



Minnesota Energy Conservation and Optimization Program

Energy Savings, CO₂ Reductions and Economic Benefits Achieved 2020-2021

Pursuant to Minnesota Statutes § 216B.241, subd. 1c(f)

March 7, 2024

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Minnesota Department of Commerce

Mission

For more than 150 years, the Minnesota Department of Commerce and its predecessor agencies have served Minnesotans. Our mission is to protect and assist consumers, to ensure a strong, competitive, and fair marketplace, and to engage people and communities across the state.

Our Strategic Priorities

- Protect the public interest through consumer protection, consumer education, assistance to consumers, safety, health and financial security, and lowering inequities.
- Serve as a trusted public resource for consumers and businesses by listening and learning from the Minnesotans Commerce services, being effective stewards of public resources, advocating for Minnesota consumers and developing a policy, programmatic, and regulatory environment that meets their needs.
- Reduce economic barriers within Commerce regulatory oversight and reduce disparities within those of all races, ethnicities, religions, economic statuses, gender identities, sexual orientations, (dis)abilities, and zip codes.
- Ensure all, especially historically disadvantaged Minnesotans, are resilient to Minnesota's climate and engaged in advancing efforts to mitigate climate change.
- Ensure a strong, competitive, and fair marketplace for Minnesotans.

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Executive Summary

The Minnesota Department of Commerce (Commerce) submits this report in fulfillment of Minn. Stat. § 216B.241, subd. 1c(f). The statute requires the Commissioner of Commerce to produce and make publicly available a report on the annual energy and capacity savings and estimated carbon dioxide (CO₂) reductions achieved through the Energy Conservation and Optimization (ECO) program¹ for the two most recent years for which data is available. This report includes utility-reported ECO performance data for program years 2020 and 2021.

ECO helps Minnesota households and businesses use electricity and natural gas more efficiently – conserving energy, reducing CO₂ emissions, and lessening the need for new utility infrastructure. ECO is funded by ratepayers and administered by electric and natural gas utilities.

Commerce oversees ECO to ensure that ratepayer dollars are used effectively to achieve the statutorily required energy savings goals and that energy savings are reported as accurately as possible. Minnesota utilities operate a wide array of residential, commercial, and industrial ECO programs. These programs target both retrofit and new construction projects.

In total, in years 2020 and 2021, ECO programs benefited Minnesota’s environment and economy by:

- Saving around 14.4 trillion-Btus of energy – enough energy to heat, cool and power more than 147,000 Minnesota homes for a year (EIA 2023a).
- Reducing CO₂ emissions by 1.46 million tons, equivalent to removing over 296,000 gasoline-powered passenger vehicles from the road for one year (EPA 2023a, 2023b, and EIA 2023d).
- Saving Minnesota’s businesses and residents over \$287 million in energy costs (EIA 2023b and EIA 2022b).²
- Supporting over 43,000 energy efficiency jobs, representing the largest sector of Minnesota’s clean energy employment (Evergreen Climate Innovations et al. 2023).

Table 1. Total 2020-2021 ECO Electric and Gas Impacts

	CO ₂ Savings (tons)	Energy Savings (1000s MMBtu)	Participant Energy Cost Savings
Electric	1,069,255	7,645	\$242,838,928
Gas	399,742	6,854	\$44,360,218
Total	1,468,997	14,499	\$287,199,146

¹ The Conservation Improvement Program has been renamed as the “Energy Conservation and Optimization” program to better reflect the multifaceted nature and focus of these programs brought about by the passage of the 2021 Energy Conservation and Optimization Act. As such, the new nomenclature is used throughout this report.

² Estimated energy cost savings were calculated by multiplying the average price per Dth of natural gas and the average price per kWh of electricity in Minnesota by the corresponding Dth and kWh ECO energy savings achievements for 2020 and 2021. This calculation does not net out CCRA/CCRC charges to customers. See the “References and Methodology Notes” section for more information about how various impacts were calculated and their data sources.

Overview of the ECO Program

ECO is a utility-administered program with regulatory oversight provided by Commerce. Utility ECO programs promote energy-efficient technologies and practices by providing rebates, marketing, and technical assistance to utility customers. ECO programs help Minnesota households and businesses lower their energy costs by using electricity and natural gas more efficiently. Commerce reviews and approves utility ECO regulatory filings to ensure that energy savings are calculated accurately, statutory requirements are met, and programs meet cost-effectiveness standards.

As summarized in Figure 1, ECO type programs began in Minnesota in the 1980s with the intention of motivating utility spending on energy efficiency. The passage of the 2007 Next Generation Energy Act established Minnesota's Energy Efficiency Resource Standard (EERS), which required utilities, beginning in 2010, to develop plans to achieve energy savings equal to 1.5% of average annual retail sales each year, unless adjusted by Commerce's Commissioner to no less than 1.0%.

On May 25, 2021, the Energy Conservation and Optimization Act (ECO Act) was signed into law by Governor Tim Walz.³ The ECO Act primarily serves to modernize what was the Conservation Improvement Program (CIP) to provide a more holistic approach to energy efficiency programming. Notable highlights of the ECO Act include:

- Providing participating electric and natural gas utilities the opportunity to optimize energy use and delivery through the inclusion of load management⁴ and efficient fuel-switching programs.⁵
- Raising the energy savings goals for the state's electric investor-owned utilities (IOUs).⁶
- More than doubling the low-income spending requirement for all IOUs.⁷
- Providing greater planning flexibility for participating municipal and cooperative utilities.⁸
- Including activities to improve energy efficiency for public schools.⁹

³https://www.revisor.mn.gov/bills/text.php?number=HF164&type=bill&version=2&session=ls92&session_year=2021&session_number=0

⁴ See Minn. Stat. § 216B.241, subd. 13.

⁵ See Minn. Stat. § 216B.2403, subd. 8.

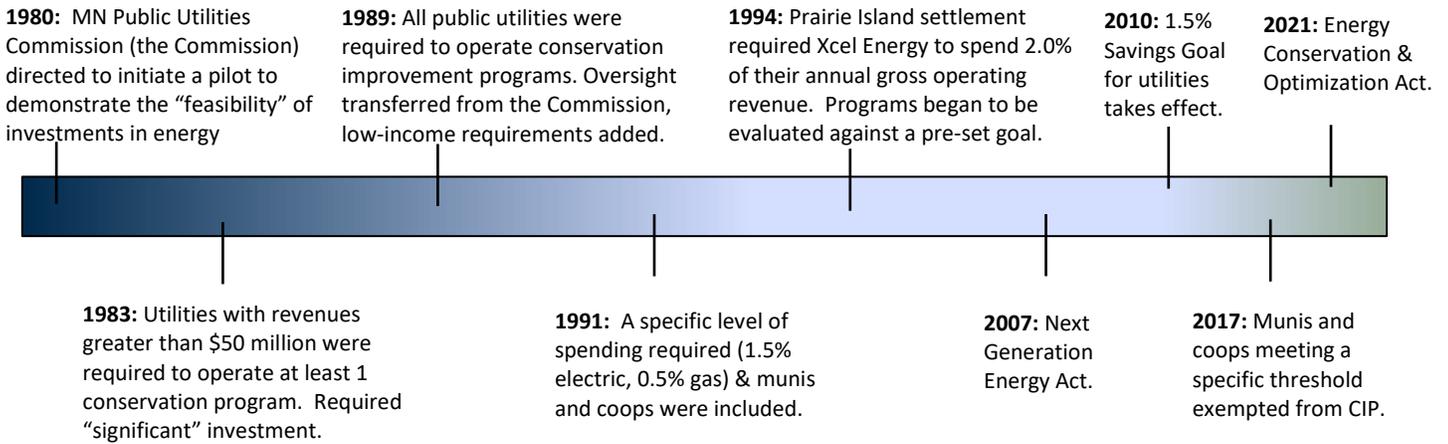
⁶ Minn. Stat. § 216B.241, subd. 1c(b).

