



Conservation Improvement Program

Energy Savings, CO₂ Reductions and Economic Benefits Achieved
2016-2017

December 2019

Pursuant to Minnesota Statutes 216B.241, Subd. 1c(g)

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Executive Summary

The Minnesota Department of Commerce, Division of Energy Resources (Commerce), submits this report in fulfillment of Minnesota Statute §216B.241, subd. 1c(g). The statute requires the Commissioner of Commerce to produce and make publicly available a report on the annual energy savings and estimated carbon dioxide (CO₂) reductions achieved through the Conservation Improvement Program (CIP) for the two most recent years for which data is available. This report includes utility-reported CIP performance data for program years 2016 and 2017.

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

Commerce oversees CIP to ensure that ratepayer dollars are used effectively to achieve the 1.5% energy savings goal and that energy savings are reported as accurately as possible. Minnesota utilities operate a wide array of residential, commercial and industrial CIP programs. These programs target both retrofits and new construction projects.

During both 2016 and 2017, electric utilities as a whole exceeded the CIP goal of 1.5% and natural gas utilities exceeded the statutory minimum of 1.0% energy savings. In total, from 2016 to 2017, CIP programs benefited Minnesota's environment and economy by:

- Saving around 14.7 trillion-Btus of energy, which is enough energy to heat, cool and power more than 160,000 Minnesota homes for a year.¹
- Reducing CO₂ emissions by over 1.7 million tons, equivalent to removing 332,000 vehicles from the road for one year.^{2,3}
- Saving over \$260 million in energy costs.⁴
- Supporting over 46,000 energy efficiency jobs, representing the largest sector of Minnesota's clean energy employment.⁵

¹ Based on average total annual energy consumption per home of 88.3 MMBtu for West North Central Census Region (IA/KS/MN/MO/ND/NE/SD) from Table CE3.3 of the 2015 Residential Energy Consumption Survey by the US Energy Information Administration. (<https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce3.3.pdf>).

² The electric CO₂ emissions rate of 1,220 pounds of CO₂ per MWh was applied to years 2016-2017 and is provided by the Minnesota Pollution Control Agency in Docket No. E,G999/CI-00-1343, updated in April 18, 2018. The gas CO₂ emissions rate of 117 pounds of CO₂ per Dth was applied to years 2014-2017 and is provided by the U.S. Energy Information Administration, last updated June 4, 2019 (<https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>). Previous years utilize a rate of 1,823 pounds of CO₂ per MWh (2009-2012), 1,437/MWh (2013-2014), 1,419/MWh (2015) of electricity saved; and 121 pounds of CO₂ per Dth of natural gas saved (2009-2013).

³ Calculated using the U.S. Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>), accessed January 06, 2020.

⁴ Based on a 10.27-cent average for the price of electricity (kWh) in Minnesota in 2017. (<https://www.eia.gov/electricity/state/minnesota/index.php>). In addition, a \$6.35 price of natural gas (Dth) in Minnesota was derived by calculating a weighted average price of natural gas in the residential, commercial, and industrial sectors. (https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SMN_a.htm) (https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SMN_a.htm).

⁵ Based on Clean Jobs Midwest 2019 Minnesota report – showing 46,191 energy efficiency jobs in Minnesota and 61,047 total clean energy jobs. (<https://www.e2.org/reports/clean-jobs-midwest-2019/>)

Table 1. Total 2016-2017 CIP Electric and Gas Impacts

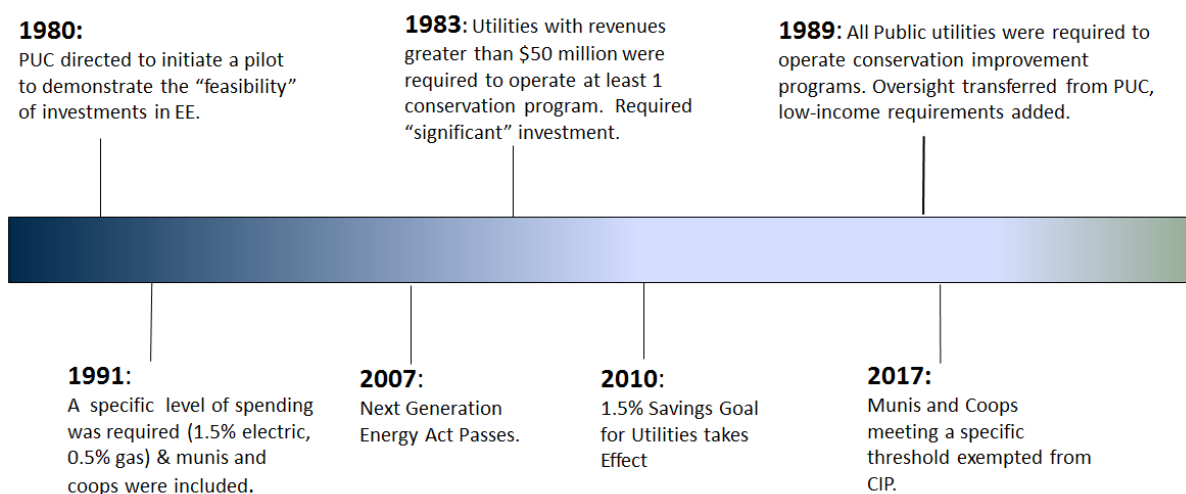
	Energy Savings (1000s)		
	CO2 Savings (tons)	MMBtu)	Energy Cost Savings
Electric	1,286,874	7,198	\$ 216,658,986
Gas	438,718	7,493	\$ 47,620,338
Total	1,725,592	14,691	\$ 264,279,324

Overview of the Conservation Improvement Program

CIP is a utility-administered program with regulatory oversight provided by Commerce. Utility CIP portfolios promote energy-efficient technologies and practices by providing rebates, marketing, and technical assistance to utility customers. CIP programs help Minnesota households and businesses lower their energy costs by using electricity and natural gas more efficiently. Commerce reviews and approves utility CIP 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, CIP began in Minnesota in 1980 with the intention of motivating utility spending to energy efficiency. The passage of the 2007 Next Generation Energy Act established Minnesota’s Energy Efficiency Resource Standard (EERS). As a result, beginning in 2010, utilities were required to develop CIP plans to achieve energy savings equal to 1.5% of average annual retail sales each year,⁶ unless adjusted by the Commissioner to no less than 1.0%.⁷ Minnesota’s EERS remains one of the most productive energy efficiency policies in the nation, ensuring that utilities, residents and businesses are optimizing their energy usage.

