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# Conservation Improvement Program

Energy Savings, CO<sub>2</sub> Reductions and Economic Benefits Achieved  
2015-2016

December 2018  
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 (CO<sub>2</sub>) 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 2015 and 2016.

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 2015 and 2016, 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 2015 to 2016, CIP programs benefited Minnesota's environment and economy by:

- Saving over 13 trillion-Btus of energy, which is enough energy to heat, cool and power more than 150,000 Minnesota homes for a year.<sup>1</sup>
- Reducing CO<sub>2</sub> emissions by over 1.6 million tons, equivalent to removing 322,000 vehicles from the road for one year.<sup>2,3</sup>
- Lowering energy bills by over \$230 million.<sup>4</sup>
- Supporting nearly 45,000 energy efficiency jobs, with the rate of job growth in the sector outpacing all other Midwest states.<sup>5</sup>

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<sup>1</sup> 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.

<sup>2</sup> The electric CO<sub>2</sub> emissions rate of 1,220 pounds of CO<sub>2</sub> per MWh is provided by the Minnesota Pollution Control Agency to the Minnesota Public Utilities Commission and Minnesota Department of Commerce in Docket No. E,G999/CI-00-1343, updated in April 18, 2018. The gas CO<sub>2</sub> emissions rate of 117 pounds of CO<sub>2</sub> per Dth is provided by the U.S. Energy Information Administration, and was last updated February 2, 2016. These updated emissions rates were applied to years 2013 - 2016. Previous years utilize a rate of 1,823 pounds of CO<sub>2</sub> per MWh of electricity saved and 121 pounds of CO<sub>2</sub> per Dth of natural gas saved.

<sup>3</sup> Calculated using the US Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>), accessed August 26, 2018.

<sup>4</sup> Based on a 9.9-cent average for the price of electricity (kWh) in Minnesota <https://www.eia.gov/electricity/state/minnesota/index.php>. In addition, a \$6.93 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_pri_sum_dcu_SMN_a.htm)

<sup>5</sup> Based on Clean Jobs Midwest 2018 Minnesota report – showing 44,859 energy efficiency jobs in Minnesota and 59,079 total clean energy jobs. <https://www.cleanjobsmidwest.com/state/minnesota>

**Table 1. Total 2015-2016 CIP Electric and Gas Impacts**

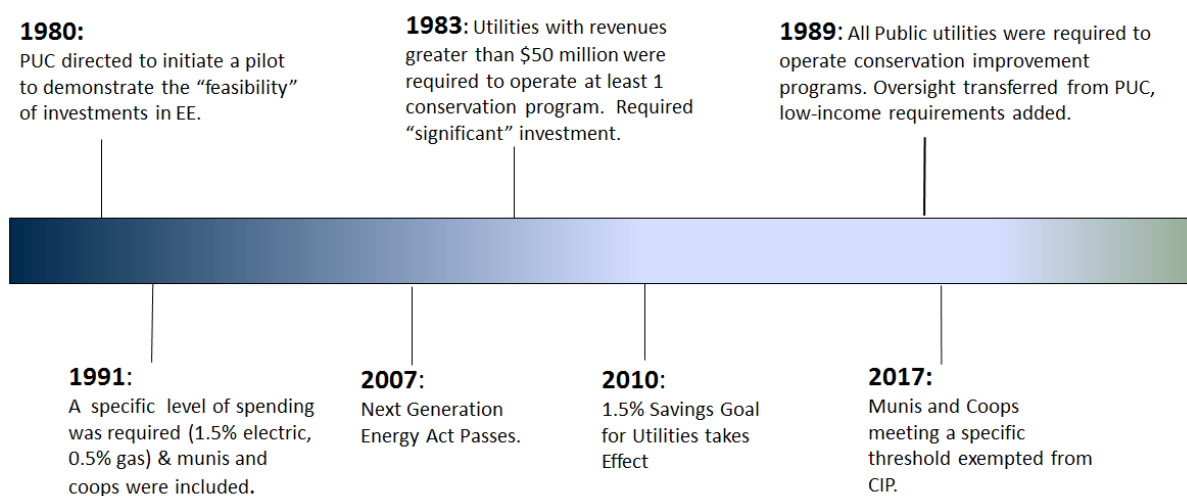
	CO2 Savings (tons)	Energy Savings (1000s MMBtu)	Customer Bill Savings
Electric	1,256,024	6,512	\$ 188,951,085
Gas	402,701	6,878	\$ 47,685,819
Total	1,658,725	13,390	\$236,636,903

## 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 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). 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<sup>6</sup>, unless adjusted by the Commissioner to no less than 1.0%.<sup>7</sup> 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**



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

<sup>7</sup> 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.

