as well upgrade since they had to upgrade anyway	Reliability of equipment
Knowledge and understanding of our compressed air systems	
Southern Minnesota Energy Services did similar survey at other plants and I was involved and that convinced me to do it at this plant	
The old equipment was getting towards end of life	
We also had an intern through a program through Xcel and they helped to find projects and run the study	

[ASK IF C1a = 1]

C1a_1. And how important was that factor in terms of your decision to participate in the **<PROGRAM>** program, using a 1 to 5 scale where 1 is “Not at all important” and 5 is “Very important”?

[NUMERIC OPEN END]

	MN Count	CO Count	Total	Valid Percent
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%

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4	1	0	1	17%
5	4	1	5	83%
Total	5	1	6	100%

C2. Were there any factors holding you back from participating in the **<PROGRAM>** program?

(PROBE IF NECESSARY: understanding how to apply for the rebate, high upfront costs of equipment, restrictions related to the COVID-19 pandemic.)

	MN Count	CO Count	Total	Valid Percent
Yes, SPECIFY	7	2	9	18%
No	28	12	49	82%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

Verbatim Response

MN	CO
Getting corporate approval	High upfront costs of the compressor
Once we found out we had to get an outside contractor and he took all the money	I was skeptical about whether it would actually save us money
Other priorities we were trying to accomplish	
The only thing that held us back prior to this was the unwillingness of the company to spend the money to buy the new equipment.	
The only thing that held us back prior to this was the unwillingness of the company to spend the money to buy the new equipment.	
The program cost money if I remember right	
Time and effort involved and the requirements to qualify for the rebates	
Upfront costs	

C3. [ASK IF STRATA = STUDYONLY] Do you plan on implementing any of the energy efficiency recommendations made during your compressed air efficiency study?

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	MN Count	CO Count	Total	Valid Percent
Yes	11	2	13	87%
No	1	0	1	7%
DK	1	0	1	7%
REF	0	0	0	0%
Total	35	14	15	100%

C4. [ASK IF C3 = 2] What prevents you from implementing the energy efficiency recommendations made during your compressed air efficiency study?

(OPEN END)

DK

REF

Verbatim Response

MN	CO
Cost - with pandemic everything has been delayed	

Section D: Free-Ridership

D0_1. (INTERVIEWER: PLEASE READ THE FOLLOWING SLOWLY AND CAREFULLY)

Making decisions can sometimes be relatively simple, involving one major factor, like price. Or, they can be relatively complex involving multiple factors such as price, information provided by your utility, and concerns about high electricity bills.

[SELECT HALF OF PARTICIPANTS TO RANDOMLY BE READ D0_2 BEFORE D0_3; FOR THE OTHER HALF, READ D0_3 BEFORE D0_2]

D0_2. [SHOW IF D0_2 READ FIRST: "As part of this project, Xcel Energy offered you:" **;**
SHOW IF D0_2 READ SECOND: "There might be other things that influenced your decision such as materials provided by Xcel Energy. As part of this project, Xcel Energy offered you:"**]**

[RANDOMIZE THE FOLLOWING LIST]

- **An incentive or rebate**
- Information through marketing or informational and educational materials about the benefits of installing energy efficient equipment
- [IF STUDY_FLAG = YES] A compressed air efficiency study that identified opportunities for increasing the efficiency of your system and identified leaks.
- Trainings or events related to optimizing compressed air systems.

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- Technical assistance or other technical support provided by Xcel Energy, by your contractor, or support from prior participation in an Xcel Energy program.

D0_3.[SHOW IF D0_3 READ FIRST: "Many factors may" ; **SHOW IF D0_3 READ SECOND: "**There might be other things, not related to the program that might also"**]** have influenced your decision to install energy efficient equipment. For example, maybe:

- High electric bills,
- Company policies,
- Vendor or contractor recommendations,
- Your own experiences with energy efficient equipment, or
- Your own research on energy efficienct equipment.

There are of course many other possible reasons.

[ASK D1 – D5 IF STRATA != STUDYONLY]

D1. Next, I'm going to ask a few questions about your decision to install energy efficient compressed air equipment at your facility versus less efficient equipment. Please rate the importance of each of the following factors on your decision to install energy efficient compressed air equipment or systems using a scale from 0 to 10, where 0 means "not at all important" and 10 means "extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". Now, how important was…

(RANDOMIZE D1a-D1t, REPEAT SCALE AS NECESSARY)

[NUMERIC OPEN END, 0-10]
D1a. The rebates offered by Xcel Energy

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	2	0	2	6%
3	0	0	0	0%
4	0	0	0	0%
5	3	2	5	15%
6	0	1	1	3%
7	0	1	1	3%
8	5	4	9	26%
9	4	3	7	21%
10	8	1	9	26%
Total	2	12	34	100%

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D1b. [ASK IF STUDY_FLAG = YES] The program-subsidized compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	33%
8	0	0	0	0%
9	0	0	0	0%
10	2	0	2	67%
Total	3	0	3	100%

D1c. [ASK IF STUDY_FLAG = YES] The recommendations provided through the compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	33%
8	0	0	0	0%
9	1	0	1	33%
10	1	0	1	33%

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Total	3	0	3	100%

D1d. A contractor recommendation for efficient equipment

[ASK IF D1d >5 AND D1d <77]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	1	0	1	3%
2	0	1	1	3%
3	1	0	1	3%
4	1	0	1	3%
5	0	0	0	0%
6	1	1	2	7%
7	1	0	1	3%
8	3	6	9	31%
9	4	2	6	21%
10	6	1	7	24%
Total	18	11	29	100%

D1d_1. Did the vendor or contractor who recommended the equipment also discuss the rebates available through Xcel Energy's <PROGRAM> program?

1. Yes
2. No
3. 98. DK
4. 99. REF

	MN Count	CO Count	Total	Valid Percent
Yes	14	10	24	96%
No	0	0	0	0%
DK	1	0	1	4%
REF	0	0	0	0%
Total	15	10	25	100%

D1e. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative

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	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	1	0	1	5%
2	1	0	1	5%
3	2	0	2	10%
4	1	3	4	19%
5	5	0	5	24%
6	2	3	5	24%
7	1	0	1	5%
8	1	0	1	5%
9	1	0	1	5%
10	0	0	0	0%
Total	15	6	21	100%

D1f. Recommendation of internal staff from your own company

[ASK IF D1f >5 AND D1f <77]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	1	0	1	5%
3	0	0	0	0%
4	2	1	3	14%
5	2	2	4	19%
6	0	0	0	0%
7	2	4	6	29%
8	3	0	3	14%
9	2	0	2	10%
10	2	0	2	10%

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Total	14	7	21	100%

D1f_1. Did this internal staff complete a compressed air efficiency study through Xcel Energy or have knowledge of a study performed previously at your facility?

	MN Count	CO Count	Total	Valid Percent
Yes	1	1	2	15%
No	6	3	9	69%
DK	2	0	2	15%
REF	0	0	0	0%
Total	9	4	13	100%

D1g. Wanting to save energy

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	2	0	2	6%
4	0	0	0	0%
5	2	1	3	9%
6	0	1	1	3%
7	3	2	5	15%
8	6	3	9	26%
9	2	4	6	18%
10	7	1	8	24%
Total	22	12	34	100%

D1h. Minimizing upfront costs

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%

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1	0	0	0	0%
2	0	0	0	0%
3	0	1	1	3%
4	2	1	3	9%
5	3	1	4	12%
6	1	0	1	3%
7	3	3	6	18%
8	5	4	9	26%
9	2	1	3	9%
10	6	1	7	21%
Total	22	12	34	100%

D1i. Your previous participation in an Xcel Energy program

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	1	0	1	6%
3	1	0	1	6%
4	1	0	1	6%
5	1	2	3	17%
6	0	1	1	6%
7	2	1	3	17%
8	2	1	3	17%
9	1	0	1	6%
10	4	0	4	22%
Total	13	5	18	100%

D1j. Funding for energy efficiency projects from an outside source (SPECIFY SOURCE & AMOUNT)

	MN Count	CO Count	Total	Valid

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				Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	1	0	1	25%
4	0	0	0	0%
5	0	1	1	25%
6	0	0	0	0%
7	0	0	0	0%
8	0	1	1	25%
9	0	0	0	0%
10	0	1	1	25%
Total	1	3	4	100%

D1k. Information received from any training or events conducted by Xcel Energy

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	2	0	2	11%
2	1	0	1	5%
3	0	1	1	5%
4	2	1	3	16%
5	2	3	5	26%
6	1	0	1	5%
7	1	0	1	5%
8	1	1	2	11%
9	1	0	1	5%
10	2	0	2	11%
Total	13	6	19	100%

D1l. Your previous experience with energy efficiency equipment or materials

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[ASK IF D1l >5 AND D1l <77]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	2	0	2	7%
2	0	0	0	0%
3	1	1	2	7%
4	0	0	0	0%
5	4	0	4	13%
6	1	1	2	7%
7	4	2	6	20%
8	4	5	9	30%
9	1	1	2	7%
10	2	1	3	10%
Total	19	11	30	100%

D1l_1. Was this experience through an Xcel Energy program?

	MN Count	CO Count	Total	Valid Percent
Yes	4	5	9	41%
No	6	5	11	50%
DK	2	0	2	9%
REF	0	0	0	0%
Total	12	10	22	100%

D1m. Corporate policy or guidelines

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	2	0	2	10%

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2	1	1	2	10%
3	1	1	2	10%
4	2	0	2	10%
5	1	0	1	5%
6	1	0	1	5%
7	0	3	3	15%
8	0	2	2	10%
9	1	1	2	10%
10	3	0	3	15%
Total	12	8	20	100%

D1n. Environmental factors like reduced carbon emissions

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	1	0	1	3%
2	0	1	1	3%
3	1	1	2	7%
4	0	1	1	3%
5	2	2	4	14%
6	3	2	5	17%
7	3	2	5	17%
8	3	1	4	14%
9	1	0	1	3%
10	5	0	5	17%
Total	19	10	29	100%

D1o. Payback on the investment

[ASK IF D1o >5 AND D1o < 77]

	MN Count	CO Count	Total	Valid

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				Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	1	0	1	3%
4	2	0	2	6%
5	2	2	4	12%
6	3	2	5	15%
7	0	0	0	0%
8	4	3	7	21%
9	2	3	5	15%
10	8	2	10	29%
Total	22	12	34	100%

D1o_1. Did the Xcel Energy rebate factor into whether the payback timeline was acceptable?

	MN Count	CO Count	Total	Valid Percent
Yes	13	10	23	85%
No	3	0	3	11%
DK	1	0	1	4%
REF	0	0	0	0%
Total	17	10	27	100%

D1p. Minimizing operating cost

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	1	1	3%
3	2	0	2	6%

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4	0	0	0	0%
5	3	1	4	12%
6	2	1	3	9%
7	2	2	4	12%
8	3	6	9	27%
9	2	0	2	6%
10	7	1	8	24%
Total	21	12	33	100%

[ASK IF D1p>5 AND D1p<11]

D1p_1. Did Xcel Energy provide you with information on minimizing operating costs?

	MN Count	CO Count	Total	Valid Percent
Yes	4	3	7	27%
No	9	6	15	58%
DK	3	1	4	15%
REF	0	0	0	0%
Total	16	10	26	100%

[ASK IF D1p_1=1]

D1p_2. In your own words, how important was the information provided by Xcel Energy on minimizing operating costs in your decision to install this equipment?

[OPEN-END, VERBATIM]

Verbatim Response	
MN	CO
DK	Discounts were important
Important to know what we could save	It all comes back to the ROI - looking down the line, it made a difference
It was extremely important as they are all about saving money and being a green company	Somewhat beneficial
Somewhat important	

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D1s. Were there any other factors that were important to your decision to install energy efficient compressed air equipment?
(ASK OPEN END)

	MN Count	CO Count	Total	Valid Percent
Yes	8	0	8	24%
No	14	12	26	76%
DK	0	0	0	0%
REF	0	0	0	0%
Total	22	12	34	100%

[ASK IF D1s = 1]

D1s_1. How important was **[factor specified]** on your decision to install energy efficient equipment or systems using a scale from 0 to 10, where 0 means “not at all important” and 10 means “extremely important”. Again, the bigger the number, the greater the influence.

[NUMERIC OPEN END, 0 – 10]

77. NA

98. DK

99. REF

Verbatim Response	
MN	CO
Availability of the equipment	
Efficiency was the greatest factor and also energy savings	
Less noise & cleaner	
Looking for quieter machine	
Main thing was the ROI - Return on Investment. It was two or three years as I remember it.	
Our old equipment broke down	
Talked to other purchasers of the equipment	
The old equipment was beginning to fail.	

[CREATE INTERNAL VARIABLE: Max_ProgramFactor.

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IF D1d_1=1 OR D1f_1=1 OR D1l_1=1 OR D1o_1=1 OR D1p_1=1, SET Value = max(D1a, D1b, D1c, D1d, D1e, D1f, D1i, D1k, D1l, D1o, D1p.

ELSE, SET Value= max(D1a, D1b, D1c, D1d, D1e, D1i, D1k).]