⁷ Minn. Stat. § 216B.241, subd. 7(a).

⁸ Minn. Stat. § 216B.2403, subd. 3.

⁹ See Minn. Stat. §§ 216B.2403, subd. 3(j) and 216B.241, subd. 2(i).

Figure 1. CIP/ECO Program History



Minnesota utilities operate a wide array of residential, commercial, and industrial programs within their ECO portfolios that target retrofits as well as new construction projects. Each utility may tailor its portfolio of programs to meet the unique needs of its service territory. Traditionally, programs have offered prescriptive equipment-based incentives (e.g., replacing an incandescent light bulb with an LED lamp). More advanced programs are using building-centric or systems approaches to incentivize customers to implement bundles of efficiency measures or achieve a certain energy performance level beyond code (e.g., recommissioning an office building or school). Many utilities also offer robust industrial efficiency programs that strive to help manufacturers increase the energy efficiency of their operations and better compete in markets.

The following sections of this report highlight the CO₂ reductions and energy savings that utilities achieved in 2020 and 2021. Commerce also recognizes the positive economic impacts that utility-run ECO portfolios bring to Minnesota in terms of energy bill savings, job creation, and utility scale benefits.

2020 and 2021 ECO Performance

Energy Savings and Spending

In terms of total energy saved, 2021 was another successful year for the ECO program. Minnesota's natural gas savings percentage was the fourth highest in the nation, and electric utilities achieved the seventh highest energy savings percentage nationally (ACEEE 2022).

As shown in Figure 2 and Figure 3, electric and natural gas savings for 2020 and 2021 totaled 2,240 gigawatt-hours (GWh) and 6.85 billion cubic feet (bcf), respectively. Combined, these energy savings are equivalent to around 14.4 trillion-BTUs of energy. This is enough energy to heat, cool, and power more than 147,000 homes for a year (EIA 2023a) or more than the number of housing units in Saint Paul (Census 2023).

Figure 2. ECO Electric Results 2011-2021 (energy savings achievements as percentage of utility sales above green bars)

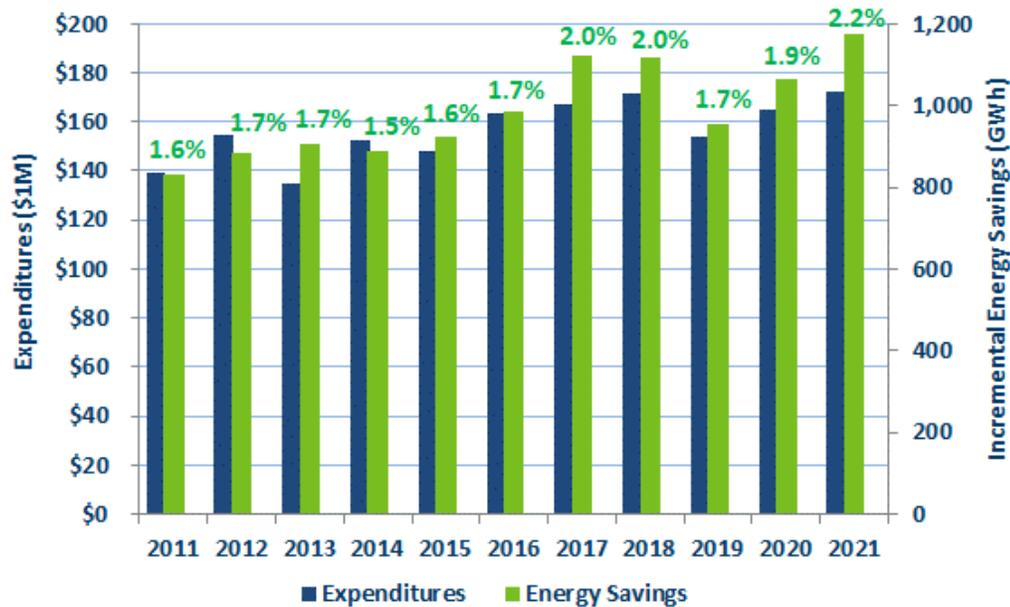


Figure 3. ECO Natural Gas Results 2011-2021 (energy savings achievements as percentage of utility sales above green bars)

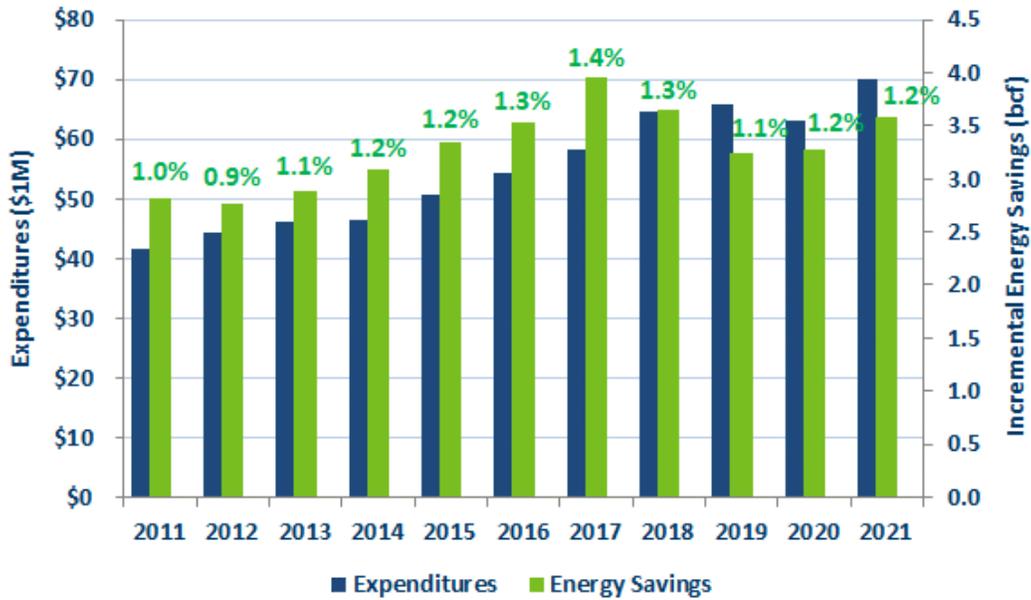
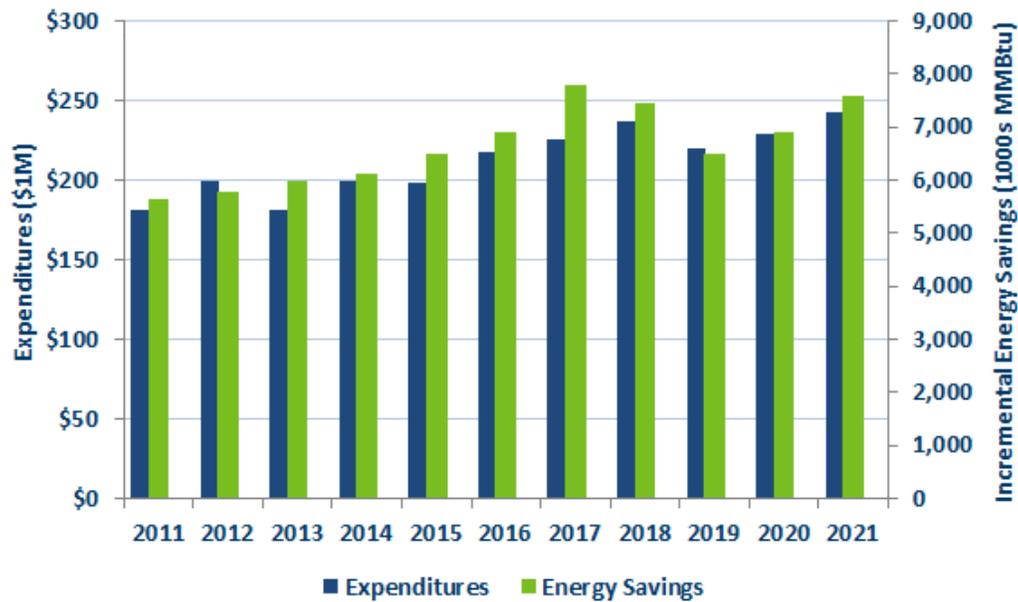


