COMMERCE DEPARTMENT

Conservation Improvement Program

Energy Savings, CO_2 Reductions and Economic Benefits Achieved 2017-2018

January 2021

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

Table of Contents

Minnesota Department of Commerce

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Executive Summary

The Minnesota Department of Commerce, Division of Energy Resources (Commerce) submits this report in fulfillment of Minn. Stat. §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_2) 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 2017 and 2018.

The Conservation Improvement Program 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 electric 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 energy conservation programs. These programs target both retrofit and new construction projects.

During both 2017 and 2018, electric utilities exceeded the CIP goal of 1.5% and natural gas utilities exceeded the statutory minimum of 1.0% energy savings. In total, in years 2017 and 2018, energy conservation programs benefited Minnesota's environment and economy by:

- Saving around 15.2 trillion-Btus of energy – enough energy to heat, cool and power more than 160,000 Minnesota homes for a year (EIA 2018).
- Reducing CO2 emissions by 1.79 million tons, equivalent to removing over 350,000 vehicles from the road for one year (EPA 2020a, 2020b and EIA 2020c).

- Saving Minnesota's businesses and residents over $279 million in energy costs (EIA 2020a and EIA 2020b).[1]
- Supporting over 47,000 energy efficiency jobs, representing the largest sector of Minnesota's clean energy employment (Clean Energy Trust 2020).

Table 1. Total 2017-2018 Conservation Improvement Program Electric and Gas Impacts

	CO2 Savings (tons)	Energy Savings (1000s MMBtu)	Participant Energy Cost Savings
Electric	1,345,264	7,640	$231,080,517
Gas	445,417	7,611	$48,652,982
Total	1,790,681	15,251	$279,733,499

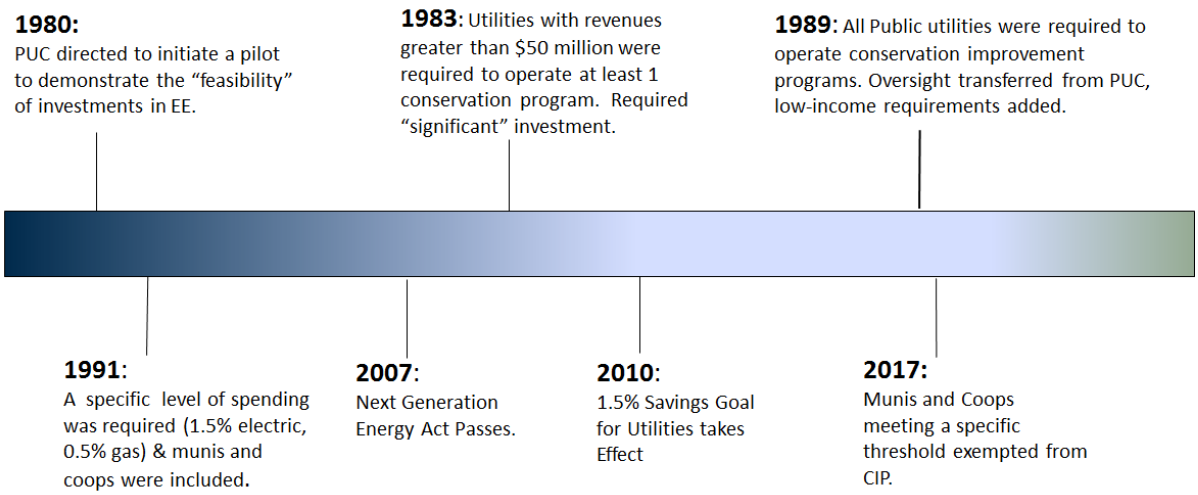
Overview of the Conservation Improvement Program

The Conservation Improvement Program 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. Energy conservation 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) required utilities, beginning in 2010, to develop CIP plans to achieve energy savings equal to 1.5% of average annual retail sales each year,[2] unless adjusted by the Commissioner to no less than 1.0%.[3] Minnesota's EERS remains one of the most productive energy efficiency policies in the nation, helping utilities, residents and businesses optimize their energy usage.

[1] Estimated energy cost savings were calculated by multiplying the average price per Dth of natural gas and the average price per kWh of electricity in Minnesota by the corresponding Dth and kWh CIP energy savings achievements for 2017 and 2018. Does not net out CCRA/CCRC charges to customers. See the "References and Methodology Notes" section for more information about how various impacts were calculated and their data sources.
[2] As defined in Minn. Stat. 216B.241 subd. 1 (g), "gross annual retail sales" exclude sales to CIP-exempt customers.
[3] 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%.

Figure 1. Conservation Improvement Program History



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_2 reductions and energy savings that utilities achieved in 2017 and 2018. 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.

2017 and 2018 CIP Performance

In terms of total energy saved, 2018 was one of Minnesota's most successful energy conservation program years to date. Minnesota's natural gas savings percentage was the second highest in the nation, and electric utilities achieved the tenth highest energy savings percentage nationally (ACEEE 2019).

As shown in Figure 2 and Figure 3, electric and natural gas savings for 2017 and 2018 totaled 2,239 gigawatt-hours (GWh) and 7.6 billion cubic feet (bcf), respectively. Combined, these energy savings are equivalent to around 15.2 trillion-BTUs of energy. This is enough energy to heat, cool and power more than **160,000 homes** for a year (EIA 2018) or approximately the combined number of homes in Saint Paul and Duluth (Census 2020).

