BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, MN 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
121 Seventh Place East, Suite 350
St Paul, MN 55101-2147

IN THE MATTER OF THE PETITION FOR CERTIFICATES OF NEED FOR THREE 345 kV TRANSMISSION LINE PROJECTS WITH ASSOCIATES SYSTEM CONNECTIONS

Docket No. ET2,E002, et al./CN-06-1115

DIRECT TESTIMONY AND EXHIBITS OF CHRISTOPHER T. DAVIS

ON BEHALF

OF THE MINNESOTA OFFICE OF ENERGY SECURITY

MAY 23, 2008

DIRECT TESTIMONY OF CHRISTOPHER T. DAVIS
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I. INTRODUCTION

Q. Please state your name, position, and business address.

A. My name is Christopher T. Davis. I am a Rate Analyst with the Minnesota Office of Energy Security (OES). My business address is 85 7th Place East, St. Paul, Minnesota 55101.

II. QUALIFICATIONS

Q. Please summarize your educational and professional background.

A. My educational and professional background is summarized in DOC Exhibit No. ___ (CTD-1).

III. PURPOSE AND SCOPE OF TESTIMONY

Q. What is the purpose of your testimony?

A. I am sponsoring the OES's testimony on whether the need for the transmission facilities can be met more cost-effectively through energy conservation and load management measures.

IV. COST-EFFECTIVE CONSERVATION AND LOAD MANAGEMENT

Q. What are the provisions in Minnesota Statutes concerning the relationship between cost-effective energy conservation and granting a certificate of need (CON)?

A. Minnesota Statutes §216B.243, subd. 3 states:

> No proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load-management measures.

Q. In your November 17, 2006 Direct Testimony in the CN proceeding for the Big Stone 2 transmission line you proposed a three-step process for analyzing whether an applicant has shown that the demand for electricity cannot be met more cost-effectively through energy conservation and load management. Do you still recommend this three-step process?

A. No. In my supplemental direct testimony in the Big Stone 2 proceeding I revised my analysis and I used compliance with the 2007 Conservation Improvement Program (CIP) statute as a reasonable proxy for this three-step process.

Q. Why do you believe that assessing the compliance with the 2007 CIP statute is a reasonable proxy in this case?

A. With only a few exceptions, compliance with the new Statute would result in energy savings significantly higher than the levels electric utilities have achieved in the past and in some cases, significantly higher than what energy conservation achievable-potential studies have suggested is achievable. The OES is committed to assisting utilities in the achievement of the new goal. We regard the new goal as aggressive, but achievable.

Q. Please describe the 2007 CIP Statute.

A. In the past the CIP law, Minnesota Statutes §216B.242 was based on a statutory spending requirement. In 2007 the CIP Statute was changed to an energy-savings goal. Specifically, Minnesota Statutes §216B.242, subd. 1 C states:

> (a) The commissioner shall establish energy-saving goals for energy conservation improvement expenditures and shall evaluate an energy conservation improvement program on how well it meets the goals set.

> (b) Each individual utility and association shall have an annual energy-savings goal equivalent to 1.5 percent of gross annual retail energy sales unless modified by the commissioner under paragraph (d). The savings goals must be calculated based on the most recent three-year weather normalized average.

Under (d) of Subd. 1 C the new CIP statutes states:

> The commissioner may not approve a plan that provides for an annual energy savings goal of less than one percent of gross annual retail energy sales from energy conservation improvements.

Q. Are energy savings beyond the level of 1.5 percent of retail sales possible?

A. Certainly. Some utilities will be able to achieve higher energy savings beginning in 2010. Higher goals for other utilities may be more achievable if expected greenhouse gas regulations are passed. However, at this point the Office has not estimated what these higher energy savings may be.

Q. What will be the impact of the new CIP statute on utilities' forecasts?

A. The new statute is expected to result in incremental energy and demand savings beyond the amount already built into utility forecasts for all electric utilities except Interstate Power and Light-Electric, (IPL) which historically has achieved energy savings greater than 15 percent of retail sales.

Q. How are utility energy and demand savings already built into utility forecasts?

A. All of the utilities in this proceeding use econometric forecasts. The data points (actual energy and demand) collected over time and used in the forecasting process are lower

than what they would have been absent the CIP program. If energy savings have increased, remained steady, or declined over time, the forecast reflects these historical changes in its future estimates of energy and demand.

Q. Can you give an example?

A. Yes. I'll consider Great River Energy. Table 1 shows the energy savings that Great River Energy achieved between 2002 and 2006.

Table 1: Great River Energy Savings
2002-2006
(MWh)

2002	20,851,827
2003	39,516,243
2004	30,842,222
2005	29,299,610
2006	37,780,263
Average	31,658,033

As shown, GRE saved an average of 31,658,033 MWh of energy between 2002 and 2006. GRE's energy savings do not increase or decrease in any set pattern. Based on this five-year average energy-savings, one can assume that GRE's econometric forecast includes an average of 31,658,033 MWh of energy savings.

Q. Is this the only way to estimate the amount of energy savings embedded in GRE's forecast?

A. No, there are numerous ways. For example, another way could be to take the average of the percentage of retail sales saved each year. This average energy savings percentage

could then be multiplied by the forecast of future energy sales. The percentage of sales method would likely lead to higher estimates of energy savings per year because the forecasts of electric utilities project growth over time. I averaged GRE's 2002 to 2006 energy savings because it was the simplest approach and would likely produce a more conservative estimate of embedded energy savings.

Q. Please explain how you estimated the amount of energy savings from CIP programs already built into forecasts for each of these utilities.

A. I had energy savings estimates for 2002 to 2006 for the following five utilities: Xcel, Great River Energy (GRE), Minnesota Power (MP), Interstate Power and Light (IPL), and Otter Tail Power (OTP). For each of these five utilities I assumed that an average of their 2002-2006 energy savings was the amount embedded in their forecasts. The averages are shown in DOC Exhibit No. ___ (CTD-1).

Q. How did you estimate the amount of energy savings embedded in the forecasts of the other utilities?

A. I assumed that these utilities had an energy savings rate of 0.4 percent each year.

Q. Why did you assume an energy savings rate of 0.4 percent?

A. I did not have sufficient data on these utilities so I used the amount that Missouri River Energy Services (MRES) planned to save as a result of its CIP programs. I chose MRES's plan as a representative level because MRES has only recently committed to increasing its energy savings, a position similar to many other Minnesota electric utilities.

Q. For which utilities did you assume an energy savings rate of 0.4 percent?

A. MRES, Minnesota Municipal Power Agency (MMPA), Dairyland Power Cooperative (Dairyland or DPC), and Minnkota Power (Minnkota).