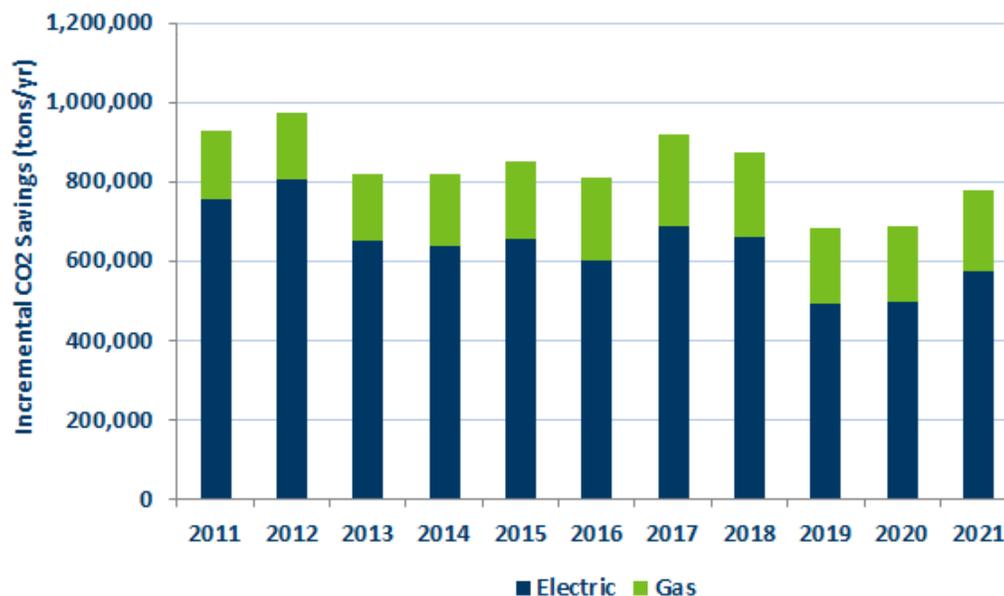
Figure 4. Aggregate ECO Performance 2011-2021



Avoided CO₂ Emissions

The Next Generation Energy Act of 2007 established Minnesota’s goals for reducing greenhouse gas emissions. ECO utility portfolios achieved 1.46 million tons of avoided CO₂ emissions in 2020-2021 (EPA 2023a and EIA 2023d). These savings equate to removing over 296,000 gasoline-powered passenger vehicles from the road for one year (EPA 2023b) or about 4.6 percent of the state’s registered vehicles (MN Department of Public Safety 2022).

Figure 5. Total Avoided CO₂ Emissions 2011-2021¹⁰



The ECO Program as an Energy Resource

One of the primary purposes of ECO is to serve as a low-cost resource for meeting future energy needs. Minnesota treats demand-side management (DSM) programs as a resource alongside supply-side resources in utility integrated resource plans. Programs to address the demand-side are composed primarily of energy conservation activities, while supply-side resources primarily consist of fossil-fueled, nuclear, and renewable generation. Integrated resource plans (as approved by the Minnesota Public Utilities Commission) attempt to determine the mixture of resources over the next 15 years that will meet the needs of an electric utility’s customers in a reliable and low-cost manner.¹¹ Utilities often select high levels of DSM to meet their needs because they are a lower-cost resource than supply-side options. Procurement of efficiency as a preferred resource, and primarily through cost-effective ECO investments, is a long-standing policy in Minnesota.¹² It requires a lower upfront investment than new

¹⁰While the method for calculating ECO’s CO₂ emission savings has not changed, the electric CO₂ emissions rate has generally declined over time. This is due in part to an increase in electricity generation from renewable energy and a decrease in electricity generated by coal-fired power plants. As CO₂ emitting fuel sources continue to decline in use, so too will the emissions factor used to calculate CO₂ reductions from ECO.

¹¹ Minn. Stat. § 216B.2422.

¹² <https://www.revisor.mn.gov/statutes/cite/216B.2401>

power generation facilities, reduces total energy demand, and delays the need for new power generation in Minnesota. Figure 6 compares the average levelized costs of ECO and other supply-side energy resources, highlighting ECO's cost-effectiveness compared to other options for meeting customer energy requirements.

Figure 6. Levelized Average Cost Comparison of ECO to Various Electricity Generation Options (MN Department of Commerce 2022 and EIA 2022a)

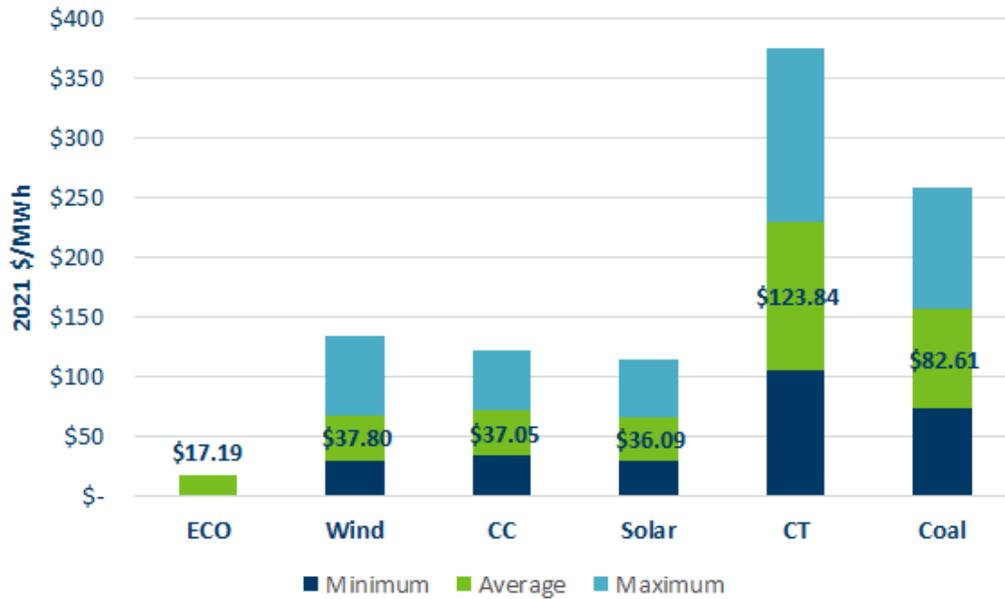


Figure Key

ECO = Levelized average cost of ECO (2019-2021)

Wind = Utility-scale onshore wind energy plant

CC = Natural gas-fired combined cycle plant

Solar = Utility-scale solar energy plant

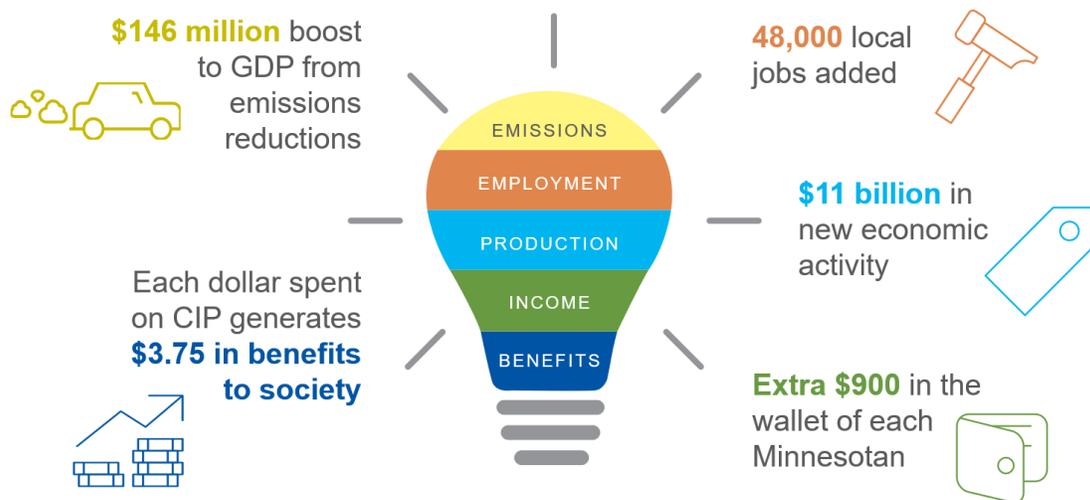
CT = Natural gas-fired combustion turbine plant

Coal = Ultra-supercritical coal plant

Consumer and Business Benefits

ECO brings positive economic and societal benefits to Minnesota. An independent 2020 study estimated the net economic impacts of ECO investments made from 2013-2018. The study found that **each dollar spent on ECO generates \$3.75 in benefits to society (Cadmus 2020)**. As summarized in Figure 7, each year of ECO investment generates numerous immediate and persistent positive economic impacts to customer energy bill savings, job growth, and environmental benefits.