Program Factors:

D1a, D1b, D1c, D1e, D1i, D1k

If D1d_1 = 1, include D1d as program factor

If D1f_1 = 1, include D1f as program factor

If D1l_1 = 1, include D1l as program factor

If D1o_1 =1, include D1o as program factor

If D1p_1 = 1, include D1p as program factor

[ASK IF MULTI_PREMISE = YES]

D1_1. Our records indicate that you have implemented projects through Xcel's Compressed Air program at several locations. Thinking back to the projects you implemented at your other facilities, did you use the same decision-making process when deciding to install energy efficient compressed air equipment as you just described?

1. Yes, I used the same decision-making process at other facilties
2. No, I used a different decision-making process at other facilities
98. DK
99. REF

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK IF D1_1 = 2]

D1_1a. How did your decision-making process differ at your other facilities?

[OPEN END, VERBATIM]

[ASK IF STRATA != STUDYONLY]

D2. Now I'd like you to imagine that the Xcel Energy **<PROGRAM>** program, including the incentive, information, and support was not available. Would you have installed the *exact same number, type, model, and efficiency* of the **<MEASURE_NAME> as you did?** If you are not sure, please let me know.

	MN Count	CO Count	Total	Valid Percent

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Yes	8	6	14	41%
Maybe / not sure	7	0	7	21%
No	7	5	12	35%
Would not have installed <MEASURE_NAME> at all	0	1	1	3%
REF	0	0	0	0%
Total	22	12	34	100%

[ASK IF D2 = 3, 77]

D2a. Why would you not have installed the *exact same number, type, model, and efficiency* of equipment?

[OPEN END, RECORD VERBATIM]

Verbatim Response

MN	CO
Because initially we looked at other equipment	Cost
Didn't think they were that needed	Cost. Old compressors were still running, but rebate made it worth it to upgrade.
Just due to the cost not being offset; particularly the mist eliminator	We need an ROI to fund a project above a threshold
Payback period would have been too long	
The rebate allowed us to justify spending more money to buy a more efficient compressor. Basically closed the gap between a less efficient and a high efficient compressor. It made the decision to move to the high efficiency compressor much easier.	
We added a couple new machines, and they use more than the old machine	
We are not a 100 percent sure it's the right one for us. It seems too small. I think we needed a bigger one. But he tagged us	

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with a smaller one, which is weird. Because we were going to spend more money on a bigger one. And he said this is all you need. And now we are having trouble with it.

[ASK IF D2 = 3, 77]

D2a_1. What would you have installed instead and why?

[OPEN END, RECORD VERBATIM]

Verbatim Response

MN	CO
A larger machine	A less expensive model, probably less efficient and not a VFD model.
A lower efficiency option	Installed a cheaper fixed speed
I would have just continued to use what I had	Not sure, but would have been cheapest
Probably a similar system from a different manufacturer	Nothing - Would have kept my old equipment.
We probably would have gotten a 50/60 horsepower. We are not sure this one is heavy duty enough. We also purchased an air dryer with it and we are not sure it is capable of drying our air on a long-term basis because it's running three air compressors, usually two, where it's having to dry that much air. So, what he sold us seems smaller than what we think we really need. So far it's working for most part, but I don't know. But that's kind of beside the point. It really does not have anything to do with energy efficiency. The bigger one would have been energy efficient too.	Same system, would have pushed it down the line
We would not have installed a variable speed rotary compressor. Would have installed a single speed compressor because of cost differential.	Wouldnt have done the drain, just the compressor
Would probably not have installed it at all to save on cost	

[ASK IF D2=1,2,REF, ELSE SKIP TO D6]

D2b. Using a scale from 0 to 10, where 0 means “not at all likely” and 10 means “extremely likely”, please rate the likelihood that you would have installed the *exact same number, type, model, and efficiency* of equipment if the Xcel Energy **<PROGRAM>** program was not available.
[NUMERIC OPEN END, 0 - 10]
DK
REF

PROGRAMMING NOTE:
if (ans = 0) skp D5
if (ans = 1) skp D5

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if (ans = 2) skp D5
if (ans = 7) skp D4
if (ans = 8) skp D4
if (ans = 9) skp D4

[ASK IF D2b=10]

D3. To clarify, you just told me that it is extremely likely that you would have installed the exact same number, type, model, and efficiency of equipment if you did not have any support, information, or rebates from the **<PROGRAM>** program.

Is that correct, or do you want to change the likelihood that you would have installed the *exact same equipment* without support from Xcel?

	MN Count	CO Count	Total	Valid Percent
Yes, rating is correct.	4	1	5	100%
No, rating is incorrect, want to change likelihood	0	0	0	0%
Don't know	0	0	0	0%
REF	0	0	0	0%
Total	4	1	5	100%

[ASK IF D2b = 7-9 and Max_ProgramFactor > 7]

D4. You just rated your likelihood to install energy efficient equipment without any support or incentives from the **<PROGRAM>** program as a(n) **<RESTORE RESPONSE FROM D2b>** out of 10, suggesting that the program was not very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was very important. Is this correct or should I go back and change one of your answers?

	MN Count	CO Count	Total	Valid Percent
Correct – leave answers as is.	6	4	10	100%
Change the likelihood of installing energy efficient equipment without the program	0	0	0	0%
Change the influence of the program factors	0	0	0	0%
Don't know	0	0	0	0%
REF	0	0	0	0%
Total	6	4	10	100%

[ASK IF D2b < 3 and Max_ProgramFactor < 3]

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D5. You just rated your likelihood to install energy efficient equipment without any support or incentives from the **<PROGRAM>** program as a(n) **<RESTORE RESPONSE FROM D2b>** out of 10, suggesting that the program was very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was not very important. Is this correct or should I go back and change one of your answers?

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK IF D4 = 3 OR D5 = 3]

D5FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)

1. The rebates offered by Xcel Energy (you said **<D1a>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
2. [ASK IF STUDY_FLAG = YES] The program-subsidized compressed air efficiency study (you said **<D1b>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
3. [ASK IF STUDY_FLAG = YES] The recommendations provided through the compressed air efficiency study (you said **<D1c>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
4. [If D1d_1 = 1] A contractor recommendation (you said **<D1d>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
5. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative (you said **<D1e>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
6. [If D1f_1 = 1] Recommendation of internal staff from your own company (you said **<D1f>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
7. Your previous participation in an Xcel Energy program (you said **<D1i>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
8. Information received from any training or events conducted by Xcel Energy (you said **<D1k>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
9. [If D1l_1 = 1] Previous experience with energy efficient equipment or materials (you said **<D1l>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
10. [If D1o_1 = 1] Payback on the investment (you said **<D1o>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
11. [If D1p _1 = 1] Minimizing operating cost (you said **<D1p>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**

[ASK IF STUDY_FLAG = YES]

D6. Next I would like to ask you about your decision to have a compressed air efficiency study conducted at your business. Please rate the importance of each of the following factors on your decision to have a compressed air efficiency study conducted at your business using a scale from 0 to 10, where 0 means “not at all important” and 10 means

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"extremely important". The bigger the number, the greater the influence. If you don't know, just say "I don't know". Now, how important was…

(RANDOMIZE D6a-D6o, REPEAT SCALE AS NECESSARY)

[NUMERIC OPEN END, 0-10]

D6a. The funding offered by Xcel Energy for the compressed air efficiency study.

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	8%
8	3	1	4	31%
9	2	0	2	15%
10	6	0	6	46%
Total	12	1	13	100%

D6b. A contractor recommendation for a compressed air efficiency study

[ASK IF D6b >5 AND D6b <77]

D6b_1. Did the vendor or contractor who recommended the equipment also discuss the funding for the study available through Xcel Energy's <PROGRAM> program?

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	10%

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6	0	0	0	0%
7	1	0	1	10%
8	3	0	3	30%
9	1	1	2	20%
10	3	0	3	30%
Total	9	1	10	100%

D6c. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	2	0	2	22%
6	0	0	0	0%
7	2	0	2	22%
8	3	0	3	33%
9	2	0	2	22%
10	0	0	0	0%
Total	9	0	9	100%

D6d. Recommendation of internal staff from your own company

[ASK IF D6c >5 AND D6f <77]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	1	0	1	9%

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3	0	0	0	0%
4	1	0	1	9%
5	3	0	3	27%
6	2	1	3	27%
7	2	0	2	18%
8	0	0	0	0%
9	1	0	1	9%
10	0	0	0	0%
Total	10	1	11	100%

D6d_1. Did this internal staff complete a compressed air efficiency study through Xcel Energy or have knowledge of a study performed previously at your facility?

	MN Count	CO Count	Total	Valid Percent
Yes	2	1	3	50%
No	1	0	1	17%
DK	2	0	2	33%
REF	0	0	0	0%
Total	5	1	6	100%

D6e. Wanting to identify opportunities to save energy in your compressed air system

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	1	1	8%
6	0	0	0	0%
7	1	0	1	8%

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8	3	0	3	23%
9	3	0	3	23%
10	5	0	5	38%
Total	12	1	13	100%

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D6e_1. Did Xcel Energy provide you with information on identifying opportunities for saving energy in your compressed air system?

	MN Count	CO Count	Total	Valid Percent
Yes	9	0	9	75%
No	1	0	1	8%
DK	2	0	2	17%
REF	0	0	0	0%
Total	12	0	12	100%

D6f. The ultrasonic leak assessment available through Xcel Energy's compressed air efficiency study.

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	1	0	1	8%
7	3	0	3	23%
8	4	0	4	31%
9	0	1	1	8%
10	4	0	4	31%
Total	12	1	13	100%

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D6g. The efficiency report with recommended improvements and follow-up actions available through Xcel Energy's compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	8%
6	1	0	1	8%
7	2	0	2	15%
8	1	0	1	8%
9	2	0	2	15%
10	5	1	6	46%
Total	12	1	13	100%

D6h. Your previous participation in an Xcel Energy program

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	11%
6	1	0	1	11%
7	3	0	3	33%
8	2	1	3	33%
9	1	0	1	11%
10	0	0	0	0%

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Total	8	1	9	100%

D6i. Funding for energy efficiency projects from an outside source (SPECIFY SOURCE & AMOUNT)

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	1	0	1	20%
7	2	0	2	40%
8	0	0	0	0%
9	2	0	2	40%
10	0	0	0	0%
Total	5	0	5	100%

D6j. Information received from any training or events conducted by Xcel Energy

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	1	0	1	13%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	13%
6	1	0	1	13%
7	3	0	3	38%

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8	2	0	2	25%
9	0	0	0	0%
10	0	0	0	0%
Total	8	0	8	100%

D6k. Your previous experience with a study or system audit

[ASK IF D6k >5 AND D6k <77]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	1	1	11%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	1	0	1	11%
7	2	0	2	22%
8	3	0	3	33%
9	1	0	1	11%
10	1	0	1	11%
Total	8	1	9	100%

D6k_1. Was this experience through an Xcel Energy program?

1. Yes
2. No
98. DK
99. REF

	MN Count	CO Count	Total	Valid Percent
Yes	7	0	7	88%
No	0	0	0	0%

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DK	1	0	1	13%
REF	0	0	0	0%
Total	8	0	8	100%

D6l. Corporate policy or guidelines

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	2	0	2	25%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	13%
6	1	0	1	13%
7	2	0	2	25%
8	1	0	1	13%
9	1	0	1	13%
10	0	0	0	0%
Total	8	0	8	100%

D6m. Environmental factors like reduced carbon emissions

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	1	0	1	9%
2	0	0	0	0%
3	1	0	1	9%
4	1	0	1	9%
5	1	1	2	18%

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6	2	0	2	18%
7	1	0	1	9%
8	1	0	1	9%
9	0	0	0	0%
10	2	0	2	18%
Total	10	1	11	100%

D6n. Minimizing operating cost

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	1	1	8%
6	0	0	0	0%
7	0	0	0	0%
8	4	0	4	31%
9	3	0	3	23%
10	5	0	5	38%
Total	12	1	13	100%

[ASK IF D6n>5 AND D6n<11]

D6n_1. Did Xcel Energy provide you with information on minimizing operating costs?

	MN Count	CO Count	Total	Valid Percent
Yes	10	0	10	83%
No	2	0	2	17%
DK	0	0	0	0%

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REF	0	0	0	0%
Total	12	0	12	100%

[ASK IF D6n_1=1]

D6n_2. In your own words, how important was the information provided by Xcel Energy on minimizing operating costs in your decision to install this equipment?

[OPEN-END, VERBATIM]

Verbatim Response

MN	CO
DK	
Helped greatly. Cut costs maybe by 20%	
It is not very complete, so didn't help as much as it could with decisions	
It was basically educational and beneficial	
It was part of the overall package to determine what we needed, what we needed to buy and what we needed to do to qualify for the state program	
It was really important and helped make other decisions	
Pretty important	
REF	
Somewhat important	
Tricky question! Xcel wasn't involved in this program. We handed it to a contractor. He communicated with Xcel and so it became a sales pitch from the contractor.	

