



**Minnesota Conservation  
Improvement Program Energy  
And  
Carbon Dioxide Savings Report for  
2011-2012**

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**Prepared by Minnesota Department of Commerce  
Division of Energy Resources**

**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 Minn. Statutes §216B.241, subd. 1c(g), which requires the Commissioner of Commerce to produce and make publicly available a report on the annual energy savings and estimated carbon dioxide reductions achieved by energy conservation improvement programs for the two most recent years for which data are available. This report includes data through program year 2012 and updates previously reported 2011 data.

### Electric and natural gas energy savings impacts

The Conservation Improvement Program (CIP) is a statewide program administered by electricity and natural gas utilities that helps Minnesota households and businesses use electricity and natural gas more efficiently. In the process, CIP helps to conserve these important resources while reducing harmful emissions and the need for new utility infrastructure.

Recognizing these benefits, lawmakers passed the Next Generation Energy Act (NGEA) in 2007, which set a 1.5% Energy Efficiency Resource Standard (EERS) beginning in 2010 for electricity and natural gas utilities. Unless adjusted by the Commissioner of Commerce, each utility is required to develop a plan to achieve energy savings of 1.5% of gross annual retail sales<sup>1</sup> on annual basis. The NGEA also set a statewide annual savings goal of 1.5% of annual retail sales, which was modified in 2013 legislation to *at least* 1.5%.<sup>2</sup>

Overall electric and natural gas CIP expenditures and savings have grown significantly since 2006, the earliest year for which Commerce began reporting in its Annual Energy and Carbon Dioxide Savings Reports. As illustrated in Figure 1 below, electric Conservation Improvement Programs (CIP) savings achieved the highest annual savings to date in 2012, equivalent to an overall average savings level of 1.7% gross annual retail energy sales.

Statewide natural gas savings are shown in Figure 2 below. As can be seen, overall natural gas CIP savings in 2012 were close to 2011 levels, equivalent to approximately 0.9% of gross annual retail sales. While below the 1.5% standard, this amount did exceed the minimum 0.75% savings goal approved for 2010-2012.<sup>3</sup>

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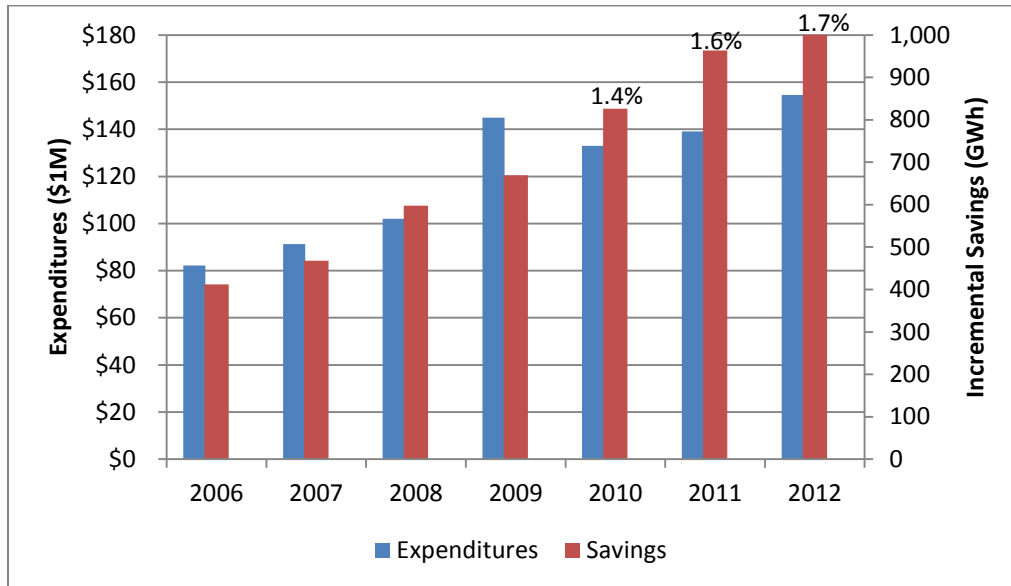
<sup>1</sup> As defined in Minn. Stat. §216B.241 subd. 1 (g), “gross annual retail sales” exclude sales to CIP-exempt customers.

<sup>2</sup> Minn. Stat. §216B.2401 as amended by Minn. Laws 2013, Ch. 85, Art. 12, Sec. 2

<sup>3</sup> Minn. Laws 2009, Ch. 110 Sec. 32 permitted the Commissioner to approve an average savings goal of 0.75% over the 2010-2012 triennial period for gas utilities party to a gas conservation potential study completed in 2009. This provision was invoked for some utilities, while others were approved at the 1.0% minimum standard specified in Minn. Stat. §216B.241 subd. 1c (d).

Total electric and natural gas savings over 2011 and 2012 totaled 2,001 gigawatt-hours (GWh) and 5.6 billion cubic feet (bcf), respectively. Combined, these energy savings are equivalent to approximately 12,400,000 million-BTUs (MMBTU), enough energy to heat, cool, and power over 109,000 homes in Minnesota for one year.<sup>4</sup>

Figure 1. Electric Utility CIP Expenditures and Savings from 2006-2012.<sup>5</sup>