Q. Do you believe the 0.4 percent is an accurate assessment of the amount of energy savings for these utilities?

A. For some utilities, such as Dairyland and Minnkota, this level may be an overstatement. For my purposes it is a reasonable estimate because it is in between the likely amounts of energy savings for the four utilities for which I used it.

Q. How did you estimate the impact of the new CIP statute after taking into account the energy savings already embedded in the utilities' forecasts?

A. I performed a multiple-step analysis for each of the utilities. My analysis for each of the utilities is included as DOC Exhibit No. ____(CTD-2).

Q. Please explain each of the steps.

A. First I started with the energy forecast supplied by each of the eleven utilities. These forecasts were in the application's Table C-7. The energy forecasts are presented in Column 1 of my spreadsheet for each utility in DOC Exhibit No. ___ (CTD-2).

Q. What is the second step?

A. The second step is shown in Column 4 of each utility's spreadsheet (in Exhibit No. ___ (CTD-2). It calculates the annual energy savings resulting from the 2007 CIP statute. I calculated this number assuming energy savings of both 1.5 percent and 1.0 percent.

Q. Why did you choose these two percentages?

A. The new legislation requires that utilities set a goal of 1.5 percent. The legislation also prohibits the Commissioner from setting a goal of less than 1.0 percent of retail sales. I believe that these two parameters, the minimum goal that can be set for direct savings projects and the 1.5 percent energy savings goal required, which can be met using direct utility programs and other strategies including electric utility infrastructure projects, provide a reasonable range for analysis.

Q. Does the annual energy savings shown in Column 4 include both embedded energy savings and incremental energy savings?

A. Yes.

Q. How did you then determine the incremental energy savings?

A. I subtracted my estimate of embedded energy savings (Column 3) from the amount of total annual energy savings calculated in Column 4. The result is presented in Column 5.

Q. Then what information does Column 2 present?

A. Column 2 presents the adjusted forecast that should be used for calculating Column 4. This column recognizes that the utilities' annual forecasts need to be reduced by the amount of the previous years' cumulative incremental energy savings. Thus for 2006, Column 2 is equal to the 2006 original forecast (Column 1) minus the incremental energy savings from 2005 (Column 6).

Q. How are cumulative incremental energy savings for each year (Column 6) calculated?

A. Column 6 is calculated by summing the annual incremental energy savings for each year beginning in 2010 through the year presented. For example, for the year 2015, cumulative incremental energy savings are equal to the sum of annual incremental energy savings (Column 5) for years 2010, 2011, 2012, 2013, 2014 and 2015. This approach assumes that the energy savings have a minimum lifetime of ten years.

Q. How did you then calculate the annual incremental demand savings due to the 2007 CIP statute, as shown in Column 7?

A. Since the 2007 CIP statute is designed to save energy, it is necessary to translate these (CIP) energy savings into capacity or demand savings for the CN analysis. This demand savings then indicates how much the 2007 CIP statute will reduce the need for new capacity, both in terms of generation and transmission. Thus, the greater the ratio of demand to energy savings, the larger is the expected effect of the 2007 CIP statute. Thus, calculating annual incremental demand savings required me to estimate the future

relationship between incremental energy savings and incremental demand savings. I took a conservative approach by focusing only on peak demand saved, since the ratio of demand to energy savings is largest for peak facilities, thus resulting in the largest capacity savings due to the 2007 CIP law.

Q. Why did you assume that 5,300 MWh of incremental energy savings will result in 1 MW of peak demand savings?

A. First I requested information from utilities and third party providers regarding where they thought the new sources of the incremental electric energy savings might be. The responses included commercial and industrial projects, commercial lighting in particular, residential lighting, and residential construction projects.

Table 2 below shows some of the aforementioned projects for which I had energy and demand savings data. As can be seen, the amount of energy saved per kW saved in 2006 varied from 2,418 kWh (IPL's Replacement Express project) to 25,046 kWh (Xcel's residential lighting project).

Table 2
Calculating kW saved per kWh Saved, Based on Actual Energy and Demand Savings

	2006 kWh/ Peak kW	2005 kWh/ Peak kW	2004 kWh/ Peak kW	2003 kWh/ Peak kW	2002kWh/ Peak kW
MP C&I	11,604	11,602	8,443	4,24	5,210
MP Triple E	5,496	5,498	9,536	4,465	4,327
OTP C&I	4,085	-	4,240	4,756	5,758
OTP C&I Lighting	4,006				
OTP Res. Lighting	7,126				
IPL Shared Savings	5,691	5,540	5,899	5,839	4,371
IPL Replacement Express	2,418	2,818	2,792		
Xcel C&I	5,874	3,143	2,900	2,845	2,893
Xcel Lighting	5,510				
Xcel Residential Lighting	25,046				

Given this range of data regarding the kWh saved per peak kW saved, I focused my analysis by considering numbers that were close to each other in 2006. In other words, I removed outlying values. Based on this information, I averaged the 2006 energy savings per peak kW saved for OTP's projects, IPL's Shared Savings project, Xcel's entire C&I customer class, Xcel's lighting project and MP's Triple E project. Each of these had ratios of kWh to peak kW saved in the 5,000 range. These four are shown in Table 3 below.

Table 3
IOU kWh Saved Per Peak kW Saved

Utility CIP Program	2006 kWh Saved per Peak kW Saved
MP Triple E	5,496
OTP C&I	4,085
OTP C&I Lighting	4,006
OTP Res. Lighting	7,126
IPL Shared Savings	5,691
Xcel C&I	5,874
Xcel Lighting	5,510
Average	5,398

Q. Why did you use 2006 figures only?

A. A review of energy saved (kWh) per peak kW in Table 2 indicated that at least for Xcel and MP, the amount of energy saved per peak kW was increasing. In other words, projects appear to be saving more energy per peak kW. Given that 2006 was the last year of the trend, I opted to use that year.

Q. What was the average of the energy saved per peak kW saved for the projects or customer classes you mentioned?

A. The 2006 average was 5,398 kWh per peak kW. I then rounded that number down to 5,300 kWh.

Q. What would have been the impact if you had used an average that included MP's C&I projects and Xcel's residential lighting project?

A. In those cases, the kWh saved per peak kW saved would be much higher because the kWh saved per peak kW saved is much higher (see Table 2). Consequently, if I had used those numbers the demand impacts I calculated in Columns 7 and 8 would be smaller meaning less capacity would be avoided and more capacity would be needed. Alternatively, if I had used more of the energy saved per peak kW saved ratios from previous years, which were smaller, the demand impacts would be larger. However, as noted above, I used 2006 data because it appears to be a more accurate way to capture a trend in savings.

