

MINNESOTA  
CONSERVATION IMPROVEMENT PROGRAM  
ENERGY AND CARBON DIOXIDE SAVINGS REPORT  
FOR 2010-2011

Prepared by Minnesota Department of Commerce,  
Division of Energy Resources

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



October 1, 2013

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## EXECUTIVE SUMMARY

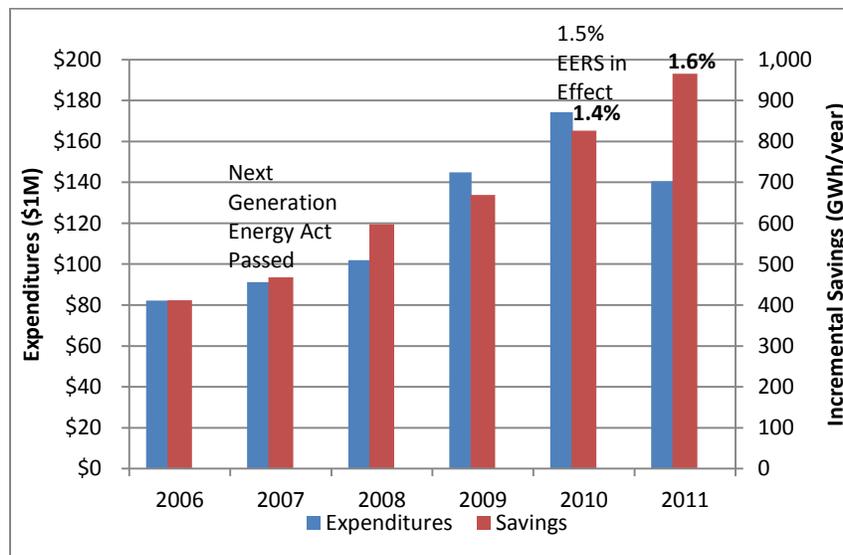
The Minnesota Department of Commerce, Division of Energy Resources (Commerce) submits this report in fulfillment of Minn. Statutes §216B.241, subd. 1c(g), which requires the Commissioner of Commerce to produce and make publicly available a report on the annual energy savings and estimated carbon dioxide 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 2011 and updates previously reported 2010 data.

## ELECTRIC AND NATURAL GAS ENERGY SAVINGS IMPACTS

As illustrated in Figures 1 and 2 below, Conservation Improvement Programs (CIP) continued their upward trend in savings achieved in 2010 and 2011, the first two years that the 1.5% Energy Efficiency Resource Standard (EERS) has been in effect. Although individual utility performance varied, Minnesota electric utilities collectively exceeded the 1.5% standard in 2011, while natural gas utilities collectively achieved the 0.75% and 1.0% minimum savings standards.<sup>1</sup> Figures 1 and 2 below show the trends in electric and gas CIP expenditures and incremental savings impacts from 2006-2011.

Incremental annual electric and gas energy savings (i.e., first-year savings from newly installed energy efficiency measures) over 2010 and 2011 totaled approximately 1,800,000 megawatt-hours (MWh) and 5,400,000 dekatherms (Dth), respectively. Combined, these energy savings are equivalent to approximately 11,500,000 million-BTUs (MMBTU), enough energy to heat, cool, and power over 102,000 homes in Minnesota for one year.<sup>2</sup>