Figure 7. Net Impacts of 2013-2018 ECO Investments (Cadmus 2020)

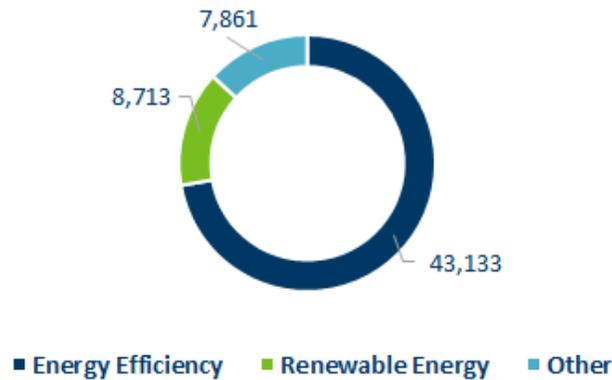


ECO also saved Minnesota’s businesses and residents over \$287 million in energy costs in 2020-2021 (EIA 2023b and EIA 2022b). These savings are a major benefit that ECO provides to both households and businesses of all sizes across the state. Consumers can use these savings to both improve their financial stability and support businesses in Minnesota. Businesses can use the savings to bolster their budgets and continue investing in improvements to the products and services that they offer to customers.

The ECO Program & Minnesota’s Economy

Every county in Minnesota benefits from the jobs both created and retained in the energy efficiency sector. An analysis by Evergreen Climate Innovations et al. found that Minnesota had over 43,000 jobs in the energy efficiency field in 2022, which represents the largest sector for Minnesota’s clean energy employment (Evergreen Climate Innovations et al. 2023). This estimate represents an increase from the approximately 42,000 energy efficiency jobs that Evergreen Climate Innovations et al. estimated for 2021. ECO projects employ different trades throughout this sector, including HVAC, engineering, lighting, design, and construction. ECO spending and investments help expand and protect these Minnesota energy efficiency jobs.

Figure 8. 2022 Clean Energy Employment Sector Breakdown by Sector



Additional Reporting Metrics

This section highlights additional reporting requirements that Commerce is directed to include as part of this annual report. Many of these are new reporting metrics that were introduced as part of the 2021 ECO Act. As such, data to estimate some of these metrics are not yet available and/or not applicable to the 2020-2021 ECO years covered in this report. However, even where data are not yet available to provide estimates for all the metrics, Commerce has attempted to draft methodology descriptions for how these metrics may be estimated in future annual reports.

Annual Capacity Savings

Statute

“On an annual basis, the commissioner shall produce and make publicly available a report on the annual energy and capacity savings and estimated carbon dioxide reductions achieved [...]” Minn. Stat. § 216B.241, subd. 1c(f).

Methodology

The “2020 and 2021 ECO Performance” section of this report provides estimates of annual ECO energy savings and CO₂ reductions. The ECO Act now requires that Commerce report annual capacity savings as well. As part of their annual ECO status reports, utilities report actual energy and demand savings achievements for each program operated during the previous calendar year. Commerce totaled the utility-reported kilowatts (kW) saved at the generator for 2020 and 2021 for all utilities that are subject to the ECO statutory requirements. The total kW savings figures do not include kW savings from ECO exempt utilities.

Results

- 2020 Capacity Savings (kW Saved at the Generator) = 533,529
- 2021 Capacity Savings (kW Saved at the Generator) = 364,861

Annual Energy Sales or Generation Capacity Increases Resulting from Efficient Fuel-Switching Improvements

Statute

“The report must also include information regarding any annual energy sales or generation capacity increases resulting from efficient fuel-switching improvements.” Minn. Stat. § 216B.241, subd. 1c(f)

Methodology

The ECO Act requires that this report provide estimates of increases in energy sales or capacity related to efficient fuel-switching improvements. It is generally assumed that the energy sales increases and capacity additions will be electric, due to the likely predominance of natural gas and delivered fuel switches to electric end uses. The result of these switches is a reduction in natural gas and delivered fuels use and an increase in electricity use. To facilitate production of electricity to meet increased customer demand, utilities may need to add generating capacity.

Results

There are not yet any results from efficient fuel-switching improvements to report on because utilities only began implementing efficient fuel-switching programs in 2023.

Estimate of Progress Made Toward the 2.5% Statewide Energy-Savings Goal

Statutes

Minn. Stat. § 216B.2401(c):

“The commissioner must provide a reasonable estimate of progress made toward the statewide energy-savings goal under paragraph (a) in the annual report required under section 216B.241, subdivision 1c, [...]”

Minn. Stat. § 216B.2401(a):

“Therefore, it is the energy policy of the state of Minnesota to achieve annual energy savings equivalent to at least 2.5 percent of annual retail energy sales of electricity and natural gas through multiple measures, including but not limited to:

- (1) cost-effective energy conservation improvement programs and efficient fuel switching utility programs under sections 216B.2402 to 216B.241;*
- (2) rate design;*
- (3) energy efficiency achieved by energy consumers without direct utility involvement;*
- (4) advancements in statewide energy codes and cost-effective appliance and equipment standards;*
- (5) programs designed to transform the market or change consumer behavior;*
- (6) energy savings resulting from efficiency improvements to the utility infrastructure and system; and*

(7) other efforts to promote energy efficiency and energy conservation.”

Methodology

The ECO Act increases the statewide energy savings goal to 2.5% of annual retail electricity and natural gas sales and requires that Commerce provide a reasonable estimate of the state’s progress toward achieving this statewide goal. The following discussion describes the methods by which reductions in electricity and natural gas sales could be estimated based on the categories in Minn. Stat. § 216B.2401(a).

Categories 1, 4 (partial), 5, and 6

- Cost-effective energy conservation improvement programs and efficient fuel-switching utility programs, utility residential and commercial code support ECO programs (see Category 4 below), programs designed to transform the market (see Category 5 below) or change consumer behavior, and energy savings resulting from efficiency improvements to the utility infrastructure system are provided in investor-owned utility and consumer-owned utility annual ECO status reports.

Category 2: Rate Design

- Rate design is another available method for achieving energy savings. However, the primary function of rate design is not to promote energy savings. Rather, utilities design rates to recover their costs in a fair and equitable manner from different customer classes and, more generally, aim to provide customers accurate price signals as an incentive to make efficient and equitable use of energy resources. Therefore, it was not possible to directly estimate savings related to rate design as part of this report.

Category 3: Energy Efficiency Achieved by Energy Consumers Without Direct Utility Involvement

- Energy efficiency achieved without direct utility involvement refers to activities energy consumers in Minnesota have taken without participating in ECO. Because these energy efficiency activities take place outside of regulated utility ECO programs, data to estimate these activities are unavailable.