D6o. Were there any other factors that were important to your decision to have an Xcel Energy compressed air efficiency study conducted at your facility?
(ASK OPEN END)

	MN Count	CO Count	Total	Valid Percent
Yes	1	0	1	8%
No	11	1	12	92%
DK	0	0	0	0%
REF	0	0	0	0%

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Total	12	0	12	100%

Verbatim Response

MN	CO
Demand-analysis; knowing exactly what equipment was applicable	

[ASK IF D6o = 1]

D6o_1. How important was **[factor specified]** on your decision to have an Xcel Energy compressed air efficiency study conducted at your facility using a scale from 0 to 10, where 0 means “not at all important” and 10 means “extremely important”. Again, the bigger the number, the greater the influence.

[NUMERIC OPEN END, 0 – 10]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	0	0	0	0%
8	0	0	0	0%
9	0	0	0	0%
10	1	0	1	100%
Total	1	0	1	100%

[CREATE INTERNAL VARIABLE: Max_ProgramFactor.

IF D6b_1=1 OR D6d_1=1 OR D6e_1=1 OR D6k_1=1 OR D6n_1=1, SET Value = max(D6a, D6b, D6c, D6d, D6e, D6f, D6g, D6h, D6j, D6k, D6n.)

ELSE, SET Value= max(D6a, D6c, D6f, D6g, D6h, D6j).]

Program Factors:

D6a, D6c, D6f, D6g, D6h, D6j

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If D6b_1 = 1, include D6b as program factor

If D6d_1 = 1, include D6d as program factor

If D6e_1 = 1, include D6e as program factor

If D6k_1 =1, include D6k as program factor

If D6n_1 = 1, include D6n as program factor

[ASK IF MULTI_PREMISE = YES]

D6_1. Our records indicate that you have had studies conducted through Xcel's Compressed Air program at several locations. Thinking back to the studies you had conducted at your other facilities, did you use the same decision-making process when deciding to have a compressed air efficiency study conducted as you just described?

	MN Count	CO Count	Total	Valid Percent
Yes, I used the same decision-making process at other facilities	1	0	1	100%
No, I used a different decision-making process at other facilities	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	1	0	1	100%

[ASK IF D6_1 = 2]

D6_1a. How did your decision-making process differ at your other facilities?

[OPEN END, VERBATIM]

D7. *As a reminder, Xcel Energy's compressed air efficiency study includes an ultrasonic leak survey, and an efficiency report that characterizes the system's major components, identifies system loading, provides flow and metering results, identifies leaks and unregulated demand, identifies execution steps and cost estimates and recommends improvements and follow-up actions.*

If the incentive, information, and support from the Xcel Energy **<PROGRAM> program** were not available, what is the likelihood that you would have conducted the same type of compressed air efficiency study, that includes **each of those same components** on your own?

Please use a scale from 0 to 10, where 0 means "not at all likely" and 10 means "extremely likely". If you don't know, just say "I don't know".

PROGRAMMING NOTE:
if (ans = 0) skp D10

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if (ans = 1) skp D10
if (ans = 2) skp D10
if (ans = 7) skp D9
if (ans = 8) skp D9

if (ans = 9) skp D9

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	2	0	2	11%
1	2	0	2	11%
2	1	1	2	11%
3	2	0	2	11%
4	2	0	2	11%
5	0	1	1	6%
6	3	0	3	17%
7	1	0	1	6%
8	2	0	2	11%
9	1	0	1	6%
10-Extremely likely	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	16	2	18	100%

[IF likelihood in D7 >6 and <11]

D7a. To clarify, what is the likelihood that, without the incentive, information, and support from Xcel Energy's Compressed Air program, the study you would conduct at your facility would include the following components? Please continue to use a 0 to 10 scale, where 0 means "not at all likely" and 10 means "extremely likely". If you don't know, just say "I don't know".

D7a_1. An **ultrasonic** leak survey

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%

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2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	25%
6	0	0	0	0%
7	2	0	2	50%
8	0	0	0	0%
9	0	0	0	0%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

D7a_2. Characterization of the system's major components

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	2	0	2	50%
7	0	0	0	0%
8	1	0	1	25%
9	0	0	0	0%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

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D7a_3. Identification of system loading

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	1	25%
7	0	0	0	0%
8	2	0	2	50%
9	0	0	0	0%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

D7a_4. Flow and metering results

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	25%
8	2	0	2	50%

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9	0	0	0	0%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

D7a_5. Identification of leaks and unregulated demand

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	1	0	1	25%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	25%
8	1	0	1	25%
9	0	0	0	0%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

D7a_6. Identification of execution steps and cost estimates

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	1	0	1	25%

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4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	25%
8	2	0	2	50%
9	0	0	0	0%
10-Extremely likely	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

D7a_7. Recommendations for improvements and follow-up steps

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	0	0	0	0%
6	0	0	0	0%
7	1	0	1	25%
8	1	0	1	25%
9	1	0	1	25%
10-Extremely likely	1	0	1	25%
DK	0	0	0	0%
REF	0	0	0	0%
Total	4	0	4	100%

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[ASK IF D7=10]

D8. To clarify, you just told me that it is extremely likely that you would have conducted the *exact same compressed air efficiency study* if you did not have any support, information, or rebates from the **<PROGRAM>** program.

Is that correct, or do you want to change the likelihood that you would have conducted the *exact same compressed air efficiency study* without support from Xcel?

1. Yes, rating is correct**.**
2. No, rating is incorrect, want to change likelihood **[LOOP BACK TO D7]**

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK IF D7 = 7-9 and Max_ProgramFactor > 7]

D9. You just rated your likelihood to conduct a compressed air efficiency study without any support or incentives from the **<PROGRAM>** program as a(n) **<RESTORE RESPONSE FROM D7>** out of 10, suggesting that the program was not very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was very important. Is this correct or should I go back and change one of your answers?

	MN Count	CO Count	Total	Valid Percent
Correct - leave answers as is	3	0	3	100%
Change the likelihood of conducting a compressed air efficiency study without the program	0	0	0	0%
Change the influence of the program factors	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	3	0	3	100%

[ASK IF D7 < 3 and Max_ProgramFactor < 3]

D10. You just rated your likelihood to conduct a compressed air efficiency study without any support or incentives from the **<PROGRAM>** program as a(n) **<RESTORE RESPONSE FROM D7>** out of 10, suggesting that the program was very important. Earlier, when I asked you to rate the importance of each program factor on your decision, the highest

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rating you gave was a **<Max_ProgramFactor>** out of 10, suggesting that the program was not very important. Is this correct or should I go back and change one of your answers?

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK IF D9 = 3 OR D10 = 3]

D11FactorUpdate. You said you would like to change the influence of program factors. Which factor(s) would you like to change and what would you like to change them to? (Lower # = Lower importance, Higher # = Higher importance)

1. The funding offered by Xcel Energy for the compressed air efficiency study. (you said **<D6a>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
2. [Ask if D6b_1 = 1] A contractor recommendation for a compressed air efficiency study (you said **<D6b>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
3. An endorsement or recommendation by your Xcel Energy account manager or an Xcel Energy Business Solutions Center representative (you said **<D6c>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
4. [If D6d_1 = 1] Recommendation of internal staff from your own company (you said **<D6d>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
5. [If D6e_1 = 1] Wanting to identify opportunities to save energy in your compressed air system (you said **<D6e>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
6. The ultrasonic leak assessment available through Xcel Energy's compressed air efficiency study (you said **<D6f>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
7. The efficiency report with recommended improvements and follow-up actions available through Xcel Energy's compressed air efficiency study. (you said **<D6g>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
8. Your previous participation in an Xcel Energy program(you said <D6h> / 10) [SPECIFY, NUMERIC OPEN-END, 0 TO 10]
9. Information received from any training or events conducted by Xcel Energy (you said **<D6j>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
10. [If D6k_1 = 1] Your previous experience with a study or system audit (you said **<D6k>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**
11. [If D6n_1 = 1] Minimizing operating cost (you said **<D6n>** / 10) **[SPECIFY, NUMERIC OPEN-END, 0 TO 10]**

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

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D12. Do you perform regular maintenance on your compressed air equipment, either through facility staff or a maintenance contractor?

	MN Count	CO Count	Total	Valid Percent
Yes	17	2	19	100%
No	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	17	2	19	100%

[ASK IF D12=1]

D12a. How often do you perform maintenance?

[OPEN END, RECORD VERBATIM]

Verbatim Response

MN	CO
As needed. It depends on what you are talking about. Like on the compressors, we are doing regular oil changes. On the old compressor had regular maintenance. Leaks, etc. as needed; New one gets maintenance every quarter (every 3000 hours).	As recommended by manufacturer
Check air filters daily, oil monthly and a quarterly maintenance done by an outside contractor	Depends on the hours that machine is run; We follow manufacturer's recommendations
Daily checklists, every 1000 hours we test oil and change as needed	
Every 3000 hours and later goes up to 6000 hours for oil changes, filters and whatever.	
Every six weeks	
I think it's once a week if not twice a week	
I will tell you that the fine efficient choices that we made in purchasing our equipment, all have….the compressors provide you with hours. So we do it based on the hours of the compressors, so when we say how often, it's as needed	
Monthly	
Monthly probably	
Once a Quarter	

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Per the maintenance schedule on the machine

Quarterly

Quarterly and then change filters when needed

Some daily, some weekly, some quarterly and some annually

Yearly

D13. Were you aware of the leaks or other performance issues identified through the study PRIOR to conducting it?

[ASK IF D13=1]

	MN Count	CO Count	Total	Valid Percent
Yes	8	2	10	53%
No	9	0	9	47%
DK	0	0	0	0%
REF	0	0	0	0%
Total	17	2	19	100%

D13a. Were you aware of general performance issues with the system or were you aware of specific equipment that was performing poorly?

	MN Count	CO Count	Total	Valid Percent
Aware of general performance issues with the system	4	2	6	60%
Aware of specific equipment that was performing poorly	4	0	4	40%
DK	0	0	0	0%
REF	0	0	0	0%
Total	8	2	10	100%

D14. Were you familiar with the recommended measures or actions needed to fix the leaks in your compressed air system?

	MN Count	CO Count	Total	Valid Percent
Yes	12	2	14	74%

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No	5	0	5	26%
DK	0	0	0	0%
REF	0	0	0	0%
Total	17	2	19	100%

[ASK IF D14=1]

D14a. Were you aware generally of actions or steps available to fix leaks in compressed air systems, or were you aware of specific actions to address fixes **your system** needed?

	MN Count	CO Count	Total	Valid Percent
Aware of general actions to fix leaks in compressed air system	3	2	5	36%
Aware of specific actions needed to fix my compressed air system	8	0	8	57%
DK	1	0	1	7%
REF	0	0	0	0%
Total	12	2	14	100%

D15. If the incentive, information, and support from the Xcel Energy **<PROGRAM>** program were not available, what is the likelihood that you would have fixed the leaks in your compressed air system on your own? Please use a scale from 0 to 10, where 0 means “not at all likely” and 10 means “extremely likely”. The bigger the number, the greater the influence. If you don’t know, just say “I don’t know”.

	MN Count	CO Count	Total	Valid Percent
0-Not at all likely	2	0	2	11%
1	1	0	1	5%
2	1	0	1	5%
3	4	0	4	21%
4	0	0	0	0%
5	1	1	2	11%
6	2	0	2	11%

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7	2	0	2	11%
8	0	1	1	5%
9	0	0	0	0%
10-Extremely likely	4	0	4	21%
DK	0	0	0	0%
REF	0	0	0	0%
Total	17	2	19	100%

Section S: Spillover

Next, I'd like to ask you about other types of energy efficiency equipment you may have purchased since participating in the **<PROGRAM>** program with Xcel Energy.

S1. Since your participation in the **<PROGRAM>** program in <DATE>, has your company installed any efficient compressed air equipment without a rebate from Xcel Energy? When I say "efficient compressed air equipment," I mean equipment that is eligible for an Xcel Energy rebate.

	MN Count	CO Count	Total	Valid Percent
Yes	1	0	1	1%
No	32	14	46	94%
DK	2	0	2	4%
REF	0	0	0	0%
Total	34	14	49	100%

[ASK IF S1=1, ELSE SKIP TO S7]

S1a. Why did you not apply for an Xcel Energy rebate for purchasing these efficient **<PROGRAM>** products?

Verbatim Response	
MN	CO
I did not think there was one available	

[ASK IF S1=1, ELSE SKIP TO S7]

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S2. Did your experience with the efficient compressed air products you installed through the Xcel Energy **<PROGRAM>** program influence your decision to install some or all of the additional efficient equipment on your own?

	MN Count	CO Count	Total	Valid Percent
Yes	0	0	0	0
No	1	0	1	100%
DK	0	0	0	0
REF	0	0	0	0
Total	1	0	1	100%

[ASK S3 IF S2=1, ELSE SKIP TO S7]

S3. What type of compressed air equipment did you install? For example, was it… [LIST ALL TYPES, ALLOW MULTIPLE]

1. VFD Air Compressor
2. No Air Loss Drain
3. Cycling Dryer
4. Upgraded VFD Air Compressor
5. Mist Eliminator
6. Dew Point Controls
7. Or something else? **<SPECIFY>**

98.DK

99.REF

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK S4 IF S3=1-7, ELSE SKIP TO S7]

[ASK S4a-S4b IF S2 = 1 FOR UP TO TWO MEASURES, CODING RESPONSES WITH S4_1 and S4_2 FOR FIRST AND SECOND MEASURES, RESPECTIVELY]

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I have a few questions about the **[S4_1/S4_2]** equipment that you installed.