Figure 1. CIP History



⁶ As defined in Minn. Stat. 216B.241 subd. 1 (g), “gross annual retail sales” exclude sales to CIP-exempt customers.

⁷ Minn. Stat. 216B.241 subd. 1c (d) allows the Commissioner to adjust to a public utility’s savings goal to a minimum of 1.0%.

Minnesota utilities operate a wide array of residential, commercial and industrial CIPs 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 compete in markets.

Typical utility programs for residential customers include:

- Energy audits, in which a trained energy consultant examines a home and offers specific advice on energy improvements.
- Rebates on high-efficiency heating, cooling and water-heating appliances; efficient lighting; and low-flow showerheads and faucet aerators.
- Air-conditioner cycling programs, which allow the utility to manage its peak energy demand in return for discounted electric bills for participating customers.

Typical utility programs for commercial or industrial customers include:

- Rebates for high-efficiency boilers, chillers and rooftop units; high-efficiency motors and drives; high-efficiency lighting and lighting control systems.
- Building recommissioning studies.
- Manufacturing process improvements that reduce energy intensity and improve productivity.

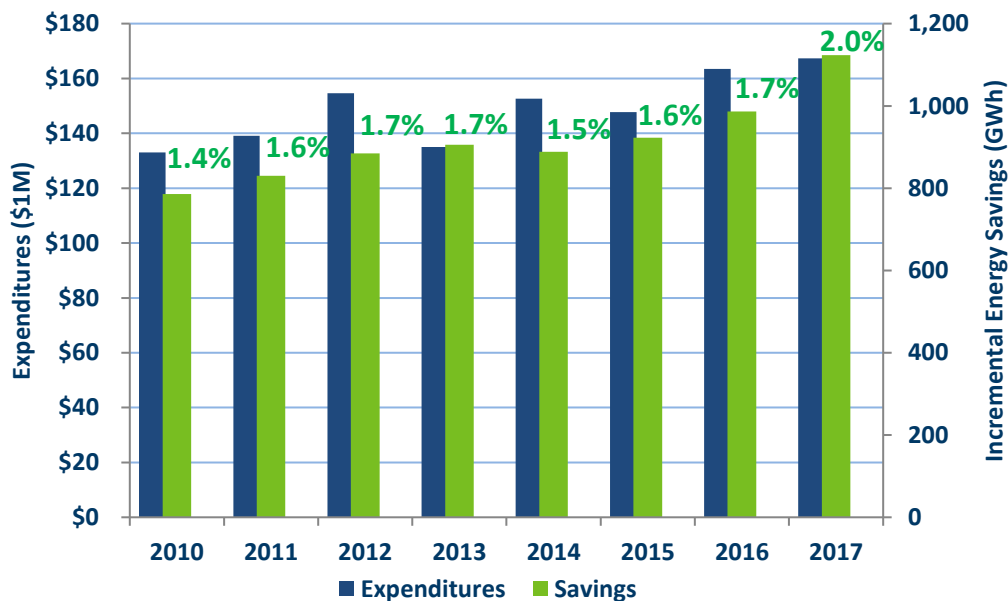
This report highlights the CO₂ reductions and energy savings that utilities achieved in 2016 and 2017. Commerce also recognizes the positive economic impacts that utility-run CIP portfolios bring to Minnesota in terms of energy bill savings, job creation and utility scale benefits.

2016 and 2017 CIP Performance

Minnesota’s commitment to energy efficiency is nationally recognized. In 2019, the American Council for an Energy Efficient Economy (ACEEE) ranked Minnesota eighth on its State Scorecard Ranking.⁸ In terms of total energy saved, **2017 was Minnesota’s most successful CIP program year to date**: Minnesota’s natural gas savings percentage was highest in the nation, and electric utilities achieved the eleventh highest energy savings percentage nationally.⁹

As shown in Figure 2 and Figure 3, electric and natural gas savings for 2016 and 2017 totaled 2,110 gigawatt-hours (GWh) and 7.5 billion cubic feet (bcf), respectively. Combined, these energy savings are equivalent to around 14.7 trillion-BTUs of energy. This is enough energy to heat, cool and power more than 160,000 homes for a year,¹⁰ or approximately the combined number of homes in Saint Paul and Duluth.¹¹

Figure 2. CIP Electric Results 2010-2017



⁸ ACEEE 2019 State Energy Efficiency Scorecard, Table 34. (<https://aceee.org/research-report/u1908>).

⁹Based on ACEEE’s analysis, Table 8 & 10, from the 2018 State Energy Efficiency Scorecard. (<https://aceee.org/research-report/u1808>).

¹⁰ Based on average total annual energy consumption per home of 88.3 MMBtu for West North Central Census Region (IA/KS/MN/MO/ND/NE/SD) from Table CE3.3 of the 2015 Residential Energy Consumption Survey by the US Energy Information Administration. (<https://www.eia.gov/consumption/residential/data/2015/c&e/pdf/ce3.3.pdf>).

¹¹ According to the most recent Census American Survey Data, Saint Paul has 120,795 housing units and Duluth has 38,208 housing units. (https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml).