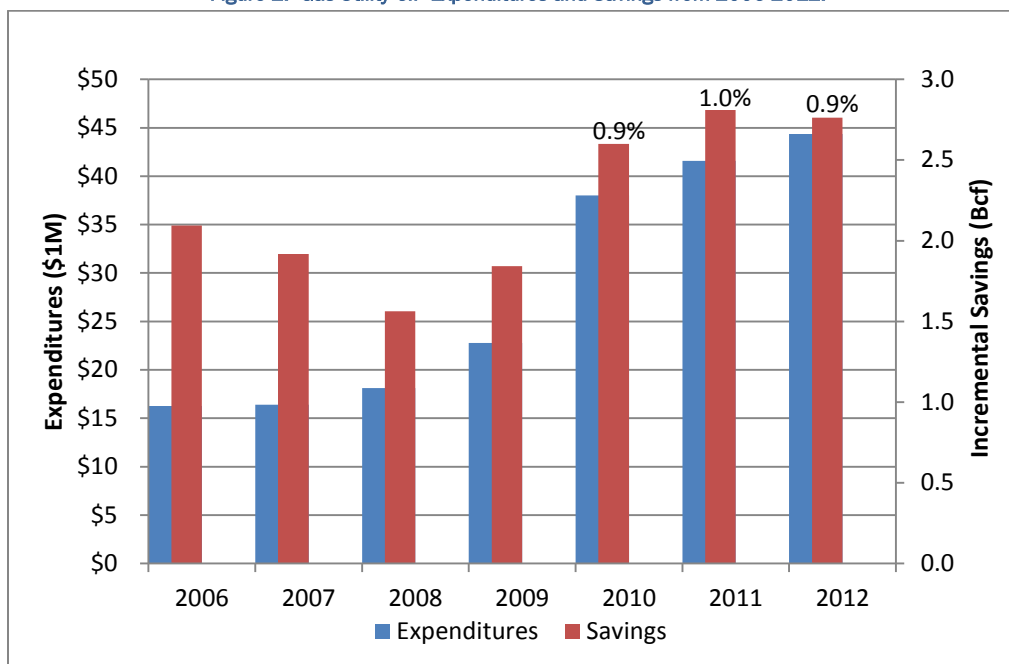


*Electric and gas CIP programs in 2011-2012 saved enough energy to heat, cool, and power over 109,000 homes in Minnesota annually.*

<sup>4</sup> Based on average total annual energy consumption per home of 113.0 MMBtu for IA/MN/ND/SD from Table CE3.3 of the 2009 Residential Energy Consumption Survey by the US Energy Information Administration.

<sup>5</sup> This chart was modified from last year's report to exclude spending on electric utility infrastructure (EUI) projects since these expenditures do not count as conservation improvement expenditures (see Minn. Stat. §216B.241 subd. 1 (e), subd. 1a (a), subd. 1b (b).)

Figure 2. Gas Utility CIP Expenditures and Savings from 2006-2012.



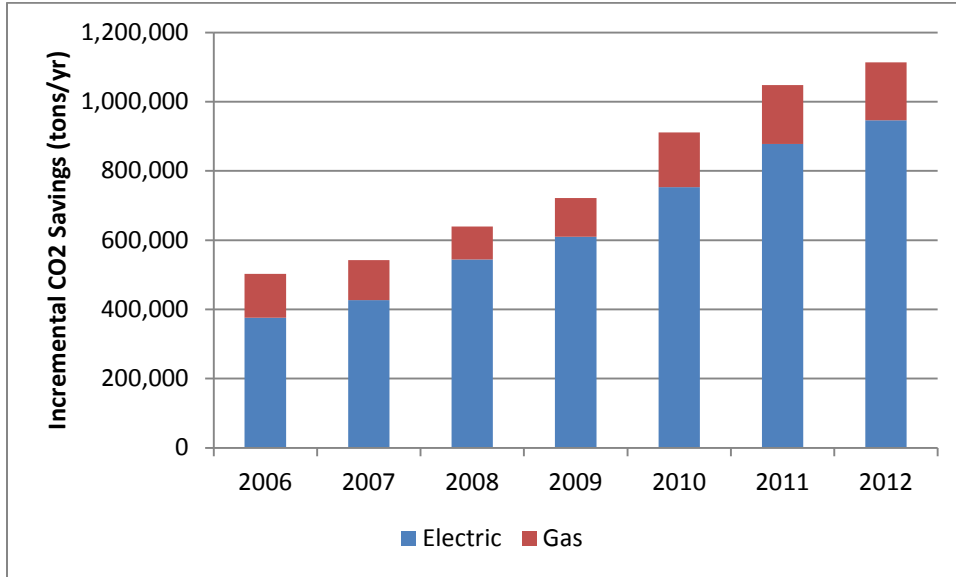
### Avoided carbon dioxide emissions

The Conservation Improvement Program plays a vital role in helping Minnesota achieve its carbon emission goals. On average, each megawatt-hour (MWh) of electricity saved in Minnesota avoids 1,823 pounds (0.9 tons) of CO<sub>2</sub> emitted to the atmosphere, while each dekatherm (Dth) of natural gas saved avoids 121 pounds (0.1 tons) of CO<sub>2</sub>.<sup>6</sup> As a result of the electric and natural gas savings achieved through CIP in 2011-2012, over 2.1 million tons of CO<sub>2</sub> emissions are avoided annually, equivalent to removing approximately 413,000 cars from the road for one year.<sup>7</sup>

<sup>6</sup> The electric CO<sub>2</sub> emissions rate 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 and was last updated on March 17, 2009. The gas CO<sub>2</sub> emissions rate of 121 pounds of CO<sub>2</sub> per Dth is a standard emissions factor for natural gas combustion and assumes a properly tuned boiler or furnace such that nearly 100% of fuel carbon is converted to CO<sub>2</sub>.

<sup>7</sup> Calculated using the US Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator (<http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>), accessed Feb 1, 2013.