S4a. Approximately how many of **[S4_1/S4_2]** did you install?

[NUMERIC OPEN END]

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

S4b. Please describe the **SIZE**, **TYPE**, and **OTHER ATTRIBUTES** of **[S4_1/S4_2].**

[OPEN END, RECORD VERBATIM]

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK S5 IF S3=1-7, ELSE SKIP TO S7]

S5. How important was your experience in the **<PROGRAM>** program in your decision to install the additional equipment on your own? Please use a scale from 0 to 10, where 0 is “not at all important” and 10 is “extremely important”.

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

[ASK S6 IF S3=1-7, ELSE SKIP TO S7]

S6. If you had not participated in the **<PROGRAM>** program, how likely or unlikely is it that you would have installed these additional efficient products, using a scale from 0 to 10, where 0 means you definitely WOULD NOT have installed and 10 means you definitely WOULD have installed them?

	MN Count	CO Count	Total	Valid Percent
N/A	35	14	49	100%
Total	35	14	49	100%

S7. Since your participation in the **<PROGRAM>** program**,** have you installed any additional energy efficient equipment, <u>other than</u> energy efficient compressed air equipment?

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	MN Count	CO Count	Total	Valid Percent
Yes	17	5	22	45%
No	17	9	26	53%
DK	1	0	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

[ASK S8 IF S7=1]

S8. Did you receive a rebate for some or all of this equipment through Xcel Energy or any other energy efficiency program?

	MN Count	CO Count	Total	Valid Percent
Yes, we received a rebate for all of the equipment	4	1	5	23%
Yes, we received a rebate for some of the equipment	5	2	7	32%
No	6	2	8	36%
DK	2	0	2	9%
REF	0	0	0	0%
Total	17	5	22	100%

[ASK S8a IF S8=2-3]

[IF S8=2: Thinking only about the equipment for which you did **NOT** receive a rebate,] Do you know if this equipment was eligible for a rebate through an Xcel Energy program?

[ASK S9 IF S8=2-3, ELSE SKIP TO E1]

S9. **[IF S8=2:** Thinking only about the equipment for which you did **NOT** receive a rebate,] Did your experience with the Xcel Energy **<PROGRAM>** program influence your decision to install some or all of these efficient products?

	MN Count	CO Count	Total	Valid Percent
Yes	4	1	5	33%
No	6	3	9	60%
DK	1	0	1	7%

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REF	0	0	0	0%
Total	11	4	16	100%

[ASK S10 IF S9=1, ELSE SKIP TO E1]

S10. What equipment did you install? Please provide as much detail as you can. (PROBE FOR NUMBER INSTALLED, EQUIPMENT TYPE, EFFICIENCY, SIZE)

Verbatim Response	
MN	CO
4 Variable Speed Drives, between 5 and 10 horsepower	LED lights, 16 of them
About 25 LED lights	
All the interior lighting in the building	
Re-circulation units, chillers, roof-top unit	

[ASK S11 IF S=1, ELSE SKIP TO E1]

S11. How important or not important was your experience in the **<PROGRAM>** program in your decision to install this equipment using a scale from 0 to 10, where 0 is “not at all important” and 10 is “extremely important”?

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	0	0	0	0%
5	1	0	1	20%
6	0	0	0	0%
7	0	1	1	20%
8	2	0	2	40%
9	1	0	1	20%
10	0	0	0	0%
Total	4	1	5	100%

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[ASK IF S9=1, ELSE SKIP TO E1]

S12. If you had not participated in the **<PROGRAM>** program, how likely or unlikely is it that you would have installed these additional efficient products, using a scale from 0 to 10, where 0 means you definitely WOULD NOT have installed and 10 means you definitely WOULD have installed them?

[NUMERIC OPEN END, 0 – 10]

	MN Count	CO Count	Total	Valid Percent
0	0	0	0	0%
1	0	0	0	0%
2	0	0	0	0%
3	1	0	1	20%
4	2	0	2	40%
5	1	0	1	20%
6	0	0	0	0%
7	0	0	0	0%
8	0	0	0	0%
9	0	1	1	20%
10	0	0	0	0%
Total	4	1	5	100%

Section E: Experience and Satisfaction

Next, I want to ask you a few questions about your experience with the program, and how the program's processes worked for you.

E1. I am going to ask you to rate how easy or difficult the following tasks associated with the **<PROGRAM>** program were to complete, using a scale from 1 to 5, where 1 is "very difficult" and 5 is "very easy". You may also tell me if something was not applicable to your experience. How would you rate the ease of… **(PAUSE AFTER EACH FOR RESPONSE. REPEAT SCALE IF NEEDED).**

[NUMERIC OPEN END, 1 – 5]

(RANDOMIZE)

E1a. The equipment installation through a contractor

	MN Count	CO Count	Total	Valid

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				Percent
1-Very difficult	0	0	0	0%
2	2	1	3	6%
3	4	0	4	8%
4	8	6	14	29%
5-Very easy	15	6	21	43%
Not applicable	6	0	6	12%
DK	0	1	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

E1b. The process of completing the program application

	MN Count	CO Count	Total	Valid Percent
1-Very difficult	0	1	1	2%
2	0	0	0	0%
3	4	1	5	10%
4	11	6	17	35%
5-Very easy	18	4	22	45%
Not applicable	1	1	2	4%
DK	1	1	2	4%
REF	0	0	0	0%
Total	35	14	49	100%

E1c. Meeting program deadlines

	MN Count	CO Count	Total	Valid Percent
1-Very difficult	0	0	0	0%
2	1	1	2	4%
3	5	1	6	12%
4	8	0	8	16%

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5-Very easy	20	8	28	57%
Not applicable	1	2	3	6%
DK	0	2	2	4%
REF	0	0	0	0%
Total	35	14	49	100%

E1d. [SHOW IF STUDY_FLAG = YES] The process of participating in a compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
1-Very difficult	0	0	0	0%
2	1	0	1	6%
3	2	0	2	11%
4	1	0	1	6%
5-Very easy	12	1	13	72%
Not applicable	0	0	0	0%
DK	0	1	1	6%
REF	0	0	0	0%
Total	16	2	18	100%

E1e. Receiving help from **<PROGRAM>** program representatives when needed

	MN Count	CO Count	Total	Valid Percent
1-Very difficult	1	0	1	2%
2	1	0	1	2%
3	5	3	8	16%
4	6	2	8	16%
5-Very easy	13	4	17	35%
Not applicable	8	4	12	24%
DK	1	1	2	4%
REF	0	0	0	0%

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Total	35	14	49	100%

E1f. Determining the right equipment for your business

	MN Count	CO Count	Total	Valid Percent
1-Very difficult	0	0	0	0%
2	1	0	1	2%
3	5	2	7	14%
4	10	7	17	35%
5-Very easy	16	4	20	41%
Not applicable	2	0	2	4%
DK	1	1	2	4%
REF	0	0	0	0%
Total	35	14	49	100%

[For any E1 < 3]

E2a – E2f. Why was it not easy to **<RESTORE QUESTION WORDING FROM E1a – E1f>**

E2a. Why was it not easy to install the equipment through a contractor?

Verbatim Response	
MN	CO
It's very technical and there's lots of traces, so it takes time Just getting it in the right spot and getting it to work in conjunction with our other older compressors. There was a lot of factors.	We had trouble with the ducting and it took longer than expected.

E2b. Why was it not easy to complete the program application?

Verbatim Response	
MN	CO
	Took a lot of back and forth with the vendor and Xcel to get all the details needed to complete it

E2c. Why was it not easy to meet program deadline?

Verbatim Response

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MN	CO
Staffing	The vendor was slow/had a backlog

E2d. Why was it not easy to participate in a compressed air efficiency study?

Verbatim Response	
MN	CO
Communication back and forth wasn't just as easy as filling out a form on a website; lots of paperwork	

E2e. Why was it not easy to receive help from [Program] representative when needed?

Verbatim Response	
MN	CO
It was a hassle to get a hold of him and I think there is one sales rep in the area and he is probably taking care of the whole twin city's metro area, and I kind of got the impression he did not have a lot of time. He answered our questions, but it was tough to get a hold of him sometimes. It was so much easier to get it through the vendor and Xcel was difficult to get to the right place and right people	

E2f. Why was it not easy to determine the right equipment for your business?

Verbatim Response	
MN	CO
Same reasons (It's very technical and there's lots of traces, so it takes time)	

E3. Thank you for your patience; we have only a few questions left. I'm going to ask you to rate your satisfaction with various aspects of the program. For each, please rate your satisfaction or dissatisfaction on a scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied." You can also let me know if it is not applicable to your project. How would you rate your satisfaction with: **[RANDOMIZE E3a - l, PAUSE AFTER EACH FOR RATING, REPEAT SCALE IF NECESSARY]**

[NUMERIC OPEN END, 1 – 5]

(RANDOMIZE)

E3a. The quality of the equipment you installed as part of the program

MN Count	CO Count	Total	Valid Percent

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1-Very dissatisfied	0	0	0	0%
2	3	0	3	6%
3	0	0	0	0%
4	7	4	11	22%
5-Very satisfied	20	10	30	61%
Not applicable	5	0	5	10%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

E3b. The contractor who performed the work

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	1	0	1	2%
3	0	1	1	2%
4	10	5	15	31%
5-Very satisfied	19	6	25	51%
Not applicable	5	1	6	12%
DK	0	1	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

E3c. The information you received on how to operate / maintain installed equipment

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	3	0	3	6%
4	10	7	17	35%
5-Very satisfied	19	5	24	49%

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Not applicable	3	0	3	6%
DK	0	2	2	4%
REF	0	0	0	0%
Total	35	14	49	100%

E3d. The information you received on energy efficiency

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	1	0	1	2%
3	5	1	6	12%
4	7	10	17	35%
5-Very satisfied	19	2	21	43%
Not applicable	1	0	1	2%
DK	2	1	3	6%
REF	0	0	0	0%
Total	35	14	49	100%

E3e. The amount of time it took between receiving program approval and receiving the program rebate

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	1	1	2%
2	0	0	0	0%
3	3	2	5	10%
4	13	4	17	35%
5-Very satisfied	16	5	21	43%
Not applicable	0	0	0	0%
DK	3	2	5	10%
REF	0	0	0	0%
Total	35	14	49	100%

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E3f. The amount of time it took to install the equipment

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	2	1	3	6%
3	4	0	4	8%
4	7	5	12	24%
5-Very satisfied	14	8	22	45%
Not applicable	7	0	7	14%
DK	1	0	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

E3g. Your interactions with program staff

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	1	0	1	2%
3	1	2	3	6%
4	5	4	9	18%
5-Very satisfied	20	4	24	49%
Not applicable	8	3	11	22%
DK	0	1	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

E3h. Energy savings realized after the program

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%

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3	5	2	7	14%
4	10	5	15	31%
5-Very satisfied	9	3	12	24%
Not applicable	1	0	1	2%
DK	10	4	14	29%
REF	0	0	0	0%
Total	35	14	49	100%

E3i. The equipment options available through the program

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	4	0	4	8%
4	9	4	13	27%
5-Very satisfied	16	8	24	49%
Not applicable	4	0	4	8%
DK	2	2	4	8%
REF	0	0	0	0%
Total	35	14	49	100%

E3j. [SHOW IF STUDY_FLAG = YES] The equipment recommendations you received after completing your compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	0	0	0	0%
4	8	0	8	44%
5-Very satisfied	7	2	9	50%
Not applicable	1	0	1	6%

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DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

E3k. [SHOW IF STUDY_FLAG = YES] The usefulness of the compressed air efficiency study

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	1	0	1	6%
4	3	0	3	17%
5-Very satisfied	11	2	13	72%
Not applicable	1	0	1	6%
DK	0	0	0	0%
REF	0	0	0	0%
Total	16	2	18	100%

E3l. The dollar amount of the rebate

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	2	2	4	8%
4	7	8	15	31%
5-Very satisfied	19	3	22	45%
Not applicable	2	0	2	4%
DK	5	1	6	12%
REF	0	0	0	0%
Total	35	14	49	100%

[ASK E3_1 IF E3a-l < 3]

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E3_1 Why weren't you satisfied with **<RESTORE QUESTION WORDING FROM E3A – E3L>**

[OPEN END]

E3_1a. Why weren't you satisfied with the quality of the equipment you installed as part of the program?

Verbatim Response

MN	CO
I think it's too small and not powerful enough. We are just not convinced it's going to be able to hold up. We are under the warranty now.	
The experience we had - whether the President heard this when he bought it and didn't understand, I don't know...the install was easy, but it s a smart compressor, and it will adapt depending on filters and oil. But you have to buy the filters and oil from the manufacturer and they are really expensive. We have never spent so much money on this type of thing.	
There was a low air pump which was not robust, this one did not last longer than 6 months. Out previous equipment lasted several years	

E3_1b. Why weren't you satisfied with the contractor who performed the work?

