MINNESOTA DEPARTMENT OF COMMERCE

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March 4, 2016 **PUBLIC DOCUMENT**

Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101-2147

RE: **PUBLIC Reply Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E015/RP-15-690

Dear Mr. Wolf:

Attached are the **PUBLIC** Reply Comments of the Minnesota Department of Commerce, Division of Energy Resources (the Department) in the following matter:

> Minnesota Power's Application for Approval of its 2015-2029 Integrated Resource Plan.

After reviewing the initial comments of other parties, the Department continues to recommend that the Minnesota Public Utilities Commission (Commission) approve Minnesota Power's 2015-2029 Integrated Resource Plan with modifications. The Department's team of Samir Ouanes, Susan Peirce, Stephen Rakow, Zac Ruzycki, Sachin Shah and I are available to answer any questions the Commission may have.

Sincerely,

/s/ CHRISTOPHER T. DAVIS
Rates Analyst

CTD/lt
Attachment

MINNESOTA DEPARTMENT OF COMMERCE

PUBLIC DOCUMENT

# BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

# PUBLIC REPLY COMMENTS OF THE MINNESOTA DEPARTMENT OF COMMERCE DIVISION OF ENERGY RESOURCES

DOCKET NO. E015/RP-15-690

## I. INTRODUCTION

Minnesota Power (MP or the Company) submitted the instant integrated resource plan (IRP) on September 1, 2015.

On November 4, 2015 MP supplemented its initial filing with additional information to fully comply with the Minnesota Public Utilities Commission's November 12, 2013 Order Point 12 on the Commission's previous IRP, Docket No. E015/RP-13-53.[1]

On November 9, 2015, the Department submitted a letter concluding that, with the supplemental information, MP's 2015 resource plan should be considered complete.

On January 4, 2016, the Minnesota Department of Commerce, Division of Resources (the Department), the Clean Energy Organizations[2] (CEO) and the Large Power Intervenors[3] (LPI) submitted initial comments.

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[1] Order Point 12 included the following: For its next resource plan, Minnesota Power shall:

a. Identify the amount of energy savings embedded in each year of its load forecast, in terms of total savings (kWh) and as a percentage of non-CIP-exempt retail sales;
b. Identify the amount of system-wide energy savings, including aggregate data for CIP-exempt customers, embedded in each year of its load forecast;
c. Evaluate additional conservation scenarios for its CIP-exempt and non-CIP-exempt customers, that would achieve greater energy savings beyond those in the base case; and
d. Provide cost assumptions for achieving every 0.1 percent of savings above 1.5 percent of non-CIP-exempt retail sales.

[2] Clean Energy Organizations consists of Fresh Energy; the Izaak Walton League of America – Midwest Office; Wind on the Wires; Sierra Club; and the Minnesota Center for Environmental Advocacy.

[3] The Large Power Intervenors consist of ArcelorMittal USA (Minorca Mine); Blandin Paper Company; Boise Paper, a Packaging Corporation of America company, formerly known as Boise, Inc.; Enbridge Energy, Limited Partnership; Hibbing Taconite Company; Mesabi Nugget Delaware, LLC; PolyMet Mining, Inc.; Sappi Cloquet,

The Department recommended that the Commission approve:

A five-year action plan that includes MP:

- acquiring up to 300 MW of wind capacity in about 2018;
- acquiring solar units of 11 MW in 2016 and 12 MW in 2020;
- shutting down the Taconite Harbor 1 and 2 units in 2017,
- procuring average annual energy savings of 76.5 GWh, and
- conducting a distribution study to identify interconnection points on its distribution system for small-scale distributed generation resources.

A long-term action plan that includes MP:

- procuring approximately 100 MW of wind, 50 MW of solar, and 200 MW of combined cycle (CC) generation, partly to replace Boswell units 1 and 2, and
- shutting down Boswell units 1 and 2 once the CC generation is online.

CEO is the only other party that recommended specific changes to MP's proposed IRP. The Department replies to the initial comments of CEO below.