Figure 2. Conservation Improvement Program Electric Results 2010-2018

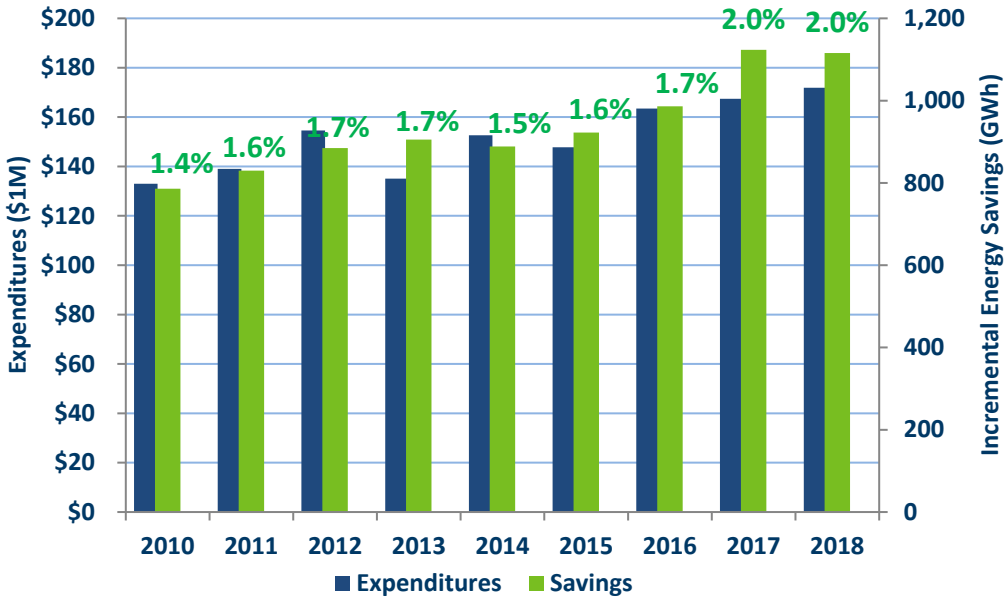


Figure 3. Conservation Improvement ProgramNatural Gas Results 2010-2018

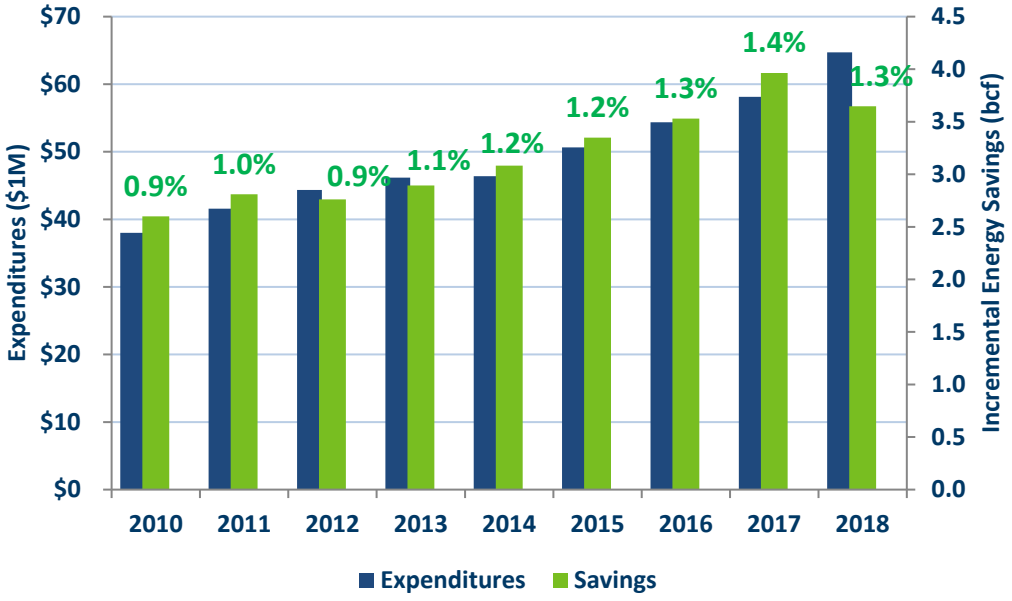
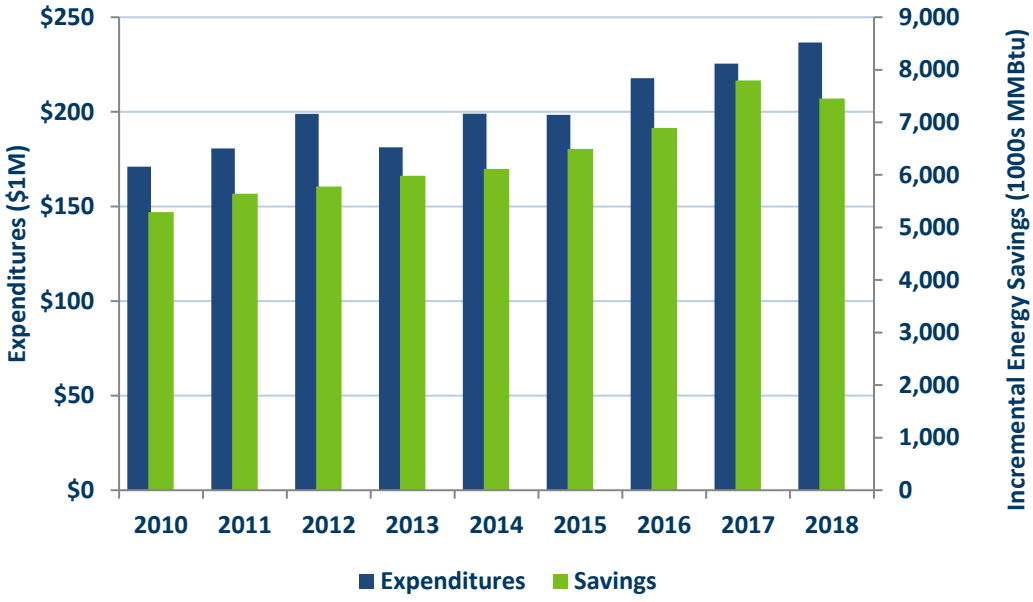