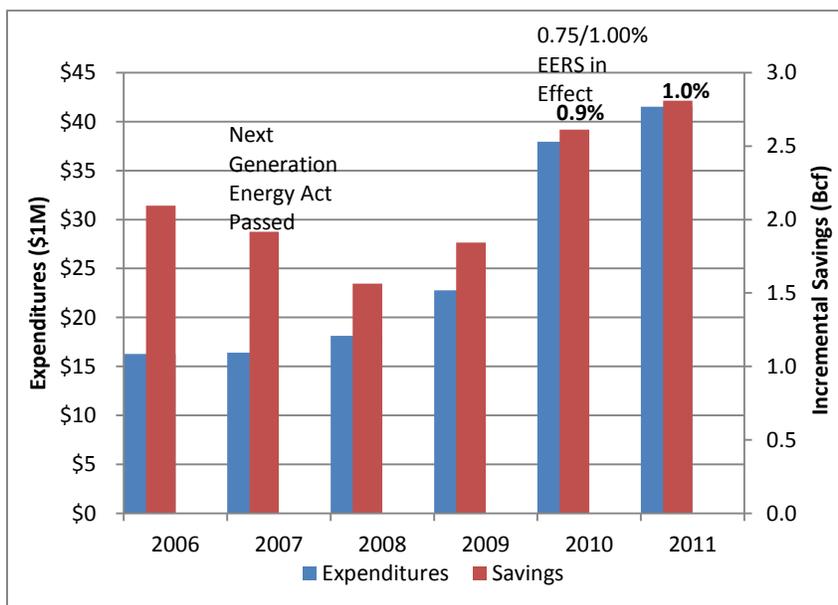
Figure 1. Electric Utility CIP Expenditures and Savings from 2006-2011.



<sup>1</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).

<sup>2</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.

Figure 2. Gas Utility CIP Expenditures and Savings from 2006-2011.

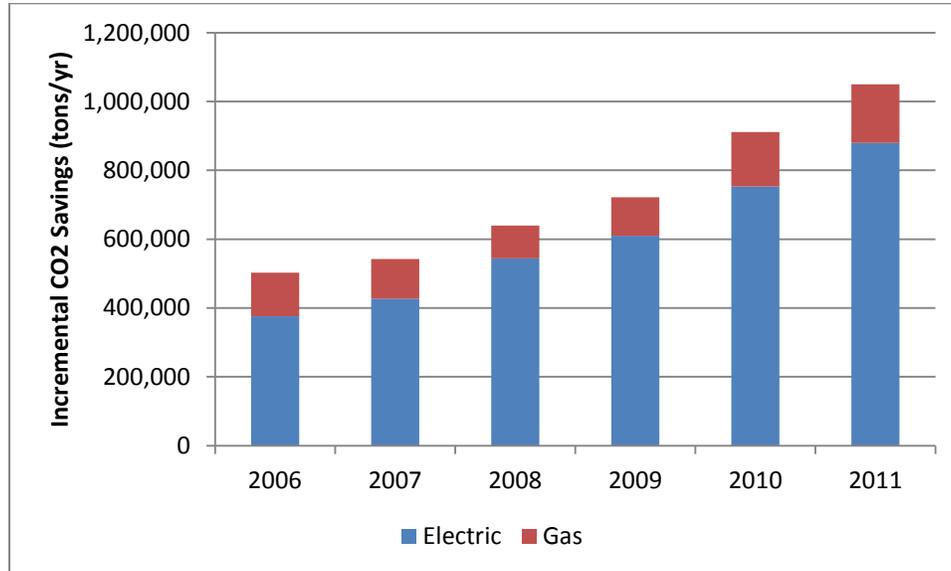


*Electric and gas CIP programs in 2010-2011 saved enough energy to heat, cool, and power over 102,000 homes in Minnesota annually.*

## AVOIDED CARBON DIOXIDE EMISSIONS

The Conservation Improvement Program plays a vital role in helping Minnesota achieve its climate change 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>3</sup> As a result of the electric and natural gas savings achieved through CIP in 2010-2011, nearly 2,000,000 tons of CO<sub>2</sub> emissions were avoided annually, equivalent to removing approximately 370,700 cars from the road for one year.<sup>4</sup>

Figure 3. Tons of CO<sub>2</sub> Avoided Through Electric and Gas CIP Programs from 2006-2011



*Electric and gas CIP programs in 2010-2011 resulted in nearly 2,000,000 tons of annual CO<sub>2</sub> reductions, equivalent to removing approximately 370,700 cars from the road for one year.*

<sup>3</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>4</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.

## 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 2009-2011 to the levelized cost of different electric generation technologies modeled by the US Energy Information Administration (EIA) in the 2013 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 2013.