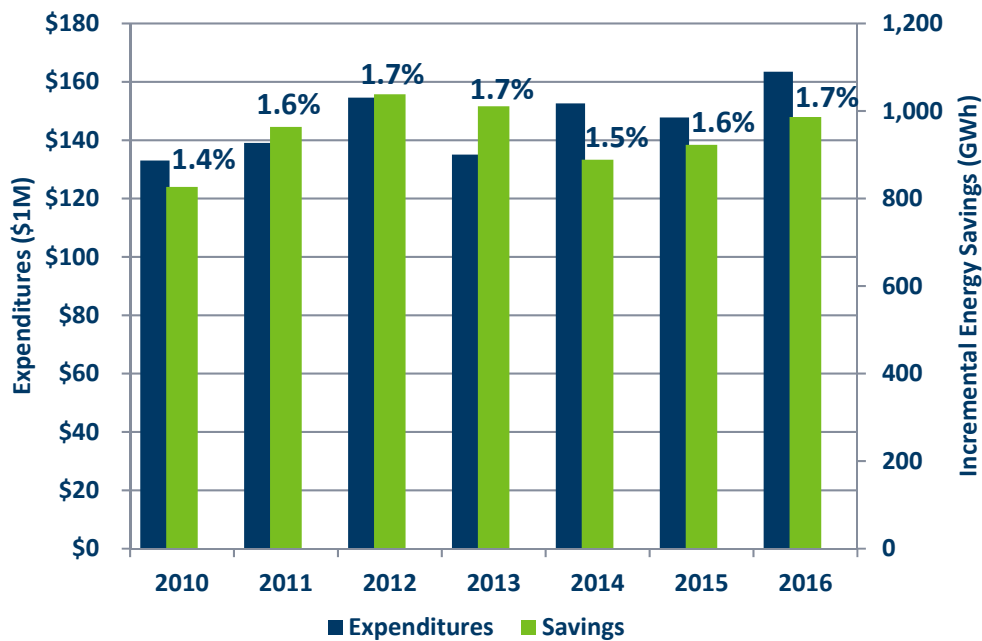
This report highlights the CO<sub>2</sub> reductions and energy savings that utilities achieved in 2015 and 2016. Commerce also recognizes the positive economic impacts that utility-run CIP portfolios bring to Minnesota in terms of energy bill savings, job creation and utility scale benefits.

## 2015 and 2016 CIP Performance

Minnesota’s commitment to energy efficiency is nationally recognized. In 2018, the American Council for an Energy Efficient Economy (ACEEE) ranked Minnesota eighth on its State Scorecard Ranking, and recognized Minnesota’s government-led initiatives as tied for most effective in the country.<sup>8</sup> In terms of total energy saved, 2016 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 ninth highest energy savings percentage nationally.<sup>9</sup>

As shown in Figure 2 and Figure 3, electric and natural gas savings for 2015 and 2016 totaled 1,909 gigawatt-hours (GWh) and 6.9 billion cubic feet (bcf), respectively. Combined, these energy savings are equivalent to 13,389,948 million-BTUs (MMBtus). This is enough energy to heat, cool and power more than **150,000 homes** for a year<sup>10</sup>, or approximately the combined number of homes in St. Paul, St. Cloud and Bemidji.<sup>11</sup>

Figure 2. CIP Electric Results 2010-2016



<sup>8</sup> ACEEE 2018 State Energy Efficiency Scorecard, Table 34. <https://aceee.org/research-report/u1808>

<sup>9</sup>Based on ACEEE analysis, Table 9 & 11, from the 2017 State Energy Efficiency Scorecard. <https://aceee.org/research-report/u1710>

<sup>10</sup>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.

<sup>11</sup> According to the most recent Census American Survey Data, St. Paul has 119,625 housing units, St. Cloud has 27,178 housing units, and Bemidji has 6,241 housing units. [https://factfinder.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml)