Figure 3. Tons of CO<sub>2</sub> Avoided Through Electric and Gas CIP Programs from 2006-2012



*Electric and gas CIP programs in 2011-2012 avoided 2.1 million tons of CO<sub>2</sub> emissions annually, equivalent to removing 413,000 cars from the road for one year.*

## CIP as an energy resource

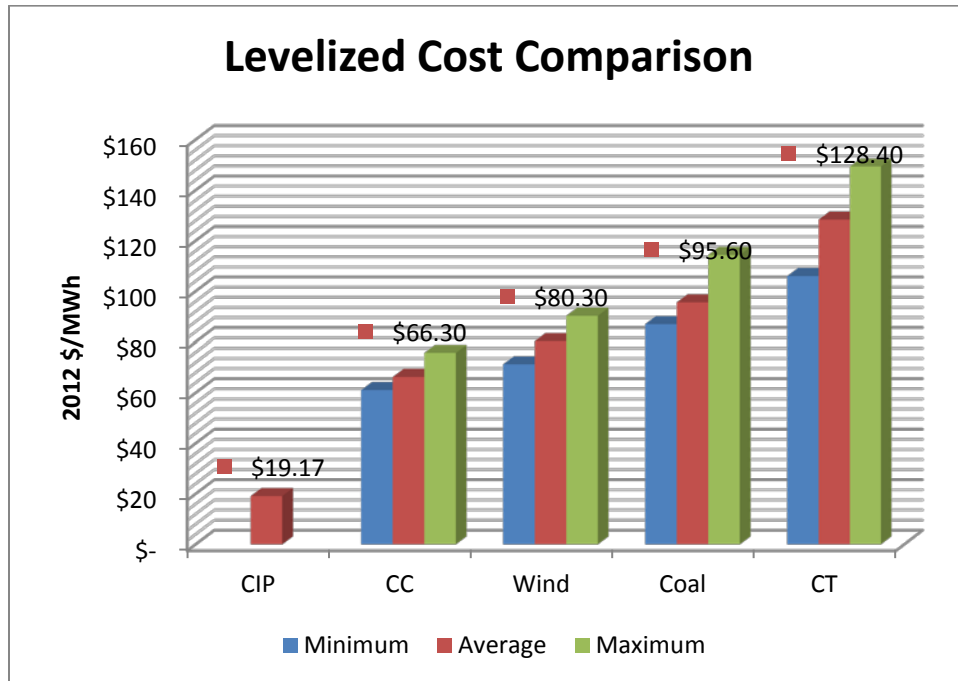
Aside from reducing carbon dioxide and other air emissions, one of the primary purposes of CIP is to serve as a low cost resource for meeting future energy needs. In Minnesota, demand-side management (DSM) programs, which are comprised primarily of CIP programs, are treated as a resource alongside supply-side resources (including fossil fuel and renewable generation resources) in integrated resource planning (IRP), a process that attempts to determine the least cost mix of supply and demand-side resources for meeting the needs of an electric utility's customers over the next 15 years. The outcomes of the IRP process inform the CIP savings goals that are approved for each electric utility.

One reason high levels of DSM are often selected through the IRP process is because CIP programs are a low cost resource in comparison to supply-side options. This observation is supported by Figure 4, which compares the actual levelized cost of CIP programs over 2010-2012 to the levelized cost of different electric generation technologies modeled by the US Energy Information Administration (EIA) in the 2014 Annual Energy Outlook using data from across the United States. Levelized cost represents the per-kilowatt-hour cost (in real dollars) of building and operating a generating plant or DSM program over an assumed financial life and duty cycle, and thus provides a convenient metric for comparing the lifecycle cost of different energy resources.

Furthermore, building an electric generation plant usually requires a long lead time before the plant is fully operational – the EIA assumes a 5-year lead time to account for regulatory approval, construction, and commissioning activities. During this time, the price of fuel or materials could change significantly, or the demand for energy could deviate significantly from forecasted projections, presenting a serious financial risk to investors and ultimately ratepayers. In contrast, CIP programs are less exposed to these risks since they require less upfront investment and can be ramped up or down relatively quickly in response to changing market conditions.

It must be noted that while levelized cost comparisons are a convenient way to compare the cost of different energy resources, they should not be used as the sole basis for energy investment decisions. Specific technological and regional factors must be considered, as well as broader public policy implications. Furthermore, the chart below only includes utility-scale centralized generation sources. Distributed generation sources, such as residential-scale wind and solar technologies or combined heat and power plants are thought to provide additional benefit in terms of grid support, avoided transmission costs and economic development. However, the levelized cost comparison demonstrates that in terms of the cost of constructing and operating an energy resource, CIP programs are very competitive with supply-side resources.

Figure 4. Levelized Cost Comparison of CIP to Various Electric Generation Options. Source: Minnesota Department of Commerce (CIP data) and US Energy Information Administration's Annual Energy Outlook 2014.



Key:

- CIP = Levelized Average Cost of Conservation Improvement Programs in 2010-2012
- CC = Natural gas-fired combined-cycle plant
- Wind = Utility-scale wind energy plant
- Coal = Conventional baseload coal plant
- CT = Natural gas-fired combustion turbine



## Background on CIP

### Overview

The Minnesota Energy Conservation Improvement Program (CIP) is a utility-administered program with regulatory oversight by Commerce. State law requires Minnesota electric and natural gas utilities to invest at least 1.5% and 0.5% annually of their gross operating revenues (GOR), respectively, in conservation improvement programs, except that Xcel Energy's electric utility, as an owner of a nuclear generating plant in Minnesota is required to invest at least 2.0% of GOR annually in CIP. CIP programs promote energy efficient technologies and practices to residential, commercial, and public customers through various means including marketing, incentives, and technical assistance. Commerce reviews and approves utility CIP filings to ensure that energy savings are calculated accurately, statutory requirements are met, and programs meet cost-effectiveness standards.