Key:

- CIP = Levelized Average Cost of Conservation Improvement Programs in 2009-2011
- CC = Natural gas-fired combined-cycle plant
- Wind = Utility-scale wind energy plant
- Coal = Conventional baseload coal plant
- CT = Natural gas-fired combustion turbine
- Solar = Utility-scale solar photovoltaic generation

### 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>5</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.<sup>6</sup>

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 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.

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<sup>5</sup> Minn. Laws 2009, Ch. 110 Sec. 32.

<sup>6</sup> Minn. Laws 2011, Ch. 97 Sec. 20.

## CIP REGULATORY PROCESS

Commerce is responsible for reviewing and approving utility CIP plans and annual status reports. Cooperative and municipal utilities are required to file annual plans and status reports with actual expenditures, participation and savings in ESP®, a Cloud-based energy efficiency data management system developed by Energy Platforms, LLC in part through Conservation Applied Research and Development (CARD) funding from Commerce. (More information on ESP is described below.) Investor-owned utilities (IOUs) are required to file three-year (triennial) plans and annual status reports through the Commerce docket system. Commerce is planning to eventually transition IOUs to report through ESP as well, though the docket system will remain the official repository for program data and regulatory filings.

As part of the CIP plan review process, Commerce staff evaluates the cost-effectiveness of the measures and programs proposed by each utility. Under CIP administrative rules<sup>7</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 the total 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>8</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. Commerce is unaware of any cooperative or municipal utilities that award themselves a performance incentive for CIP achievements.

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<sup>7</sup> Minnesota Rules chapter 7690.0500.

<sup>8</sup> See Minn. Stat. §216B.16, subd. 6b and 6c.

## 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 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) grant program. 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. Three rounds of data collection and analysis have been completed since 2010, covering the years 2008-2011. ESP 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. By operationalizing each TRM measure in ESP, Minnesota utilities are provided with a pre-approved set of calculators called SmartMeasures™, reducing program costs by each utility not having to create and maintain a set of calculators from the TRM specifications. In addition, Commerce's evaluation costs are reduced and confidence in the reported savings is increased through the use of pre-approved SmartMeasures.

## CIP SAVINGS AND EXPENDITURES

This section summarizes CIP data reported in 2012 for program year 2011, and reflects updates made to program year 2010 data in ESP in 2012 by electric cooperatives and municipal utilities at the request of Commerce staff or utilities. Changes made after December 2012 may not be reflected herein but will be captured in next year's Energy and Carbon Dioxide Savings Report.

## STATEWIDE TOTALS

Table 1. Statewide Electric CIP Totals, 2006-2011

Year	Incremental Energy Savings (GWh/yr)	Energy Savings % of Sales <sup>9</sup>	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures (million \$)	Approximate \$/kWh-saved <sup>10</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	\$174.3	0.014
2011	965	1.6%	879,936	\$140.6	0.010

Table 2. Statewide Natural Gas CIP Totals, 2006-2011

Year	Incremental Energy Savings (BCF/yr)	Energy Savings % of Sales	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures (million \$)	Approximate \$/therm
2006	2.1	-	126,750	\$16.3	0.052
2007	1.9	-	115,987	\$16.4	0.057
2008	1.6	-	94,592	\$18.1	0.077
2009	1.8	-	111,522	\$22.8	0.082
2010	2.6	0.9%	158,039	\$38.0	0.097
2011	2.8	1.0%	170,001	\$41.5	0.099

Table 3. Statewide Combined Electric and Gas CIP Totals, 2006-2011

Year	Incremental Energy Savings (MMBtu/yr)	Energy Savings % of Sales	Incremental CO <sub>2</sub> 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	\$212.2	2.605
2011	6,103,780	1.2%	1,049,937	\$182.1	1.989

<sup>9</sup> In Tables 1-3, "Energy Savings % of Sales" means energy savings as a percentage of annual retail energy sales, excluding sales to CIP-exempt customers.

<sup>10</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.