## II. DEPARTMENT REPLY COMMENTS

### *A. CEO COMMENTS ON FORECASTING*

The CEO concluded that MP's forecast overstated the Company's future need because it used flawed assumptions that do not recognize the downward trend in MP's customer class rates of consumption. In particular, CEO concluded that:

- post-2020 growth assumptions ignore a downward demand trend for the residential customer class;
- Commercial rate class growth assumptions contradict recent trends, and
- Large industrial rate class projects may be overstated.

In addition, the CEO questioned MP's forecasting accuracy, claiming that MP's regression models cannot be relied upon for long-term projections of sales.

The Department briefly responds to the CEO's forecasting comments below. Our overall response is that for resource planning it is important to develop an expansion plan that is cost-effective over a wide range of potential futures, including a range of forecasts. If

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LLC; USG Interiors, LLC; United States Steel Corporation (Keewatin Taconite and Minntac Mine); United Taconite, LLC; and Verso Corporation.

Minnesota Power planned its system around a point estimate or one particular forecast in time, it could potentially lead to MP procuring inadequate or excessive supplies of electricity. As explained in the Department's comments,[4] the Department modeled reasonable forecast bands for evaluating and selecting its recommended plan for the Company.

*1. CEO's Claim that MP's Forecast is Overstated.*

*a. Residential Sales*

On page 4 of its initial comments, the CEO stated:

> A. Residential Class Post-2020 Growth Assumptions Ignore Downward Demand Trend.
>
> Despite Minnesota Power's observations of little-to-no growth in the residential customer class, the AFR 2014 forecasts essentially infinitely increasing residential energy sales. This forecast is shown in Figure 2.

The Department does not agree with the CEO's assessment of MP's sales forecast for several reasons. First, the Department notes that MP used the Advance Forecast Report (AFR) 2014 with the moderate growth scenario with deferred resale as the Company's base case. While the CEO titled this section "Residential Class Post-2020 Growth Assumptions Ignore Downward Demand Trend," the growth rate for AFR 2014 from 2013-2020 is 0.9 percent, and from 2020-2028 period is 0.7 percent. Thus MP's forecast did incorporate a downward trend in demand.

Second, the Department disputes the CEO's claim that the AFR 2014 "forecasts essentially increasing residential energy sales." The historical annual growth rate for residential energy sales from 2000 to 2013 is approximately 1.5 percent. However, as mentioned above, MP's forecast for the residential class incorporates downward trends over time; overall, the annual growth rate from 2013 to 2028 is approximately 0.8 percent per year.

Third, any issues with MP's forecast of residential customer classes are rather inconsequential. From 2000 to 2013, MP's residential sales constituted an average of approximately 9.9 percent of MP's total system load. Further, from 2014 to 2028, MP's residential sales are projected to constitute an average of approximately 9.5 percent of MP's total system load. As the Department stated on page 13 of its January 4, 2016 Comments:

> Minnesota Power is unique among Minnesota utilities given the size of large industrial load on its system relative to the rest of its retail load. The electric load associated with these large

[4] See the Department's January 4, 2016 Comments at pages 10 -11, and 16 – 35.

> industrial customers accounts, on average, for approximately 54 percent[11] of Minnesota Power's total system load; in addition, some of these large customers have their own on-site generation. These unique operational characteristics require Minnesota Power to adjust its energy and peak demand forecasts accordingly.
>
> _____
> 11 See Page 1 of Section 1: About Minnesota Power of the Company's Petition.

In other words, residential sales are such a small portion of MP's total sales that a potential forecast error for residential sales would have little impact on the Company's plan for meeting future needs.