Category 4: Advancements in Energy Codes and Appliance and Equipment Standards

- Energy savings from advancements in statewide energy codes and cost-effective appliance and equipment standards refers to energy savings from changes in the State’s building energy codes and appliance and equipment standards that deviate from the current cycle and application of codes and standards. Minnesota currently has a six-year cycle to update its residential and commercial building codes (including energy-related aspects). The State does not have applicable appliance or equipment standards currently. Some utilities have residential and commercial ECO programs that support communities across Minnesota seeking to improve building energy code compliance and influence incorporating above-code energy-efficient

systems and equipment. It is assumed that utilities report savings from their code support ECO programs and that these savings are captured in reporting related to Category 1 results.

Category 5: Programs Designed to Transform the Market or Change Consumer Behavior

- Energy savings from programs that transform the market or change consumer behavior can be estimated based on utility and non-utility programs that seek to transform the way customers use energy, and utility programs that seek to change consumer behavior. Minnesota utility programs aimed at market transformation and those focused on changing consumer behavior are captured in reporting related to Category 1 results. Non-utility programs include regional and federal programs such as EPA’s ENERGYSTAR® program and the Minnesota Efficient Technology Accelerator (META). It is assumed that utility ECO programs incorporate into their program results savings related to ENERGYSTAR since many programs encourage customers to purchase ENERGYSTAR-designated measures. The META program is a Minnesota market transformation program with a goal to accelerate deployment and reduce the cost of emerging and innovative efficient technologies and approaches. The Deputy Commissioner’s July 1, 2022 Decision approved Center for Energy and Environment’s (CEE) META program proposal for an initial term from 2023-2027.¹³ Associated META program energy savings will be incorporated by utilities into their ECO programs and will be captured in reporting related to Category 1 results.

Category 7: Other Efforts to Promote Energy Efficiency and Energy Conservation

- Energy savings from other efforts to promote energy efficiency and energy conservation are assumed to be rather small and not readily countable for purposes of the 2.5% goal. Future efforts to be included in this category will include associated savings from the Natural Gas Innovation Act,¹⁴ programs administered in Minnesota as part of the Inflation Reduction Act, and other pertinent non-ECO state initiatives.

Results

Cost-effective energy conservation improvement programs and efficient fuel-switching utility programs, utility residential and commercial code support ECO programs, programs designed to transform the market or change consumer behavior, and energy savings resulting from efficiency improvements to the utility infrastructure system are categories that directly relate to utility ECO programs and are tracked by Commerce. Apart from yet to be implemented efficient fuel-switching programs, the contributions from these categories toward the 2.5% statewide goal are reflected in this report’s ECO electric and natural gas achievements for 2020 and 2021 (see Table 2). It is anticipated that utility ECO portfolios will continue to be the largest contributor to meeting the state’s energy savings goals, particularly as new programs emerge.

¹³ Deputy Commissioner’s Decision: In the Matter of Center for Energy and Environment’s Proposal to Implement the Minnesota Efficient Technology Accelerator. July 1, 2022. Docket No. 21-548.

¹⁴ Minn. Stat. § 216B.2427.

Table 2. Estimate of Progress Made Toward the Statewide 2.5% Energy-Savings Goal During 2021

Category Numbers	§216B.2401(a) Category Description	Savings Estimate			
		Electricity (GWh)	% of Sales	Natural Gas (Bcf)	% of Sales
1, 4, 5, 6	Utility ECO programs, utility code support programs, market transformation and behavioral programs, and savings from utility infrastructure efficiency	1,175	2.19%	3.58	1.23%

For reasons described in the methodology description sub-section above, there are several categories that the ECO Act specifies can count towards achieving the statewide 2.5% goal that are not, as yet, fully quantifiable. As a result, Table 3 provides a qualitative assessment of the potential contribution (Small, Medium, Large, Uncertain) of each of the categories identified by § 216B.2401(a). The table also includes references to possible future activities that may help drive increased energy savings from the respective categories.

Table 3. Qualitative Assessment of Each Category’s Potential Contribution Toward the Statewide 2.5% Energy-Savings Goal

Category Number	§216B.2401(a) Category Description	Magnitude of Potential Contribution Goal	Possible Future Activities
2	Rate design	Uncertain	Rate designs that target energy savings
3	Energy efficiency without direct utility involvement	Small	Unknown
7	Other efforts to promote energy efficiency and conservation	Small	New non-utility initiatives

Energy Productivity of the State's Economy

Statute

“The commissioner must also annually report on the energy productivity of the state's economy by estimating the ratio of economic output produced in the most recently completed calendar year to the primary energy inputs used in that year.” Minn. Stat. § 216B.2401(c).

Methodology

Results for this metric are derived from the U.S. Energy Information Administration’s (EIA) State Energy Data System (SEDS). SEDS has an energy consumption per real dollar of GDP estimation for all states. To better reflect the requirement outlined in Minn. Stat. § 216B.2401 (c), the estimates provided in Table 4 are an inverse of those from SEDs. In other words, the results in Table 4 were calculated by placing energy use (presented in terms of Btus) in the denominator and real GDP in the numerator.

Results

A state-by-state comparison of results is presented in Table 4. Essentially, the higher the GDP/Btu estimate is, the higher the energy productivity of a state's economy can be considered. By this metric, Minnesota ranked 25th out of 50 states plus the District of Columbia.¹⁵

Table 4. Real \$ of GDP per Thousand Btu of Energy Consumption, Ranked by State 2021 (EIA 2023c)

Rank	State	Dollar per Thousand BTU	Rank	State	Dollar per Thousand BTU
1	District of Columbia	0.84	27	Michigan	0.18
2	New York	0.43	28	Wisconsin	0.17
3	Massachusetts	0.40	29	Maine	0.17
4	California	0.39	30	Missouri	0.17
5	Connecticut	0.35	31	Tennessee	0.16
6	Washington	0.30	32	Kansas	0.15
7	Rhode Island	0.29	33	Idaho	0.14
8	Maryland	0.29	34	Nebraska	0.14
9	New Jersey	0.28	35	South Carolina	0.14
10	New Hampshire	0.28	36	Indiana	0.13
11	Hawaii	0.28	37	New Mexico	0.13
12	Colorado	0.25	38	Texas	0.13
13	Florida	0.24	39	South Dakota	0.12
14	Vermont	0.24	40	Kentucky	0.12
15	Arizona	0.22	41	Oklahoma	0.12
16	Utah	0.22	42	Iowa	0.11
17	Delaware	0.22	43	Arkansas	0.11
18	Oregon	0.22	44	Montana	0.11
19	Illinois	0.21	45	Alabama	0.11
20	Nevada	0.21	46	Mississippi	0.10
21	Virginia	0.21	47	West Virginia	0.08
22	North Carolina	0.21	48	North Dakota	0.08
23	Georgia	0.20	49	Alaska	0.07
24	Pennsylvania	0.20	50	Wyoming	0.07
25	Minnesota	0.19	51	Louisiana	0.05
26	Ohio	0.18			

¹⁵ The EIA table ranked states highest to lowest in terms of least to most productive. Table 4 shows rankings from most to least productive.

Achievements from Programs Funded Through the Energy and Conservation Account

Statute

“The commissioner must record and report expenditures and energy savings achieved as a result of energy conservation programs for low-income households funded through the energy and conservation account in the report required under section 216B.241, subdivision 1c, paragraph (f).” Minn. Stat. § 216B.2403, subd. 5(c).

Methodology

To help meet their ECO low-income spending requirements, utilities may contribute low-income energy conservation improvement money toward an energy and conservation account, which would be administered by Commerce to establish and fund low-income energy conservation programs.

Results

Currently, no utilities have opted to contribute funds to the energy and conservation account, so there are no results to provide in this report.

Recommendations for Administrative or Legislative Initiatives

Statute

*“[I]n the annual report required under section 216B.241, subdivision 1c, **[the Commissioner must]** make recommendations for administrative or legislative initiatives to increase energy savings toward **[the statewide energy savings goal]**.”* Minn. Stat. § 216B.2401 (c).