With passage of the Next Generation Energy Act in 2007, a 1.5% Energy Efficiency Resource Standard (EERS) for utility conservation improvement programs was established beginning in 2010, meaning that utilities were required to develop plans to achieve savings of 1.5% of average annual retail sales annually, unless adjusted by the Commissioner to no less than 1.0%. This standard remains one of the most aggressive standards in the country, especially considering that efficiency programs have been operating in Minnesota since the early 1980s. Legislation passed in 2009 later allowed the Commissioner to set an interim savings goal of 0.75% over 2010-2012 for gas utilities subject to a conservation potential study completed that year.<sup>8</sup> In 2011, legislation was passed which allowed the Commissioner to approve an energy savings goal of less than 1.0% for electric cooperatives and municipal utilities.

Minnesota utilities operate a wide array of residential, commercial, and industrial CIP programs targeted to both retrofits as well as new construction. Each utility may tailor its portfolio of programs to meet the unique needs of its service territory. Typical end-uses in residential programs include lighting, furnaces, air-conditioners, ground source and air source heat pumps, and insulation and air sealing. Typical end-uses in commercial/industrial programs include lighting, HVAC, energy recovery ventilation equipment, food service equipment, and electric motors. Traditionally, programs have offered prescriptive equipment-based incentives, while 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. Many utilities offer robust industrial efficiency programs that strive to help manufacturers increase the energy efficiency of their operations and compete in international markets.

CIP programs help create and retain jobs in a variety of market sectors. Aside from the utility employees that are directly involved in program administration and marketing, utilities generally partner with a variety of external parties to deliver their programs. For example, utilities leverage local HVAC contractors and other trade partners to promote their program offerings to customers during the bidding process. Retailers such as home improvement stores and local hardware stores are critical for promoting high efficiency residential lighting and other consumer products. For

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<sup>8</sup> Minn. Laws 2009, Ch. 110 Sec. 32.

commercial and industrial programs, utilities often partner with engineering firms to identify, evaluate, and implement efficiency projects. The incentives and marketing offered through CIP programs help drive business for these various organizations. In return, customers spend less money on energy, freeing up dollars for other uses.

## 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>TM</sup>, a Cloud-based energy efficiency data management system developed by Energy Platforms, LLC in part through Conservation Applied Research and Development (CARD) and technical assistance funding from Commerce. Investor-owned utilities (IOUs) are required to file three-year (triennial) plans and annual status reports through the Minnesota Public Utilities Commission's (Commission) docket system.

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>9</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. 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. Most states use the Societal test or a variation called the Total Resource Cost (TRC) for screening. After Commerce staff complete their review and public comments are filed, the Commissioner of Commerce or his/her delegated authority (currently Deputy Commissioner) approves each utility's plan as filed or with modifications.

On an annual basis, both investor-owned and customer-owned (i.e., cooperative or municipal) 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>10</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.

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<sup>9</sup> Minnesota Rules chapter 7690.0500.

<sup>10</sup> See Minn. Stat. §216B.16, subd. 6b and 6c.

For cooperative and municipal utilities, local utility commissions, boards or city councils determine their own cost recovery mechanisms. Commerce is unaware of any cooperative or municipal utilities that award themselves a performance incentive for CIP achievements.

### **CIP Data Collection and Management with ESP**

Minnesota has 184 investor-owned, municipal, and cooperative utilities that are required to implement CIP programs. Although this requirement existed prior to passage of the Next Generation Energy Act, the establishment of the 1.5% EERS in CIP increased the need for accurate and verifiable savings. To this end, Commerce has undertaken three major initiatives:

- 1) Development of measurement and verification (M&V) protocols for large commercial/industrial projects
- 2) Development of a Technical Reference Manual (TRM) providing standard algorithms and assumptions for calculating savings from a wide array of energy efficiency measures
- 3) Development of a Cloud-based software platform for CIP data collection and program operations (ESP®)

ESP has been developed in part through funding from Commerce's Conservation Applied Research and Development (CARD) program and technical assistance budget. The initial thrust of the development effort was to provide a Cloud-based reporting system for Minnesota's 173 cooperative and municipal utilities subject to CIP requirements, which became Reporting<sub>ESP</sub>. Four rounds of data collection and analysis have been completed since 2010, covering the years 2008-2012. Reporting<sub>ESP</sub> has been essential for enabling Commerce to analyze and report CIP achievements on a statewide basis.

Recent development efforts have focused on integration of the TRM in ESP. Commerce staff have developed a library of on-line calculators called SmartMeasures™ based on the TRM that is shared with each utility in the state for free. This provides each utility with a library of pre-approved calculators that it can use to track and report savings, thereby eliminating the need for the utility and its CIP partners to develop and maintain the calculators on their own. This approach will reduce duplication and further improve the accuracy of CIP data as more utilities adopt the Smart Measure library.

## CIP Savings and Expenditures

The following tables summarize statewide, aggregator, and utility-level data from 2011 and 2012 and reflect data in Reporting<sub>ESP</sub> as of April 24, 2014. The statewide summary tables also include the years 2006-2010 for illustrative purposes.