Verbatim Response

MN	CO
The contractor went outside of the quote price and his technician was a little difficult to work with	

E3_1d. Why weren't you satisfied with the information you received on energy efficiency?

Verbatim Response

MN	CO
We didn't really receive any than other from the sales rep. The only thing we knew is that we can receive a $3000 rebate. We didn't know how or why it's more efficient.	

E3_1e. Why weren't you satisfied with the amount of time if took between receiving program approval and receiving the program equipment?

Verbatim Response

MN	CO
	Just took a while, and there was an issue with where they could send the check

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E3_1f. Why weren't you satisfied with the amount of time it took to install the equipment?

Verbatim Response	
MN	CO
It was really complicated process involving setting them up in series with the older compressors and with electrical and duct work. To install it cost us 3 or 4 times more to install it than to purchase it.	Just took longer than expected
Transportation and the company we chose to get the new compressor from was slow	

E3_1g. Why weren't you satisfied with your interactions with program staff?

Verbatim Response	
MN	CO
Because they were non responsive; one guy specifically.	

E4. Thinking about your experience from start to finish, how would you rate your satisfaction or dissatisfaction with the **<PROGRAM>** program as a whole? (IF NEEDED: Please use the same scale from 1 to 5, where 1 is “very dissatisfied” and 5 is “very satisfied”)

[NUMERIC OPEN END, 1 – 5]

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	1	1	2	4%
3	2	0	2	4%
4	10	4	14	29%
5-Very satisfied	22	9	31	63%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

[ASK IF E4 < 3]

E4a. Why weren’t you satisfied with your experience with the **<PROGRAM>**program**?**

[OPEN END]

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DK

REF

Verbatim Response

MN	CO
Going through the company we were buying the compressor from and lack of Xcel's involvement	It just took too long and too much time to complete the application form and there were specific rules about where they could send the check, which didn't work for us.

[ASK IF E4 = 3 or 4]

E4b. What else could Xcel Energy do to improve your satisfaction with the **<PROGRAM>** program**?**

[OPEN END, RECORD VERBATIM]

DK

REF

Verbatim Response

MN	CO
Fix our leaks	DK
I don't think there is anything	I haven't had quite as good as savings as what we were told. That part has been a little disappointing.
It's the setup and the cost of maintenance of the compressor	
It would be helpful to get information on the program itself on the sites where you fill out the program application. Because I did not know anything about the program other than they give you a rebate.	
Larger rebate; Also it took a while to receive approval, the process was a little slow	
Make the reporting to Xcel easier	
Make timeframe for approval and getting rebate shorter	
More interaction from Xcel themselves	
Nothing really - just there are deadlines, like all programs. Maybe have a grace period if it's difficult to meet them.	
Nothing that I can think of	
Nothing that I can think of. They cover pretty much everything.	
Pretty satisfied; nothing really	

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[ASK ALL]

E5. What did you like most about your experience with the **<PROGRAM>** program**?**

[OPEN END, RECORD VERBATIM]

Verbatim Response	
MN	CO
Amount of rebate	Being able to buy a good product
Being able to upgrade and save money with the rebate	How easy it was
Benefit of doing better & saving money	I liked the contractor and the information
DK	It brought attention to the fact that the new purchase was energy efficient and felt Xcel endorsed the quality of the product
Ease of use and rep from Xcel was very knowledgeable	It was relatively easy. A lot of times I worked with the vendor, who did most of the paperwork.
Getting the check and hopefully our electric bills will be less too. I have not confirmed they have gone down at this point. But I am assuming they will when we use them more and use the older, less efficient ones more.	It was the rebate offer
Getting the information the study provided and the rebates were beneficial	Just the simplicity
How simple it was to file for it and the amount of rebate offered made it an easy choice to upgrade	The ease of it
I appreciated the visual materials that were in the report - made it easy to understand and implement	The energy savings
I knew what our system could handle	The new equipment
I like how the return on investment again, that was the main driver	The performance of our system has been great after addressing the issues identified during the study
I like that it was pretty easy. It was easy, it was actually fairly painless for me because it was done through a contractor. The negative that I would come up with is that it was a lot more difficult to get an exact rebate amount for individual equipment. That required a little more rigmarole back and forth a little bit between me and the contractor and Xcel. But for most part, it was really nice. I would have thought that would have been fairly straight forward, but apparently it wasn't.	The potential to save money and energy - our old compressors were running all the time regardless of the load
I think certainly identifying leaks was very helpful also the report was helpful	The prescriptive rebate piece of it. Determined the rebate for us so we knew.
It enabled us to do something energy efficient and our goal is to make the facility as efficient as possible	Very informative

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It just was very detailed and gave me all the information I needed to make capital project recommendations and execute them.

It was easier than I thought it was going to be to get everything in line

It was easy and it was a lot of saving

It was easy to fill out

It was pretty straight forward and comprehensive and fed into larger equipment grants

It was very easy to implement

It was very eye opening to have someone come in and in the leak detection portion, when they give you the report it was eye opening to see the cost of the small leaks around the shop. And I think that was probably the biggest thing.

Knowledge and help from the research

One of the things I really liked was it brought to our attention areas where we were leaking and to be honest it told us we needed a lot bigger piece of equipment than what we thought we needed. Had we not had the compressed air study, we probably would have bought a compressor that was undersized for our needs. So the fact that they really made us aware of what we needed was huge.

Relatively easy to do, took minimal time

Smoothness of the whole thing

That it was available and gave us an opportunity to see where we were losing the air

That they found the leaks

That we could save energy and money

The amount of saving realized through the system

The company got money back and saved overall. We didn't really have to do anything.

The contractor

The rebate

The rebates helped a lot

Very simple

Was fairly easy

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E6. To what extent do you think you experienced the following as a result of program participation? Please use a scale from 1 to 5, where 1 is "not at all" and 5 is "very much"

0. Financial savings

	MN Count	CO Count	Total	Valid Percent
1-Not at all	0	0	0	0%
2	2	2	4	8%
3	4	3	7	14%
4	13	3	16	33%
5-Very much	8	4	12	24%
Not applicable	1	0	1	2%
DK	7	2	9	18%
REF	0	0	0	0%
Total	35	14	49	100%

1. Energy savings

	MN Count	CO Count	Total	Valid Percent
1-Not at all	0	0	0	0%
2	1	1	2	4%
3	5	4	9	18%
4	10	4	14	29%
5-Very much	9	4	13	27%
Not applicable	0	0	0	0%
DK	10	1	11	22%
REF	0	0	0	0%
Total	35	14	49	100%

2. Reduced maintenance on your compressed air equipment

	MN Count	CO Count	Total	Valid Percent
1-Not at all	3	0	3	6%

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2	2	0	2	4%
3	8	2	10	20%
4	6	9	15	31%
5-Very much	14	3	17	35%
Not applicable	0	0	0	0%
DK	2	0	2	4%
REF	0	0	0	0%
Total	35	14	49	100%

3. Increased workplace comfort

	MN Count	CO Count	Total	Valid Percent
1-Not at all	4	1	5	10%
2	1	1	2	4%
3	5	4	9	18%
4	6	4	10	20%
5-Very much	12	3	15	31%
Not applicable	6	1	7	14%
DK	1	0	1	2%
REF	0	0	0	0%
Total	35	14	49	100%

4. Improved equipment performance

	MN Count	CO Count	Total	Valid Percent
1-Not at all	2	0	2	4%
2	1	0	1	2%
3	3	1	4	8%
4	11	7	18	37%
5-Very much	17	6	23	47%
Not applicable	1	0	1	2%
DK	0	0	0	0%

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REF	0	0	0	0%
Total	35	14	49	100%

5. Improved 'green' image

	MN Count	CO Count	Total	Valid Percent
1-Not at all	5	1	6	12%
2	1	0	1	2%
3	5	2	7	14%
4	9	7	16	33%
5-Very much	10	3	13	27%
Not applicable	3	0	3	6%
DK	2	1	3	6%
REF	0	0	0	0%
Total	35	14	49	100%

6. Improved equipment appearance

	MN Count	CO Count	Total	Valid Percent
1-Not at all	1	0	1	2%
2	2	1	3	6%
3	6	2	8	16%
4	7	6	13	27%
5-Very much	14	5	19	39%
Not applicable	5	0	5	10%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

[NUMERIC OPEN END, 1 – 5]

E7. Using the same scale from 1 to 5, where 1 is "very dissatisfied" and 5 is "very satisfied", how would you rate Xcel Energy as an energy provider?

[NUMERIC OPEN END, 1 – 5]

77. Not applicable

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98. DK

99. REF

	MN Count	CO Count	Total	Valid Percent
1-Very dissatisfied	0	0	0	0%
2	0	0	0	0%
3	4	4	8	16%
4	11	3	14	29%
5-Very satisfied	20	7	27	55%
Not applicable	0	0	0	0%
DK	0	0	0	0%
REF	0	0	0	0%
Total	35	14	49	100%

E10. Is there any compressed air equipment that is not currently eligible for rebates through Xcel Energy's Compressed Air program that you wish was eligible?

Section CLOSE: Closing

[ASK ALL]

CLOSE1. Is there anything we didn't cover that you'd like to mention or discuss about your experiences as a participant in the **<PROGRAM>** program?

Verbatim Response	
MN	CO
I feel the program should be handled a little differently as it is by other utility providers. Xcel can always call me for further details.	The hardest part of the whole thing was getting a hold of someone at Xcel. Once you did they were easy to work with but getting a hold of them was difficult.
Only that I would expect that I will do it again when we are eligible again. Because I find the information that I get from the Compressed Air Program or studies have been useful to me and just understanding my cost of compressed air, how expensive it is, and the availability of air. It helps me, the studies help me decide and understand if I could add more equipment without....if I needed to have more, you know, or if I had enough compressed air for the equipment I have or wanted to add. And so I like them enough that I'm sure we'll do it again when I am eligible.	

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CLOSE2.These are all the questions I have. As a thank you for your input, we'd like to email you, or someone of your choosing, a $25 Amazon gift card. We just need a bit of information to email the gift card to the intended recipient.

[COLLECT CONTACT INFORMATION]

[TERMINATE]

C.4 Trade Partner Interview Results

Introduction

This appendix presents results from the trade partner interviews. The trade partner research addressed the following process topics:

- **Product Experience/Satisfaction:** We collected feedback on trade partner experiences with the compressed air efficiency study and rebate processes, including motivations for participation and satisfaction with various aspects of the product.
- **Decision-Making & Barriers:** We assessed trade partner feedback on customer and trade partner barriers to product participation, particularly by investigating why trade partners and customers may install equipment outside of the products. Additionally, we asked why some trade partners are not interested in becoming approved study partners.
- **Growing the Compressed Air Product:** We asked questions to better understand the influence of the market on customers' compressed air decisions and to identify opportunities to grow the compressed air market within the state. Specifically, we assessed the potential for increasing rebate limits to further drive customer and trade partner participation, looked for ways to expand marketing efforts for the product and explored the role of continuous monitoring.
- **Influence and Impact of Product:** We collected information on trade partner perspectives on the impact and influence of the product, in order to understand free-ridership and inform net-to-gross calculations.

The remainder of this appendix includes results from the trade partner interviews organized by process topic and research question.

Product Experience/Satisfaction

What motivates trade partners to participate in the products?

Efficiency Studies: Trade partner interviewees who conduct studies cite rebates, the ability to provide detailed information to their customers, and the potential to make additional sales as motivations to participate in the product.

- Five trade partners said that rebates are the primary drivers of efficiency studies (both for trade partners to offer and conduct them, and for customers to want the studies.) Respondents felt that, because the Xcel Energy studies are more involved than a straightforward leak check, rebates make the studies worth providing.
- Four trade partners said that providing detailed information on opportunities for system improvement through the study often leads to additional sales for the trade partner of

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their company: “It helps me to sell compressors, period. If I do a study, I am guaranteed a sale.”

- Three trade partners felt that working with Xcel Energy provides additional legitimacy and helps to position them as an “expert”.

Equipment Rebates: Trade partner interviewees who participate in Equipment Rebates said that the rebate incentive motivated them to participate in the product.

- Nine trade partners who provide Equipment Rebates through the Compressed Air Product felt that rebates were their primary motivation participating in the product. Interviewees felt the rebates were motivating because they allowed trade partners to be better salespeople and sell better equipment to their customer that most closely meets their needs.

What motivates customers to participate in the product?

- Seven trade partners said that the availability of the rebate primarily motivates customers to participate in the product.
- Two trade partners said that customers are motivated to participate in the product because it helps meet their organization’s energy or environment goals.
- Two trade partners said that customers are motivated to participate in the product by the opportunity to save energy with efficient equipment.
- One trade partner said that trade partners were primarily motivated to participate in studies by the opportunity to identify system improvements.

How can trade partners be motivated to install more compressed air equipment or conduct more compressed air efficiency projects through the program?