Figure 3. CIP Natural Gas Results 2010-2016

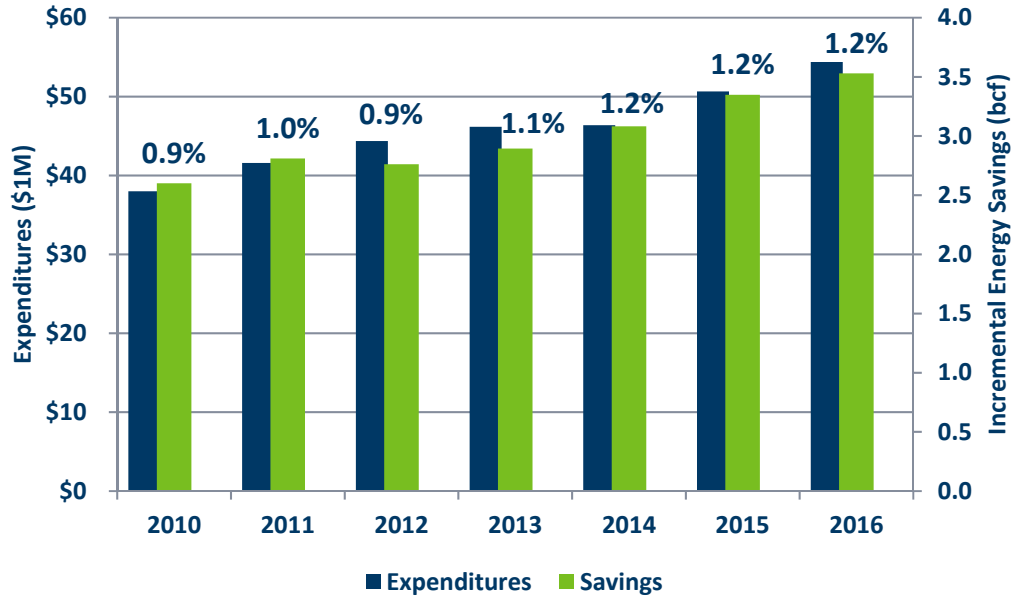
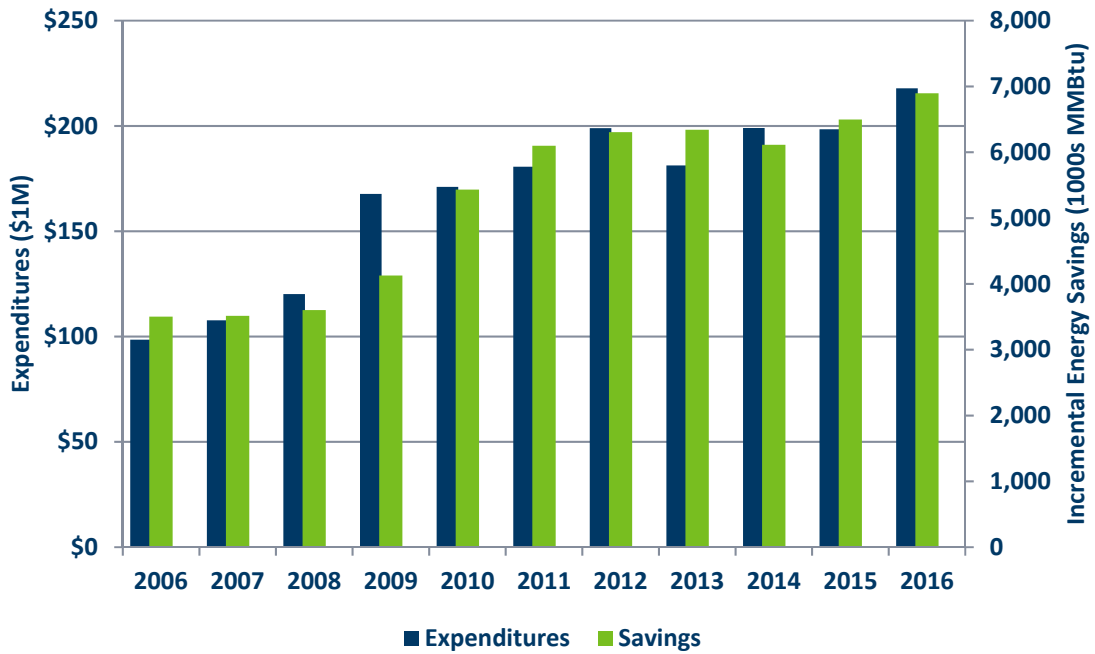


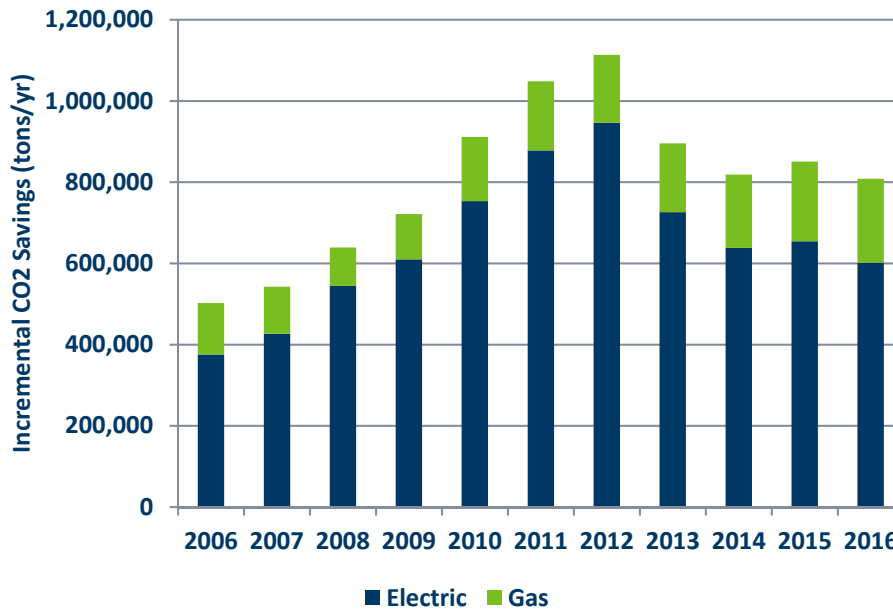
Figure 4. Aggregate CIP Performance 2006-2016



## Avoided CO<sub>2</sub> Emissions

The Next Generation Energy Act of 2007 established Minnesota’s goals for reducing greenhouse gas emissions. CIP’s utility portfolios achieved more than 1.6 million tons of avoided CO<sub>2</sub> emissions in 2015-2016.<sup>12</sup> These savings equate to removing more than 322,000 vehicles from the road<sup>13</sup> in Minnesota, or about five percent of the state’s registered vehicles.<sup>14</sup>