### Statewide Totals

Table 1. Statewide Electric CIP Totals, 2006-2012

Year	Incremental Energy Savings (GWh/yr)	% of Gross Annual Retail Sales	Incremental CO2 Savings (tons/yr)	Expenditures (million \$)	Approximate \$/kWh <sup>11</sup>
2006	412	-	375,537	\$82.2	0.013
2007	468	-	426,646	\$91.2	0.013
2008	597	-	544,428	\$102.0	0.011
2009	669	-	609,905	\$144.9	0.014
2010	826	1.4%	753,260	\$133.0	0.011
2011	963	1.6%	878,156	\$139.0	0.010
2012	1,038	1.7%	946,252	\$154.6	0.010

Table 2. Statewide Natural Gas CIP Totals, 2006-2012

Year	Incremental Energy Savings (Dth/yr)	% of Gross Annual Retail Sales	Incremental CO2 Savings (tons/yr)	Expenditures (million \$)	Approximate \$/therm
2006	2,095,047	-	126,750	\$16.3	0.052
2007	1,917,144	-	115,987	\$16.4	0.057
2008	1,563,496	-	94,592	\$18.1	0.077
2009	1,843,347	-	111,522	\$22.8	0.082
2010	2,612,212	0.9%	158,039	\$38.0	0.097
2011	2,810,069	1.0%	170,009	\$41.6	0.099
2012	2,761,744	0.9%	167,086	\$44.4	0.107

<sup>11</sup> The cost per unit of savings figures in Tables 1-3 were calculated using a typical weighted-average energy efficiency measure lifetime of 15 years. Although the exact weighted-average lifetime is dependent on the specific mix of energy efficiency measures installed in a given year, Commerce has found that 15 years is a reasonable assumption based on the weighted average lifetimes reported in utility status reports.

Table 3. Statewide Combined Electric and Gas CIP Totals, 2006-2012

Year	Incremental Energy Savings (MMBtu/yr)	% of Gross Annual Retail Sales	Incremental CO2 Savings (tons/yr)	Expenditures (million \$)	Approximate \$/MMBtu
2006	3,500,788	-	502,287	\$98.5	1.876
2007	3,514,199	-	542,633	\$107.6	2.042
2008	3,601,443	-	639,020	\$120.1	2.224
2009	4,126,391	-	721,427	\$167.7	2.709
2010	5,431,875	1.1%	911,299	\$171.0	2.099
2011	6,097,254	1.2%	1,048,165	\$180.6	1.975
2012	6,303,832	1.3%	1,113,338	\$198.9	2.104

## Utility/aggregator totals

The following definitions apply to Tables 4-7:

- “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.
- “Sales Baseline Years” means the historical years defining the three-year average used to calculate the Energy Savings %.
- “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.)
- “Baseline GOR Year” means the historical year defining the gross operating revenue used to calculate the Expenditures %.

Table 4. Electric Utility CIP Totals, 2011

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Investor-Owned Utilities</b>							
Alliant Energy	7,685,049	0.9%	2006-2008	7,005	\$1,720,282	2.4%	2008
Minnesota Power	69,091,422	2.1%	2007-2009	62,977	\$6,295,187	2.6%	2009
Otter Tail Power	27,957,635	1.3%	2007-2009	25,483	\$4,344,581	3.1%	2009
Xcel Energy	470,100,547	1.5%	2006-2008	428,497	\$82,151,567	3.2%	2008
<b>Totals - Investor-Owned Utilities</b>	<b>574,834,653</b>	<b>1.5%</b>		<b>523,962</b>	<b>\$94,511,617</b>	<b>3.2%</b>	
<b>Cooperative CIP Aggregators</b>							
Dairyland Power Coop	2,345,951	0.3%	2005-2007	2,138	\$2,425,679	3.2%	2009
East River Electric Power Coop	9,145,930	3.0%	2005-2007	8,337	\$455,489	1.9%	2009
Great River Energy (All-Rqmts) <sup>12</sup>	204,155,591	2.4%	2005-2007	186,088	\$18,306,921	2.2%	2009
Great River Energy (Fixed)	18,243,085	0.7%	2005-2007	16,629	\$4,951,480	1.8%	2009
Minnkota/NMPA (17/18 members)	27,073,199	1.6%	2005-2007	24,677	\$2,177,636	1.5%	2009
<b>Totals - Coop CIP Aggregators</b>	<b>260,963,756</b>	<b>1.9%</b>		<b>237,868</b>	<b>\$28,317,206</b>	<b>2.1%</b>	
<b>Municipal CIP Aggregators</b>							
CMMPA (11/12 members)	6,508,530	1.8%	2005-2007	5,933	\$859,006	2.4%	2009
MMPA (8/11 members)	9,409,154	1.5%	2005-2007	8,576	\$753,955	1.4%	2009
MRES (23/24 members)	22,328,152	1.1%	2005-2007	20,352	\$4,068,655	2.8%	2009
SMMMPA (15/18 members)	17,610,005	1.8%	2005-2007	16,052	\$2,593,549	3.3%	2009
The Triad (SMMMPA members)	33,843,795	1.7%	2005-2007	30,849	\$4,342,379	2.4%	2009
<b>Totals - Municipal CIP Aggregators</b>	<b>89,699,636</b>	<b>1.5%</b>		<b>81,761</b>	<b>\$12,617,543</b>	<b>2.6%</b>	
<b>Independent Cooperatives</b>							
Minnesota Valley Coop Light & Power	3,657,533	2.1%	2005-2007	3,334	\$357,571	2.4%	2009
Sioux Valley Energy	564,123	0.6%	2005-2007	514	\$98,879	1.2%	2009
<b>Totals - Independent Cooperatives</b>	<b>4,221,655</b>	<b>1.6%</b>		<b>3,848</b>	<b>\$456,450</b>	<b>2.0%</b>	

<sup>12</sup> Great River Energy has chosen to invoke the carry-forward provision in Minn. Stat. §216B.241 subd. 1c (b) and carry-forward savings in excess of 1.5% in 2010 to succeeding years, contingent upon the Department's approval of GRE's proposed electric utility infrastructure savings in 2010. GRE's All-Requirements group saved a total of 110,152,388 kWh in 2011 not including carry forward savings, approximately 1.3% of average retail sales.