- Four trade partners felt they would be motivated to participate more if there Xcel Energy provided additional support. Two of these stated that they would benefit from more communication, for example through a regular email, that provides additional information about the program. Two said that they would like more support from a direct contact at Xcel Energy who was knowledgeable about compressed air.

How satisfied are trade partner with the Compressed Air product?

Positive satisfaction ratings were driven by the ease of participating in the prescriptive portion (n=5) of the product, the availability of incentives (n=6) and the spiff/commission provided to trade partners for prescriptive equipment.

Overall Satisfaction with the Product:

Response	Count
1 – Very unsatisfied	0
2	1
3	4
4	5
5 – Extremely satisfied	5

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Not asked	1

Satisfaction with the Compressed Air product staff:

Response	Count
1 – Very unsatisfied	0
2	0
3	4
4	4
5 – Extremely satisfied	6
Not asked	2

Satisfaction with the incentive amounts for compressed air equipment:

Response	Count
1 – Very unsatisfied	0
2	0
3	1
4	4
5 – Extremely satisfied	5
Not asked	6

Satisfaction with the incentive amounts for compressed air equipment:

Response	Count
1 – Very unsatisfied	0
2	0
3	1
4	4
5 – Extremely satisfied	5
Not asked	6

Satisfaction with the incentive amounts for compressed air efficiency studies?

Response	Count
1 – Very unsatisfied	0

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2	1
3	2
4	1
5 – Extremely satisfied	4
Not asked	5
Not applicable	3

Satisfaction with the rebate process for compressed air equipment?

Response	Count
1 – Very unsatisfied	0
2	0
3	1
4	2
5 – Extremely satisfied	5
Not asked	3
Not applicable	3

Decision-Making & Barriers

What factors do trade partners consider when deciding whether to recommend efficient compressed air equipment?

Trade partners cited a variety of factors they consider when deciding whether to recommend efficient compressed air equipment.

- Four trade partners said they consider their customer's interest in energy efficiency in general – is it something they are specifically interested in?
- Four trade partners said they consider the size of the business and the overall horsepower on the site. They felt that if the business was larger and required more horsepower, there was a greater opportunity for that customer to get savings through energy efficient equipment. Additionally, two trade partners said they consider the compressed air demand at their customer's facility.
- Four trade partners said they discuss the customer's goals for the equipment, and if their goals include improving energy efficiency or saving energy, they recommend efficient equipment. Two trade partners said they consider whether the customer is planning to grow or reduce capacity at their facility.
- Four trade partners said they consider the customer's budget – how much they want to spend and their targeted payback period.

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- Three trade partners said they consider the age of the equipment to be replaced and whether it has failed.
- Two trade partners said they consider the anticipated size of the rebate before they recommend equipment. If the rebate will be large and/or impactful, the recommend rebate-eligible efficient equipment.
- Factors that were mentioned once by interviewed trade partners included the customer's timeline (and whether it would be an issue for them to have to wait for the rebate), the customer's maintenance practices, recommendations from the Efficiency Study, and availability of equipment.

What barriers or challenges do trade partners face to conducting studies and installing equipment through the Compressed Air product?

Efficiency Studies:

- Four trade partners felt that moving the study through engineering was difficult. The reasons they cited for the difficulty included that it was time consuming, and that there seemed to be inconsistency with the process and with staffing of the product at Xcel Energy.
- Three trade partners felt that lack of communication about the status of their application was a barrier to participation. These trade partners said it was difficult to understand where their project was in the process and did not know the timeline for the turnaround of their rebates – which then made it difficult to communicate the timeline to their customers.
- Four trade partners said that it was difficult to communicate the benefits of the study to a potential customer. They felt that knowledge of compressed air systems and efficiency was low among end users and had decreased from previous years. Trade partners felt that often the point person for the compressed air system at a company also had other roles within the company, so had less time to devote to their compressed air systems.
- Three trade partners felt the application could be cumbersome, and noted that it was complicated to fill out the application and that they had to "justify things twice".
- Three trade partners said that Xcel Energy's study offering could be hard to justify for smaller customers because the payback for when they will start to save energy and money is too long, it's hard to communicate the value, the smaller businesses don't have the bandwidth or budget to pay for the audit upfront, and because the application can be "overkill" for smaller customers.
- Three trade partners felt that the studies did not offer their companies a high return on investment, and a major barrier to them not completing more studies was that they were hard to justify for themselves from a cost effectiveness standpoint: "To be quite honest with you, they're just not all that lucrative."
- Challenges mentioned once by trade partners included that understanding the process takes time and that the "Alternate Rebate Recipient" option put the trade partner at a disadvantage. This trade partner said that, with this option the customer does not have to pay upfront for the study and then the trade partner has to wait until the customer fixes their leaks to get paid.

Equipment Rebates:

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- Four trade partners felt that lack of communication was a challenge to participation in the Compressed Air product. These trade partners felt they would benefit from additional detailed information on how to participate (through a step-by-step guide or downloadable pamphlet). One of these trade partners asked for additional information on how best to interface with Xcel Energy product staff – who to contact regarding the product and how.
- Three trade partners said that the time it takes to go through the process of participating in the product and receiving their rebate checks back was a barrier to participation. These trade partners noted that custom rebates are often more difficult in terms of the time it takes to participate than prescriptive rebates. Additionally, one trade partner noted that the lengthy process can hurt their relationship with customers.
- Three trade partners noted that the product changed over the past few years, and the lack of consistency can be difficult to navigate. These trade partners attributed the lack of consistency to turnover of product staff and two described changes in how applications are evaluated, rebate levels, and rebate-eligible equipment that have made the process of participating more difficult.
- Three trade partners felt that it was challenging to promote the product with end users and could use support in marketing and selling rebate-eligible equipment to end users.
- Challenges or barriers mentioned once by trade partners included the belief that rebates are not as impactful as they had been in the past, a resistance to pushing for VFD compressors because they are sensitive and require clean environments – which may not be appropriate for all customers, and the absence of compliance mechanisms on Xcel Energy's part. This trade partner felt that equipment installations should be verified to ensure that trade partners are completing applications accurately and truthfully.

Growing the Compressed Air Product

Recommendations for improving the program

- Three trade partners asked for additional communication of information related to the product. The trade partners said they would benefit from emails that provided information on changes, tips for navigating the applications, and other details on how to effectively participate in the product. Trade partners also said they enjoyed past opportunities for in-person meetings.
- Two trade partners recommended increasing the consistency of participation in the product by not changing the structure of the product, what equipment is eligible, and rebate levels more than necessary. This way, trade partners can become more familiar and comfortable with the product's design.
- Three trade partners felt that the audit process could be streamlined and offered different suggestions for how to simplify the process. Two trade partners suggested that Xcel Energy should have internal auditors (from Xcel Energy) who conduct the efficiency studies, rather than trade partners. One trade partner felt there should be an equipment loan program for end users, so that they could borrow equipment (an ultrasonic leak detector) to conduct their own leak checks. This trade recommended that Xcel Energy could provide trainings for customers on how to fix leaks and teach compressed air system maintenance.
- Recommendations for improving the program that were mentioned once included working with the trade partner's company to promote a new compressor they developed,

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getting rid of the alternate rebate recipient option, using Docusign to send and sign forms with their customers, and increasing prescriptive rebate amounts.

Is there compressed air equipment not included in the products that trade partners are interested in seeing as a product offering?

Trade partners provided suggestions for additional equipment that could be included under the Compressed Air product, as well as changing the specifications or eligibility requirements for equipment that is already part of the product.

- Increase range for prescriptive rebate on VSD Compressors (one trade partner said to 50hp, another recommended to 100hp)
- Allow smaller CFM range for prescriptive rebate on purge controls for cycling dryers
- Allow prescriptive rebates for high efficiency fixed speed machines

Add rebates for:

- Air tanks
- Load/No-Load controls
- Water-lubricated VSD air compressor (being developed by trade partner's company)
- Receiver capacity
- Low pressure drop filters
- Oversized filtration
- Controllers for multiple compressors

One trade partner described what he perceived as limited interest in continuous monitoring in the market. The trade felt that larger companies might be interested, because they want to know as much as possible about their systems. He felt that smaller companies would not be interested in continuous monitoring.

Are there particular types/brands of compressed air equipment that trade partners prefer?

- "The brands we sell" (n=3) – Brands included in list below
- Ingersoll Rand (3)
- PneuTech
- Saylor Beall
- Champion
- Mattei
- US Air Compressor
- FS-Curtis
- SPX FLOW
- Beko cycling dryers
- "Stays neutral"

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Do trade partners feel increasing program rebates would promote higher customer and trade partner participation?

- Eight trade partners said that increasing rebates would promote greater customer and trade partner participation. Three of these mentioned that rebates used to be higher and more impactful in the past. One trade partner also felt that, without a higher rebate for studies, it is often not cost effective to perform a study for smaller customers with systems below 100 horsepower. This trade partner also felt that efficiency study rebate levels have not changed in the past few years, while labor rates have increased, making it hard to do studies.
- Two trade partners said that increasing program rebates would not promote more participation. One of these trade partners noted that he felt prescriptive rebates have gotten better over the years.

Colorado: What kinds of experiences have trade partners had with companies providing leak checks outside the product?

- Trade partners provided some evidence that companies providing audits outside Xcel Energy's study offering create competition for study providers operating within the program.
- One trade partner said they currently do not offer studies through the product because "there are so many companies that have invested in their own people and equipment who do [audits]…I guess we'd be competing."
- Three trade partners in Colorado mentioned that their company performs leak check audits outside the product. These trade partners mentioned that the service is provided free of charge to their customers but is not as "involved" as the Xcel Energy offering.
- Two trade partners said they were not aware of other companies providing leak checks outside the product in Xcel Energy territory.
- One trade partner mentioned that he felt there was a lot of quality variation between companies delivering compressed air studies, even among trade partners who complete studies through Xcel Energy.

Minnesota: How do trade partners successfully engage with the product in a competitive compressed air environment?

- Trade partners reported that the compressed air market in the state was very competitive. Seven trade partners in Minnesota stated that the market was competitive.
- Four trade partners in Minnesota described using the Compressed Air product to address competitive pricing by promoting it as a marketing tool. These trade partners report advertising the reduced prices to their customers through email blasts and other communications.
- Two trade partners described using a customer service-focused approach to dealing with competition. This requires getting things done quickly for their customers, which can be difficult given the complexity of the studies. The other trade partner says he promotes the capabilities of the dedicated person who conducts studies, and advertises support they offer after the sale.

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Influence and Impact of Product – Net-to-Gross Impacts:

On a scale of 0 to 10 where 0 is NOT AT ALL IMPORTANT and 10 is EXTREMELY IMPORTANT, how important was the Xcel Energy Compressed Air Program, including incentives as well as technical assistance, education, and other program services, in influencing your decision to recommend that your customer [install the energy efficient equipment they did and/or conduct a compressed air efficiency study?]

Efficiency Study

Response	Count
0 – Not at all important	0
2	0
3	0
4	1
5	1
6	0
7	0
8	3
9	0
10 – Very important	2
Not applicable	9

Equipment Rebate

Response	Count
0 – Not at all important	0
2	0
3	0
4	1
5	1
6	1
7	1
8	4

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9	0
10 – Very important	3
Not applicable	3

About what percent of the equipment you sell is eligible for a rebate under the Compressed Air product?

Verbatim	
50%	80%
50 HP and bigger 100%, 10 HP and bigger 50%, so 75%	I would say around 10 likely. (through Xcel) Would say that is more than in previous years
75%	70-80%
70%	50%
50%	100%
25-30%	
25%	

Now imagine that the Xcel Energy program were not available, and you were not able to offer rebates for equipment or have any program support. About what percent of the compressed air equipment you sell do you think would be energy efficient?

Verbatim	
50%	20-30%
0%	Yeah, I would say sales techniques would change, and probably product solutions for customers would change. And then also sales totals would probably be lower.
50%	I would say drastically, I would say it would probably cut participation by 75%
50%	25-30%
50%	20%
50%	I think I would still recommend that my customers do it if they could, but getting the rebate help has been, I think, the biggest reason that we've been able to get so many people done. People like rebates, they like free stuff
25%	

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What impact does the product have on customer decisions to install efficient compressed air equipment or conduct compressed air efficiency studies?

- Five trade partners said that the product influences customers to focus less on price. They felt that in the absence of the product, customers would be more focused on the bottom line and would shop around the price more.
- Four trade partners said the product drives sales of energy efficient equipment and without it, their sales would go down. Trade partners felt that it would be difficult to sell energy efficient equipment without the program because they would have to show customers what their energy savings would be in more detail, in order to show them the benefits of the equipment.
- Five trade partners said that if the product did not exist, they would not do studies or would do a much simpler study.
- Two trade partners said the product helps them ensure that the customer gets the appropriate/correct equipment for their situation rather than just filling an immediate need.
- Three trade partners described the product as having some influence on the market by encouraging end users to buy energy efficient equipment. Otherwise, customers would purchase the quickest-to-replace and cheapest equipment: “Prescriptive is making a different, getting people to be more energy efficient.”
- Responses that were mentioned once included that the program has an influence on smaller customers who otherwise would not purchase energy efficient equipment because they would not want to maintain it. One trade partner said that he does not sell any eligible equipment outside the product – he recommends going through the product 100% of the time. One trade partner said that providing the rebate offering lends him some credibility, and he promotes the product by saying “Xcel Energy is offering this rebate because they want you to have the best equipment.”