Figure 5. Total CO<sub>2</sub> Savings 2006-2016<sup>15</sup>



## 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

<sup>12</sup> The electric CO<sub>2</sub> emissions rate of 1,220 pounds of CO<sub>2</sub> per MWh is provided by the Minnesota Pollution Control Agency to the Minnesota Public Utilities Commission and Minnesota Department of Commerce in Docket No. E,G999/CI-00-1343, updated in April 18, 2018. The gas CO<sub>2</sub> emissions rate of 117 pounds of CO<sub>2</sub> per Dth is provided by the U.S. Energy Information Administration, and was last updated February 2, 2016. These updated emissions rates were applied to years 2013 - 2016. Previous years utilize a rate of 1,823 pounds of CO<sub>2</sub> per MWh of electricity saved and 121 pounds of CO<sub>2</sub> per Dth of natural gas saved.

<sup>13</sup> Calculated using the US Environmental Protection Agency’s Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>), accessed August 26, 2018.

<sup>14</sup> Calculated using 2016 registered vehicle figures from 2016 Minnesota Transportation Trivia & Facts (<http://www.dot.state.mn.us/trafficeng/publ/triviocard/trivia16/triviafacts.pdf>).

<sup>15</sup> While the method for calculating CIP’s CO<sub>2</sub> emission savings has not changed, the electric CO<sub>2</sub> emissions rate has declined since 2012. This is due in part to an increase in electricity generation from renewable energy and a seven percent decrease in electricity generated by coal-fired power plants. As CO<sub>2</sub> emitting fuel sources continue to decline in use, so too will the emissions factor used to calculate CO<sub>2</sub> savings from CIP.

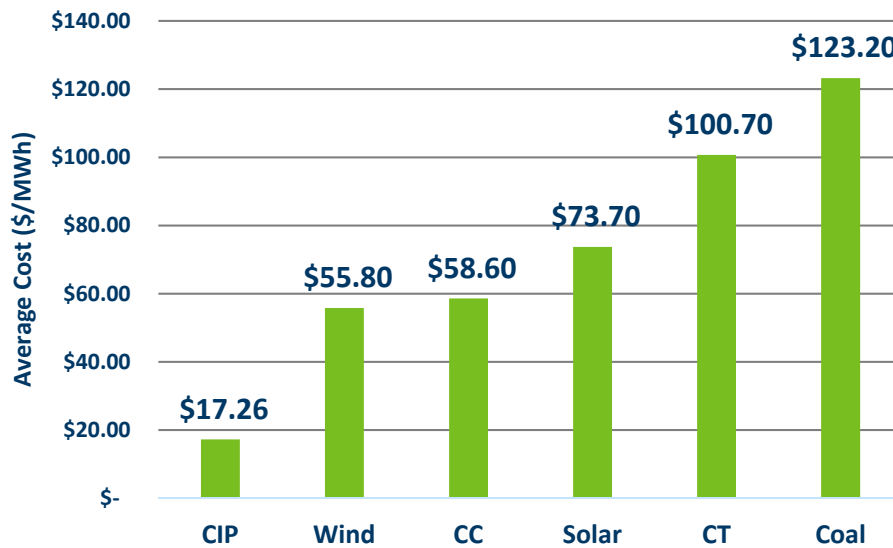


supply resources for meeting the needs of an electric utility’s customers over the next 15 years. Utilities often select high levels of DSM to meet their needs because they are a lower-cost resource than supply-side options.

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 Options<sup>16</sup>**



**Figure Key**

**CIP**= Levelized Average Cost of CIP in 2014-2016  
**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 plants

<sup>16</sup> Source: Minnesota Department of Commerce (CIP data) and US Energy Information Administration’s Annual Energy Outlook 2017.

## Consumer and Business Benefits

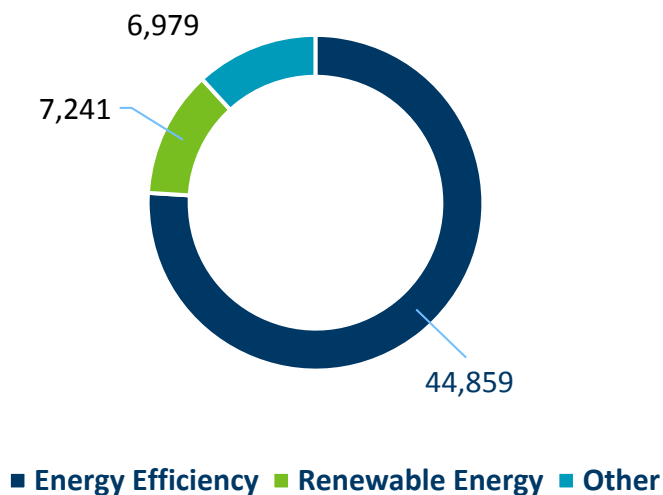
CIP brings positive economic and societal benefits to Minnesota. An independent review examining the economic impact of CIP found that **every one dollar that is spent on CIP returns four dollars to the state's economy**. This return on investment is created through job growth, economic surplus, lower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