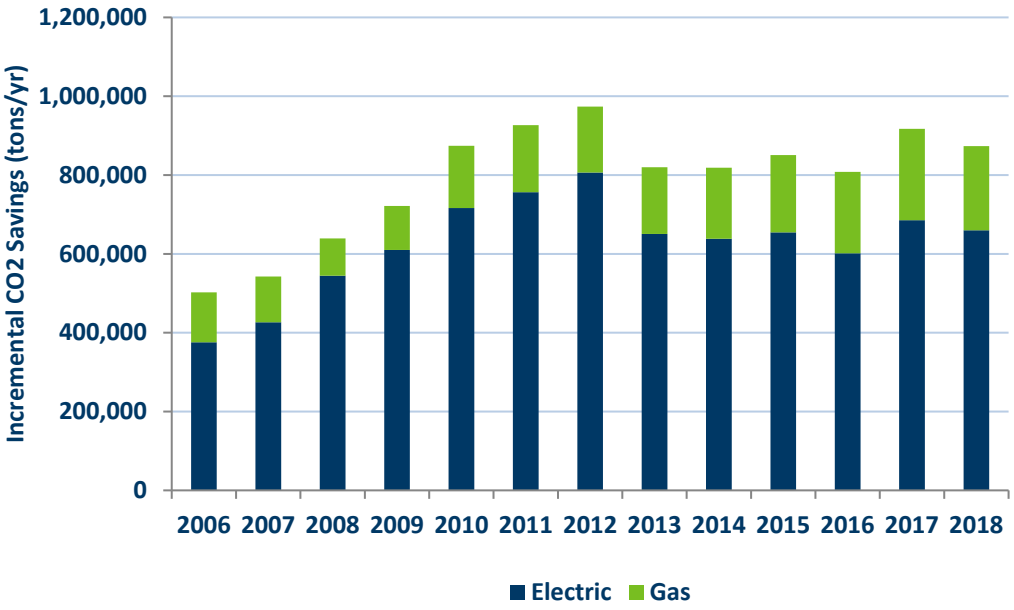
Figure 4. Aggregate Conservation Improvement Program Performance 2010-2018



Avoided CO_2 Emissions

The Next Generation Energy Act of 2007 established Minnesota's goals for reducing greenhouse gas emissions. CIP's utility portfolios achieved 1.79 million tons of avoided CO_2 emissions in 2017-2018 (EPA 2020a and EIA 2020c). These savings equate to removing more than 350,000 vehicles from the road (EPA 2020b) or about 4.8 percent of the state's registered vehicles (MN Department of Transportation 2019).

Figure 5. Total CO2 Savings 2006-2018[4]



The Conservation Improvement Program 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. Programs to address the demand-side are composed primarily of energy conservation activities, while supply-side resources address fossil fuel, nuclear, and renewable generation. Integrated resource plans (as approved by the PUC) attempt to determine the mixture of resources over the next 15 years that will meet the needs of an electric utility's customers in a reliable and low-cost manner.[5] Utilities often select high levels of DSM to meet their needs because they are a lower-cost resource than supply-side options. Procurement of efficiency as a preferred resource, and primarily through cost-effective CIP investments, is a long-standing policy in Minnesota.[6] . Energy efficiency and conservation require lower upfront investments than new power generation facilities, reduces total energy consumption and demand, and delays the need to build additional transmission, distribution, and generation infrastructure in Minnesota. Figure 6

[4]While the method for calculating CIP's CO_2 emission savings has not changed, the electric CO_2 emissions rate has declined over time. This is due in part to an increase in electricity generation from renewable energy and a decrease in electricity generated by coal-fired power plants. As CO_2 emitting fuel sources continue to decline in use, so too will the emissions factor used to calculate CO_2 savings from CIP.

[5] Minn. Stat. 216B.2422.

[6] https://www.revisor.mn.gov/statutes/cite/216B.2401

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 Conservation Improvement Program to Various Electricity Generation Options (MN Department of Commerce 2020 and EIA 2019)