Q. In DOC Exhibit No. ___ (CTD-2), the tables for MP and IPL have some blank columns. Why?

A. Columns 5-8 are blank for IPL under the assumption of both a 1.5 percent and a 1.0 percent energy savings goal. I left these columns blank because between 2002-2006 IPL achieved energy savings greater than 1.5 percent. Thus, the new statute will not reduce IPL's forecast of energy and demand needs (which renders it non-applicable to this exercise). Also for 2002-2006 MP achieved energy savings greater than 1 percent, but less than 1.5 percent. Thus, columns 5-8 are blank for MP under the assumption of a 1.0 percent energy savings goal since achieving savings of 1 percent will not reduce MP's forecast of energy and demand needs (again, making it non-applicable for my analysis).

Q. Did you sum together the energy and demand savings impacts of the new CIP statute?

A. Yes. I present the results in DOC Exhibit No. ___ (CTD-3).

Q. Could you summarize the results here?

A. Yes. Under the assumption that all of the utilities meet the 1.5 percent energy savings goal, I calculate that by 2020 the cumulative incremental demand savings would be 1,370 MW.

Q. What about under the assumption that all of the utilities meet an energy savings goal of 1.0 percent, the minimum goal that the Commissioner can approve?

A. Under an assumption of 1.0 percent energy savings, I calculate that by 2020 the cumulative incremental demand savings would be 703 MW.

Q. What is the purpose of calculating this range of cumulative incremental demand savings?

A. These incremental demand savings will be used to reduce the forecasted need for capacity by the Applicants. In addition, since the Renewable Energy Standard is designed as a percentage of energy sales, OES witness Susan Peirce will provide an analysis of the impact of the 2007 CIP law on the new Renewable Energy Standard legislation. As shown in her analysis, the need to meet the Renewable Energy Standard will result in the need for transmission capability that outweighs reductions in capacity due to the new CIP statute.

V. LOCAL NEED

Q. What are the five areas in which the Applicants' cite the need for the CapX project to address local needs?

A. There are five areas which either currently have or are projected to have reliability problems and which the CapX proposal is proposed to alleviate. These areas include:

- Rochester, Minnesota,
- LaCrosse, Wisconsin/Winona, Minnesota-cross-border,
- South Zone of the Red River Valley area of Minnesota/North Dakota,
- Alexandria, Minnesota, and
- St. Cloud, Minnesota.

These five areas, the forecasts for these areas, the specific contingencies that cause a reliability issue, and how CapX will fix the problems are all discussed in Section 4 of the Application.

Q. How did you analyze whether the need in these five local areas could be better met with energy conservation and load management?

A. I analyzed the impact of the new CIP statute on the regional need for transmission in the State in the same manner that I analyzed the impact of the new CIP statute on the five local area needs.

Q. Explain how you conducted your analysis of the impact of the new CIP statute on the Applicants' claim for local need.

A. My analysis consisted of the following five steps:

- Start with the demand forecast provided by the Applicants for the area in question,
- Estimate the amount of demand savings already embedded in the local area forecast,
- Calculate the annual and cumulative incremental demand savings that might result from the new CIP statute,
- Reduce the Applicant's original local need forecasts by the incremental demand savings to obtain a net forecast,
- Compare the net forecast to the critical load level at which the reliability of the system is in question.

Q. When you conducted the analysis for the regional need you started with the energy forecast. Yet in this case you are starting with the demand forecast. Doesn't starting with the energy forecast make more sense since the new CIP statute sets an energy-savings goal and not a demand-savings goal?

A. Yes. I would have preferred to start with an energy savings forecast. However, the Application included a local area demand forecast and not an energy forecast. Thus I used the demand forecast.

Q. What is the result of your analysis?

A. The results of my analysis for the five local areas can be found in DOC Exhibit No. ___ (CTD-4).

Q. Can you summarize the results of your analysis?

A. Yes. For the following four areas the forecasted load exceeds the critical load level (the point where load and available capacity are roughly equal) by 2011 or earlier, even after taking into account the impacts of the 1.5 percent energy savings goal:

- Rochester,
- LaCrosse/Winona,
- Red River Valley, and
- St. Cloud.

Q. What did your analysis reveal about the remaining local area, the Alexandria area?

A. My analysis indicates that after taking into account the 2007 CIP legislation, the local need will exceed the critical load level in the 2015 – 2020 timeframe.

Q. Given that your analysis indicates that the need for reliability upgrades occurs later in Alexandria than in the other four local areas, did you conduct any sensitivity analyses?

A. Yes. I changed my demand-savings assumptions to assume that no energy savings are currently embedded in the Alexandria forecasts. Thus, I assume that the new CIP statute would have a bigger impact.

Q. What was the result of this sensitivity analysis?

A. This sensitivity analysis indicated that the critical load level of 271 MW was being approached between 2015 and 2020, but not quite reaching it.

Q. Do you believe your sensitivity analysis for the Alexandria area uses reasonable assumptions?

A. No, because my sensitivity analysis assumed no embedded energy and demand savings. Three of the utilities that serve the Alexandria area – Xcel, GRE, and OTP – have longstanding energy saving programs. Consequently, it is not reasonable to assume that the forecasted demand for this area does not include embedded energy and demand savings.

Q. Based on your analysis, what do you conclude in regards to whether the five local needs cited by Applicants can be met more cost-effectively through energy conservation and load management?

A. I conclude that the Applicants cannot meet the local need more cost-effectively through energy conservation and load management.

VI. SUMMARY OF CONCLUSIONS

Q. Please summarize your conclusions regarding whether energy conservation and load management could meet the demand for electricity more cost effectively.

A. For regional need, my analysis indicates that energy conservation and load management may be able to reduce the regional load levels by 703 to 1,370 MW in 2020. However, this reduction in load will be more than offset by an increase in load caused by the Renewable Energy Standard. For local need I conclude that the total demand for electricity cannot be met more cost-effectively through energy conservation and load management.

Q. Does this conclude your Direct Testimony?

A. Yes.

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EDUCATIONAL BACKGROUND

- Bachelor of Arts, Economics, University of Notre Dame, 1983
- Master of Arts, Public Affairs, University of Minnesota, 1990

PROFESSIONAL BACKGROUND

I have been employed as a Public Utilities Rate Analyst at the Minnesota Department of Commerce since January 1991. I was a witness in the following proceedings:

- Interstate Power Company – Electric Utility's rate case in Docket No. E001/GR-91-605,
- In the Matter of the Investigation of the Minnesota Public Utilities Commission Into the Quantification of Environmental Costs, Docket No. E999/CI-93-583,
- Interstate Power Company – Electric Utility's rate case in Docket No. E001/GR-05-748,
- Otter Tail Power Company, et al – Certificate of Need for the Big Stone Transmission Project in Docket No. E017, etal/CN-05-619, and
- Otter Tail Power Company rate case in Docket No. E017/GR-07-117.