CIP saved Minnesota's businesses and residents over \$236 million on energy bills in 2015-2016.<sup>18</sup> These savings are a major benefit that CIP provides to both households and businesses of all sizes 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 2018 shows that Minnesota has nearly 45,000 jobs<sup>19</sup> in the energy efficiency field, and the rate of job growth in the sector outpaces all other Midwest states. 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**



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

<sup>18</sup> Based on a 9.9-cent average for the price of electricity (kWh) in Minnesota <https://www.eia.gov/electricity/state/minnesota/index.php>. In addition, a \$6.93 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_pri_sum_dcu_SMN_a.htm)

<sup>19</sup> Based on Clean Jobs Midwest 2018 Minnesota report – showing 44,859 energy efficiency jobs in Minnesota and 59,079 total clean energy jobs. <https://www.cleanjobsmidwest.com/state/minnesota>

## CIP Savings and Expenditures <sup>20</sup>

### Electric CIP Performance 2015 - 2016

Table 2. 2015 Electric CIP Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Expenditures %
<b>Investor-Owned</b>					
Minnesota Power	85,701,641	2.84%	60,762	\$ 6,554,551	2.8%
Otter Tail Power	48,711,455	2.33%	34,536	\$ 6,105,074	3.9%
Xcel Energy	501,627,710	1.73%	355,654	\$ 91,385,775	3.5%
<b>Total - Investor-Owned</b>	<b>636,040,806</b>	<b>1.87%</b>	<b>450,953</b>	<b>\$ 104,045,400</b>	<b>3.4%</b>
<b>Cooperative CIP</b>					
Dairyland Power Coop	12,555,688	1.49%	8,902	\$ 1,863,792	1.6%
East River Electric Power	3,750,429	1.13%	2,659	\$ 429,436	1.4%
Great River Energy (All-	97,659,555	1.10%	69,241	\$ 17,643,569	1.8%
Great River Energy	26,607,326	0.85%	18,865	\$ 3,969,088	1.2%
Minnkota Power	27,678,829	1.59%	19,624	\$ 2,897,507	1.5%
<b>Total - Coop CIP</b>	<b>168,251,827</b>	<b>1.12%</b>	<b>119,291</b>	<b>\$ 26,803,392</b>	<b>1.6%</b>
<b>Municipal CIP</b>					
CMMPA - 10 of 12	7,738,596	2.42%	5,487	\$ 661,424	2.2%
MMPA - 7 of 11	3,767,808	1.10%	2,671	\$ 522,895	1.5%
MRES - 23 of 24	21,672,245	1.11%	15,366	\$ 3,932,155	2.4%
SMMPA - 15 of 18	13,508,065	1.45%	9,577	\$ 2,386,322	2.6%
The Triad (SMMPA	29,501,089	1.52%	20,916	\$ 5,169,007	2.7%
<b>Total - Municipal CIP</b>	<b>76,187,803</b>	<b>1.39%</b>	<b>54,017</b>	<b>\$ 12,671,803</b>	<b>2.5%</b>
<b>Independent</b>					
Minnesota Valley	3,035,104	1.83%	2,152	\$ 368,137	2.2%
Sioux Valley Energy	704,626	0.61%	500	\$ 53,526	0.5%
<b>Total - Independent</b>	<b>3,739,730</b>	<b>1.33%</b>	<b>2,651</b>	<b>\$ 421,663</b>	<b>1.4%</b>

<sup>20</sup> 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 CO<sub>2</sub> 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 data was derived from Reporting<sub>ESP</sub> as of August, 2018.

**Table 3. 2015 Electric CIP Performance (continued)**

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Expenditure %
<b>Independent Municipals</b>					
Aitkin Public Utilities	523,175	1.5%	371	\$ 49,814	1.7%
Alvarado, City of	17,570	0.5%	12	\$ 2,150	0.5%
Anoka, City of (MMPA member)	3,263,072	1.2%	2,314	\$ 394,849	1.6%
Biwabik Public Utilities	101,726	1.6%	72	\$ 11,407	1.8%
Brainerd Public Utilities	3,533,179	1.6%	2,505	\$ 194,190	1.1%
Brewster Light & Power, City of	5,495	0.1%	4	\$ 9,951	2.3%
Chaska, City of (MMPA Member)	5,264,817	1.6%	3,733	\$ 500,231	1.5%
Delano Municipal Utilities	1,111,203	2.1%	788	\$ 70,176	1.4%
East Grand Forks Water & Light Dept. (MMPA member)	3,124,190	1.9%	2,215	\$ 346,396	2.6%
Ely, City of	807,350	2.2%	572	\$ 58,935	1.7%
Gilbert Water & Light	158,319	1.5%	112	\$ 10,860	1.1%
Glencoe Light & Power Commission	1,316,582	1.8%	933	\$ 127,642	1.7%
Grand Rapids Public Utilities Commission	2,496,557	1.5%	1,770	\$ 220,254	1.6%
Hibbing Public Utilities Commission	1,853,279	1.5%	1,314	\$ 104,425	0.8%
Hutchinson Utilities Commission (MRES Member)	1,562,981	0.5%	1,108	\$ 243,847	1.0%
Kandiyohi, City of	10,369	0.3%	7	\$ 4,294	1.6%
Lake Crystal Municipal Utilities	339,084	2.0%	240	\$ 48,460	1.7%
Madelia Municipal Light & Power	209,503	0.8%	149	\$ 57,491	1.7%
Mountain Iron Water & Light Dept	326,489	1.6%	231	\$ 23,894	1.1%
Nashwauk Public Utilities	263,810	2.5%	187	\$ 13,422	1.8%
New Ulm Public Utilities	1,215,241	0.6%	862	\$ 219,641	1.0%
Pierz Utilities	75,414	0.8%	53	\$ 7,594	0.8%
Proctor Public Utilities	377,983	1.5%	268	\$ 20,181	0.9%
Randall Electric, City of	11,039	0.2%	8	\$ 2,084	0.5%