Table 4 continued - Electric Utility CIP Totals, 2011

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Independent Municipals</b>							
Aitkin	593,118	1.7%	2005-2007	541	\$16,817	0.6%	2009
Anoka	2,227,220	0.8%	2005-2007	2,030	\$380,007	1.7%	2009
Biwabik <sup>13</sup>	106,693	1.8%	2007	97	\$6,572	1.4%	2009
Brainerd	3,863,935	1.6%	2005-2007	3,522	\$171,121	1.1%	2009
Brewster	0	0.0%	2005-2007	0	\$3,496	1.1%	2009
Buhl <sup>14</sup>	109	0.0%	2005-2007	0	\$8,300	1.6%	2009
Caledonia	0	0.0%	2005-2007	0	\$2	0.1%	2009
Delano (CMMPA member)	920,926	1.9%	2005-2007	839	\$70,869	1.6%	2009
East Grand Forks (MMPA member)	2,468,401	1.8%	2005-2007	2,250	\$437,340	3.8%	2009
Ely	1,016,899	3.0%	2005-2007	927	\$65,798	2.0%	2009
Grand Rapids	1,586,729	1.0%	2005-2007	1,446	\$187,522	1.4%	2009
Hibbing	556,718	0.4%	2005-2007	507	\$37,408	0.3%	2009
Hutchinson (MRES Member)	4,916,530	1.6%	2005-2007	4,481	\$204,187	0.8%	2009
Lake Crystal	48,302	0.3%	2005-2007	44	\$20,809	1.0%	2009
Madelia	38,266	0.1%	2005-2007	35	\$31,016	1.1%	2009
Mountain Iron	394,287	2.2%	2005-2007	359	\$31,428	1.9%	2009
New Ulm	1,876,954	0.9%	2005-2007	1,711	\$301,715	1.5%	2009
Nielsville <sup>15</sup>	3,105	0.5%	2007	3	\$835	1.6%	2009
Pierz <sup>16</sup>	1,291	0.0%	2006-2007	1	\$1,770	0.3%	2009
Proctor <sup>17</sup>	175,787	0.7%	2007	160	\$28,729	1.5%	2009
Shakopee (MMPA member)	9,246,349	2.4%	2005-2007	8,428	\$548,070	1.6%	2009

<sup>13</sup> 2005 and 2006 sales have not been reported by the utility.

<sup>14</sup> Utility sales appear to have been reported in units of MWh, so were multiplied by 1,000 to convert to kWh.

<sup>15</sup> 2005 and 2006 sales have not been reported by the utility.

<sup>16</sup> 2005 sales have not been reported by the utility.

<sup>17</sup> 2005 and 2006 sales have not been reported by the utility.



Table 4 continued - Electric Utility CIP Totals, 2011

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Independent Municipals</b>							
St. Charles	91,417	0.3%	2005-2007	83	\$34,998	1.5%	2009
Truman	12,897	0.1%	2005-2007	12	\$30,827	3.2%	2009
Two Harbors	211,826	0.7%	2005-2007	193	\$28,630	1.0%	2009
Virginia <sup>18</sup>	1,550,705	1.5%	2008-2010	1,413	\$73,851	0.7%	2009
Warroad (NMPA member)	70,462	0.1%	2005-2007	64	\$13,774	0.4%	2009
Willmar	1,720,161	0.6%	2005-2007	1,568	\$409,510	1.9%	2009
<b>Totals - Independent Municipals</b>	<b>33,699,090</b>	<b>1.3%</b>		<b>30,717</b>	<b>\$3,145,402</b>	<b>1.4%</b>	<b>2009</b>
<b>TOTALS - COOPS &amp; MUNICIPALS</b>	<b>388,584,137</b>	<b>1.7%</b>		<b>354,194</b>	<b>\$44,536,601</b>	<b>2.1%</b>	
<b>TOTALS - ELECTRIC UTILITIES</b>	<b>963,418,790</b>	<b>1.6%</b>		<b>878,156</b>	<b>\$139,048,218</b>	<b>2.7%</b>	

<sup>18</sup> Virginia has chosen to invoke the carry-forward provision in Minn. Stat. §216B.241 subd. 1c (b) and carry-forward savings in excess of 1.5% in 2011 to succeeding years. Virginia's total realized savings in 2011 were 2,319,552 or approximately 1.7% of average retail sales.

Table 5. Gas Utility CIP Totals, 2011

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Investor-Owned Utilities</b>							
Alliant Energy	11,312	0.6%	2006-2008	684	\$417,652	2.1%	2008
CenterPoint Energy	1,488,231	1.0%	2006-2008	90,038	\$18,713,923	1.2%	2008
Great Plains Natural Gas	24,604	0.4%	2006-2008	1,489	\$370,570	0.8%	2008
Greater Minnesota Gas	1,568	0.4%	2006-2008	95	\$16,835	0.3%	2008
Minnesota Energy Resources-NMU	101,364	0.8%	2006-2008	6,133	\$1,696,398	2.2%	2008
Minnesota Energy Resources-PNG	356,384	0.9%	2006-2008	21,561	\$6,370,776	2.3%	2008
Xcel Energy	747,123	1.1%	2006-2008	45,201	\$12,701,823	1.6%	2008
<b>Totals - Investor-Owned Utilities</b>	<b>2,730,586</b>	<b>1.0%</b>		<b>165,200</b>	<b>\$40,287,977</b>	<b>1.5%</b>	
<b>Municipal Aggregators</b>							
The Triad	45,895	1.0%	2006-2008	2,777	\$481,090	1.0%	2008
<b>Independent Municipals</b>							
Duluth	10,541	0.2%	2006-2008	638	\$696,828	1.2%	2008
Hutchinson (MRES Member)	22,911	1.5%	2006-2008	1,386	\$72,603	0.5%	2008
New Ulm	61	0.0%	2006-2008	4	\$1,530	0.0%	2008
Perham	74	0.0%	2006-2008	4	\$32,151	0.3%	2008
<b>Totals - Independent Municipals</b>	<b>33,587</b>	<b>0.5%</b>		<b>2,032</b>	<b>\$803,112</b>	<b>1.1%</b>	
<b>TOTALS - MUNICIPALS</b>	<b>79,483</b>	<b>0.7%</b>		<b>4,809</b>	<b>\$1,284,202</b>	<b>1.0%</b>	
<b>TOTALS - GAS UTILITIES</b>	<b>2,810,069</b>	<b>1.0%</b>		<b>170,009</b>	<b>\$41,572,179</b>	<b>1.5%</b>	