Figure 3. CIP Natural Gas Results 2010-2017

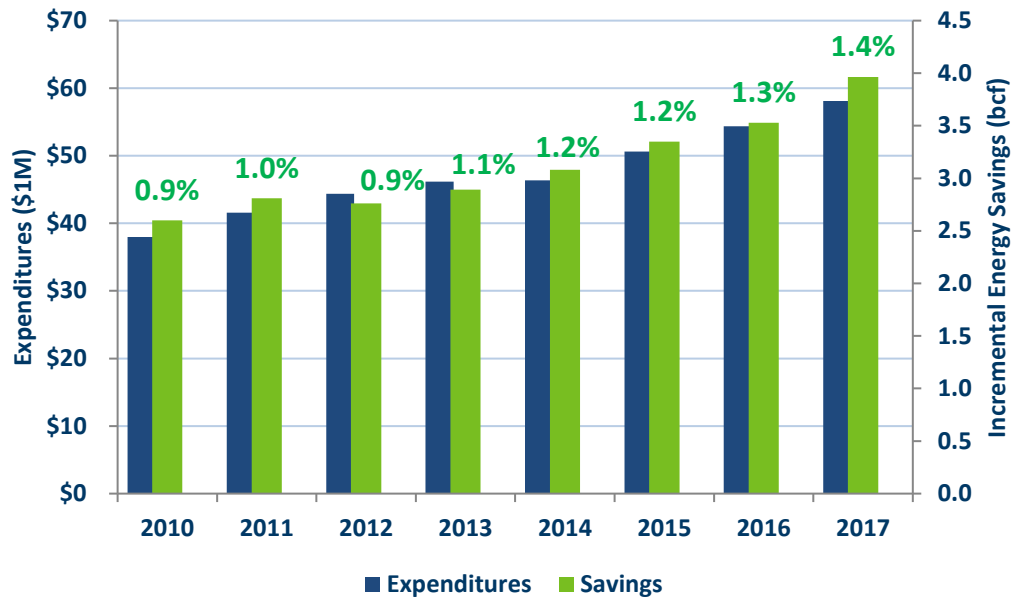
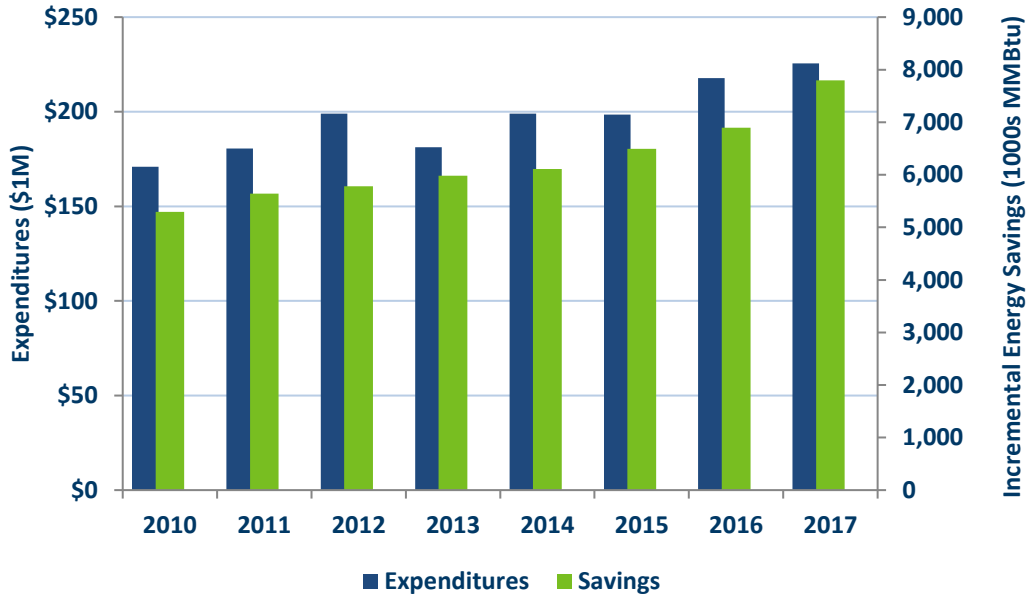


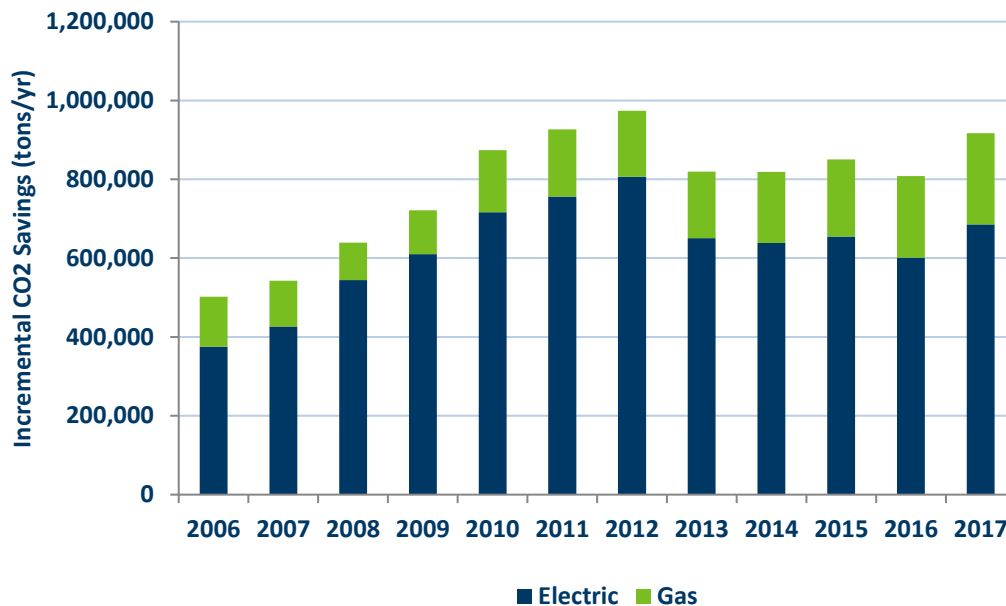
Figure 4. Aggregate CIP Performance 2010-2017



Avoided CO₂ Emissions

The Next Generation Energy Act of 2007 established Minnesota’s goals for reducing greenhouse gas emissions. CIP’s utility portfolios achieved more than 1.7 million tons of avoided CO₂ emissions in 2016-2017.¹² These savings equate to removing more than 332,000 vehicles from the road¹³ in Minnesota, or about 4.5 percent of the state’s registered vehicles.¹⁴