PROFESSIONAL TRAINING

- Strategist (integrated resource planning model software) training Phase I (November 2007)
- Strategist (integrated resource planning model software) training Phase II (February 2008)

My current duties include the following:

- coordinate the analysis of several Minnesota electric utilities' integrated resource plans;
- coordinate the analysis of Minnesota electric utilities' CIP financial incentive and tracker account filings;
- review utility proposals contained in miscellaneous filings; and
- present recommendations to the Minnesota Public Utilities Commission (Commission).

CENTRAL MINNESOTA MUNICIPAL POWER AGENCY: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	502,514	502,514	2,010	7,538	5,528	5,528	1	1	496,986
2011	508,977	503,449	2,010	7,552	5,542	11,069	1	2	497,908
2012	515,766	504,697	2,010	7,570	5,560	16,630	1	3	499,136
2013	522,193	505,563	2,010	7,583	5,573	22,203	1	4	499,990
2014	528,437	506,234	2,010	7,594	5,583	27,787	1	5	500,650
2015	534,280	506,493	2,010	7,597	5,587	33,374	1	6	500,906
2016	539,811	506,437	2,010	7,597	5,587	38,960	1	7	500,851
2017	545,471	506,511	2,010	7,598	5,588	44,548	1	8	500,923
2018	550,765	506,217	2,010	7,593	5,583	50,131	1	9	500,634
2019	555,751	505,620	2,010	7,584	5,574	55,705	1	11	500,046
2020	560,670	504,965	2,010	7,574	5,564	61,270	1	12	499,400

CENTRAL MINNESOTA MUNICIPAL POWER AGENCY: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	502,514	502,514	2,010	5,025	3,015	3,015	1	1	499,499
2011	508,977	505,962	2,010	5,090	3,080	6,095	1	1	502,882
2012	515,766	509,671	2,010	5,158	3,148	9,242	1	2	506,524
2013	522,193	512,951	2,010	5,222	3,212	12,454	1	2	509,739
2014	528,437	515,983	2,010	5,284	3,274	15,729	1	3	512,708
2015	534,280	518,551	2,010	5,343	3,333	19,061	1	4	515,219
2016	539,811	520,750	2,010	5,398	3,388	22,449	1	4	517,362
2017	545,471	523,022	2,010	5,455	3,445	25,894	1	5	519,577
2018	550,765	524,871	2,010	5,508	3,498	29,392	1	6	521,373
2019	555,751	526,359	2,010	5,558	3,547	32,939	1	6	522,812
2020	560,670	527,731	2,010	5,607	3,597	36,536	1	7	524,134

DAIRYLAND POWER: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	903,642	903,642	3,615	13,555	9,940	9,940	2	2	893,702
2011	921,243	911,303	3,615	13,670	10,055	19,995	2	4	901,248
2012	941,858	921,863	3,615	13,828	10,213	30,208	2	6	911,650
2013	958,854	928,646	3,615	13,930	10,315	40,524	2	8	918,330
2014	972,542	932,018	3,615	13,980	10,366	50,889	2	10	921,653
2015	986,829	935,940	3,615	14,039	10,425	61,314	2	12	925,515
2016	1,002,647	941,333	3,615	14,120	10,505	71,819	2	14	930,828
2017	1,015,515	943,696	3,615	14,155	10,541	82,360	2	16	933,155
2018	1,030,556	948,196	3,615	14,223	10,608	92,968	2	18	937,588
2019	1,045,479	952,511	3,615	14,288	10,673	103,642	2	20	941,837
2020	1,062,675	959,033	3,615	14,386	10,771	114,412	2	22	948,263

DAIRYLAND POWER: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	903,642	903,642	3,615	9,036	5,422	5,422	1	1	898,220
2011	921,243	915,821	3,615	9,212	5,598	11,020	1	2	910,223
2012	941,858	930,838	3,615	9,419	5,804	16,824	1	3	925,034
2013	958,854	942,030	3,615	9,589	5,974	22,798	1	4	936,056
2014	972,542	949,744	3,615	9,725	6,111	28,909	1	5	943,633
2015	986,829	957,920	3,615	9,868	6,254	35,162	1	7	951,667
2016	1,002,647	967,485	3,615	10,026	6,412	41,574	1	8	961,073
2017	1,015,515	973,941	3,615	10,155	6,541	48,115	1	9	967,400
2018	1,030,556	982,441	3,615	10,306	6,691	54,806	1	10	975,750
2019	1,045,479	990,673	3,615	10,455	6,840	61,646	1	12	983,833
2020	1,062,675	1,001,029	3,615	10,627	7,012	68,658	1	13	994,017

GREAT RIVER ENERGY: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	14,568,844	14,568,844	31,658	218,533	186,875	186,875	35	35	14,381,969
2011	14,984,264	14,797,389	31,658	221,961	190,303	377,177	36	71	14,607,087
2012	15,377,742	15,000,565	31,658	225,008	193,350	570,528	36	108	14,807,214
2013	15,789,042	15,218,514	31,658	228,278	196,620	767,148	37	145	15,021,894
2014	16,214,891	15,447,743	31,658	231,716	200,058	967,206	38	182	15,247,685
2015	16,656,661	15,689,455	31,658	235,342	203,684	1,170,889	38	221	15,485,772
2016	17,146,712	15,975,823	31,658	239,637	207,979	1,378,869	39	260	15,767,843
2017	17,630,096	16,251,227	31,658	243,768	212,110	1,590,979	40	300	16,039,117
2018	18,154,000	16,563,021	31,658	248,445	216,787	1,807,766	41	341	16,346,234
2019	18,710,935	16,903,169	31,658	253,548	221,889	2,029,656	42	383	16,681,279
2020	19,300,947	17,271,291	31,658	259,069	227,411	2,257,067	43	426	17,043,880