Round Lake, City of	11,116	0.2%	8	\$ 1,450	0.3%
Shakopee Public Utilities (MMPA member)	5,264,949	1.3%	3,733	\$ 528,165	1.3%
St. Charles Light & Water	179,859	0.9%	128	\$ 82,060	2.9%
Truman Public Utilities	76,889	0.6%	55	\$ 27,216	1.5%
Two Harbors, City of	504,574	1.8%	358	\$ 46,924	1.5%
Virginia Dept. of Public Utilities	2,236,829	1.9%	1,586	\$ 148,777	1.1%
Warroad Municipal Light & Power (NMPA member)	717,917	1.3%	509	\$ 51,625	1.2%
Willmar Municipal Utilities	1,231,286	0.4%	873	\$ 189,568	0.7%
<b>Total - Independent Municipals</b>	<b>38,191,846</b>	<b>1.27%</b>	<b>27,078</b>	<b>\$ 3,817,973</b>	<b>1.3%</b>
<b>TOTAL - COOPS &amp; MUNICIPALS</b>	<b>286,371,206</b>	<b>1.21%</b>	<b>203,037</b>	<b>\$ 43,714,831</b>	<b>1.76%</b>
<b>TOTAL - ELECTRIC UTILITIES</b>	<b>922,412,012</b>	<b>1.60%</b>	<b>653,990</b>	<b>\$ 147,760,231</b>	<b>2.7%</b>

**Table 4. 2016 Electric CIP Performance**

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
<b>Investor-Owned Utilities</b>					
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%
<b>Total - Investor-Owned Utilities</b>	<b>675,723,853</b>	<b>1.98%</b>	<b>412,192</b>	<b>\$ 116,366,976</b>	<b>3.8%</b>
<b>Cooperative CIP Aggregators</b>					
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%
<b>Total - Coop CIP Aggregators</b>	<b>179,906,220</b>	<b>1.15%</b>	<b>109,742.79</b>	<b>\$28,157,527</b>	<b>1.6%</b>
<b>Municipal CIP Aggregators</b>					
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%
<b>Total - Municipal CIP Aggregators</b>	<b>78,155,810</b>	<b>1.43%</b>	<b>47,675</b>	<b>\$13,515,294</b>	<b>2.4%</b>
<b>Independent Cooperatives</b>					
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%
<b>Total - Independent Cooperatives</b>	<b>2,736,000</b>	<b>0.84%</b>	<b>1,669</b>	<b>\$ 413,606</b>	<b>1.3%</b>

**Table 5. 2016 Electric CIP Performance (continued)**

<b>Organization</b>	<b>Incremental Energy Savings (kWh/yr)</b>	<b>Energy Savings %</b>	<b>Incremental CO<sub>2</sub> Savings (tons/yr)</b>	<b>Expenditures</b>	<b>Expenditures %</b>
<b>Independent Municipals</b>					
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%
<b>Total - Independent Municipals</b>	<b>49,662,920</b>	<b>1.7%</b>	<b>30,294</b>	<b>\$ 4,989,778</b>	<b>1.7%</b>
<b>TOTAL - COOPS &amp; MUNICIPALS</b>	<b>310,460,950</b>	<b>1.27%</b>	<b>189,381</b>	<b>\$ 47,076,205</b>	<b>1.81%</b>
<b>TOTAL - ELECTRIC UTILITIES</b>	<b>986,184,803</b>	<b>1.69%</b>	<b>601,573</b>	<b>\$ 163,443,181</b>	<b>2.9%</b>