## UTILITY/AGGREGATOR TOTALS

Table 4. Electric Utility CIP Totals, 2010

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings % of Sales <sup>11</sup>	Sales Baseline Years <sup>12</sup>	Incremental CO2 Savings (tons/yr)	Expenditures	Exp. % of GOR <sup>13</sup>	Baseline GOR Year <sup>14</sup>
<b>Investor-Owned Utilities</b>							
Alliant Energy	3,461,129	0.4%	2006-2008	3,155	\$1,267,734	1.7%	2008
Minnesota Power	60,503,220	1.8%	2005-2007	55,149	\$5,635,000	2.4%	2007
Otter Tail Power	31,888,429	1.5%	2005-2007	29,066	\$4,984,048	3.7%	2007
Xcel Energy	415,591,395	1.3%	2006-2008	378,812	\$71,884,336	2.8%	2008
<b>Totals - Investor-Owned Utilities</b>	<b>511,444,173</b>	<b>1.4%</b>		<b>466,181</b>	<b>\$83,771,118</b>	<b>2.8%</b>	
<b>Cooperative CIP Aggregators</b>							
Dairyland Power Cooperative	2,788,610	0.4%	2005-2007	2,542	\$2,184,985	3.4%	2007
East River Electric Power Cooperative	9,852,137	3.3%	2005-2007	8,980	\$331,683	0.9%	2007
Great River Energy (All-Rqmts) <sup>15</sup>	128,518,991	1.5%	2005-2007	117,145	\$58,897,743	8.0%	2007
Great River Energy (Fixed)	19,436,417	0.7%	2005-2007	17,716	\$4,822,112	2.1%	2007
Minnkota/NMPA (17/18 MN members)	28,747,078	1.7%	2005-2007	26,203	\$2,836,092	2.4%	2007
<b>Totals - Coop CIP Aggregators</b>	<b>189,343,232</b>	<b>1.4%</b>		<b>172,586</b>	<b>\$69,072,615</b>	<b>5.9%</b>	
<b>Municipal CIP Aggregators</b>							
CMPA	8,127,888	1.9%	2005-2007	7,409	\$1,258,885	3.2%	2007
MMPA (8/11 members)	8,390,622	1.3%	2005-2007	7,648	\$891,140	1.5%	2007
MRES (23/24 MN members)	27,606,949	1.4%	2005-2007	25,164	\$3,700,823	3.0%	2007
SMPA (15/18 members)	15,656,044	1.6%	2005-2007	14,270	\$5,408,924	7.2%	2007
The Triad (SMPA members)	37,624,670	1.9%	2005-2007	34,295	\$4,891,022	2.9%	2007
<b>Totals - Municipal CIP Aggregators</b>	<b>97,406,172</b>	<b>1.6%</b>		<b>88,786</b>	<b>\$16,150,794</b>	<b>3.5%</b>	
<b>Independent Cooperatives</b>							
Minnesota Valley Coop Light & Power	3,250,524	1.9%	2005-2007	2,963	\$334,107	3.0%	2007
Sioux Valley Energy	550,515	0.6%	2005-2007	502	\$1,340,800	18.8%	2007
<b>Totals - Independent Cooperatives</b>	<b>3,801,039</b>	<b>1.4%</b>		<b>3,465</b>	<b>\$1,674,907</b>	<b>9.1%</b>	

<sup>11</sup> In Tables 4-7, "Energy Savings % of Sales" means energy savings as a percent of annual retail energy sales, excluding sales to CIP-exempt customers.

<sup>12</sup> In Tables 4-7, "Sales Baseline Years" means the years over which annual retail energy sales were averaged for the purpose of calculating the energy savings percentage. The baseline years were established by Department orders.

<sup>13</sup> In Tables 4-7, Exp. % of GOR" means expenditures as a percentage of annual gross operating revenues from the sale of electricity or natural gas to end use customers, excluding revenues attributable to CIP-exempt customers.

<sup>14</sup> In Tables 4-7, "Baseline GOR Year" means the reference year for the gross operating revenues used to calculate expenditures as a percentage of gross operating revenues.