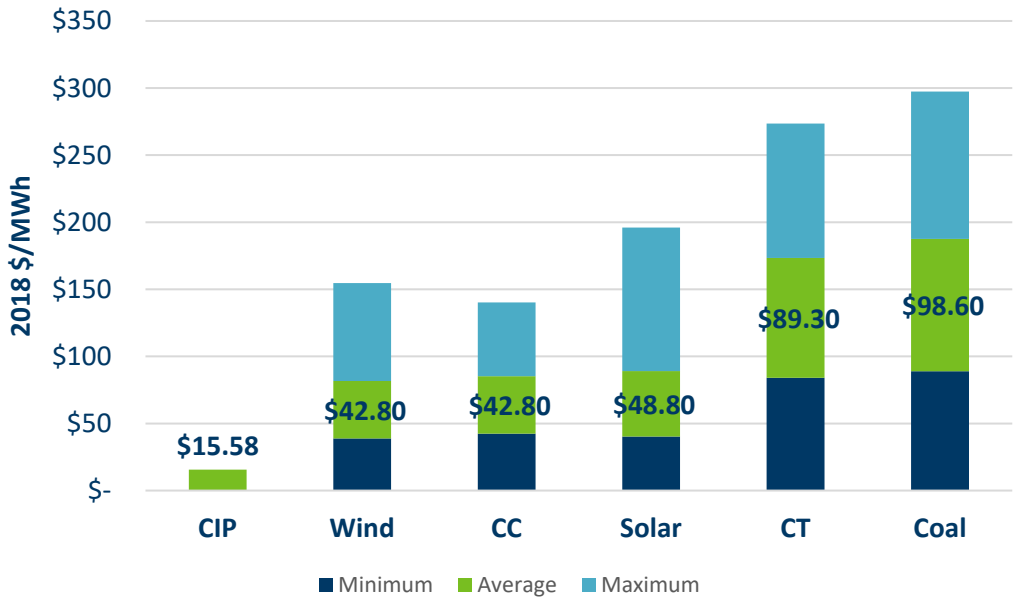


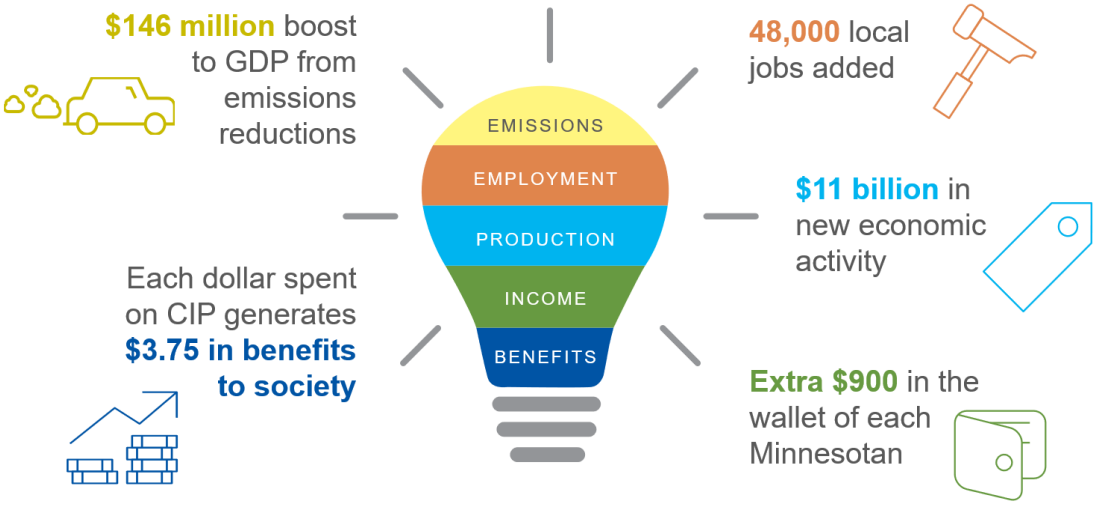
Figure Key

CIP = Levelized Average Cost of CIP in 2016-2018
Wind = Utility-scale wind energy plant
CC = Natural gas-fired combined-cycle plant
Solar = Utility-scale solar energy plant
CT =Natural gas-fired combustion turbine
Coal = Conventional baseload coal plant

Consumer and Business Benefits

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

Figure 7. Net Impacts of 2013-2018 Conservation Improvement Program Investments (Cadmus 2020)

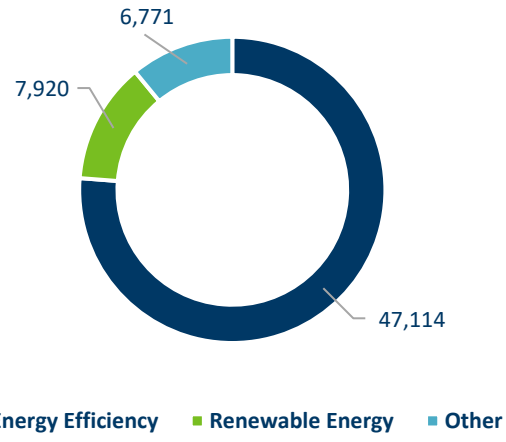


CIP also saved Minnesota's businesses and residents over $279 million in energy costs in 2017-2018 (EIA 2020a and EIA 2020b). These savings are a major benefit that CIP provides to both households and businesses of all sizes across the state. Consumers can use these savings to both improve their financial stability and support businesses in Minnesota. Businesses can use the savings to bolster their budgets and continue investing in improvements to the products and services they offer customers.

The Conservation Improvement Program & Minnesota's Economy

Every county in Minnesota benefits from the jobs both created and retained in the energy efficiency sector. A 2020 analysis found that prior to the COVID-19 pandemic, Minnesota had over 47,000 jobs in the energy efficiency field, which represents the largest sector for Minnesota's clean energy employment (Clean Energy Trust 2020). 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 8. Clean Energy Employment Sector Breakdown by Sector



CIP Savings and Expenditures [7] [8]