Table 6. Electric Utility CIP Totals, 2012

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Investor-Owned Utilities</b>							
Alliant Energy	14,365,499	1.7%	2006-2008	13,094	\$2,548,149	3.5%	2008
Minnesota Power	63,159,196	1.9%	2007-2009	57,570	\$6,813,817	2.8%	2009
Otter Tail Power	30,793,654	1.4%	2007-2009	28,068	\$4,816,994	3.5%	2009
Xcel Energy	538,563,918	1.7%	2006-2008	490,901	\$98,095,987	3.9%	2008
<b>Totals - Investor-Owned Utilities</b>	<b>646,882,267</b>	<b>1.7%</b>		<b>589,633</b>	<b>\$112,274,947</b>	<b>3.7%</b>	
<b>Cooperative CIP Aggregators</b>							
Dairyland Power Coop	3,361,323	0.6%	2008-2010	3,064	\$2,412,840	3.3%	2010
East River Electric Power Coop	10,259,712	3.1%	2008-2010	9,352	\$391,030	1.5%	2010
Great River Energy (All-Rqmts) <sup>19</sup>	197,012,542	2.3%	2008-2010	179,577	\$16,274,704	1.8%	2010
Great River Energy (Fixed)	26,620,238	0.9%	2008-2010	24,264	\$4,085,144	1.6%	2010
Minnkota/NMPA (17/18 members)	29,159,947	1.6%	2008-2010	26,579	\$2,546,325	1.7%	2010
<b>Totals - Coop CIP Aggregators</b>	<b>266,413,762</b>	<b>1.9%</b>		<b>242,836</b>	<b>\$25,710,043</b>	<b>1.9%</b>	
<b>Municipal CIP Aggregators</b>							
CMMPA (11/12 members)	6,394,740	1.6%	2008-2010	5,829	\$898,740	2.5%	2010
MMPA (8/11 members)	8,954,765	1.4%	2008-2010	8,162	\$856,506	1.5%	2010
MRES (23/24 members)	17,811,692	1.1%	2008-2010	16,235	\$3,845,504	3.0%	2010
SMMPA (15/18 members)	15,566,824	1.7%	2008-2010	14,189	\$2,571,926	3.0%	2010
The Triad (SMMPA members)	36,698,987	1.9%	2008-2010	33,451	\$4,716,455	2.5%	2010
<b>Totals - Municipal CIP Aggregators</b>	<b>85,427,008</b>	<b>1.6%</b>		<b>77,867</b>	<b>\$12,889,132</b>	<b>2.6%</b>	
<b>Independent Cooperatives</b>							
Minnesota Valley Coop Light & Power	3,007,536	1.8%	2008-2010	2,741	\$326,404	2.4%	2010
Sioux Valley Energy	509,675	0.5%	2008-2010	465	\$73,356	0.9%	2010
<b>Totals - Independent Cooperatives</b>	<b>3,517,211</b>	<b>1.3%</b>		<b>3,206</b>	<b>\$399,760</b>	<b>1.8%</b>	

<sup>19</sup> Great River Energy has chosen to invoke the carry-forward provision in Minn. Stat. §216B.241 subd. 1c (b) and carry-forward savings in excess of 1.5% in 2010 to succeeding years, contingent upon the Department's approval of GRE's proposed electric utility infrastructure savings in 2010. GRE's All-Requirements group saved a total of 89,267,826 kWh in 2012 not including carry forward savings, approximately 1.0% of average retail sales.

Table 6 continued - Electric Utility CIP Totals, 2012

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Independent Municipals</b>							
Aitkin	259,685	0.7%	2008-2010	237	\$27,438	0.8%	2010
Anoka	3,007,928	1.1%	2008-2010	2,742	\$428,006	1.8%	2010
Biwabik	104,520	1.6%	2008-2010	95	\$12,572	2.6%	2010
Brainerd	4,201,183	2.2%	2008-2010	3,829	\$152,892	1.1%	2010
Brewster	6,413	0.2%	2008-2010	6	\$4,983	1.3%	2010
Buhl	109	0.0%	2008-2010	0	\$8,300	1.5%	2010
Delano (CMMPA Member)	1,104,003	2.2%	2008-2010	1,006	\$79,558	1.7%	2010
East Grand Forks (MMPA member)	2,461,620	1.6%	2008-2010	2,244	\$424,247	3.4%	2010
Ely	916,283	2.5%	2008-2010	835	\$89,968	2.7%	2010
Gilbert	543	0.0%	2008-2010	0	\$2,817	0.3%	2010
Grand Rapids	2,738,972	1.6%	2008-2010	2,497	\$211,303	1.5%	2010
Hibbing	1,114,045	0.9%	2008-2010	1,015	\$37,156	0.3%	2010
Hutchinson (MRES Member)	5,095,320	1.7%	2008-2010	4,644	\$220,553	0.9%	2010
Lake Crystal	486,743	2.9%	2008-2010	444	\$55,718	2.3%	2010
Lanesboro	4,246	0.1%	2008-2010		\$3,573	0.5%	2010
Madelia	289,733	1.1%	2008-2010	264	\$30,378	1.0%	2010
Mountain Iron	328,863	1.6%	2008-2010	300	\$26,956	1.2%	2010
New Ulm	1,499,347	0.8%	2008-2010	1,367	\$246,023	1.2%	2010
Nielsenville	3,105	0.6%	2008-2010	3	\$827	1.5%	2010