C.5 Peer Utility Benchmarking Interview Results

MEMORANDUM

To: Madison Hults, Xcel Energy
Nick Minderman, Xcel Energy
Cc: Nicole Thomas, TRC Companies
Jeremy Kraft, TRC Companies
Hannah Justus, TRC Companies
From: Emily Morton, TRC Companies
Alex Trecha, TRC Companies

Re: Xcel Energy 2021 CO & MN Compressed Air Products – Peer Utility Benchmarking Interviews Memo

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Introduction

As part of the TRC Companies (TRC) evaluation of the Xcel Energy MN & CO Compressed Air Products in 2021, TRC conducted secondary research and in-depth interviews with key staff at peer utilities that operate compressed air programs. The objective of the peer utility benchmarking research was to understand how peer utilities approached key issues related to implementing compressed air programs. The evaluation team's findings are informed by interviews with key informants (e.g., program managers) at eight utilities (shown in this memo as Utilities A-H). These utilities were selected because they have comparable territories and/or programs to the Xcel Energy Compressed Air Products. This enables the evaluation to provide an "apples-to-apples" comparison, and to evaluate the set of circumstances (such as regulation, retail channels, demographics) that impact program plans at peer utilities.

Key themes the evaluation team explored with peer utilities included:

- **Overall program design and objectives**: savings goals and budgets, implementation strategies, approach to working with trade partners, and recent or planned changes to the program.
- **Program experiences:** Program strengths and challenges, customer awareness, motivations and barriers to participation
- **Opportunities for growth:** Marketing strategies used, use of remote/continuous monitoring technology, opportunities for additional new/emerging measures.
- **Net-to-gross (NTG) savings approach**: NTG method, ratio applied, calculation details

The remainder of this memo presents results based on each research objective.

Compressed Air Program Design

We asked interviewees about the design of their programs, including the types of services and measures offered to customers, how they engage trade partners, and any recent or upcoming changes to program design. Table 11 shows savings goals, actual savings and budget. Program 2020 participation is shown in Table 12.

Program Details

Table 11. Program Savings & Budget

	2020 Program Savings Goal	2020 Program Savings Actual	2020 Program Budget
Xcel Energy (CO)	4,784,175 kWh kWh 737 kW	1,330,454 kWh 241 kW	$709,343
Utility A	Not provided	42,000 kWh	$20,160
Utility B	322,418 kWh 48 kW	101,391 kWh 15kW	Plan: $37,188 Actual: 30,827
Utility C	Not specific to compressed air	15.950,592 kWh	Incentive Spend: ~$2,500,000

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Utility D	3,524,000 kWh 2,212 kW	Not Provided	$1,354,000*
Utility E	1,032,948 kWh 157 kW	43,038 kWh 8 kW	Plan: $140,000 Actual: $20,370
Utility F	648,000 kWh	2,132,534 kWh	$672,364
Utility G	Not provided	17,537,761 kWh	$4,049,280
Utility H	Not specific to compressed air	23,369,245 kWh 2,450 kW 257,379 Therms	Incentive Spend: $903,734 (no budget set specific to compressed air)

*Budget and savings are for broader program that includes compressed air and other C&I measures

Table 12. Program Participation

	Number of Projects Completed
Xcel Energy	72
Utility A	7
Utility B	2
Utility C	319
Utility D	0
Utility E	2
Utility F	3
Utility G	51
Utility H	283*

*Note. Represents number of applications processed, 283 unique measures were installed.

- Six out of eight peer programs include a study offering. Five of these offerings included a requirement that customers fix a portion of the leaks identified – ranging from 50% to 100% of identified leaks. One program that does not require leak fixes (Utility F) does require that the customer implement the measures identified in the study in order to receive the rebate for the study. Utility G does not offer studies through their compressed air program, but through their custom program, customers receive an energy analysis performed by in-house experts that can include compressed air systems.
- Almost all peers (all but Utilities D & E) include a custom offering in their compressed air program. For three peer utilities, the custom program is not specific to compressed air, but is part of a broader commercial & industrial (C&I) custom offering.
- Two peer programs include a direct install component in their programs. Utility A installs programmable line isolation devices for customers with rotary screw compressors of at least 15 horsepower that are not turned off daily, free of charge. Utility C installs new efficient compressed air nozzles for their customers.
- The peers varied in whether their programs were implemented by a third party. Four utilities (Utilities D, E, G and H) reported that third party implementers administered their program.

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- Peer utilities employ a variety of models for working with study providers within their compressed air programs. Four utilities report allowing a customer to use any contractor, as long as they are licensed to perform leak check audits. Two utilities report using a contracted third-party study provider who conducts all the program's audits. One peer utility reported that they have an in-house auditor who provides studies. Additionally, only one peer had a closed list of eligible trade partners who are approved to perform studies. One peer also noted that they allow customer to conduct their own leak checks and provide rebates to customers who purchase ultrasonic leak detection equipment.
- Of the peers who conduct studies, three stated that they claim savings through the program. One said that they do not claim savings for the study itself, but they do claim savings for the measures installed as a requirement for receiving study funding. Another said that they claim savings for studies through a different program as custom savings, not through compressed air.
- Utilities with study offerings reported a range of timeframes for eligibility, when a customer can conduct an updated study. Utility C allows customers to repeat a demand-side study every year, and a supply-side study every two years. The program recommends that customers alternate between a demand-side study and a supply-side study year over year. Two peers (Utilities B & D) allow a study to be repeated once every 5 years. Three peers do not report stipulating a timeframe for when studies can be repeated
- As stated previously, one peer stated that they require customers to complete measures identified in their studies in order to receive funding for the study. Another peer said that almost 100% of their study participants went on to install measures. On the other hand, three peers said they do not track whether study customers implement any measures and did not have a good sense of whether they go on to do so.

Trade Partner Engagement

We asked interviewees to describe trade partner interactions with the program, including influence of trade partners, barriers and drivers of trade partner participation, and incentives offered to trade partners. These findings are summarized below:

- Peer utilities frequently felt that trade partners were main drivers of their compressed air program, with five peers stating that trade partners are an influential and critical part of the program: "I would say that the success of a lot of our compressed air projects are because of what a great job our compressed air trade allies do. They're very much valued partners."
- Two peers felt like trade partners did not drive much traffic to the program, although one of these noted that their trade ally network was new, and they hoped it would start to drive more participation.
- Peers described a variety of barriers they felt could prevent greater trade partners participation in their compressed air programs. Two peers said that customer identification was difficult for trade partners. They noted that they relied on trade partners to drive participation, but it was often hard for trades to know which customers were a good fit for the program. One of these peers stated that trade partners had contacted them to ask for more targeted outreach support to identify potential customers. One peer also noted that data privacy rules prevented them from sharing the information of customers who may be a good fit for the program with trade partners.

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Another barrier described by two peers was ensuring that trade partners are continually engaged with the program and kept up to date on program changes, available rebates, and program processes.

- Other barriers to trade partner participation described once by peers included:
  - Customer hesitancy to move forward with custom projects because the incentive amounts are unknown until the work is done.
  - Fewer straightforward, "low hanging fruit" projects because more and more customers already have VSDs installed.
  - Lack of larger customer due to a state law limiting customers to those 500 kW and below.
  - Incentives are too low to be motivational.
  - Peer's territory is small, don't have a lot of large or industrial customers.
  - Customers who do not want to proceed with projects due to budget or time.

- Six out of eight peers stated that they do not offer any incentives or rewards to trade partners.
  - Two peers said that they offer trainings to trade partners. One of the peers felt that this was a successful method of engaging trade partners and said that they had received emails from trade partners asking if they will continue to offer trainings.
  - Utility C offered the most incentives to trade partners among the interviewed peers. The utility offered trainings, a compressed air challenge that includes training and a certification opportunity, spiffs/kickers given based on the number of projects the trade partner brings in or number of audit applications submitted, and a reward point system for trades partners to redeem in an online store.

Recent or Coming Changes to Program Design

We asked interviewees to describe changes made to their compressed air program in recent years, as well as anticipated changes expected in the near future. None of the peers reported planning extensive changes to program design in coming years, but several had recently implemented changes to the program, as detailed below:

- Until 2019, Utility A worked with a third-party implementer to conduct studies but have since sunset the study component of their program. Now, if customers want to do an audit or a leak check, the project can go through their custom (site-specific) offering through the C&I programs. Additionally, the utility does not currently have a prescriptive compressed air program but has been working to develop it. The utility is particularly interested in strategies for engaging smaller compressed air customers.
- Utility C's compressed air offering was a stand-alone program under their industrial program until 2021, with separate outreach and marketing from other programs. It is now contained within the utility's general rebate offerings. The utility noted that the program began as a pilot and once it became more established, it made sense to move it to their general offerings, where all the rebate offerings are marketed together. Furthermore, once the program moved to general offerings, the number of included compressed air measures increased. Lastly, Utility C introduced demand-side studies into the program 2-3 years ago.

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- Utility E recently implemented a retrocommissioning-specific compressed air audit offering, that contracts with a third-party consulting auditor to perform studies. Rather than providing the rebate when leaks are fixed, the program reimburses customers for the entire cost of the audit when they agree to complete recommended measures with a combined payback by two years or less.
- Utility F is considering providing project financing through on-bill financing, where the rebate is paid through a discount on the customer's utility bill, rather than through a check. The on-bill financing option has been popular in combination with other energy efficiency programs at the utility and may be a good fit for the compressed air program.
- Utility G noted that they had few changes to their program recently, but compressed air incentives in one of the states in their territory had decreased, related to funding approval.
- Utility H reported that the program has evolved and shifted since it was established and that the program has tried several different incentive structures and measure inclusions. Recently, (4 or 5 years ago) the program added heat recovery and load shifting to their compressed air offering. Additionally, in 2020 the program changed the incentive structure for the leak surveys and repair from offering multiple tiers of incentives to a flat rate.

Program Experiences

We asked interviewees about their perception of customer experience with the program, including awareness, motivation, and barriers to participation. We also asked the interviewees to describe what they felt were the strengths and weaknesses of their programs as currently designed.

Customer Awareness and Motivation for Participation

Peer utilities described their customers primarily becoming aware of the compressed air program through a trade partner. Additional summary findings are included below.

- Peers most frequently reported that customers were motived to participate in the program by their trade partner, with three peers noting that trade partner were the main source of awareness and motivation.
- Other sources of awareness were mentioned once by peer utilities. These included becoming aware through their account representatives, through the program's third-party implementers – who contact customer directly, and through outreach staff who work for the peer's broader C&I program.
- Two peer utilities felt that customers were motivated to participate in the rebate programs by a need to replace old or outdated equipment, and by the study or audit.

Customer Barriers to Participation

Interviewees described a variety of barriers they felt their customers faced. Primarily, these barriers included COVID-19 pandemic impacts, lack of awareness among end use customers, and difficulty engaging smaller customers.

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- Two peers felt that the COVID-19 pandemic reduced participation in the program in the last year, because customers lost jobs and there was a general slow-down in business operations.
- Two peers stated that a lack of awareness among end use customers was a barrier to their participation. Customers are not aware the program exists, or if they do, do not fully understand the program.
- Two peers also felt that customer size was a barrier, because it is often hard for smaller customers to justify the costs of audits and more expensive efficient equipment.
- Other barriers described by peers included meeting program requirements and submitting the correct paperwork, customer constraints on budget and timing, and uncertainty around incentive size for custom projects.

Program Strengths

The evaluation team asked interviewees to describe what they felt were the strengths and weaknesses of their compressed air programs, primarily citing the benefits of a streamlined and efficient program. Peer descriptions of program strengths are summarized in the bullets below.

- Four peer utilities felt a strength of their program was the simplicity and efficiency of the prescriptive offering. These peers stated that the prescriptive offering made it easy for customers to apply for the program and get money to help pay for their projects. Additionally, the prescriptive program is less costly for the utility to operate than the custom or audit offerings.
  - One the other hand, several peers felt that a more robust offering was easier for customers. One peer felt that the variety in their program and ability to offer multiple tiers of participation increased the number of projects that were submitted through the program. Two peers felt that the comprehensive, longer list of eligible equipment allowed customers to use the prescriptive program more often and reduced the administrative burden of submitting and process custom applications.
- Two peer utilities noted that a strength of their program was that it effectively helped offset customer project costs, and consequently led the customer to make more energy efficient choices.
  - One peer specifically noted the impact of the incentives in reducing the upfront costs of energy efficient equipment.
- Two peer utilities described their implementation partner as a strength of their program. They noted that their consultants are highly qualified and knowledgeable about compressed air systems: “they have a deep bench of compressed air expertise.”
- Utility E highlighted the strength of their retrocommissioning compressed air study, stating that it was very successful in exploring inefficiencies and misapplications in a customer’s compressed air system.

Program Weaknesses

We also asked peer utilities to identify weaknesses of their programs as they are currently designed. The weaknesses identified by interviewees are summarized in the bullets below.