Recommendations

At the time of writing, utilities are beginning to plan and incorporate new program opportunities that are enabled through the ECO Act. Commerce will be conducting a series of stakeholder meetings in 2024 to explore whether certain ECO program approaches and incentives should be prioritized above others (based on carbon reduction potential, cost, and efficiency) and to coordinate the implementation of ECO programs with upcoming overlapping state and federal efforts. Commerce will be better able to assess opportunities to increase statewide energy savings after the utilities have had some time to implement and report performance data on these new program offerings and stakeholder processes have concluded.

ECO Savings and Expenditures ^{16 17}

Electric ECO Performance 2020 - 2021

Table 5. 2020 Electric ECO Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	70,774,076	2.57%	33,044	\$8,205,771	5.05%
Otter Tail Power	70,649,612	4.06%	32,985	\$9,643,680	6.30%
Xcel Energy	646,796,991	2.25%	301,982	\$104,461,579	3.66%
Totals - Investor-Owned Utilities	788,220,679	2.37%	368,011	\$122,311,030	3.86%
Cooperative Aggregators - ECO Statute					
Dairyland Power Coop	20,412,420	1.89%	9,530	\$2,503,133	1.85%
Great River Energy (All-Rqmts Members)	90,094,483	1.11%	42,064	\$18,048,033	1.81%
Great River Energy (Fixed Members)	22,771,964	0.88%	10,632	\$4,008,069	1.31%
Minnkota Power Coop/NMPA	13,383,483	1.17%	6,249	\$2,521,808	1.76%
Totals - Coop Aggregators - ECO Statute	146,662,350	1.13%	68,475	\$27,081,042	1.71%
Cooperative Aggregators – Voluntary					
Great River Energy (All-Rqmts Members)	1,165,174	0.21%	544	\$584,661	1.35%
Great River Energy (Fixed Members)	2,221,749	0.92%	1,037	\$360,351	1.97%
Minnkota Power Coop/NMPA	711,489	0.75%	332	\$54,602	0.50%
Totals - Coop Aggregators - Voluntary	4,098,413	0.46%	1,914	\$999,614	1.37%
Municipal Aggregators - ECO Statute					
CMMPA	3,324,073	1.19%	1,552	\$731,566	2.36%
MMPA	4,166,597	1.30%	1,945	\$533,588	1.40%
MRES	15,785,247	0.74%	7,370	\$3,683,978	1.83%

¹⁶ For the tables in this section the following definitions apply: “Incremental energy savings” means first-year, annualized energy savings from newly installed measures. “Energy Savings %” means energy savings as a percent of utility annual retail sales, excluding sales to ECO-exempt customers. “Incremental CO₂ Savings” means first-year, annualized carbon dioxide savings resulting from newly installed measures. “Expenditures” includes expenditures on ECO programs. “Expenditures %” means expenditures as a percent of utility gross operating revenues from service provided in the state, excluding sales to ECO-exempt customers.

¹⁷ Note: Laws of Minnesota 2017, Chapter 94, Article 10, Sections 11-17 amend § 216B.241. Contained in this law was a provision modifying § 216B.241 to establish exempt status to municipalities that provide electric service to 1,000 retail customers or less and to cooperative electric associations that provide retail service to 5,000 members or less. These amendments became effective May 31, 2017. As a result of these modifications, a number of munis and coops are now exempt from § 216B.241 (see Appendix C for list of exempt utilities), but some voluntarily continue to offer ECO programs and report their results and plans through the ECO reporting process (these are distinguished in the tables as “Voluntary”).

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
SMMPA	18,091,599	1.97%	8,447	\$2,928,443	3.00%
The Triad	29,944,709	1.57%	13,981	\$3,641,246	1.62%
Totals - Municipal Aggregators - ECO Statute	71,312,225	1.28%	33,295	\$11,518,821	1.94%
Municipal Aggregators – Voluntary					
CMMPA	20,506	0.17%	10	\$12,860	1.25%
MMPA	232,681	1.21%	109	\$31,317	1.49%
SMMPA	374,997	2.90%	175	\$93,532	5.96%
Totals - Municipal Aggregators - Voluntary	628,183	1.42%	293	\$137,708	2.93%
Independent Municipals - ECO Statute					
Aitkin Public Utilities	585,819	1.65%	274	\$49,218	1.27%
Anoka, City of	854,143	0.31%	399	\$249,281	0.85%
Brainerd Public Utilities	3,065,118	1.70%	1,431	\$250,361	1.18%
Chaska, City of	6,078,222	1.68%	2,838	\$627,383	1.51%
Delano Municipal Utilities	919,869	1.54%	429	\$97,037	1.58%
East Grand Forks Water & Light Dept	2,664,634	1.67%	1,244	\$295,914	1.98%
Elk River Municipal Utilities	4,597,290	1.46%	2,146	\$486,835	1.42%
Ely, City of	530,563	1.49%	248	\$67,442	1.78%
Glencoe Light & Power Commission	1,814,897	2.39%	847	\$121,582	1.50%
Grand Rapids Public Utilities Commission	1,872,476	1.18%	874	\$151,235	0.99%
Hibbing Public Utilities Commission	1,474,938	1.28%	689	\$101,896	0.67%
Hutchinson Utilities Commission	956,756	0.34%	447	\$279,406	1.10%
Madelia Municipal Light & Power	623,665	2.11%	291	\$62,019	1.52%
Mountain Iron Water & Light Dept	359,354	1.50%	168	\$26,228	1.02%
New Ulm Public Utilities	24,139,355	14.11%	11,270	\$262,765	1.32%
Proctor Public Utilities	411,681	1.65%	192	\$41,560	1.77%
Shakopee Public Utilities	5,875,703	1.72%	2,743	\$607,939	1.24%
St. Charles Light & Water	95,151	0.44%	44	\$55,582	2.13%
Two Harbors, City of	566,817	1.99%	265	\$61,777	1.51%
Virginia Dept. of Public Utilities	2,238,673	2.05%	1,045	\$356,106	2.60%
Totals - Independent Municipals - ECO Statute	59,725,125	2.13%	27,885	\$4,251,567	1.34%
Independent Municipals – Voluntary					
Lake Crystal Municipal Utilities	429,053	2.68%	200	\$52,977	1.87%
Nashwauk Public Utilities	136,002	1.17%	63	\$23,615	2.34%
Warroad Municipal Light & Power	5,482	0.01%	3	\$23,335	0.56%
Totals - Independent Municipals - Voluntary	570,537	0.69%	266	\$99,927	1.25%
TOTALS - COOPS & MUNICIPALS - ECO STATUTE	277,699,701	1.30%	129,655	\$42,851,430	1.72%
TOTALS - ELECTRIC UTILITIES - ECO STATUTE	1,065,920,380	1.95%	497,666	\$165,162,460	2.92%