Electric CIP Performance 2017 - 2018

Table 2. 2017 Electric Conservation Improvement Program Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	72,467,019	2.64%	44,205	$8,129,337	5.00%
Otter Tail Power	52,497,167	3.01%	32,023	$6,491,039	4.24%
Xcel Energy	660,435,156	2.30%	402,865	$109,109,805	3.83%
Totals - Investor-Owned Utilities	**785,399,342**	**2.36%**	**479,094**	**$123,730,181**	**3.91%**
Cooperative CIP Aggregators - CIP Statute					
Dairyland Power Coop	19,378,633	1.69%	11,821	$2,296,014	1.79%
Great River Energy (All-Rqmts Members)	129,126,435	1.41%	78,767	$18,818,000	1.88%
Great River Energy (Fixed Members)	26,303,903	0.85%	16,045	$3,464,675	1.14%
Minnkota Power Coop/NMPA	21,920,274	1.78%	13,371	$1,577,448	1.21%
Totals - Coop CIP Aggregators - CIP Statute	**196,729,245**	**1.34%**	**120,005**	**$26,156,138**	**1.67%**
Cooperative CIP Aggregators – Voluntary					
Great River Energy (All-Rqmts Members)	3,426,364	1.06%	2,090	$600,876	1.71%
Great River Energy (Fixed Members)	10,626,568	1.56%	6,482	$1,304,184	2.08%
Minnkota Power Coop/NMPA	5,681,042	2.37%	3,465	$362,076	1.37%
Totals - Coop CIP Aggregators - Voluntary	**19,733,975**	**1.59%**	**12,038**	**$2,267,137**	**1.82%**
Municipal CIP Aggregators - CIP Statute					
CMMPA	8,754,524	3.07%	5,340	$610,038	2.07%

[7] For the tables in this section the following definitions apply: "Incremental energy savings" means first-year, annualized energy savings from newly installed measures, including avoided line losses for electric utilities. Includes savings from conservation improvements and electric utility infrastructure projects.
"Energy Savings %" means energy savings from conservation improvements and electric utility infrastructure projects as a percent of annual retail sales, excluding sales to CIP-exempt customers. "Incremental CO2 Savings" means first-year, annualized carbon dioxide savings resulting from newly installed conservation improvements and electric utility infrastructure projects. "Expenditures" includes expenditures on conservation improvements only (excludes electric utility infrastructure projects.) "Expenditures %" means conservation improvement expenditures as a percent of gross operating revenues from service provided in the state, excluding sales to CIP-exempt customers. (Excludes spending on electric utility infrastructure projects.)
All 2017 data was derived from $Reporting_{ESP}$ as of December 2019. All 2018 data was derived from $Reporting_{ESP}$ as of November 2020.
[8] Note: Minnesota Session Law Chapter 94, Article 10, Section 10-12 amending § 216B.241 was signed into law May 30, 2017. Contained in this law was a provision modifying § 216B.241 to establish exempt status to municipalities that provide electric service to 1,000 retail customers or less and to cooperative electric associations that provide retail service to 5,000 members or less. These modifications took effect May 31, 2017. As a result of these modifications, a number of munis and coops are now exempt from § 216B.241 (see Appendix C for list of exempt utilities), but some voluntarily continued to offer conservation programs and report their results and plans through the CIP reporting process (these are distinguished in the tables as "Voluntary").

MMPA	4,169,577	1.31%	2,543	$522,406	1.53%
MRES	27,483,145	1.19%	16,765	$4,276,296	2.19%
SMMPA	13,939,675	1.51%	8,503	$2,771,909	3.07%
The Triad	43,250,827	2.27%	26,383	$5,113,402	2.58%
Totals - Municipal CIP Aggregators - CIP Statute	**97,597,748**	**1.70%**	**59,535**	**$13,294,050**	**2.43%**
Municipal CIP Aggregators – Voluntary					
CMMPA	100,528	0.81%	61	$12,083	1.06%
MMPA	325,261	1.62%	198	$30,985	1.51%
SMMPA	310,227	2.36%	189	$121,712	8.67%
Totals - Municipal CIP Aggregators - Voluntary	**736,015**	**1.61%**	**449**	**$164,779**	**3.59%**

Table 3. 2017 Electric CIP Performance (continued)

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Independent Municipals - CIP Statute					
Ada, City of	NA	NA	NA	NA	NA
Aitkin Public Utilities	514,451	1.47%	314	$52,875	1.46%
Anoka, City of	4,384,377	1.59%	2,674	$572,265	2.06%
Brainerd Public Utilities	2,932,668	1.56%	1,789	$194,345	1.07%
Caledonia Electric Dept., City of	NA	NA	NA	NA	NA
Chaska, City of	5,920,492	1.71%	3,612	$533,544	1.51%
Delano Municipal Utilities	928,892	1.66%	567	$49,776	0.95%
East Grand Forks Water & Light Dept.	5,487,113	3.45%	3,347	$335,807	2.41%
Ely, City of	594,322	1.57%	363	$71,480	2.04%
Glencoe Light & Power Commission	1,224,982	1.68%	747	$127,385	1.59%
Grand Rapids Public Utilities Commission	2,509,945	1.51%	1,531	$224,411	1.52%
Hibbing Public Utilities Commission	1,074,312	0.86%	655	$87,882	0.66%
Hutchinson Utilities Commission	3,496,383	1.23%	2,133	$208,941	0.83%
Madelia Municipal Light & Power	431,687	1.60%	263	$85,014	2.24%
Mountain Iron Water & Light Dept	496,230	2.16%	303	$72,709	2.96%
New Ulm Public Utilities	1,641,404	0.87%	1,001	$251,907	1.15%
Proctor Public Utilities	376,208	1.51%	229	$28,852	1.45%
Shakopee Public Utilities	7,500,016	1.88%	4,575	$607,425	1.46%
St. Charles Light & Water	314,025	1.46%	192	$104,263	3.74%
Two Harbors, City of	606,218	2.19%	370	$54,601	1.55%
Virginia Dept. of Public Utilities	1,501,816	1.29%	916	$162,051	1.22%
Willmar Municipal Utilities	1,783,174	0.64%	1,088	$382,484	1.32%
Totals - Independent Municipals - CIP Statute	**43,718,716**	**1.53%**	**26,668**	**$4,208,016**	**1.46%**
Independent Municipals - Voluntary					
Gilbert Water & Light	19,179	0.18%	12	$5,716	0.54%
Lake Crystal Municipal Utilities	342,061	2.09%	209	$34,293	1.35%