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- Three peers felt that a lack of end user awareness and education was a weakness of the program. These peers felt that end users often are not aware that they need to optimize their compressed air systems and need more education. Convincing customers of the benefits of making their compressed air systems more efficient, and then making them aware of the program offerings is difficult. The difficulty is due in part to challenges identifying customers with compressed air systems who could benefit from the program. One peer noted that even when customers know they should optimize their systems, they often still "don't have the ability to move forward and it's really out of our control"
- Despite several programs highlighting the prescriptive offering as a successful component of their compressed air offering, two peers felt that the prescriptive offering was a weakness for their program. Both peers felt that the prescriptive compressed air offering had been difficult to get off the ground and had so far seen little participation.
- One peer felt that the emphasis placed on rebates and equipment installation was a weakness. They felt that their program was seeing fewer applications for VFDs and other equipment rebates. Instead, they were seeing more savings from audits and leak repairs. The peer felt that this indicated a transition toward system maintenance and away from new measure installation. This peer had noted previously that there were fewer "low hanging fruit" projects (like VFDs), because most companies already had this equipment.
- One peer felt a major weakness of the program was the inability to work with larger customers, due to a law preventing participation by customers with demand greater than 500kw.

Opportunities for Growing the Compressed Air Program

Lastly, the evaluation team asked questions related to opportunities for growth or expansion of the peers' compressed air programs. We asked peers to discuss successful outreach and marketing strategies, and areas where they feel there is potential for growing or expanding their compressed air programs. Peer responses are summarized in the following bullets.

Outreach and Marketing Strategies

- Four peers said that they market their compressed air program through Account Representatives who have relationships with clients, which could be leveraged to identify customers who a good fit for the program. Utility C stated that they felt this was the best way to "get word out" about the program.
- Three peers said that marketing the program through trade partners has been the most successful method of promoting outreach for the program. One of these said that they lean on their third-party implementer to work directly with trade partner to provide them outreach support.
  - Two of these peers said they have marketing collateral materials, like sell sheets, a summary of incentives, and targeted marketing pieces to support trade partner outreach.
  - Two peers also described conducting in-person trainings for trade partners. These trainings include compressed air fundamentals and other related courses and are a good opportunity for trade partner companies to get new staff up to speed on the

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program. Utility C said they continually receive requests for training from trade partners.

- Utility C reported the most comprehensive marketing strategy of the interviewed peer utilities. Strategies employed by Utility C included direct outreach to end users, leveraging account managers (said this has "proven to be the best way to get the word out"), outreaching through trade partners, using implementers to support trade partner outreach, distributing marketing collateral, conducting trainings, and offering a "compressed air challenge" online. This peer said that through their outreach, they aim to not only market the program but also support trade partner knowledge.
- Utility G said that, in addition to offering training and conducting outreach through account representatives, other programs in the portfolio (Process Efficiency) provide and audit and often direct customers to the compressed air program.

Opportunities for Growing the Program

Peer utilities provided some opportunities they are pursuing for growing their compressed air programs.

- Utility B is interested in direct outreach to end users. They felt it would be helpful to increase education on compressed air systems and their program offerings for their customers. The peer is planning to work with marketing to contact facility managers and identify more compressed air specific customers who could benefit from the program.
- Utility C stated that they would continue working closely with vendors to source ideas and feedback to improve the program experience for their trade partners. They will also use these opportunities to keep up to date on new compressed air measures in the market.
- Utility E is exploring the potential for alternative options for their retrocommissioning compressed air audit, particularly considering adding a more streamlined "lite" version.
- Utility F noted that they may expand the program to once again include leak detection and repair, which they had included in the past, if their regulator allows it to be reinstated.

Peers also provided some information on their experience and perception of remote and continuous compressed air monitoring.

- Only one peer said they currently offer remote or continuous monitoring. It is not offered directly through the program, but rather through the third-party implementer.
- The other seven peers do not currently offer remote or continuous monitoring through their compressed air programs.
- One peer noted that continuous monitoring has been raised as a potential measure to include in the program, but the peer did not think they were currently pursuing it.

Net-to-Gross Ratios

As part of the evaluation team's assessment of the Xcel Energy net-to-gross ratio (NTGR), Xcel Energy wanted to better understand what other utilities use for their NTGR and any drivers leading to the NTGR. The NTGR for each peer utility can be found in Table 13.

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Table 13. Peer Utility Net-to-Gross Ratios

Utility	NTGR
Utility A	N/A
Utility B	.80
Utility C	.88
Utility D	.90*
Utility E	N/A**
Utility F	N/A
Utility G	.86
Utility H	.77*

*NTG estimated for broader C&I program, not specifically for compressed air

**Utility accounts for 7% line loss in calculation of net savings

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Compressed Air Efficiency Evaluation

2021 Program Evaluation: Recommendations and Responses

The Xcel Energy Compressed Air Efficiency product in Colorado helps customers address inefficiencies in their compressed air systems. The product encourages repair and redesign of existing systems and encourages the purchase of efficient options for new and replacement systems. The product includes prescriptive rebates, study rebates, and custom rebate options.

Xcel Energy ("the Company") engaged a team of researchers led by TRC Companies to conduct a process and impact evaluation of the Compressed Air Efficiency product. The evaluation team completed the following activities as part of that evaluation:

- Calculated the retrospective and prospective Net-to-Gross ratio ("NTGR");
- Evaluate trade partner and customer experiences with studies and rebate processes;
- Understand customer motivations and barriers to participation in the products;
- Identify ways to grow the compressed air market;
- Assess the impact of the product on customer decision making; and
- Benchmarking review of peer utility compressed air program best practices.

Based on the results of this research, the evaluation team developed key findings and recommendations for Xcel Energy.

Recommendation	Response
1) The evaluation team estimated a retrospective NTGR of 0.89 for both Equipment Rebates and Efficiency Studies, based on participating customer and trade partner responses. The evaluation team recommends Xcel Energy apply a prospective NTGR of 0.90 for Equipment Rebates and NTGR of 0.89 for Efficiency Studies if recommendations are implemented.	The Company will implement the recommendations made in the evaluation and apply a prospective NTGR of 0.90 for Equipment Rebates and NTGR of 0.89 for Efficiency Studies.
2) Increase the frequency of communications with trade partners regarding product changes and other product updates.	The Company will increase frequency of trade communications.
3) Provide trade partners with an update (phone, in-person, or via email) including the status of open projects and estimated review time of their projects, so they can communicate that information to their customers.	The Company will provide project updates to trade partners.
4) Use updates to remind trade partners of who contact at Xcel Energy when they have questions or concerns.	The Company will provide product contact information to trade partners.
5) Ensure processes for working with trade partners are well documented in internal material.	The Company will document trade partner engagement processes for internal use.

6) When possible, host trainings, lunches, and other in-person meetings to maintain high-touch relationships with trade partners.	The Company will host events and meetings for trade partners.
7) Consider direct marketing to end-users of compressed air equipment to drive customers to qualified trade partners.	The Company will evaluate direct marketing to end-users on product equipment.
8) Provide trade partners with updated customer-facing marketing materials that highlight the cost and energy savings they could achieve with high-efficiency equipment.	The Company will provide updated customer-facing marketing materials to trade partners.
9) Monitor incremental prescriptive rebate amounts for Colorado to determine whether there may be opportunity to increase prescriptive rebate amounts.	The Company is currently researching costs for baseline and high-efficiency equipment in order to properly evaluate opportunities for increased rebate amounts. If the evidence supports increased rebates, the Company anticipates implementing any updates in its upcoming 2023 DSM Plan filing.
10) Encourage account representatives to work closely with trade partners or product staff to engage with customers who are eligible for an updated study.	The Company will encourage account representatives to provide study eligibility information to customers.

Program	Measure Group	Measure Lifetime (years)	Rebate Amount ($)	Incremental Cost ($)	Annual Customer kWh Savings (kWh/yr)	Annual Customer Peak Coincident Demand Savings (PCkW)	Gas Savings (Dth)	Non-Energy O&M Savings ($)	Electric NTG (%)	Gas NTG (%)	Install Rate (%)	2021 Electric Units	2022 Electric Units	2021 Gas Units	2022 Gas Units
Compressed Air	ECO	5	$0	$2,568	106,530	12.275	0.0	$0.00	89%	100%	100%	3	3	0	0
Compressed Air	Supply Side Study	5	$4,793	$6,942	35,354	5.715	0.0	$0.00	89%	100%	100%	41	45	0	0
Compressed Air	Cycling Dryers	20	$420	$1,042	9,740	0.929	0.0	$0.00	90%	100%	100%	19	20	0	0
Compressed Air	Dryer Purge Demand Controls	20	$1,334	$3,398	72,936	6.900	0.0	$0.00	90%	100%	100%	3	3	0	0
Compressed Air	Mist Eliminators	11	$1,245	$3,249	11,438	1.466	0.0	$312.00	90%	100%	100%	5	6	0	0
Compressed Air	No Air Loss Drain	13	$200	$323	3,848	0.511	0.0	$0.00	90%	100%	100%	41	43	0	0
Compressed Air	New VFD Compressor	20	$3,826	$5,210	19,806	4.287	0.0	$0.00	90%	100%	100%	60	69	0	0
Compressed Air	Custom Compressed Air Project	19	$6,638	$26,862	73,895	11.365	0.0	$0.00	90%	100%	100%	30	33	0	0

COMPRESSED AIR EFFICIENCY

2022 Net Present Cost Benefit Summary Analysis For All Participants

	Participant Test ($Total)	Utility Test ($Total)	Rate Impact Test ($Total)	Modified Total Resource Test ($Total)
Benefits				
Avoided Revenue Requirements				
Generation Capacity	N/A	$1,022,643	$1,022,643	$1,022,643
Trans. & Dist. Capacity	N/A	$128,073	$128,073	$128,073
Marginal Energy	N/A	$1,295,275	$1,295,275	$1,295,275
Avoided Emissions (CO2)	N/A	N/A	N/A	$972,882
Subtotal				$3,418,873
Non-Energy Benefits Adder (20.0%)				$489,198
Subtotal	N/A	$2,445,991	$2,445,991	$3,908,071
Participant Benefits				
Bill Reduction - Electric	$4,636,656	N/A	N/A	N/A
Participant Rebates and Incentives	$727,195	N/A	N/A	$727,195
Incremental Capital Savings	$0	N/A	N/A	$0
Incremental O&M Savings	$16,596	N/A	N/A	$14,936
Subtotal	$5,380,447	N/A	N/A	$742,132
Total Benefits	$5,380,447	$2,445,991	$2,445,991	$4,650,203
Costs				
Utility Project Costs				
Program Planning & Design	N/A	$0	$0	$0
Administration & Program Delivery	N/A	$229,742	$229,742	$229,742
Advertising/Promotion/Customer Ed	N/A	$64,800	$64,800	$64,800
Participant Rebates and Incentives	N/A	$727,195	$727,195	$727,195
Equipment & Installation	N/A	$0	$0	$0
Measurement and Verification	N/A	$32,400	$32,400	$32,400
Subtotal	N/A	$1,054,137	$1,054,137	$1,054,137
Utility Revenue Reduction				
Revenue Reduction - Electric	N/A	N/A	$4,636,656	N/A
Subtotal	N/A	N/A	$4,636,656	N/A
Participant Costs				
Incremental Capital Costs	$1,630,466	N/A	N/A	$1,464,218
Incremental O&M Costs	$0	N/A	N/A	$0
Subtotal	$1,630,466	N/A	N/A	$1,464,218
Total Costs	$1,630,466	$1,054,137	$5,690,794	$2,518,356
Net Benefit (Cost)	$3,749,981	$1,391,854	($3,244,802)	**$2,131,847**
Benefit/Cost Ratio	3.30	2.32	0.43	**1.85**

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

2022 ELECTRIC GOAL

Input Summary and Totals

Program "Inputs" per Customer kW and per Participant		
Lifetime (Weighted on Generator kWh)	A	14.8 years
T & D Loss Factor (Energy)	B	5.33%
T & D Loss Factor (Demand)	C	7.71%
Net-to-Gross (Energy)	D	89.70%
Net-to-Gross (Demand)	E	89.72%
Installation Rate (Energy)	F	**100.00%**
Installation Rate (Demand)	G	**100.00%**
Net coincident kW Saved at Generator	H	4.53 kW
Gross Annual kWh Saved at Customer	I	28,663.80 kWh
Net Annual kWh Saved at Generator	J	27,159.50 kWh

Program Summary All Participants		
Total Budget	K	**$1,054,137**
Net coincident kW Saved at Generator	L	**1,006 kW**
Gross Annual kWh Saved at Customer	M	6,363,363 kWh
Net Annual kWh Saved at Generator	N	**6,029,410 kWh**
Total MTRC Net Benefits with Adder	O	**$2,131,847**
Total MTRC Net Benefits without Adder	P	**$1,642,649**
Utility Program Cost per kWh Lifetime	K/(A x N)	**$0.0118**
Utility Program Cost per kW at Gen	K/ L	**$1,048**
Avoided Lifetime CO2 Emissions, Total Program (tons CO2)		**24,075**