<sup>15</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 electric utility infrastructure savings in 2010. GRE's All-Requirements group reported a total of 567,348,009 kWh in 2010, equivalent to 6.6% of 2005-2007 average retail sales, prior to applying the carry forward provision. This total is contingent on the Department's final approval of GRE's proposed electric utility infrastructure savings in 2010.

Table 4 continued - Electric Utility CIP Totals, 2010

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings % of Sales	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Exp. %	Baseline GOR Year
<b>Independent Municipals</b>							
Ada <sup>16</sup>	276	0%	2005-2007	0	\$24,550	2.1%	2007
Alvarado	53	1.6%	2005-2007	0	\$4,592	1.7%	2007
Anoka (MMPA member)	2,427,732	0.9%	2005-2007	2,213	\$357,477	1.6%	2007
Biwabik <sup>17</sup>	94,946	1.6%	2005-2007	87	\$14,487	3.7%	2007
Brainerd	3,970,064	1.6%	2005-2007	3,619	\$223,633	1.3%	2007
Brewster	6,413	0.2%	2005-2007	6	\$6,226	2.0%	2007
Buhl <sup>18</sup>	111	0.0%	2005-2007	0	\$8,300	1.9%	2007
Caledonia <sup>19</sup>	1	0.0%	2005-2007	0	\$4,294	0.2%	2007
East Grand Forks (MMPA member)	2,002,202	1.4%	2005-2007	1,825	\$376,945	3.4%	2007
Ely	1,216,435	3.6%	2005-2007	1,109	\$95,022	3.3%	2007
Grand Rapids	1,613,707	1.0%	2005-2007	1,471	\$212,374	2.3%	2007
Hibbing	750,302	1.7%	2005-2007	684	\$59,944	0.6%	2007
Hutchinson (MRES member)	5,345,200	1.7%	2005-2007	4,872	\$451,154	1.6%	2007
Kandiyohi	239	0.0%	2005-2007	0	\$1,096	0.3%	2007
Lake Crystal	36,579	0.2%	2005-2007	33	\$19,602	1.0%	2007
Madelia	21,078	0.1%	2005-2007	19	\$27,664	1.1%	2007
Mountain Iron	175,793	1.0%	2005-2007	160	\$33,997	2.0%	2007
New Ulm	2,248,397	1.1%	2005-2007	2,049	\$407,380	2.0%	2007
Nielsenville	0	0.0%	2005-2007	0	\$0	0.0%	2007
Proctor	120,863	1.5%	2005-2007	110	\$30,690	1.8%	2007
Shakopee (MMPA member)	2,526,667	0.7%	2005-2007	2,303	\$531,126	1.4%	2007
Spring Grove	6,755	0.0%	2005-2007	6	\$13,953	1.1%	2007
St. Charles	126,807	0.4%	2005-2007	116	\$53,003	1.9%	2007
Truman	326	0.0%	2005-2007	0	\$43,359	4.3%	2007
Two Harbors	230,316	0.8%	2005-2007	210	\$27,830	1.3%	2007
Virginia	0	0.0%	2005-2007	0	\$151,842	1.6%	2007
Willmar	1,480,184	0.5%	2005-2007	1,349	\$403,940	2.0%	2007
<b>Totals - Independent Municipals</b>	<b>24,401,447</b>	<b>1.0%</b>		<b>22,242</b>	<b>\$3,584,481</b>	<b>1.7%</b>	

**TOTALS - COOPS & MUNICIPALS**      **314,951,891**      **1.4%**      **287,079**      **\$90,482,797**      **4.8%**

**TOTALS - ELECTRIC UTILITIES**      **826,396,064**      **1.4%**      **753,260**      **\$174,253,915**      **3.6%**

<sup>16</sup> The City of Ada has not yet reported its 2005-2007 sales data in ESP. As a result, 2008 sales were used as a proxy for the City's 2005-2007 average sales. In addition, 2008 GOR were used as a proxy for the City's 2007 GOR.