Figure 5. Total CO₂ Savings 2006-2017¹⁵



CIP as an Energy Resource

One of the primary purposes of CIP 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 (IRPs). DSM programs are composed primarily of CIP activities, while supply-side resources include fossil fuel, nuclear and renewable generation. IRPs attempt to determine the least-cost mix of

¹² The electric CO₂ emissions rate of 1,220 pounds of CO₂ per MWh was applied to years 2016-2017, and is provided by the Minnesota Pollution Control Agency in Docket No. E,G999/CI-00-1343, updated in April 18, 2018. The gas CO₂ emissions rate of 117 pounds of CO₂ per Dth was applied to years 2014-2017, and is provided by the U.S. Energy Information Administration, last updated June 4, 2019 (<https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>). Previous years utilize a rate of 1,823 pounds of CO₂ per MWh (2009-2012), 1,437/MWh (2013-2014), 1,419/MWh (2015) of electricity saved; and 121 pounds of CO₂ per Dth of natural gas saved (2009-2013).

¹³ Calculated using the U.S. Environmental Protection Agency’s Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>), accessed January 06, 2020.

¹⁴ Calculated using 2017 registered vehicle figures from 2016 Minnesota Transportation Trivia & Facts (<http://dot.state.mn.us/trafficeng/publ/triviacard/trivia17/2017minnesotatransportationtriviafacts.jpg>).

¹⁵ While the method for calculating CIP’s CO₂ emission savings has not changed, the electric CO₂ emissions rate has 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 savings from CIP.

supply resources for meeting the needs of an electric utility’s customers over the next 15 years. Utilities often select high levels of DSM to meet their needs because they are a lower-cost resource than supply-side options.

CIP is competitive with supply-side resources for many reasons. It requires a lower upfront investment than new power generation facilities, reduces total energy demand and delays the need for new power generation in Minnesota. It also increases utilities’ reliability by lowering the need to import fossil fuels from outside the state, which is important because Minnesota does not have any in-state fossil fuel resources.

Figure 6 compares the average levelized costs of CIP and other supply-side energy resources, highlighting CIP’s cost-effectiveness compared to other generation options.

Figure 6. Levelized Average Cost Comparison of CIP to Various Electricity Generation Options¹⁶

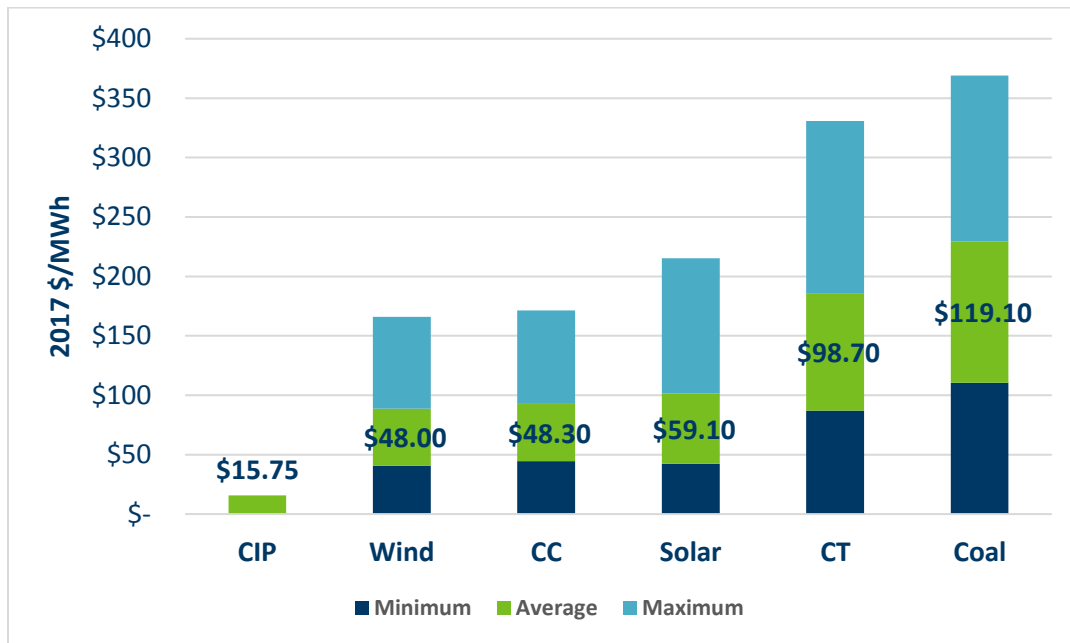


Figure Key

CIP = Levelized Average Cost of CIP in 2015-2017
Wind = Utility-scale wind energy plant
CC = Natural gas-fired combined-cycle plant

Solar = Utility-scale solar energy plant
CT = Natural gas-fired combustion turbine
Coal = Conventional baseload coal plant

¹⁶ Source: Minnesota Department of Commerce (CIP data) and US Energy Information Administration’s Annual Energy Outlook 2018. (https://www.eia.gov/outlooks/archive/aeo18/pdf/electricity_generation.pdf).

Consumer and Business Benefits

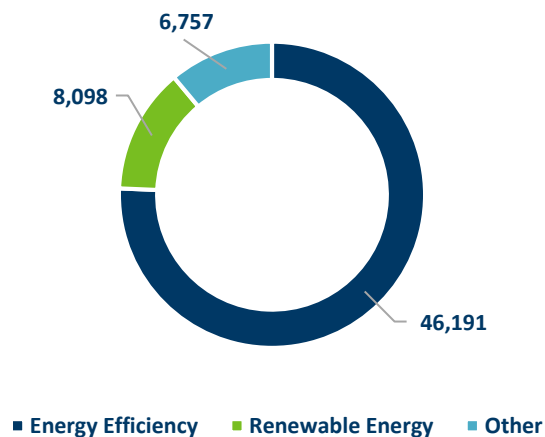
CIP brings positive economic and societal benefits to Minnesota. An independent review examining the economic impact of CIP found that **every one dollar that is spent on CIP returns four dollars to the state's economy**. This return on investment is created through job growth, economic surplus, lower utility costs and environmental benefits.¹⁷

CIP saved Minnesota's businesses and residents more than \$260 million in energy costs in 2016-2017.¹⁸ These savings are a major benefit that CIP provides to households and businesses all across the state. Consumers are able to 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 they offer customers.