## Gas CIP Performance 2015 - 2016

Table 6. 2015 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Expenditure %
<b>Investor-Owned Utilities</b>					
CenterPoint Energy	1,851,930	1.36%	108,431	\$ 25,893,618	2.9%
Great Plains Natural Gas	69,393	1.25%	4,063	\$ 724,644	2.4%
Greater Minnesota Gas	6,810	1.51%	399	\$ 109,114	2.3%
Minnesota Energy Resources	493,382	1.14%	28,888	\$ 8,870,639	3.3%
Xcel Energy	838,318	1.21%	49,084	\$ 13,577,149	2.6%
<b>Total - Investor-Owned Utilities</b>	<b>3,259,833</b>	<b>1.28%</b>	<b>190,863</b>	<b>\$ 49,175,164</b>	<b>2.9%</b>
<b>Municipal Aggregator</b>					
The Triad	36,139	0.86%	2,116	\$ 401,579	1.2%
<b>Independent Municipals</b>					
Duluth Public Works & Utilities	31,277	0.65%	1,831	\$ 802,296	2.2%
Hutchinson Utilities Commission (MRES Member)	17,491	1.1%	1,024	\$ 182,725	1.5%
New Ulm Public Utilities	3,235	0.4%	189	\$ 55,739	0.7%
Perham Natural Gas	350	0.0%	20	\$ 26,380	0.4%
<b>Totals - Independent Municipals</b>	<b>52,353</b>	<b>0.6%</b>	<b>3,065</b>	<b>\$ 1,067,140</b>	<b>1.7%</b>
<b>TOTAL - MUNICIPALS</b>	<b>88,492</b>	<b>0.7%</b>	<b>5,181</b>	<b>\$ 1,468,719</b>	<b>1.5%</b>
<b>TOTAL - GAS UTILITIES</b>	<b>3,348,325</b>	<b>1.25%</b>	<b>196,044</b>	<b>\$ 50,643,883</b>	<b>2.8%</b>

Table 7. 2016 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Expenditures %
<b>Investor-Owned Utilities</b>					
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%
<b>Total - Investor-Owned Utilities</b>	<b>3,452,581</b>	<b>1.35%</b>	<b>202,149</b>	<b>\$ 52,988,300</b>	<b>3.1%</b>
<b>Municipal Aggregator</b>					
The Triad	45,335	1.04%	2,654	\$ 555,367	1.2%
<b>Independent Municipals</b>					
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%
<b>Total - Independent Municipals</b>	<b>31,650</b>	<b>0.4%</b>	<b>1,853</b>	<b>\$ 826,148</b>	<b>0.9%</b>
<b>TOTAL - MUNICIPALS</b>	<b>76,985</b>	<b>0.6%</b>	<b>4,507</b>	<b>\$ 1,381,515</b>	<b>1.0%</b>
<b>TOTAL - GAS UTILITIES</b>	<b>3,529,566</b>	<b>1.31%</b>	<b>206,656</b>	<b>\$ 54,369,815</b>	<b>2.9%</b>

## APPENDIX A. Electric Municipal Power Agency Membership

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### Central Minnesota Municipal Power Agency (CMMPA)

- **12 members:** Blue Earth, Delano, Fairfax, Glencoe, Granite Falls, Janesville, Kasson, Kenyon, Mountain Lake, Sleepy Eye, Springfield, and Windom.
- Delano and Glencoe disaggregated from CMMPA's CIP in 2013.

### Minnesota Municipal Power Agency (MMPA)

- **11 members:** Anoka, Arlington, Brownton, Buffalo, Chaska, East Grand Forks, Le Sueur, N. St. Paul, Olivia, Shakopee and Winthrop.
- Anoka, East Grand Forks, and Shakopee operate as independent entities under CIP. Effective January 1, 2015, Chaska also disaggregated from MMPA's CIP.

### Missouri River Energy Services (MRES)

- **24 Minnesota members:** Adrian, Alexandria, Barnesville, Benson, Breckenridge, Detroit Lakes, Elbow Lake, Henning, Hutchinson, Jackson, Lake Park, Lakefield, Luverne, Madison, Marshall, Melrose, Moorhead, Ortonville, Sauk Centre, St. James, Staples, Wadena, Westbrook, and Worthington.
- Hutchinson operates as an independent entity under CIP.

### Northern Municipal Power Agency (NMPA)

- **10 Minnesota members:** Bagley, Baudette, Fosston, Halstad, Hawley, Roseau, Stephen, Thief River Falls, Warren, and Warroad.
- NMPA aggregates its CIP programs with Minnkota Power Cooperative.
- Warroad operates as an independent entity under CIP.

### Southern Minnesota Municipal Power Agency (SMMPA)

- **18 members:** Austin, Blooming Prairie, Fairmont, Grand Marais, Lake City, Litchfield, Mora, New Prague, North Branch, Owatonna, Preston, Princeton, Redwood Falls, Rochester, Spring Valley, St. Peter, Waseca, and Wells.
- Austin, Owatonna, and Rochester operate as a distinct entity (the Triad) under CIP.
- On the electric side, the Triad includes all three cities.
- On the gas side, the Triad includes Austin and Owatonna only.

## APPENDIX B. Generation and Transmission Cooperative Membership

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### Dairyland Power Cooperative

- **3 Minnesota members:** Freeborn-Mower Cooperative Services, Peoples Cooperative Service, and MiEnergy Cooperative.

### **East River Electric Power Cooperative**

- **3 Minnesota members:** Lyon-Lincoln Electric Cooperative, Renville-Sibley Cooperative Power Association, and Traverse Electric Cooperative.