GREAT RIVER ENERGY: 1.0 PERCENT ENERGY SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	14,568,844	14,568,844	31,658	145,688	114,030	114,030	22	21.52	14,454,814
2011	14,984,264	14,870,234	31,658	149,843	118,185	232,215	22	43.81	14,752,049
2012	15,377,742	15,145,527	31,658	153,777	122,119	354,334	23	66.86	15,023,408
2013	15,789,042	15,434,708	31,658	157,890	126,232	480,567	24	90.67	15,308,475
2014	16,214,891	15,734,324	31,658	162,149	130,491	611,058	25	115.29	15,603,833
2015	16,656,661	16,045,603	31,658	166,567	134,909	745,966	25	140.75	15,910,695
2016	17,146,712	16,400,746	31,658	171,467	139,809	885,775	26	167.13	16,260,937
2017	17,630,096	16,744,321	31,658	176,301	144,643	1,030,418	27	194.42	16,599,678
2018	18,154,000	17,123,582	31,658	181,540	149,882	1,180,300	28	222.70	16,973,700
2019	18,710,935	17,530,635	31,658	187,109	155,451	1,335,752	29	252.03	17,375,183
2020	19,300,947	17,965,195	31,658	193,009	161,351	1,497,103	30	282.47	17,803,844

INTERSTATE POWER AND LIGHT: 1.5 PERCENT ENERGY SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	863,533	863,533	19,711	12,953					863,533
2011	875,284	875,284	19,711	13,129					875,284
2012	887,299	887,299	19,711	13,309					887,299
2013	899,584	899,584	19,711	13,494					899,584
2014	912,116	912,116	19,711	13,682					912,116
2015	924,983	924,983	19,711	13,875					924,983
2016	938,127	938,127	19,711	14,072					938,127
2017	951,560	951,560	19,711	14,273					951,560
2018	965,330	965,330	19,711	14,480					965,330
2019	979,395	979,395	19,711	14,691					979,395
2020	993,568	993,568	19,711	14,904					993,568

INTERSTATE POWER AND LIGHT: 1.0 PERCENT ENERGY SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	863,533	863,533	19,711	8,635					863,533
2011	875,284	875,284	19,711	8,753					875,284
2012	887,299	887,299	19,711	8,873					887,299
2013	899,584	899,584	19,711	8,996					899,584
2014	912,116	912,116	19,711	9,121					912,116
2015	924,983	924,983	19,711	9,250					924,983
2016	938,127	938,127	19,711	9,381					938,127
2017	951,560	951,560	19,711	9,516					951,560
2018	965,330	965,330	19,711	9,653					965,330
2019	979,395	979,395	19,711	9,794					979,395
2020	993,568	993,568	19,711	9,936					993,568

MINNESOTA MUNICIPAL POWER AGENCY: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	1,534,628	1,534,628	6,139	23,019	16,881	16,881	3	3	1,517,747
2011	1,580,373	1,563,492	6,139	23,452	17,314	34,195	3	6	1,546,178
2012	1,630,625	1,596,430	6,139	23,946	17,808	52,003	3	10	1,578,622
2013	1,672,817	1,620,814	6,139	24,312	18,174	70,176	3	13	1,602,641
2014	1,719,561	1,649,385	6,139	24,741	18,602	88,779	4	17	1,630,782
2015	1,766,675	1,677,896	6,139	25,168	19,030	107,809	4	20	1,658,866
2016	1,818,865	1,711,056	6,139	25,666	19,527	127,336	4	24	1,691,529
2017	1,862,091	1,734,755	6,139	26,021	19,883	147,219	4	28	1,714,872
2018	1,910,432	1,763,213	6,139	26,448	20,310	167,528	4	32	1,742,904
2019	1,959,225	1,791,697	6,139	26,875	20,737	188,265	4	36	1,770,960
2020	2,013,685	1,825,420	6,139	27,381	21,243	209,508	4	40	1,804,177

MINNESOTA MUNICIPAL POWER AGENCY: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	1,534,628	1,534,628	6,139	15,346	9,208	9,208	2	2	1,525,420
2011	1,580,373	1,571,165	6,139	15,804	9,665	18,873	2	4	1,561,500
2012	1,630,625	1,611,752	6,139	16,306	10,168	29,041	2	5	1,601,584
2013	1,672,817	1,643,776	6,139	16,728	10,590	39,630	2	7	1,633,187
2014	1,719,561	1,679,931	6,139	17,196	11,057	50,687	2	10	1,668,874
2015	1,766,675	1,715,988	6,139	17,667	11,528	62,216	2	12	1,704,459
2016	1,818,865	1,756,649	6,139	18,189	12,050	74,266	2	14	1,744,599
2017	1,862,091	1,787,825	6,139	18,621	12,482	86,748	2	16	1,775,343
2018	1,910,432	1,823,684	6,139	19,104	12,966	99,714	2	19	1,810,718
2019	1,959,225	1,859,511	6,139	19,592	13,454	113,168	2	21	1,846,057
2020	2,013,685	1,900,517	6,139	20,137	13,998	127,166	2	24	1,886,519

MINNESOTA POWER: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	9,369,871	9,369,871	102,903	140,548	37,645	37,645	7	7	9,332,226
2011	9,589,791	9,552,146	102,903	143,282	40,379	78,024	8	15	9,511,767
2012	9,760,626	9,682,602	102,903	145,239	42,336	120,360	8	23	9,640,266
2013	9,854,584	9,734,224	102,903	146,013	43,110	163,470	8	31	9,691,114
2014	9,920,251	9,756,781	102,903	146,352	43,449	206,919	8	39	9,713,332
2015	10,017,496	9,810,577	102,903	147,159	44,256	251,174	8	47	9,766,322
2016	10,092,373	9,841,199	102,903	147,618	44,715	295,889	8	56	9,796,484
2017	10,141,397	9,845,508	102,903	147,683	44,779	340,668	8	64	9,800,729
2018	10,180,402	9,839,734	102,903	147,596	44,693	385,361	8	73	9,795,041
2019	10,248,126	9,862,765	102,903	147,941	45,038	430,400	8	81	9,817,726
2020	10,292,209	9,861,809	102,903	147,927	45,024	475,424	8	90	9,816,785

MINNESOTA POWER: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	9,369,871	9,369,871	102,903	93,699					9,369,871
2011	9,589,791	9,589,791	102,903	95,898					9,589,791
2012	9,760,626	9,760,626	102,903	97,606					9,760,626
2013	9,854,584	9,854,584	102,903	98,546					9,854,584
2014	9,920,251	9,920,251	102,903	99,203					9,920,251
2015	10,017,496	10,017,496	102,903	100,175					10,017,496
2016	10,092,373	10,092,373	102,903	100,924					10,092,373
2017	10,141,397	10,141,397	102,903	101,414					10,141,397
2018	10,180,402	10,180,402	102,903	101,804					10,180,402
2019	10,248,126	10,248,126	102,903	102,481					10,248,126
2020	10,292,209	10,292,209	102,903	102,922					10,292,209