CIP and Minnesota's Economy

Every county in Minnesota benefits from the jobs both created and retained in the energy efficiency sector. An analysis from 2019 shows that Minnesota has more than 46,000 jobs in the energy efficiency field, which represents the largest sector for Minnesota's clean energy employment.¹⁹ CIP projects employ different trades throughout this sector, including HVAC, engineering, lighting, design and construction. CIP spending and investments help expand and protect these Minnesota energy efficiency jobs.

Figure 7. Clean Energy Employment Sector Breakdown by Sector



¹⁷ Minnesota Department of Commerce. The Aggregate Economic Impact of the Conservation Improvement Program 2008-2013. October 2015. Page 5 (<http://mn.gov/commerce-stat/pdfs/card-report-aggregate-eco-impact-cip-2008-2013.pdf>).

¹⁸ Based on a 10.27-cent average for the price of electricity (kWh) in Minnesota in 2017.

(<https://www.eia.gov/electricity/state/minnesota/index.php>). In addition, a \$6.35 price of natural gas (Dth) in Minnesota was derived by calculating a weighted average price of natural gas in the residential, commercial, and industrial sectors.

(https://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SMN_a.htm)

(https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SMN_a.htm)

¹⁹ Based on Clean Jobs Midwest 2019 Minnesota report – showing 46,191 energy efficiency jobs in Minnesota and 61,046 total clean energy jobs. (<https://www.e2.org/reports/clean-jobs-midwest-2019/>).

CIP Savings and Expenditures ²⁰

Electric CIP Performance 2016 - 2017

Table 2. 2016 Electric CIP Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	64,117,319	2.13%	39,112	\$ 7,451,958	3.2%
Otter Tail Power	57,586,050	2.75%	35,127	\$ 7,770,781	5.0%
Xcel Energy	554,020,484	1.91%	337,952	\$ 101,144,237	3.8%
Total - Investor-Owned Utilities	675,723,853	1.98%	412,192	\$ 116,366,976	3.8%
Cooperative CIP Aggregators					
Dairyland Power Coop	15,978,592	1.67%	9,746.94	\$ 2,701,263	2.2%
East River Electric Power Coop	5,427,221	1.59%	3,310.60	\$ 410,141	1.3%
Great River Energy (All-Rqmts Members)	97,003,793	1.06%	59,172.31	\$ 17,803,450	1.7%
Great River Energy (Fixed Members)	29,912,019	0.88%	18,246.33	\$ 4,455,256	1.4%
Minnkota Power Coop/NMPA - 17 of 18 members	31,584,595	1.76%	19,266.60	\$ 2,787,417	1.4%
Total - Coop CIP Aggregators	179,906,220	1.15%	109,742.79	\$28,157,527	1.6%
Municipal CIP Aggregators					
CMMPA - 10 of 12 members	4,957,269	1.38%	3,024	\$611,809	1.9%
MMPA - 7 of 11 members	4,889,312	0.86%	2,982	\$537,421	1.5%
MRES - 23 of 24 members	24,992,691	1.05%	15,246	\$4,681,850	2.3%
SMMPA - 15 of 18 members	7,720,381	0.83%	4,709	\$2,604,547	2.9%
The Triad (SMMPA members)	35,596,157	1.86%	21,714	\$5,079,667	2.6%
Total - Municipal CIP Aggregators	78,155,810	1.43%	47,675	\$13,515,294	2.4%

²⁰ For the tables in this section the following definitions apply: “Incremental energy savings” means first-year, annualized energy savings from newly installed measures, including avoided line losses for electric utilities. Includes savings from conservation improvements and electric utility infrastructure projects.

“Energy Savings %” means energy savings from conservation improvements and electric utility infrastructure projects as a percent of annual retail sales, excluding sales to CIP-exempt customers. “Incremental CO2 Savings” means first-year, annualized carbon dioxide savings resulting from newly installed conservation improvements and electric utility infrastructure projects. “Expenditures” includes expenditures on conservation improvements only (excludes electric utility infrastructure projects). “Expenditures %” means conservation improvement expenditures as a percent of gross operating revenues from service provided in the state, excluding sales to CIP-exempt customers. (Excludes spending on electric utility infrastructure projects.)

All 2016 data was derived from Reporting_{ESP} as of August 2018. All 2017 data was derived from Reporting_{ESP} as of December 2019.

Independent Cooperatives					
Minnesota Valley Coop Light & Power	2,706,770	1.32%	1,651	\$ 352,611	1.9%
Sioux Valley Energy	29,230	0.02%	18	\$ 60,995	0.5%
Total - Independent Cooperatives	2,736,000	0.84%	1,669	\$ 413,606	1.3%

Table 3. 2016 Electric CIP Performance (continued)