Nashwauk Public Utilities	215,089	1.55%	131	$23,410	1.69%
Warroad Municipal Light & Power	59,709	0.11%	36	$62,086	1.59%
Totals - Independent Municipals - Voluntary	**636,038**	**0.66%**	**388**	**$125,505**	**1.41%**
TOTALS - COOPS & MUNICIPALS - CIP STATUTE	**338,045,709**	**1.45%**	**206,208**	**$43,658,204**	**1.82%**
TOTALS - ELECTRIC UTILITIES - CIP STATUTE	**1,123,445,051**	**1.99%**	**685,301**	**$167,388,385**	**3.01%**

Table 4. 2018 Electric CIP Performance

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
Minnesota Power	72,479,534	2.64%	42,872	$9,031,446	5.56%
Otter Tail Power	73,255,915	4.21%	43,331	$9,027,762	5.89%
Xcel Energy	680,448,447	2.37%	402,485	$107,451,885	3.77%
Totals - Investor-Owned Utilities	**826,183,896**	**2.48%**	**488,688**	**$125,511,093**	**3.96%**
Cooperative CIP Aggregators - CIP Statute					
Dairyland Power Coop	19,412,976	1.68%	11,483	$2,452,776	1.80%
Great River Energy (All-Rqmts Members)	95,197,052	1.06%	56,309	$19,939,328	1.94%
Great River Energy (Fixed Members)	23,324,562	0.79%	13,796	$4,015,371	1.43%
Minnkota Power Coop/NMPA	20,031,079	1.72%	11,848	$2,318,657	1.86%
Totals - Coop CIP Aggregators - CIP Statute	**157,965,667**	**1.11%**	**93,437**	**$28,726,132**	**1.83%**
Cooperative CIP Aggregators – Voluntary					
Great River Energy (All-Rqmts Members)	1,572,816	0.49%	930	$571,721	1.54%
Great River Energy (Fixed Members)	1,291,404	0.56%	764	$334,165	1.62%
Minnkota Power Coop/NMPA	1,507,411	1.57%	892	$121,249	1.16%
Totals - Coop CIP Aggregators - Voluntary	**4,371,631**	**0.67%**	**2,586**	**$1,027,135**	**1.50%**
Municipal CIP Aggregators - CIP Statute					
CMMPA	3,512,927	1.28%	2,078	$325,418	1.12%
MMPA	5,792,460	1.81%	3,426	$534,753	1.50%
MRES	26,082,868	1.14%	15,428	$4,069,527	2.06%
SMMPA	13,786,545	1.50%	8,155	$2,935,995	3.14%
The Triad	39,741,048	2.09%	23,507	$4,846,139	2.33%
Totals - Municipal CIP Aggregators - CIP Statute	**88,915,848**	**1.56%**	**52,594**	**$12,711,832**	**2.25%**
Municipal CIP Aggregators – Voluntary					
CMMPA	99,600	0.86%	59	$11,942	1.11%
MMPA	151,034	0.75%	89	$33,082	1.53%
SMMPA	609,969	4.65%	361	$143,274	9.92%
Totals - Municipal CIP Aggregators - Voluntary	**860,603**	**1.92%**	**509**	**$188,299**	**4.02%**

Table 5. 2018 Electric CIP Performance (continued)

Organization	Incremental Energy Savings (kWh/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Independent Municipals - CIP Statute					
Aitkin Public Utilities	744,482	2.10%	440	$57,238	1.56%
Anoka, City of	2,368,407	0.86%	1,401	$383,794	1.39%
Brainerd Public Utilities	3,034,157	1.67%	1,795	$207,286	1.14%
Chaska, City of	6,743,974	1.92%	3,989	$578,488	1.51%
Delano Municipal Utilities	1,773,533	3.10%	1,049	$86,716	1.50%
East Grand Forks Water & Light Dept.	3,445,992	2.17%	2,038	$326,660	2.34%
Ely, City of	578,804	1.56%	342	$68,825	2.06%
Glencoe Light & Power Commission	1,383,629	1.86%	818	$128,969	1.59%
Grand Rapids Public Utilities Commission	1,672,625	1.02%	989	$269,450	1.86%
Hibbing Public Utilities Commission	1,696,998	1.39%	1,004	$106,788	0.79%
Hutchinson Utilities Commission	4,430,161	1.55%	2,620	$371,437	1.50%
Madelia Municipal Light & Power	314,910	1.15%	186	$72,346	1.80%
Mountain Iron Water & Light Dept	528,228	2.23%	312	$40,512	1.64%
New Ulm Public Utilities	1,528,076	0.80%	904	$278,568	1.26%
Proctor Public Utilities	386,087	1.55%	228	$32,596	1.56%
Shakopee Public Utilities	7,370,694	2.33%	4,360	$1,059,777	2.38%
St. Charles Light & Water	543,762	2.53%	322	$79,956	2.84%
Two Harbors, City of	526,187	1.92%	311	$56,465	1.51%
Virginia Dept. of Public Utilities	1,842,869	1.61%	1,090	$205,795	1.59%
Willmar Municipal Utilities	1,765,563	0.62%	1,044	$541,034	1.85%
Totals - Independent Municipals - CIP Statute	**42,679,139**	**1.54%**	**25,245**	**$4,952,700**	**1.67%**
Independent Municipals - Voluntary					
Lake Crystal Municipal Utilities	132,940	0.83%	79	$20,981	0.78%
Nashwauk Public Utilities	224,580	1.60%	133	$25,487	3.91%
Warroad Municipal Light & Power (NMPA member)	692,085	1.26%	409	$71,329	1.81%
Totals - Independent Municipals - Voluntary	**1,049,606**	**1.23%**	**621**	**$117,797**	**1.62%**
TOTALS - COOPS & MUNICIPALS - CIP STATUTE	**289,560,655**	**1.28%**	**171,275**	**$46,390,664**	**1.91%**
TOTALS - ELECTRIC UTILITIES - CIP STATUTE	**1,115,744,551**	**1.99%**	**659,963**	**$171,901,757**	**3.07%**