Table 6 continued - Electric Utility CIP Totals, 2012

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Independent Municipals</b>							
Pierz	3,330	0.0%	2008-2010	3	\$2,808	0.4%	2010
Proctor	432,273	1.7%	2008-2010	394	\$33,408	1.6%	2010
Shakopee (MMPA member)	7,291,145	1.9%	2008-2010	6,646	\$545,592	1.5%	2010
St. Charles	223,634	0.8%	2008-2010	204	\$72,662	3.2%	2010
Truman	41,837	0.3%	2008-2010	38	\$37,306	2.3%	2010
Two Harbors	327,603	1.1%	2008-2010	299	\$57,295	2.0%	2010
Virginia	1,804,594	1.7%	2008-2010	1,645	\$101,501	0.8%	2010
Warroad (NMPA member)	156,626	0.3%	2008-2010	143	\$21,956	0.6%	2010
Willmar	1,982,472	0.7%	2008-2010	1,807	\$377,555	1.6%	2010
<b>Totals - Independent Municipals</b>	<b>35,886,175</b>	<b>1.4%</b>		32,710	<b>\$3,313,349</b>	<b>1.4%</b>	2010

**TOTALS - COOPS & MUNICIPALS**                      **391,244,156**    **1.7%**                                              **356,619**    **\$42,312,284**                      **2.0%**

**TOTALS - ELECTRIC UTILITIES**                      **1,038,126,423**    **1.7%**                                              **946,252**    **\$154,587,231**                      **3.0%**

Table 7. Gas Utility CIP Totals, 2012

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %	Baseline GOR Year
<b>Investor-Owned Utilities</b>							
Alliant Energy	12,905	0.7%	2008-2010	781	\$391,089	1.9%	2010
CenterPoint Energy	1,330,518	0.9%	2008-2010	80,496	\$19,091,800	1.3%	2010
Great Plains Natural Gas	41,509	0.7%	2008-2010	2,511	\$401,694	0.8%	2010
Greater Minnesota Gas	1,926	0.5%	2008-2010	117	\$31,068	0.6%	2010
Minnesota Energy Resources-NMU	175,558	1.3%	2008-2010	10,621	\$2,517,185	3.2%	2010
Minnesota Energy Resources-PNG	359,038	0.9%	2008-2010	21,722	\$7,433,833	2.7%	2010
Xcel Energy	767,061	1.1%	2008-2010	46,407	\$13,041,288	1.7%	2010
<b>Totals - Investor-Owned Utilities</b>	<b>2,688,515</b>	<b>1.0%</b>		<b>162,655</b>	<b>\$42,907,957</b>	<b>1.6%</b>	
<b>Municipal Aggregators</b>							
The Triad	36,686	0.8%	2008-2010	2,220	\$348,693	1.0%	2010
<b>Independent Municipals</b>							
Duluth	12,381	0.3%	2008-2010	749	\$991,217	2.5%	2010
Hutchinson (MRES Member)	23,164	1.4%	2008-2010	1,401	\$74,087	0.6%	2010
New Ulm	43	0.0%	2008-2010	3	\$1,954	0.0%	2010
Perham	956	0.1%	2008-2010	58	\$30,402	0.5%	2010
<b>Totals - Independent Municipals</b>	<b>36,543</b>	<b>0.6%</b>		<b>2,211</b>	<b>\$1,097,659</b>	<b>2.1%</b>	
<b>TOTALS - MUNICIPALS</b>	<b>73,229</b>	<b>0.7%</b>		<b>4,430</b>	<b>\$1,446,352</b>	<b>1.6%</b>	
<b>TOTALS - GAS UTILITIES</b>	<b>2,761,744</b>	<b>0.9%</b>		<b>167,086</b>	<b>\$44,354,309</b>	<b>1.6%</b>	

## APPENDIX A. Electric Municipal Power Agency Membership

### 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 operates as an independent entity under CIP.

### Minnesota Municipal Power Agency (MMPA)

**11 members:** Anoka, Arlington, Brownton, Buffalo, Chaska, East Grand Forks, LeSeur, N. St. Paul, Olivia, Shakopee and Winthrop.

Anoka, East Grand Forks, and Shakopee operate as independent entities under CIP.

### Missouri River Energy Services (MRES)

**24 Minnesota members:** Adrian, Alexandria, Barnesville, Benson, Breckenridge, Detroit Lakes, Elbow Lake, Henning, Hutchinson, Jackson, Luverne, Lake Park, Lakefield, Madison, Marshall, Melrose, Moorhead, Ortonville, St. James, Sauk Centre, 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, Warroad, and Warren.

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

### Dairyland Power Cooperative

**3 Minnesota members:** Freeborn-Mower Cooperative Services, Peoples Cooperative Service, and Tri-County Electric 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 River Valley Cooperative Power Association, Red Lake Electric Cooperative, Roseau Electric Cooperative, and Wild Rice Electric Cooperative.