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Independent Municipals					
Aitkin Public Utilities	564,329	1.6%	344	\$ 49,771	1.4%
Alvarado, City of	1,614	0.0%	1	\$ 2,583	0.6%
Anoka, City of (MMPA member)	4,591,837	1.7%	2,801	\$ 604,863	2.3%
Biwabik Public Utilities	130,959	2.0%	80	\$ 11,948	1.8%
Brainerd Public Utilities	3,044,181	1.5%	1,857	\$ 217,365	1.2%
Chaska, City of (MMPA Member)	5,469,697	1.6%	3,337	\$ 562,462	1.6%
Delano Municipal Utilities	890,253	1.6%	543	\$ 89,817	1.9%
East Grand Forks Water & Light Dept. (MMPA member)	2,903,825	1.8%	1,771	\$ 275,849	2.0%
Ely, City of	599,617	1.6%	366	\$ 55,167	1.6%
Gilbert Water & Light	167,950	1.6%	102	\$ 11,416	1.0%
Glencoe Light & Power Commission	1,329,632	1.9%	811	\$ 124,382	1.7%
Grand Rapids Public Utilities Commission	3,544,694	2.1%	2,162	\$ 168,597	1.2%
Hibbing Public Utilities Commission	1,787,532	1.4%	1,090	\$ 108,814	0.8%
Hutchinson Utilities Commission (MRES Member)	3,272,132	1.2%	1,996	\$ 271,701	1.1%
Kandiyohi, City of	1,765	0.0%	1	\$ 3,250	0.7%
Lake Crystal Municipal Utilities	393,456	2.4%	240	\$ 40,510	1.3%
Madelia Municipal Light & Power	358,984	1.3%	219	\$ 66,662	1.9%
Mountain Iron Water & Light Dept	335,698	1.5%	205	\$ 18,122	0.7%
Nashwauk Public Utilities	179,115	1.7%	109	\$ 20,202	3.2%
New Ulm Public Utilities	3,909,081	2.1%	2,385	\$ 265,665	1.2%
Pierz Utilities	300,668	3.1%	183	\$ 10,492	1.1%
Proctor Public Utilities	366,843	1.5%	224	\$ 30,329	1.4%
Randall Electric, City of	8,009	0.2%	5	\$ 2,157	0.5%
Round Lake, City of	1,694	0.0%	1	\$ 400	0.1%
Shakopee Public Utilities (MMPA member)	9,504,448	2.4%	5,798	\$ 989,500	2.3%
St. Charles Light & Water	379,568	1.8%	232	\$93,106	3.5%
Truman Public Utilities	106,698	0.9%	65	\$ 25,455	1.4%
Two Harbors, City of	481,198	1.7%	294	\$ 59,814	1.8%
Virginia Dept. of Public Utilities	2,253,266	1.9%	1,374	\$ 360,676	2.6%
Warroad Municipal Light & Power (NMPA member)	30,461	0.1%	19	\$ 67,014	1.4%
Willmar Municipal Utilities	2,753,716	1.0%	1,680	\$ 381,689	1.5%
Total - Independent Municipals	49,662,920	1.7%	30,294	\$ 4,989,778	1.7%
TOTAL - COOPS & MUNICIPALS	310,460,950	1.27%	189,381	\$ 47,076,205	1.81%
TOTAL - ELECTRIC UTILITIES	986,184,803	1.69%	601,573	\$ 163,443,181	2.9%

Table 4. 2017 Electric CIP Performance²¹

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	72,467,019	2.64%	44,205	\$8,129,337	5.0%
Otter Tail Power	52,497,167	3.01%	32,023	\$6,491,039	4.2%
Xcel Energy	660,435,156	2.30%	402,865	\$109,109,805	3.8%
Totals - Investor-Owned Utilities	785,399,342	2.36%	479,094	\$123,730,181	3.9%
Cooperative CIP Aggregators - CIP Statute					
Dairyland Power Coop	19,378,633	1.69%	11,821	\$2,296,014	1.8%
Great River Energy (All-Rqmts Members)	129,126,435	1.41%	78,767	\$18,818,000	1.9%
Great River Energy (Fixed Members)	26,303,903	0.85%	16,045	\$3,464,675	1.1%
Minnkota Power Coop/NMPA	21,920,274	1.78%	13,371	\$1,577,448	1.2%
Totals - Coop CIP Aggregators - CIP Statute	196,729,245	1.34%	120,005	\$26,156,138	1.7%
Cooperative CIP Aggregators - Voluntary					
Great River Energy (All-Rqmts Members)	3,426,364	1.06%	2,090	\$600,876	1.7%
Great River Energy (Fixed Members)	10,626,568	1.56%	6,482	\$1,304,184	2.1%
Minnkota Power Coop/NMPA	5,681,042	2.37%	3,465	\$362,076	1.4%
Totals - Coop CIP Aggregators - Voluntary	19,733,975	1.59%	12,038	\$2,267,137	1.8%
Municipal CIP Aggregators - CIP Statute					
CMMPA	8,754,524	3.07%	5,340	\$610,038	2.1%
MMPA	4,169,577	1.31%	2,543	\$522,406	1.5%
MRES	27,483,145	1.19%	16,765	\$4,276,296	2.2%
SMMPA	13,939,675	1.51%	8,503	\$2,771,909	3.1%
The Triad	43,250,827	2.27%	26,383	\$5,113,402	2.6%
Totals - Municipal CIP Aggregators - CIP Statute	97,597,748	1.70%	59,535	\$13,294,050	2.4%
Municipal CIP Aggregators - Voluntary					
CMMPA	100,528	0.81%	61	\$12,083	1.1%
MMPA	325,261	1.62%	198	\$30,985	1.5%
SMMPA	310,227	2.36%	189	\$121,712	8.7%
Totals - Municipal CIP Aggregators - Voluntary	736,015	1.61%	449	\$164,779	3.6%

²¹ Note: Minnesota Session Law Chapter 94, Article 10, Section 10-12 amending § 216B.241 was signed into law May 30, 2017. 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 modifications took effect 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 continued to offer conservation programs and report their results and plans through the CIP reporting process (these are distinguished in the tables as “Voluntary”).

Table 5. 2017 Electric CIP Performance (continued)