Gas CIP Performance 2017 – 2018

Table 6. 2017 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	2,632,545	1.87%	154,136	$31,140,094	3.81%
Great Plains Natural Gas	13,577	0.24%	795	$403,118	1.66%
Greater Minnesota Gas	5,398	0.48%	316	$137,267	1.43%
Minnesota Energy Resources Corporation	402,989	0.76%	23,595	$10,666,999	4.38%
Xcel Energy	799,597	1.11%	46,816	$14,181,339	3.25%
Totals - Investor-Owned Utilities	**3,854,106**	**1.41%**	**225,658**	**$56,528,817**	**3.69%**
Municipal Aggregator					
The Triad	26,223	0.59%	1,535	$514,295	1.75%
Independent Municipals					
Duluth Public Works & Utilities	35,095	0.66%	2,055	$851,162	2.41%
Hutchinson Utilities Commission	18,441	1.15%	1,080	$103,940	1.05%
New Ulm Public Utilities	6,032	0.62%	353	$70,080	1.04%
Perham Natural Gas	23,578	1.73%	1,380	$57,136	0.86%
Totals - Independent Municipals	**83,146**	**0.90%**	**4,868**	**$1,082,318**	**1.85%**
TOTALS - MUNICIPALS - CIP STATUTE	**109,369**	**0.80%**	**6,404**	**$1,596,613**	**1.82%**
TOTALS - GAS UTILITIES - CIP STATUTE	**3,963,475**	**1.39%**	**232,061**	**$58,125,430**	**3.59%**

Table 7. 2018 Natural Gas CIP Performance

Organization	Incremental Energy Savings (Dth/yr)	Energy Savings %	Incremental CO2 Savings (tons/yr)	Expenditures	Expenditures %
Investor-Owned Utilities					
CenterPoint Energy	1,980,534	1.40%	115,861	$34,888,321	4.27%
Great Plains Natural Gas	36,083	0.64%	2,111	$566,621	2.34%
Greater Minnesota Gas	12,137	1.18%	710	$204,213	2.16%
Minnesota Energy Resources Corp	509,758	0.97%	29,821	$11,777,436	4.84%
Xcel Energy	913,240	1.27%	53,425	$15,506,839	3.56%
Totals - Investor-Owned Utilities	**3,451,752**	**1.27%**	**201,927**	**$62,943,430**	**4.11%**
Municipal Aggregator					
The Triad	101,121	2.34%	5,916	$676,637	2.43%
Independent Municipals					
Duluth Public Works & Utilities	34,245	0.66%	2,003	$807,204	2.59%
Hutchinson Utilities Commission (MRES Member)	23,610	1.54%	1,381	$140,510	1.44%

New Ulm Public Utilities	6,081	0.66%	356	$91,404	1.54%
Perham Natural Gas	30,286	2.30%	1,772	$57,729	1.00%
Totals - Independent Municipals	**94,222**	**1.05%**	**5,512**	**$1,096,848**	**2.08%**
TOTALS - MUNICIPALS - CIP STATUTE	**195,343**	**1.47%**	**11,428**	**$1,773,485**	**2.20%**
TOTALS - GAS UTILITIES - CIP STATUTE	**3,647,095**	**1.28%**	**213,355**	**$64,716,915**	**4.02%**

References and Methodology Notes

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Cadmus. 2020. Economic Impacts of the 2013-2018 Conservation Improvement Program.

Final study report will be published soon and can be found at:
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Methodology Notes: According to the U.S. Census Bureau's 2019 American Community Survey Estimates, Saint Paul has 121,626 housing units and Duluth has 39,535 housing units

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Methodology Notes: Used an average total annual energy consumption per home of 95.2 MMBtu for Very cold/Cold Climate Region from Table CE3.3.

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Methodology Notes: A $6.35 and $6.43 price of natural gas (Dth) in Minnesota for 2017 and 2018 was derived by calculating a weighted average price of natural gas in the residential, commercial, and industrial sectors.

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Methodology Notes: Used a 10.27 and 10.37-cent average for the price of electricity (kWh) in Minnesota during 2017 and 2018, respectively.

EIA. 2020c. How Much Carbon Dioxide is Produced When Different Fuels Are Burned?

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

EPA (Environmental Protection Agency). 2020a. Emissions & Generation Resource Integrated Database.

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

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MN Department of Transportation. 2019. 2018 Minnesota Transportation Trivia & Facts.

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Methodology Notes: Calculated using 2018 registered vehicles figure.