MINNKOTA POWER: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	1,973,328	1,973,328	7,893	29,600	21,707	21,707	4	4	1,951,621
2011	2,016,208	1,994,501	7,893	29,918	22,024	43,731	4	8	1,972,477
2012	2,059,025	2,015,294	7,893	30,229	22,336	66,067	4	12	1,992,958
2013	2,103,959	2,037,892	7,893	30,568	22,675	88,742	4	17	2,015,217
2014	2,149,919	2,061,177	7,893	30,918	23,024	111,766	4	21	2,038,153
2015	2,190,902	2,079,136	7,893	31,187	23,294	135,060	4	25	2,055,842
2016	2,240,176	2,105,116	7,893	31,577	23,683	158,743	4	30	2,081,433
2017	2,276,868	2,118,125	7,893	31,772	23,879	182,622	5	34	2,094,246
2018	2,313,851	2,131,229	7,893	31,968	24,075	206,697	5	39	2,107,154
2019	2,354,834	2,148,137	7,893	32,222	24,329	231,026	5	44	2,123,808
2020	2,426,605	2,195,579	7,893	32,934	25,040	256,066	5	48	2,170,539

MINNKOTA POWER: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	1,973,328	1,973,328	7,893	19,733	11,840	11,840	2	2	1,961,488
2011	2,016,208	2,004,368	7,893	20,162	12,269	24,109	2	5	1,992,099
2012	2,059,025	2,034,916	7,893	20,590	12,697	36,806	2	7	2,022,219
2013	2,103,959	2,067,153	7,893	21,040	13,146	49,952	2	9	2,054,007
2014	2,149,919	2,099,967	7,893	21,499	13,606	63,558	3	12	2,086,361
2015	2,190,902	2,127,344	7,893	21,909	14,016	77,574	3	15	2,113,328
2016	2,240,176	2,162,602	7,893	22,402	14,508	92,082	3	17	2,148,094
2017	2,276,868	2,184,786	7,893	22,769	14,875	106,957	3	20	2,169,911
2018	2,313,851	2,206,894	7,893	23,139	15,245	122,203	3	23	2,191,648
2019	2,354,834	2,232,631	7,893	23,548	15,655	137,858	3	26	2,216,976
2020	2,426,605	2,288,747	7,893	24,266	16,373	154,230	3	29	2,272,375

MISSOURI RIVER ENERGY SERVICES: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	2,530,251	2,530,251	10,121	37,954	27,833	27,833	5	5	2,502,418
2011	2,573,863	2,546,030	10,121	38,190	28,069	55,902	5	11	2,517,961
2012	2,616,810	2,560,908	10,121	38,414	28,293	84,195	5	16	2,532,615
2013	2,660,348	2,576,153	10,121	38,642	28,521	112,716	5	21	2,547,632
2014	2,702,419	2,589,703	10,121	38,846	28,725	141,441	5	27	2,560,978
2015	2,743,665	2,602,224	10,121	39,033	28,912	170,353	5	32	2,573,312
2016	2,783,910	2,613,557	10,121	39,203	29,082	199,435	5	38	2,584,475
2017	2,823,561	2,624,126	10,121	39,362	29,241	228,676	6	43	2,594,885
2018	2,861,195	2,632,519	10,121	39,488	29,367	258,043	6	49	2,603,152
2019	2,897,673	2,639,630	10,121	39,594	29,473	287,516	6	54	2,610,157
2020	2,936,214	2,648,698	10,121	39,730	29,609	317,126	6	60	2,619,088

MISSOURI RIVER ENERGY SERVICES: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	2,530,251	2,530,251	10,121	25,303	15,182	15,182	3	3	2,515,069
2011	2,573,863	2,558,681	10,121	25,739	15,618	30,799	3	6	2,543,064
2012	2,616,810	2,586,011	10,121	26,168	16,047	46,846	3	9	2,569,964
2013	2,660,348	2,613,502	10,121	26,603	16,482	63,329	3	12	2,597,019
2014	2,702,419	2,639,090	10,121	27,024	16,903	80,232	3	15	2,622,187
2015	2,743,665	2,663,433	10,121	27,437	17,316	97,548	3	18	2,646,117
2016	2,783,910	2,686,362	10,121	27,839	17,718	115,266	3	22	2,668,644
2017	2,823,561	2,708,295	10,121	28,236	18,115	133,380	3	25	2,690,181
2018	2,861,195	2,727,815	10,121	28,612	18,491	151,871	3	29	2,709,324
2019	2,897,673	2,745,802	10,121	28,977	18,856	170,727	4	32	2,726,946
2020	2,936,214	2,765,487	10,121	29,362	19,241	189,968	4	36	2,746,246

OTTER TAIL POWER: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	2,513,943	2,513,943	13,938	37,709	23,771	23,771	4	4	2,490,172
2011	2,558,328	2,534,557	13,938	38,018	24,080	47,851	5	9	2,510,477
2012	2,610,970	2,563,119	13,938	38,447	24,509	72,360	5	14	2,538,610
2013	2,649,091	2,576,731	13,938	38,651	24,713	97,073	5	18	2,552,018
2014	2,694,864	2,597,791	13,938	38,967	25,029	122,102	5	23	2,572,762
2015	2,741,606	2,619,504	13,938	39,293	25,355	147,457	5	28	2,594,149
2016	2,796,820	2,649,363	13,938	39,740	25,802	173,259	5	33	2,623,561
2017	2,836,381	2,663,122	13,938	39,947	26,009	199,268	5	38	2,637,113
2018	2,884,480	2,685,212	13,938	40,278	26,340	225,608	5	43	2,658,872
2019	2,932,793	2,707,185	13,938	40,608	26,670	252,278	5	48	2,680,515
2020	2,990,676	2,738,398	13,938	41,076	27,138	279,416	5	53	2,711,260

OTTER TAIL POWER: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	2,513,943	2,513,943	13,938	25,139	11,201	11,201	2	2	2,502,742
2011	2,558,328	2,547,127	13,938	25,583	11,645	22,847	2	4	2,535,481
2012	2,610,970	2,588,123	13,938	26,110	12,172	35,018	2	7	2,575,952
2013	2,649,091	2,614,073	13,938	26,491	12,553	47,571	2	9	2,601,520
2014	2,694,864	2,647,293	13,938	26,949	13,011	60,582	2	11	2,634,282
2015	2,741,606	2,681,024	13,938	27,416	13,478	74,060	3	14	2,667,546
2016	2,796,820	2,722,760	13,938	27,968	14,030	88,090	3	17	2,708,730
2017	2,836,381	2,748,291	13,938	28,364	14,426	102,516	3	19	2,733,865
2018	2,884,480	2,781,964	13,938	28,845	14,907	117,423	3	22	2,767,057
2019	2,932,793	2,815,370	13,938	29,328	15,390	132,813	3	25	2,799,980
2020	2,990,676	2,857,863	13,938	29,907	15,969	148,781	3	28	2,841,895