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Independent Municipals - CIP Statute					
Ada, City of	NA	NA	NA	NA	NA
Aitkin Public Utilities	514,451	1.47%	314	\$52,875	1.46%
Anoka, City of	4,384,377	1.59%	2,674	\$572,265	2.06%
Brainerd Public Utilities	2,932,668	1.56%	1,789	\$194,345	1.07%
Caledonia Electric Dept., City of	NA	NA	NA	NA	NA
Chaska, City of	5,920,492	1.71%	3,612	\$533,544	1.51%
Delano Municipal Utilities	928,892	1.66%	567	\$49,776	0.95%
East Grand Forks Water & Light Dept.	5,487,113	3.45%	3,347	\$335,807	2.41%
Ely, City of	594,322	1.57%	363	\$71,480	2.04%
Glencoe Light & Power Commission	1,224,982	1.68%	747	\$127,385	1.59%
Grand Rapids Public Utilities Commission	2,509,945	1.51%	1,531	\$224,411	1.52%
Hibbing Public Utilities Commission	1,074,312	0.86%	655	\$87,882	0.66%
Hutchinson Utilities Commission	3,496,383	1.23%	2,133	\$208,941	0.83%
Madelia Municipal Light & Power	431,687	1.60%	263	\$85,014	2.24%
Mountain Iron Water & Light Dept	496,230	2.16%	303	\$72,709	2.96%
New Ulm Public Utilities	1,641,404	0.87%	1,001	\$251,907	1.15%
Proctor Public Utilities	376,208	1.51%	229	\$28,852	1.45%
Shakopee Public Utilities	7,500,016	1.88%	4,575	\$607,425	1.46%
St. Charles Light & Water	314,025	1.46%	192	\$104,263	3.74%
Two Harbors, City of	606,218	2.19%	370	\$54,601	1.55%
Virginia Dept. of Public Utilities	1,501,816	1.29%	916	\$162,051	1.22%
Willmar Municipal Utilities	1,783,174	0.64%	1,088	\$382,484	1.32%
Totals - Independent Municipals - CIP Statute	43,718,716	1.53%	26,668	\$4,208,016	1.46%
Independent Municipals - Voluntary					
Gilbert Water & Light	19,179	0.18%	12	\$5,716	0.5%
Lake Crystal Municipal Utilities	342,061	2.1%	209	\$34,293	1.4%
Nashwauk Public Utilities	215,089	1.5%	131	\$23,410	1.7%
Warroad Municipal Light & Power	59,709	0.1%	36	\$62,086	1.6%
Totals - Independent Municipals - Voluntary	636,038	0.7%	388	\$125,505	1.4%
TOTALS - COOPS & MUNICIPALS - CIP STATUTE	338,045,709	1.45%	206,208	43,658,204	1.82%
TOTALS - ELECTRIC UTILITIES - CIP STATUTE	1,123,445,051	1.99%	685,301	\$167,388,384.89	3.0%

Gas CIP Performance 2016 - 2017

Table 6. 2016 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO ₂ Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	2,006,014	1.47%	117,452	\$ 29,228,533	3.3%
Great Plains Natural Gas	56,669	1.02%	3,318	\$ 642,143	2.1%
Greater Minnesota Gas	9,426	2.09%	552	\$ 116,816	2.5%
Minnesota Energy Resources	472,000	1.09%	27,636	\$ 9,198,728	3.5%
Xcel Energy	908,472	1.31%	53,191	\$ 13,802,080	2.6%
Total - Investor-Owned Utilities	3,452,581	1.35%	202,149	\$ 52,988,300	3.1%
Municipal Aggregator					
The Triad	45,335	1.04%	2,654	\$ 555,367	1.2%
Independent Municipals					
Duluth Public Works & Utilities	21,507	0.4%	1,259	\$ 636,862	1.1%
Hutchinson Utilities Commission (MRES Member)	5,503	0.3%	322	\$ 87,000	0.6%
New Ulm Public Utilities	3,814	0.4%	223	\$ 67,286	0.6%
Perham Natural Gas	826	0.1%	48	\$ 35,000	0.4%
Total - Independent Municipals	31,650	0.4%	1,853	\$ 826,148	0.9%
TOTAL - MUNICIPALS	76,985	0.6%	4,507	\$ 1,381,515	1.0%
TOTAL - GAS UTILITIES	3,529,566	1.31%	206,656	\$ 54,369,815	2.9%

Table 7. 2017 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	2,632,545	1.87%	154,136	\$31,140,094	3.8%
Great Plains Natural Gas	13,577	0.24%	795	\$403,118	1.7%
Greater Minnesota Gas	5,398	0.48%	316	\$137,267	1.4%
Minnesota Energy Resources Corporation	402,989	0.76%	23,595	\$10,666,999	4.4%
Xcel Energy	799,597	1.11%	46,816	\$14,181,339	3.3%
Totals - Investor-Owned Utilities	3,854,106	1.41%	225,658	\$56,528,817	3.7%
Municipal Aggregator					
The Triad	26,223	0.59%	1,535	\$514,295	1.8%
Independent Municipals					
Duluth Public Works & Utilities	35,095	0.7%	2,055	\$851,162	2.4%
Hutchinson Utilities Commission	18,441	1.1%	1,080	\$103,940	1.1%
New Ulm Public Utilities	6,032	0.6%	353	\$70,080	1.0%
Perham Natural Gas	23,578	1.7%	1,380	\$57,136	0.9%
Totals - Independent Municipals	83,146	0.9%	4,868	\$1,082,318	1.8%
TOTALS - MUNICIPALS - CIP STATUTE	109,369	0.8%	6,404	\$1,596,613	1.8%
TOTALS - GAS UTILITIES - CIP STATUTE	3,963,475	1.39%	232,061	\$58,125,430	3.6%

APPENDIX A. Electric Aggregator Membership

Group	Utility
CMMPA	Blue Earth Light & Water Department
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 Commission
CMMPA	Windom Municipal Utilities
Dairyland	Freeborn-Mower Cooperative Services
Dairyland	MiEnergy (formerly Tri-County Electric Cooperative)
Dairyland	Peoples Cooperative Service
GRE-all	BENCO Electric Cooperative
GRE-all	Connexus Energy
GRE-all	Cooperative Light & Power
GRE-all	Dakota Electric Association
GRE-all	East Central Energy
GRE-all	Elk River Municipal Utilities
GRE-all	Great River Energy - All-requirements members
GRE-all	Itasca Mantrap Cooperative Electric Association
GRE-all	Kandiyohi Power Cooperative
GRE-all	Lake Country Power
GRE-all	Lake Region Electric Cooperative
GRE-all	McLeod Coop Power Association
GRE-all	Mille Lacs Electric Cooperative
GRE-all	Nobles Cooperative Electric
GRE-all	North Itasca Electric Cooperative
GRE-all	Runestone Electric Association
GRE-all	Stearns Electric Association
GRE-all	Steele Waseca Cooperative Electric
GRE-all	Todd Wadena Electric Cooperative
GRE-fixed	Crow Wing Cooperative Power & Light, Inc.
GRE-fixed	Federated Rural Electric Association
GRE-fixed	Great River Energy - Fixed members
GRE-fixed	Meeker Cooperative Light & Power Association
GRE-fixed	Minnesota Valley Electric Cooperative
GRE-fixed	Wright-Hennepin Cooperative Electric Association
Minnkota	Beltrami Electric Cooperative, Inc.
Minnkota	Hawley Public Utilities
Minnkota	Minnkota Power Cooperative/NMPA
Minnkota	North Star Electric Cooperative
Minnkota	Roseau Electric Cooperative
Minnkota	Roseau Municipal Water & Light
Minnkota	Thief River Falls Municipal Utility
Minnkota	Wild Rice Electric Cooperative