<sup>17</sup> The City of Biwabik has not yet reported its 2005 and 2006 sales data in ESP. As a result, 2007 sales were used as a proxy for the City's 2005-2007 average sales.

<sup>18</sup> The City of Buhl appears to have reported its sales data in units of MWh in ESP instead of units of kWh as specified. As a result, the City's average 2005-2007 kWh sales as reported were multiplied by 1,000.

<sup>19</sup> The City of Caledonia appears to have reported its GOR data in units of \$1,000 in ESP. As a result, the City's reported 2007 GOR was multiplied by 1,000.

Table 5. Gas Utility CIP Totals, 2010

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings % of Sales	Sales Baseline Years	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Exp. as % of Annual GOR	GOR Baseline Year
<b>Investor-Owned Utilities</b>							
Alliant Energy	21,899	1.2%	2006-2008	1,325	\$734,448	3.7%	2008
CenterPoint Energy	1,300,228	0.9%	2006-2008	78,664	\$16,574,773	1.1%	2008
Great Plains Natural Gas	17,426	0.3%	2006-2008	1,054	\$427,847	0.9%	2008
Greater Minnesota Gas	1,711	0.4%	2006-2008	104	\$20,323	0.4%	2008
Minnesota Energy Resources-NMU	96,962	0.7%	2006-2008	5,866	\$1,344,740	1.7%	2008
Minnesota Energy Resources-PNG	352,474	0.8%	2006-2008	21,325	\$6,204,519	2.3%	2008
Xcel Energy	697,322	1.0%	2006-2008	42,188	\$11,374,005	1.5%	2008
<b>Totals - Investor-Owned Utilities</b>	<b>2,488,022</b>	<b>0.9%</b>		<b>150,525</b>	<b>\$36,680,655</b>	<b>1.4%</b>	
<b>Municipal Aggregators</b>							
The Triad	86,774	1.9%	2006-2008	5,250	\$788,155	1.6%	2008
<b>Independent Municipals</b>							
Duluth	13,655	0.3%	2006-2008	826	\$412,181	0.7%	2008
Hutchinson	23,761	1.5%	2006-2008	1,438	\$82,102	0.5%	2008
<b>Totals - Independent Municipals</b>	<b>37,416</b>	<b>0.6%</b>		<b>2,264</b>	<b>\$494,283</b>	<b>0.7%</b>	
<b>TOTALS - MUNICIPALS</b>	<b>124,190</b>	<b>1.2%</b>		<b>7,513</b>	<b>\$1,282,438</b>	<b>1.0%</b>	
<b>TOTALS - GAS UTILITIES</b>	<b>2,612,212</b>	<b>0.9%</b>		<b>158,039</b>	<b>\$37,963,093</b>	<b>1.3%</b>	

Table 6. Electric Utility CIP Totals, 2011

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings % of Sales	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Exp. as % of Annual GOR	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 Cooperative	2,345,951	0.3%	2005-2007	2,138	\$2,425,679	3.2%	2009
East River Electric Power Cooperative	9,670,735	3.2%	2005-2007	8,815	\$455,491	1.0%	2009
Great River Energy (All-Rqmts) <sup>20</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	\$4,951,342	1.8%	2009
Minnkota/NMPA (17/18 MN members)	27,833,531	1.7%	2005-2007	25,370	\$3,026,261	2.1%	2009
<b>Totals - Coop CIP Aggregators</b>	<b>262,248,893</b>	<b>1.9%</b>		<b>239,040</b>	<b>\$29,165,695</b>	<b>2.1%</b>	
<b>Municipal CIP Aggregators</b>							
CMPA (11/12 members)	6,512,318	1.6%	2005-2007	5,936	\$876,447	2.5%	2009
MMPA (8/ 11 members)	9,409,154	1.5%	2005-2007	8,576	\$753,955	1.4%	2009
MRES (23/24 MN members)	22,328,152	1.1%	2005-2007	20,352	\$4,068,655	2.8%	2009
SMMPA (15/18 members)	17,631,130	1.9%	2005-2007	16,071	\$2,748,206	3.5%	2009
The Triad (members of SMMPA)	33,857,071	1.7%	2005-2007	30,861	\$4,343,121	2.4%	2009
<b>Totals - Municipal CIP Aggregators</b>	<b>89,737,824</b>	<b>1.5%</b>		<b>81,796</b>	<b>\$12,790,384</b>	<b>2.6%</b>	
<b>Independent Cooperatives</b>							
Minnesota Valley Coop L&P	3,777,597	2.2%	2005-2007	3,443	\$362,731	2.5%	2009
Sioux Valley Energy	564,123	0.6%	2005-2007	514	\$108,880	1.3%	2009
<b>Totals - Independent Cooperatives</b>	<b>4,341,720</b>	<b>1.6%</b>		<b>3,957</b>	<b>\$471,611</b>	<b>2.0%</b>	