SOUTHERN MINNESOTA MUNICIPAL POWER AGENCY: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	3,268,075	3,268,075	14,953	49,021	34,068	34,068	6	6	3,234,007
2011	3,352,637	3,318,569	14,953	49,779	34,825	68,893	7	13	3,283,744
2012	3,440,130	3,371,237	14,953	50,569	35,615	104,509	7	20	3,335,621
2013	3,528,650	3,424,141	14,953	51,362	36,409	140,917	7	27	3,387,733
2014	3,619,370	3,478,453	14,953	52,177	37,224	178,141	7	34	3,441,229
2015	3,712,999	3,534,858	14,953	53,023	38,070	216,211	7	41	3,496,788
2016	3,807,015	3,590,804	14,953	53,862	38,909	255,120	7	48	3,551,895
2017	3,898,221	3,643,101	14,953	54,647	39,693	294,813	7	56	3,603,408
2018	3,990,740	3,695,927	14,953	55,439	40,486	335,299	8	63	3,655,441
2019	4,085,066	3,749,767	14,953	56,247	41,293	376,592	8	71	3,708,474
2020	4,181,513	3,804,921	14,953	57,074	42,121	418,713	8	79	3,762,800

SOUTHERN MINNESOTA MUNICIPAL POWER AGENCY: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	3,268,075	3,268,075	14,953	32,681	17,728	17,728	3	3.34	3,250,347
2011	3,352,637	3,334,909	14,953	33,526	18,573	36,301	4	6.85	3,316,336
2012	3,440,130	3,403,829	14,953	34,401	19,448	55,749	4	10.52	3,384,381
2013	3,528,650	3,472,901	14,953	35,287	20,333	76,082	4	14.36	3,452,568
2014	3,619,370	3,543,288	14,953	36,194	21,240	97,323	4	18.36	3,522,047
2015	3,712,999	3,615,676	14,953	37,130	22,177	119,499	4	22.55	3,593,500
2016	3,807,015	3,687,516	14,953	38,070	23,117	142,616	4	26.91	3,664,399
2017	3,898,221	3,755,605	14,953	38,982	24,029	166,645	5	31.44	3,731,576
2018	3,990,740	3,824,095	14,953	39,907	24,954	191,599	5	36.15	3,799,141
2019	4,085,066	3,893,467	14,953	40,851	25,897	217,497	5	41.04	3,867,569
2020	4,181,513	3,964,016	14,953	41,815	26,862	244,359	5	46.11	3,937,154

XCEL ENERGY: 1.5 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1.5% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1.5%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	33,841,660	33,841,660	258,281	507,625	249,344	249,344	47	47	33,592,316
2011	34,291,748	34,042,404	258,281	510,636	252,355	501,699	48	95	33,790,049
2012	34,710,291	34,208,592	258,281	513,129	254,848	756,547	48	143	33,953,744
2013	35,097,608	34,341,061	258,281	515,116	256,835	1,013,381	48	191	34,084,227
2014	35,479,953	34,466,572	258,281	516,999	258,717	1,272,099	49	240	34,207,854
2015	35,871,808	34,599,709	258,281	518,996	260,715	1,532,813	49	289	34,338,995
2016	36,291,842	34,759,029	258,281	521,385	263,104	1,795,918	50	339	34,495,924
2017	36,712,453	34,916,535	258,281	523,748	265,467	2,061,385	50	389	34,651,068
2018	37,159,919	35,098,534	258,281	526,478	268,197	2,329,582	51	440	34,830,337
2019	37,603,272	35,273,690	258,281	529,105	270,824	2,600,406	51	491	35,002,866
2020	38,041,751	35,441,345	258,281	531,620	273,339	2,873,745	52	542	35,168,006

XCEL ENERGY: 1.0 PERCENT SAVINGS

Year	Original Forecast (MWh)	Forecast Used as Basis For Determining State Goal Energy Savings (MWh)	Estimate of Energy Savings Already Embedded in Original Forecast (MWh)	Annual Energy Savings Achieved By Meeting New Goal of 1% (MWh)	Annual Incremental Energy Savings Due to Meeting New Goal (MWh)	Cumulative Incremental Energy Savings Due to Meeting New Goal (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Resulting Forecast to Use for Determining Renewable Energy Standard
	From Step 1	Column 1 - Column 6 lagged	INPUT	Column 2 x 1%	Column 4 - Column 3	Sum of Column 5	Column 5/ 5300	Column 6/ 5300	Column 1 - Column 6
	1	2	3	4	5	6	7	8	9
2010	33,841,660	33,841,660	258,281	338,417	80,136	80,136	15	15	33,761,524
2011	34,291,748	34,211,612	258,281	342,917	84,636	164,772	16	31	34,126,976
2012	34,710,291	34,545,519	258,281	347,103	88,822	253,594	17	48	34,456,697
2013	35,097,608	34,844,014	258,281	350,976	92,695	346,289	17	65	34,751,319
2014	35,479,953	35,133,664	258,281	354,800	96,518	442,807	18	84	35,037,146
2015	35,871,808	35,429,001	258,281	358,718	100,437	543,244	19	102	35,328,564
2016	36,291,842	35,748,598	258,281	362,918	104,637	647,882	20	122	35,643,960
2017	36,712,453	36,064,571	258,281	367,125	108,843	756,725	21	143	35,955,728
2018	37,159,919	36,403,194	258,281	371,599	113,318	870,043	21	164	36,289,876
2019	37,603,272	36,733,229	258,281	376,033	117,752	987,795	22	186	36,615,477
2020	38,041,751	37,053,956	258,281	380,418	122,136	1,109,931	23	209	36,931,820

TOTAL IMPACT OF MEETING ENERGY SAVINGS GOALS

	Annual Incremental Energy Savings Due to Meeting Goal of 1.5% Energy Savings (MWh)	Cumulative Incremental Energy Savings Due to Meeting Goal of 1.5% Energy Savings (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1.5% Energy Savings (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1.5% Energy Savings (MW)
2010	613,590	613,590	116	116
2011	624,947	1,238,537	118	234
2012	634,869	1,873,406	120	353
2013	642,945	2,516,351	121	475
2014	650,777	3,167,128	123	598
2015	659,326	3,826,454	124	722
2016	668,895	4,495,349	126	848
2017	677,190	5,172,538	128	976
2018	686,446	5,858,984	130	1,105
2019	696,502	6,555,486	131	1,237
2020	707,261	7,262,747	133	1,370