Appendices

Appendix A. Electric Aggregator Membership

Group	Utility
CMMPA	Blue Earth Light & Water Dept
CMMPA	Granite Falls, City of
CMMPA	Janesville Municipal Utility
CMMPA	Kasson, City of
CMMPA	Mountain Lake Municipal Utilities
CMMPA	Sleepy Eye Public Utility
CMMPA	Springfield Public Utilities Comm
CMMPA	Windom Municipal Utilities
Dairyland	Freeborn-Mower Coop Svcs
Dairyland	MiEnergy Cooperative
Dairyland	Peoples Cooperative Service
GRE-all	BENCO Electric Coop
GRE-all	Connexus Energy
GRE-all	Cooperative Light & Power
GRE-all	Dakota Electric Assn
GRE-all	East Central Energy
GRE-all	Elk River Municipal Utilities
GRE-all	Great River Energy Co-ops - All-requirements
GRE-all	Itasca Mantrap Coop Electric Assn
GRE-all	Kandiyohi Power Coop
GRE-all	Lake Country Power
GRE-all	Lake Region Electric Coop
GRE-all	McLeod Coop Power Assn
GRE-all	Mille Lacs Electric Coop
GRE-all	Nobles Cooperative Electric
GRE-all	North Itasca Electric Coop
GRE-all	Runestone Electric Assn
GRE-all	Stearns Coop Electric Assn
GRE-all	Steele Waseca Coop Electric
GRE-all	Todd Wadena Electric Coop

GRE-fixed	Crow Wing Coop Power & Light, Inc.
GRE-fixed	Federated Rural Electric Assn
GRE-fixed	Great River Energy Co-ops - Fixed
GRE-fixed	Meeker Coop Light & Power Assn
GRE-fixed	Minnesota Valley Electric Coop
GRE-fixed	Wright-Hennepin Coop Electric Assn
Minnkota	Beltrami Electric Coop, Inc.
Minnkota	Hawley Public Utilities
Minnkota	Minnkota Power Coop/NMPA
Minnkota	North Star Electric Coop
Minnkota	Roseau Electric Coop
Minnkota	Roseau Municipal Water & Light
Minnkota	Thief River Falls Municipal Utility
Minnkota	Wild Rice Electric Coop
MMPA	Arlington, City of
MMPA	Buffalo, City of
MMPA	Le Sueur Municipal Utilities
MMPA	North St Paul, City of
MMPA	Olivia, City of
MRES	Alexandria Light & Power
MRES	Barnesville Municipal Power
MRES	Benson Municipal Utilities
MRES	Breckenridge Public Utilities
MRES	Detroit Lakes Public Utility
MRES	Jackson, City of
MRES	Luverne, City of
MRES	Marshall Municipal Utilities
MRES	Melrose Public Utilities
MRES	Moorhead Public Service
MRES	Ortonville Light Department
MRES	Sauk Centre Public Utilities
MRES	St. James Municipal Light & Power
MRES	Staples, City of
MRES	Wadena Light & Water
MRES	Willmar Municipal Utilities
MRES	Worthington Public Utilities

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

Appendix B. Gas Aggregator Membership

Group	Utility
Triad	Austin Utilities
Triad	Owatonna Public Utilities

Appendix C. 2018 Exempt and Voluntary Utilities

Group	Utility	Exempt	Voluntary
CMMPA	Fairfax Municipal	x	x
GRE-all	Arrowhead Electric Coop, Inc	x	x
GRE-all	Brown Co Rural Electrical Assn	x	x
GRE-all	Goodhue County Coop Electric Assn	x	x
GRE-fixed	Agralite Cooperative	x	x

Minnkota	Alvarado, City of	x	x
Minnkota	Bagley Public Utilities Commission	x	x
Minnkota	Baudette, City of	x	x
Minnkota	Fosston Municipal Utilities	x	x
Minnkota	Warren, City of	x	x
MMPA	Brownton Municipal Light & Power	x	x
MMPA	Winthrop, City of	x	x
SMMPA	Preston Public Utilities	x	x
	Lake Crystal Municipal Utilities	x	x
	Nashwauk Public Utilities	x	x
	Warroad Municipal Light & Power	x	x
	Adrian Public Utilities	x	
	Alpha, City of	x	
	Bigelow, City of	x	
	Biwabik Public Utilities	x	
	Brewster Light & Power, City of	x	
	Buhl Public Utilities	x	
	Ceylon Public Utilities	x	
	Clearwater Polk Electric Coop	x	
	Dundee, City of	x	
	Dunnell, City of	x	
	Eitzen Light and Power	x	
	Elbow Lake Municipal Power	x	
	Gilbert Water & Light	x	
	Grove City Electric Dept	x	
	Halstad Municipal Utilities	x	
	Harmony, City of	x	
	Henning Electric Dept, City of	x	
	Kandiyohi, City of	x	
	Kasota, City of	x	
	Keewatin Public Utilities	x	
	Kenyon Municipal Utilities	x	
	Lake Park Public Utilities	x	
	Lakefield Municipal Utilities	x	
	Lanesboro Public Utility	x	
	Lyon-Lincoln Electric Coop, Inc.	x	

	Mabel, City of	x	
	Madison Municipal Utilities	x	
	Minnesota Valley Coop Light & Power Assoc	x	
	Moose Lake Water & Light Commission	x	
	NewFolden, City of	x	
	Nielsville, City of	x	
	Peterson Electric System, City of	x	
	Pierz Utilities	x	
	PKM Electric Coop, Inc	x	
	Randall Electric, City of	x	
	Red Lake Electric Coop	x	
	Red River Valley Coop Power Assn	x	
	Redwood Electric Coop	x	
	Renville-Sibley Coop Power Assn	x	
	Round Lake, City of	x	
	Rushford, City of	x	
	Rushmore, City of	x	
	Shelly Municipal Light Dept	x	
	Sioux Valley Energy	x	
	South Central Electric Assn	x	
	Spring Grove, City of	x	
	Stephen Electric Dept	x	
	Traverse Electric Coop, Inc	x	
	Truman Public Utilities	x	
	Tyler, City of	x	
	Westbrook Public Utilities	x	
	Whalan, City of	x	