Table 6. 2021 Electric ECO Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	74,539,041	2.82%	36,265	\$9,331,962	3.64%
Otter Tail Power	68,779,250	4.07%	33,463	\$9,381,509	6.23%
Xcel Energy	743,837,488	2.67%	361,899	\$109,504,882	3.64%
Totals - Investor-Owned Utilities	887,155,779	2.76%	431,627	\$128,218,353	3.75%
Cooperative Aggregators - ECO Statute					
Dairyland Power Coop	21,903,981	2.03%	10,657	\$2,357,909	1.74%
Great River Energy (All-Rqmts Members)	108,202,035	1.33%	52,643	\$19,945,224	2.02%
Great River Energy (Fixed Members)	25,075,256	0.93%	12,200	\$4,231,111	1.42%
Minnkota Power Coop/NMPA	18,804,503	1.57%	9,149	\$2,524,906	1.73%
Totals - Coop Aggregators - ECO Statute	173,985,775	1.33%	84,649	\$29,059,150	1.85%
Cooperative Aggregators - Voluntary					
Great River Energy (All-Rqmts Members)	365,095	0.13%	178	\$172,305	1.99%
Great River Energy (Fixed Members)	2,140,767	0.40%	1,042	\$436,086	0.82%
Minnkota Power Coop/NMPA	382,389	0.39%	186	\$62,507	0.57%
Totals - Coop Aggregators - Voluntary	2,888,251	0.32%	1,405	\$670,899	0.92%
Municipal Aggregators - ECO Statute					
CMMPA	4,817,020	1.64%	2,344	\$633,705	2.05%
MMPA	4,189,356	1.33%	2,038	\$592,692	1.60%
MRES	14,989,093	0.70%	7,293	\$3,483,736	1.75%
SMMPA	18,665,752	2.04%	9,081	\$2,649,610	2.80%
The Triad	26,506,672	1.39%	12,896	\$3,168,197	1.42%
Totals - Municipal Aggregators - ECO Statute	69,167,893	1.24%	33,652	\$10,527,940	1.80%
Municipal Aggregators - Voluntary					
CMMPA	20,604	0.15%	10	\$9,151	0.93%
MMPA	173,979	0.94%	85	\$31,399	1.51%
SMMPA	263,182	2.03%	128	\$60,257	3.78%
Totals - Municipal Aggregators - Voluntary	457,766	1.00%	223	\$100,807	2.16%
Independent Municipals - ECO Statute					
Aitkin Public Utilities	537,504	1.54%	262	\$58,872	1.51%
Anoka, City of	2,376,102	0.88%	1,156	\$346,861	1.20%
Brainerd Public Utilities	2,722,305	1.51%	1,324	\$225,921	1.08%
Chaska, City of	6,936,041	1.89%	3,375	\$633,660	1.50%
Delano Municipal Utilities	1,983,916	3.26%	965	\$94,867	1.53%
East Grand Forks Water & Light Dept	3,124,291	1.95%	1,520	\$322,940	2.29%
Elk River Municipal Utilities	2,253,972	0.70%	1,097	\$426,381	1.17%
Ely, City of	559,086	1.54%	272	\$55,024	1.44%
Glencoe Light & Power Commission	1,629,973	2.13%	793	\$112,164	1.52%

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Grand Rapids Public Utilities Commission	2,422,801	1.57%	1,179	\$187,204	1.29%
Hibbing Public Utilities Commission	1,699,245	1.51%	827	\$109,497	1.02%
Hutchinson Utilities Commission	3,703,901	1.34%	1,802	\$134,156	0.54%
Madelia Municipal Light & Power	424,382	1.37%	206	\$71,883	1.52%
Mountain Iron Water & Light Dept	369,696	1.50%	180	\$28,753	1.09%
New Ulm Public Utilities	2,228,608	1.31%	1,084	\$244,750	1.11%
Proctor Public Utilities	377,207	1.51%	184	\$37,171	1.52%
Shakopee Public Utilities	8,324,271	1.88%	4,050	\$762,113	1.58%
St. Charles Light & Water	386,052	1.74%	188	\$57,412	1.86%
Two Harbors, City of	545,677	1.91%	265	\$67,461	1.62%
Virginia Dept. of Public Utilities	1,915,343	1.83%	932	\$245,710	1.91%
Totals - Independent Municipals - ECO Statute	44,520,372	1.53%	21,660	\$4,222,800	1.34%
Independent Municipals - Voluntary					
Lake Crystal Municipal Utilities	163,986	1.03%	80	\$31,083	1.09%
Nashwauk Public Utilities	46,427	0.41%	23	\$36,547	3.16%
Warroad Municipal Light & Power	1,000	0.00%	0	\$10,875	0.53%
Totals - Independent Municipals - Voluntary	211,414	0.26%	103	\$78,505	1.30%
TOTALS - COOPS & MUNICIPALS - ECO STATUTE	287,674,040	1.33%	139,962	\$43,809,891	1.78%
TOTALS - ELECTRIC UTILITIES - ECO STATUTE	1,174,829,819	2.19%	571,589	\$172,028,244	2.92%

Gas ECO Performance 2020 – 2021

Table 7. 2020 Natural Gas ECO Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	1,915,114	1.36%	111,699	\$35,993,594	4.40%
Great Plains Natural Gas	20,537	0.36%	1,198	\$503,433	2.07%
Greater Minnesota Gas	10,563	1.03%	616	\$287,639	3.04%
Minnesota Energy Resources Corp	367,324	0.87%	21,424	\$10,480,260	3.68%
Xcel Energy	868,599	1.21%	50,661	\$14,587,983	3.34%
Totals - Investor-Owned Utilities	3,182,137	1.22%	185,598	\$61,852,909	3.93%
Municipal Aggregator					
The Triad	34,604	0.81%	2,018	\$477,420	1.47%
Independent Municipals					
Duluth Public Works & Utilities	29,280	0.54%	1,708	\$563,532	1.49%
Hutchinson Utilities Commission	4,556	0.29%	266	\$133,148	1.20%
New Ulm Public Utilities	5,885	0.62%	343	\$110,482	1.29%
Perham Natural Gas	18,325	1.38%	1,069	\$56,394	0.88%
Totals - Independent Municipals	58,046	0.63%	3,386	\$863,556	1.35%
TOTALS - MUNICIPALS - ECO STATUTE	92,650	0.69%	5,404	\$1,340,976	1.39%
TOTALS - GAS UTILITIES - ECO STATUTE	3,274,787	1.19%	191,002	\$63,193,885	3.79%

Table 8. 2021 Natural Gas ECO Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	1,871,509	1.26%	109,156	\$38,439,620	3.89%
Great Plains Natural Gas	15,154	0.25%	884	\$461,682	1.65%
Greater Minnesota Gas	14,460	0.84%	843	\$389,912	2.69%
Minnesota Energy Resources Corporation	392,822	0.89%	22,911	\$10,931,780	3.69%
Xcel Energy	1,170,229	1.53%	68,254	\$18,699,980	4.00%
Totals - Investor-Owned Utilities	3,464,174	1.25%	202,048	\$68,922,974	3.84%
Municipal Aggregator					
The Triad	32,924	0.74%	1,920	\$462,301	1.53%
Independent Municipals					
Duluth Public Works & Utilities	51,461	0.89%	3,001	\$321,403	0.82%
Hutchinson Utilities Commission	7,822	0.47%	456	\$151,174	1.42%

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
New Ulm Public Utilities	4,809	0.47%	280	\$82,336	1.15%
Perham Natural Gas	17,726	1.26%	1,034	\$51,746	0.84%
Totals - Independent Municipals	81,818	0.83%	4,772	\$606,659	0.96%
TOTALS - MUNICIPALS - ECO STATUTE	114,742	0.80%	6,692	\$1,068,960	1.14%
TOTALS - GAS UTILITIES - ECO STATUTE	3,578,915	1.23%	208,740	\$69,991,934	3.71%

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Methodology Notes: Used an average total annual energy consumption per home of 98.6 MMBtu for Very cold/Cold Climate Region from Table CE3.3.

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Methodology Notes: A \$6.38 and \$6.55 price of natural gas (Dth) in Minnesota for 2020 and 2021 was derived by calculating a weighted average price of natural gas in the residential, commercial, and industrial sectors.

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Methodology Notes: Applied a gas CO₂ emissions rate equal to 116.65 pounds of CO₂/Dth for 2019, 2020, and 2021. Applied a gas CO₂ emissions rate equal to 117 pounds of CO₂/Dth for years 2014-2018. Previous years used a rate of 121 pounds of CO₂ per Dth of natural gas saved (2009-2013).

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Methodology Notes: Used an electric CO₂ emissions rate of 973 pounds of CO₂/MWh for 2021 and 933 pounds of CO₂/MWh for 2020. Previous years utilize a rate of 1,034 pounds of CO₂/MWh (2019), 1,183/MWh (2018), 1,220/MWh (2017), 1,823/MWh (2009-2012), 1,437/MWh (2013-2014), 1,419/MWh (2015), 1,220/MWh (2016).