	Annual Incremental Energy Savings Due to Meeting Goal of 1.5% Energy Savings (MWh)	Cumulative Incremental Energy Savings Due to Meeting Goal of 1.5% Energy Savings (MWh)	Annual Incremental Demand Savings Due to Meeting New Goal of 1% (MW)	Cumulative Incremental Demand Savings Due to Meeting New Goal of 1% (MW)
2010	292,900	278,962	53	53
2011	304,852	558,675	55	108
2012	316,534	849,626	57	165
2013	327,709	1,151,225	59	224
2014	339,160	1,463,894	61	285
2015	350,863	1,787,808	63	349
2016	363,638	2,124,031	66	415
2017	375,763	2,471,825	68	483
2018	388,796	2,832,257	71	554
2019	402,170	3,205,583	73	627
2020	416,446	3,592,701	76	703

The Impact of 2007 CIP Statute on Rochester Area's Need

Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)	Local Need Adjusted for 1.0 % Savings (MW)
2006	330		
2010	361	359	360
2011	386	381	385
2015	426	411	421
2020	491	461	482

Critical Load = 181-362 MW

	1.5% Demand Reduction		1.0% Demand Reduction	
Year	Annual Savings (MW)	Cumulative Savings (MW)	Annual Savings (MW)	Cumulative Savings (MW)
2010	2.3	2.3	0.7	0.7
2011	2.3	4.6	0.7	1.3
2012	2.3	6.9	0.7	2.0
2013	2.3	9.2	0.7	2.6
2014	2.3	11.6	0.7	3.3
2015	3.0	14.5	0.9	4.2
2016	3.0	17.5	0.9	5.0
2017	3.0	20.5	0.9	5.9
2018	3.0	23.5	0.9	6.7
2019	3.0	26.5	0.9	7.6
2020	3.4	29.9	1.0	8.5

Rochester has been averaging energy savings of 0.8 percent

The Impact of 2007 CIP Statute on LaCrosse-Winona Need

Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)	Local Need Adjusted for 1.0 % Savings (MW)
2006	443		
2010	481	476	478
2015	538	505.6	520.3
2020	602	539.3	567.8

Critical Load Level = 450-470 MW

	1.5% Demand Reduction		1.0% Demand Reduction	
Year	Annual Savings (MW)	Cumulative Savings (MW)	Annual Savings (MW)	Cumulative Savings (MW)
2010	5.3	5.3	2.9	2.9
2011	5.3	10.6	2.9	5.8
2012	5.3	15.9	2.9	8.7
2013	5.3	21.2	2.9	11.5
2014	5.3	26.5	2.9	14.4
2015	5.9	32.4	3.2	17.7
2016	5.9	38.3	3.2	20.9
2017	5.9	44.2	3.2	24.1
2018	5.9	50.1	3.2	27.3
2019	5.9	56.0	3.2	30.6
2020	6.6	62.7	3.6	34.2

Assumes 0.4% existing savings

The Impact of 2007 CIP Statute on Red River Valley

Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)	Local Need Adjusted for 1.0 % Savings (MW)
2005	1,358		
2010	1,537	1,520	1,528
2015	1,669	1,566	1,613
2020	1,795	1,599	1,688

Critical Load Level = 1,360 MW

Assumes 0.4% existing savings

	1.5% Demand Reduction		1.0% Demand Reduction	
Year	Annual Savings (MW)	Cumulative Savings (MW)	Annual Savings (MW)	Cumulative Savings (MW)
2010	16.9	16.9	9.2	9.2
2011	16.9	33.8	9.2	18.4
2012	16.9	50.7	9.2	27.7
2013	16.9	67.6	9.2	36.9
2014	16.9	84.5	9.2	46.1
2015	18.4	102.9	10.0	56.1
2016	18.4	121.3	10.0	66.1
2017	18.4	139.6	10.0	76.2
2018	18.4	158.0	10.0	86.2
2019	18.4	176.3	10.0	96.2
2020	19.7	196.1	10.8	107.0

The Impact of 2007 CIP Statute on Alexandria

Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)	Local Need Adjusted for 1.0 % Savings (MW)
2005	153		
2010	169	167	168
2015	184	173	178
2020	198	176	186

Critical Load Level = 171-179 MW

	1.5% Demand Reduction		1.0% Demand Reduction	
Year	Annual Savings (MW)	Cumulative Savings (MW)	Annual Savings (MW)	Cumulative Savings (MW)
2010	1.9	1.9	1.0	1.0
2011	1.9	3.7	1.0	2.0
2012	1.9	5.6	1.0	3.0
2013	1.9	7.4	1.0	4.1
2014	1.9	9.3	1.0	5.1
2015	2.0	11.3	1.1	6.2
2016	2.0	13.3	1.1	7.3
2017	2.0	15.4	1.1	8.4
2018	2.0	17.4	1.1	9.5
2019	2.0	19.4	1.1	10.6
2020	2.2	21.6	1.2	11.8

Sensitivity Analysis

	1.5% Demand Reduction				
Year	Annual Savings (MW)	Cumulative Savings (MW)	Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)
2010	2.5	2.5	2005	153	
2011	2.5	5.1	2010	169	166
2012	2.5	7.6	2015	184	169
2013	2.5	10.1	2020	198	169
2014	2.5	12.7			
2015	2.8	15.4			
2016	2.8	18.2			
2017	2.8	21.0			
2018	2.8	23.7			
2019	2.8	26.5			
2020	3.0	29.4			

The Impact of 2007 CIP Statute on St. Cloud

Year	Applicants Local Need Forecast (MW)	Local Need Adjusted for 1.5 % Savings (MW)	Local Need Adjusted for 1.0 % Savings (MW)
2005	368		
2010	403	399	401
2015	428	401.1	413.3
2020	458	407.3	430.3

Critical Load Level = 228-285 MW

Assumes 0.4% existing savings

	1.5% Demand Reduction		1.0% Demand Reduction	
Year	Annual Savings (MW)	Cumulative Savings (MW)	Annual Savings (MW)	Cumulative Savings (MW)
2010	4.4	4.4	2.4	2.4
2011	4.4	8.9	2.4	4.8
2012	4.4	13.3	2.4	7.3
2013	4.4	17.7	2.4	9.7
2014	4.4	22.2	2.4	12.1
2015	4.7	26.9	2.6	14.7
2016	4.7	31.6	2.6	17.2
2017	4.7	36.3	2.6	19.8
2018	4.7	41.0	2.6	22.4
2019	4.7	45.7	2.6	24.9
2020	5.0	50.7	2.7	27.7