### **Great River Energy – All-Requirements Member Cooperatives**

- **20 members:** Arrowhead Electric Cooperative, BENCO Electric Cooperative, Brown County Electric Association, Connexus Energy, Cooperative Light & Power, Dakota Electric Association, East Central Energy, Goodhue County Cooperative Electric Association, Itasca-Mantrap Cooperative Electric Association, Kandiyohi Power Cooperative, Lake Country Power, Lake Region Electric Cooperative, McLeod Cooperative Power Association, Mille Lacs Energy Cooperative, Nobles Cooperative Electric, North Itasca Electric Cooperative, Runestone Electric Association, Stearns Electrical Association, Steele-Waseca Cooperative Electric, and Todd-Wadena Electric Cooperative.
- Elk River Municipal Utilities is also aggregated with Great River Energy – All-Requirements Members CIP totals.

### **Great River Energy – Fixed Member Cooperatives**

- **8 members:** Agralite Electric Cooperative, Crow Wing Power & Light, Federated Rural Electric Association, Meeker Cooperative Light & Power Association, Minnesota Valley Electric Cooperative, Redwood Electric Cooperative, South Central Electric Association, and Wright-Hennepin Cooperative Electric Association.

### **Minnkota Power Cooperative**

- **8 Minnesota members:** Beltrami Electric Cooperative, Clearwater-Polk Electric Cooperative, North Star Electric Cooperative, PKM Electric Cooperative, Red Lake Electric Cooperative, Red River Valley Cooperative Power Association, Roseau Electric Cooperative, and Wild Rice Electric Cooperative.

## APPENDIX C. CIP Regulatory Process Information

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### 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<sub>ESP</sub><sup>™</sup>, 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.<sup>21</sup>

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 rules<sup>22</sup>, 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*.<sup>23</sup> 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.<sup>24</sup> 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.

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<sup>21</sup> *The Energy Savings Platform® (ESP) was developed through a public-private partnership with Energy Platforms, LLC. and is an essential tool for ensuring that utility EE programs are cost-effective, achieving their approved energy savings goals, and meeting the requirements of Minnesota State law. ESP is made up of two applications, ESP (operations) and ReportingESP. ESP (operations) is a user-configurable application for program implementation and energy savings tracking by utilities. Additionally ESP has the function of using automated calculators for quantifying energy savings based on the energy efficiency algorithms found within Minnesota's Technical Reference Manual (TRM). All data within ESP (operations) are private by default, but can be shared with other organizations. ReportingESP is Minnesota's designated tool for energy efficiency program reporting by utilities and also serves as a central, publically-accessible database of energy efficiency data. Information is entered at the program-level in ReportingESP and can be dynamically grouped and analyzed by utility, aggregator, program category, market segment, etc.*

<sup>22</sup> *Minnesota Rules chapter 7690.0500.*

<sup>23</sup> [http://www.calmac.org/events/spm\\_9\\_20\\_02.pdf](http://www.calmac.org/events/spm_9_20_02.pdf)

<sup>24</sup> *Minn. Stat. §216B.16, subd. 6b and 6c.*

## APPENDIX D. Energy Efficiency Jobs by County <sup>25</sup>

Aitkin County	50	Isanti County	133	Pipestone County	56
Anoka County	2,876	Itasca County	174	Polk County	123
Becker County	189	Jackson County	54	Pope County	42
Beltrami County	281	Kanabec County	63	Ramsey County	4,279
Benton County	431	Kandiyohi County	392	Red Lake County	20
Big Stone County	50	Kittson County	16	Redwood County	65
Blue Earth County	560	Koochiching County	44	Renville County	43
Brown County	331	Lac qui Parle County	14	Rice County	468
Carlton County	242	Lake County	19	Rock County	26
Carver County	812	Lake of the Woods County	5	Roseau County	86
Cass County	101	Le Sueur County	192	St. Louis County	1,294
Chippewa County	81	Lincoln County	22	Scott County	828
Chisago County	319	Lyon County	145	Sherburne County	438
Clay County	214	McLeod County	156	Sibley County	73
Clearwater County	36	Mahnomen County	13	Stearns County	1,348
Cook County	32	Marshall County	33	Steele County	217
Cottonwood County	41	Martin County	100	Stevens County	75
Crow Wing County	464	Meeker County	89	Swift County	65
Dakota County	2,610	Mille Lacs County	82	Todd County	39
Dodge County	99	Morrison County	143	Traverse County	8
Douglas County	302	Mower County	170	Wabasha County	173
Faribault County	95	Murray County	56	Wadena County	54
Fillmore County	75	Nicollet County	161	Waseca County	75
Freeborn County	126	Nobles County	84	Washington County	952
Goodhue County	219	Norman County	18	Watsonwan County	44
Grant County	36	Olmsted County	993	Wilkin County	18
Hennepin County	16,691	Otter Tail County	297	Winona County	232
Houston County	82	Pennington County	428	Wright County	812
Hubbard County	89	Pine County	60	Yellow Medicine County	26

<sup>25</sup><https://www.cleanjobsmidwest.com/wp-content/uploads/2018/08/CJM-2018-Final-Data.xlsx>. 1,191 jobs not classified to a county in dataset.