<sup>20</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 7 continued - Electric Utility CIP Totals, 2011

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings % of Sales	Sales Baseline Years	Incremental CO2 Savings (tons/yr)	Expenditures	Exp. As % of Annual GOR	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>21</sup>	106,011	1.8%	2005-2007	97	\$6,572	1.4%	2009
Brainerd	3,970,346	1.6%	2005-2007	3,619	\$292,205	1.8%	2009
Brewster	0	0.0%	2005-2007	0	\$3,496	1.1%	2009
Buhl <sup>22</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)	1,011,517	2.1%	2005-2007	922	\$88,055	2.0%	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	873,843	0.7%	2005-2007	797	\$57,882	0.4%	2009
Hutchinson (MRES member)	4,916,530	1.6%	2005-2007	4,481	\$404,187	1.7%	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	394,374	2.2%	2005-2007	359	\$36,753	2.3%	2009
New Ulm	1,876,954	0.9%	2005-2007	1,711	\$301,715	1.5%	2009
Proctor	175,787	2.2%	2005-2007	160	\$28,729	1.5%	2009
Shakopee (MMPA member)	9,246,349	2.4%	2005-2007	8,428	\$548,070	1.6%	2009
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>23</sup>	1,550,705	1.5%	2008-2010	1,413	\$178,498	1.8%	2009
Warroad (NMPA member)	70,462	0.4%	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>34,208,225</b>	<b>1.3%</b>		<b>31,181</b>	<b>\$3,611,514</b>	<b>1.7%</b>	

**TOTALS - COOPS & MUNICIPALS**      **390,536,661**      **1.7%**      **355,974**      **\$46,039,204**      **2.2%**

**TOTALS - ELECTRIC UTILITIES**      **965,371,314**      **1.6%**      **879,936**      **\$140,550,821**      **2.8%**

<sup>21</sup> The City of Biwabik has not yet reported its 2005 and 2006 sales data in ESP. As a result, 2007 sales were used as a proxy for the City's 2005-2007 average sales.

<sup>22</sup> The City of Buhl appears to have reported its sales data in units of MWh in ESP instead of units of kWh as specified. As a result, the City's average 2005-2007 kWh sales as reported were multiplied by 1,000.

<sup>23</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 8. Gas Utility CIP Totals, 2011

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings % of Sales	Sales Baseline Years	Incremental CO <sub>2</sub> Savings (tons/yr)	Expenditures	Exp. as % of Annual GOR	GOR Baseline 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	22,911	1.5%	2006-2008	1,386	\$72,603	0.5%	2008
<b>Totals - Independent Municipals</b>	<b>33,452</b>	<b>0.5%</b>		<b>2,024</b>	<b>\$769,431</b>	<b>1.0%</b>	
<b>TOTALS - MUNICIPALS</b>	<b>79,347</b>	<b>0.7%</b>		<b>4,801</b>	<b>\$1,250,521</b>	<b>1.0%</b>	

**TOTALS - GAS UTILITIES**                      **2,809,933**      **1.0%**                                      **170,001**      **\$41,538,498**      **1.5%**

## 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.