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Methodology Notes: Calculated using 2021 registered vehicles figure. Page 4 of report states that “At the end of the 2021 calendar year, 4,161,269 people held Minnesota driver licenses and 6,428,184 motor vehicles were registered in the state.”

Appendices

Appendix A. Electric Aggregator Membership

Table 9. Electric Aggregator Membership

Group	Utility
CMMPA	Blue Earth Light & Water Dept
CMMPA	Fairfax Municipal
CMMPA	Granite Falls, City of
CMMPA	Janesville Municipal Utility
CMMPA	Kasson, City of
CMMPA	Mountain Lake Municipal Utilities
CMMPA	Sleepy Eye Public Utility
CMMPA	Springfield Public Utilities Comm
CMMPA	Windom Municipal Utilities
Dairyland	Freeborn-Mower Coop Svcs
Dairyland	MiEnergy Cooperative
Dairyland	Peoples Cooperative Service
GRE-ALL	BENCO Electric Coop
GRE-ALL	Connexus Energy
GRE-ALL	Cooperative Light & Power
GRE-ALL	Dakota Electric Assn
GRE-ALL	East Central Energy
GRE-ALL	Itasca Mantrap Coop Electric Assn
GRE-ALL	Kandiyohi Power Coop
GRE-ALL	Lake Country Power
GRE-ALL	Lake Region Electric Coop
GRE-ALL	McLeod Coop Power Assn
GRE-ALL	Mille Lacs Electric Coop
GRE-ALL	Nobles Cooperative Electric
GRE-ALL	North Itasca Electric Coop
GRE-ALL	Runestone Electric Assn
GRE-ALL	Stearns Coop Electric Assn
GRE-ALL	Steele Waseca Coop Electric
GRE-ALL	Todd Wadena Electric Coop
GRE-FIXED	Agralite Cooperative
GRE-FIXED	Crow Wing Coop Power & Light, Inc.
GRE-FIXED	Federated Rural Electric Assn
GRE-FIXED	Meeker Coop Light & Power Assn
GRE-FIXED	Minnesota Valley Electric Coop

GRE-FIXED	Redwood Electric Coop
GRE-FIXED	South Central Electric Assn
GRE-FIXED	Wright-Hennepin Coop Electric Assn
Minnkota	Alvarado, City of
Minnkota	Bagley Public Utilities Commission
Minnkota	Baudette, City of
Minnkota	Beltrami Electric Coop, Inc.
Minnkota	Fosston Municipal Utilities
Minnkota	Hawley Public Utilities
Minnkota	Minnkota Power Coop/NMPA
Minnkota	North Star Electric Coop
Minnkota	Roseau Electric Coop
Minnkota	Roseau Municipal Water & Light
Minnkota	Thief River Falls Municipal Utility
Minnkota	Warren, City of
Minnkota	Wild Rice Electric Coop
MMPA	Arlington, City of
MMPA	Brownton Municipal Light & Power
MMPA	Buffalo, City of
MMPA	Le Sueur Municipal Utilities
MMPA	North St Paul, City of
MMPA	Olivia, City of
MMPA	Winthrop, City of
MRES	Alexandria Light & Power
MRES	Barnesville Municipal Power
MRES	Benson Municipal Utilities
MRES	Breckenridge Public Utilities
MRES	Detroit Lakes Public Utility
MRES	Jackson, City of
MRES	Luverne, City of
MRES	Marshall Municipal Utilities
MRES	Melrose Public Utilities
MRES	Moorhead Public Service
MRES	Ortonville Light Department
MRES	Sauk Centre Public Utilities
MRES	St. James Municipal Light & Power
MRES	Staples, City of
MRES	Wadena Light & Water
MRES	Willmar Municipal Utilities
MRES	Worthington Public Utilities
SMMPA	Blooming Prairie Public Utilities
SMMPA	Fairmont Public Utilities
SMMPA	Grand Marais Public Utilities

SMMPA	Lake City Utility Board
SMMPA	Litchfield Public Utilities
SMMPA	Mora Municipal Utilities
SMMPA	New Prague Utilities Commission
SMMPA	North Branch Municipal Water & Light
SMMPA	Preston Public Utilities
SMMPA	Princeton Public Utilities
SMMPA	Redwood Falls Public Utilities
SMMPA	Spring Valley Public Utilities Comm
SMMPA	St. Peter Municipal Utilities
SMMPA	Waseca Utility
SMMPA	Wells Public Utilities
Triad	Austin Utilities
Triad	Owatonna Public Utilities
Triad	Rochester Public Utilities

Appendix B. Gas Aggregator Membership

Table 10. Gas Aggregator Membership

Group	Utility
Triad	Austin Utilities
Triad	Owatonna Public Utilities

Appendix C. 2021 Exempt and Voluntary Utilities

Table 11. 2021 Exempt and Voluntary Utilities

Group	Utility	Exempt	Voluntary
CMPMA	Fairfax Municipal	x	x
GRE-ALL	North Itasca Electric Coop	x	x
GRE-FIXED	Agralite Cooperative	x	x
GRE-FIXED	Redwood Electric Coop	x	x
GRE-FIXED	South Central Electric Assn	x	x
Minnkota	Alvarado, City of	x	x
Minnkota	Bagley Public Utilities Commission	x	x
Minnkota	Baudette, City of	x	x
Minnkota	Fosston Municipal Utilities	x	x
Minnkota	Warren, City of	x	x
MMPA	Brownton Municipal Light & Power	x	x
MMPA	Winthrop, City of	x	x
SMMPA	Preston Public Utilities	x	x
	Lake Crystal Municipal Utilities	x	x
	Nashwauk Public Utilities	x	x
	Warroad Municipal Light & Power	x	x
	Adrian Public Utilities	x	
	Alpha, City of	x	
	Bigelow, City of	x	
	Biwabik Public Utilities	x	
	Brewster Light & Power, City of	x	
	Buhl Public Utilities	x	
	Ceylon Public Utilities	x	
	Clearwater Polk Electric Coop	x	
	Dundee, City of	x	
	Dunnell, City of	x	
	Eitzen Light and Power	x	
	Elbow Lake Municipal Power	x	
	Gilbert Water & Light	x	
	Grove City Electric Dept	x	
	Halstad Municipal Utilities	x	
	Harmony, City of	x	
	Henning Electric Dept, City of	x	
	Kandiyohi, City of	x	
	Kasota, City of	x	

Group	Utility	Exempt	Voluntary
	Keewatin Public Utilities	x	
	Kenyon Municipal Utilities	x	
	Lake Park Public Utilities	x	
	Lakefield Municipal Utilities	x	
	Lanesboro Public Utility	x	
	Lyon-Lincoln Electric Coop, Inc.	x	
	Mabel, City of	x	
	Madison Municipal Utilities	x	
	Minnesota Valley Coop Light & Power Assoc	x	
	Moose Lake Water & Light Commission	x	
	NewFolden, City of	x	
	Nielsville, City of	x	
	Peterson Electric System, City of	x	
	Pierz Utilities	x	
	PKM Electric Coop, Inc	x	
	Randall Electric, City of	x	
	Red Lake Electric Coop	x	
	Red River Valley Coop Power Assn	x	
	Redwood Electric Coop	x	
	Renville-Sibley Coop Power Assn	x	
	Round Lake, City of	x	
	Rushford, City of	x	
	Rushmore, City of	x	
	Shelly Municipal Light Dept	x	
	Sioux Valley Energy	x	
	South Central Electric Assn	x	
	Spring Grove, City of	x	
	Stephen Electric Dept	x	
	Traverse Electric Coop, Inc	x	
	Truman Public Utilities	x	
	Tyler, City of	x	
	Westbrook Public Utilities	x	
	Whalan, City of	x	
	Arrowhead Electric Coop, Inc	x	
	Brown Co Rural Electrical Assn	x	
	Goodhue County Coop Electric Assn	x	