Group	Utility
MMPA	Arlington, City of
MMPA	Buffalo, City of
MMPA	Le Sueur Municipal Utilities
MMPA	Minnesota Municipal Power Agency
MMPA	North St Paul, City of
MMPA	Olivia, 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	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	Princeton Public Utilities
SMMPA	Redwood Falls Public Utilities
SMMPA	Spring Valley Public Utilities Commission
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

Group	Utility
Triad	Austin Utilities
Triad	Owatonna Public Utilities

APPENDIX C. 2017 Exempt and Voluntary Utilities

Group	Utility	Exempt	Voluntary
CMMPA	Fairfax Municipal	x	x
GRE-all	Arrowhead Electric Cooperative, Inc	x	x
GRE-all	Brown County Rural Electrical Association	x	x
GRE-all	Goodhue County Cooperative Electric Association	x	x
GRE-fixed	Agralite Cooperative	x	x
GRE-fixed	Redwood Electric Cooperative	x	x
GRE-fixed	South Central Electric Association	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	Red River Valley Cooperative Power Association	x	x
Minnkota	Stephen Electric Department	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
	Gilbert Water & Light	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 Cooperative	x	
	Dundee, City of	x	
	Dunnell, City of	x	
	Eitzen Light and Power	x	
	Elbow Lake Municipal Power	x	
	Grove City Electric Department	x	
	Halstad Municipal Utilities	x	
	Harmony, City of	x	
	H-D Electric Cooperative, Inc	x	
	Heartland Power Cooperative	x	
	Henning Electric Dept, City of	x	
	Iowa Lakes Electric Cooperative	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 Cooperative, Inc.	x	
	Mabel, City of	x	
	Madison Municipal Utilities	x	
	Minnesota Valley Coop Light & Power Association	x	
	Moose Lake Water & Light Commission	x	
	NewFolden, City of	x	
	Nielsville, City of	x	
	Northwestern Wisconsin Electric Company	x	
	Peterson Electric System, City of	x	
	Pierz Utilities	x	
	PKM Electric Cooperative, Inc	x	
	Randall Electric, City of	x	
	Red Lake Electric Cooperative	x	
	Renville-Sibley Cooperative Power Association	x	
	Round Lake, City of	x	
	Rushford, City of	x	
	Rushmore, City of	x	
	Shelly Municipal Light Department	x	
	Sioux Valley Energy	x	
	Spring Grove, City of	x	
	Traverse Electric Cooperative, Inc	x	
	Truman Public Utilities	x	
	Tyler, City of	x	
	Westbrook Public Utilities	x	
	Whalan, City of	x	

APPENDIX D. CIP Regulatory Process Information

CIP regulatory process

Commerce is responsible for reviewing and approving utility CIP plans and annual status reports. All Minnesota utilities report their annual budget and actual program data in Reporting_{ESP}[™], a cloud-based energy efficiency data management system developed by Energy Platforms, LLC. Investor-owned utilities (IOUs) are required to

file three-year (triennial) plans and annual status reports through eDockets. Consumer-owned utilities (municipal utilities or electric cooperatives) file annual plans on Commerce's Energy Savings Platform.²²

As part of the CIP plan review process, Commerce staff evaluate the cost-effectiveness of the measures and programs proposed by each utility. Under CIP administrative rules²³, Minnesota uses four of the five standard benefit-cost tests included in the *California Standard Practice Manual for Economic Analysis of Demand-side Programs and Projects*.²⁴ The Societal test, which compares some of the benefits to society of a program or measure to its total costs, is used to screen programs for cost-effectiveness. After Commerce staff complete their review, the Commissioner of Commerce or his/her delegated authority (currently, the Deputy Commissioner of the Division of Energy Resources) approves each utility's plan as filed or with modifications.

On an annual basis, both investor-owned and consumer-owned utilities submit status reports summarizing the CIP expenditures, participation and savings achieved the previous year. Commerce reviews these reports to ensure the reasonableness of reported savings, that portfolios are cost-effective, and that relevant statutory requirements were met.

Minnesota statutes include mechanisms for IOUs to recover the costs of implementing CIP programs and earn a performance incentive based on the level of savings and amount of net benefits achieved.²⁵ Most IOUs file their status reports as part of larger consolidated filings that include proposed adjustments to CIP cost-recovery riders based on the previous year's expenditures and performance incentive earned. Concurrent with the status report review process, Commerce staff review the proposed cost-recovery adjustments and file recommendations concerning the proposed adjustments to the Commission. After considering Commerce's recommendations and any public comments filed, the Commission then approves the proposed adjustments as is or with modifications.

For cooperative and municipal utilities, local utility commissions, boards or city councils determine their own cost-recovery mechanisms.

²² The Energy Savings Platform® (ESP) was developed through a public-private partnership with Energy Platforms, LLC, and is a tool for ensuring that utility EE programs are cost-effective, achieving their approved energy savings goals, and meeting the requirements of Minnesota State law. ReportingESP is Minnesota's designated tool for energy efficiency program reporting by utilities, and serves as a central database of energy efficiency data.

²³ Minnesota Rules chapter 7690.0500.

²⁴ http://www.calmac.org/events/spm_9_20_02.pdf

²⁵ Minn. Stat. §216B.16, subd. 6b and 6c.