*b. Commercial Sales*

On page 7 of its initial comments, the CEO stated:

> The near-term growth assumption of 1.3% per year through 2020 is especially troubling. Since 2008, Minnesota Power commercial sales have only grown an average of 0.3% per year. And data from the Energy Information Administration through the third quarter of 2015 put commercial sales at 75% of 2014 commercial sales, meaning that unless sales have picked up in the fourth quarter of 2015, there will be no growth in commercial sales in 2015. No AFR 2014 forecast sensitivity assumes near-term commercial growth rates as low as the 0.3% rate experienced since 2008; each scenario is much higher.
>
> Our point is not that residential and commercial sales must be in line with recent trends; as with everything else in utility planning, the past is not a perfect indicator of the future. Rather, the point is that each of Minnesota Power's load forecast scenarios used in this IRP fails to account for the possibility that sales growth in these sectors will approximate recent trends. Thus, none of the load forecast scenarios appropriately accounts for the real possibility of continued anemic sales in the residential and commercial sectors.

The Department does not share the CEO's concerns, for the following reasons.

First, it is important to remember that the growth rate experienced from 2008 to 2013, along with the other growth rates experienced from different periods, are embedded in the historical sales and as such are reflected in the regression analysis.

Second, the CEO has picked data points that result in a low average growth rate for MP's commercial class. The 0.3 percent sales growth is for the period 2008 to 2013. However, 2008 and 2009 sales were greatly reduced due to the impact of the economic recession. Excluding 2008 and 2009 data results in an average growth rate for the commercial sales of 0.9 percent per year from 2010 to 2013. Further, from 2000 to 2013, commercial sales grew an average of 1.2 percent per year. Thus the period used in the calculations is important.[5]

Third, in resource planning, the best expansion plans are ones that are robust over a variety of scenarios, including different forecasts. Thus, it is important to use ranges of forecasting when evaluating potential capacity expansion plans. This approach is particularly important for Minnesota Power given the size of the large industrial load on its system relative to the rest of its retail load. As explained in the Department's January 4, 2016 Comments, the Department ran four contingencies around the energy and demand forecast - higher and lower in 2.5% increments (*i.e.*, +5%, +2.5%, -2.5%, and -5%).

On page 16 of its January 4, 2016 Comments, the Department stated the following:

> Minnesota Power has continued to work on improving its sales and peak demand forecasts since its previous IRP filing. In the resource plan, the Department's analytical approach is typically geared more towards range estimates and risk analysis as opposed to point estimates, which is the primary tool in a proceeding such as a general rate case. As a result, the Department concludes that MP's forecasts are satisfactory for IRP planning purposes and recommends their approval.

The Department continues to conclude that MP's use of the AFR 2014 forecast with the moderate growth scenario with deferred resale as its base case forecast is reasonable for resource planning purposes and that the Department used reasonable forecasting bands when evaluating expansion plans.

*2. Load Forecasting Accuracy*

On page 12 of its initial comments, the CEO stated:

[5] In pages 8 through 12 of its comments, the CEO expressed similar concerns about the Company's forecast for the industrial and resale classes.

D. Minnesota Power's Regression Models Cannot Be Relied Upon For Long-Term Projections Of Sales.

We also have concerns about Minnesota Power's load forecasting methodology. Minnesota Power's unexplained year-to-year shifts in the key "drivers" that determine its load forecasts raise questions about the reliability of its load forecasts for long-run projections.

In addition, the CEO stated the following on page 14 of its initial comments:

The Company's AFR 2014 touts its "solid record of accurate forecasting"[9] and provides among other data, the following to back that assertion up.

[9] AFR 2014 at page 41.

**CEO's Figure 10. "Accuracy" of Minnesota Power's Summer Peak Forecast**

**Summer System Peak Error**

| Forecast | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Average Error of AFR | Avg. Error Year-Ahead |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AFR 2000 | **0.9%** | **13.7%** | -5.6% | -1.3% | -3.1% | **-6.8%** | -8.5% | -7.5% | -3.1% | 23.6% | -2.2% | -1.6% | -2.8% | -0.2% | -0.3% | 13.7% |
| AFR 2001 | | **5.2%** | **-0.5%** | 4.0% | 1.8% | -2.5% | **-4.6%** | -3.8% | 0.5% | 28.0% | 1.4% | 2.4% | 1.2% | 2.9% | 2.8% | 0.5% |
| AFR 2002 | | | **-2.0%** | **5.0%** | 3.5% | -0.6% | -2.6% | **-1.9%** | 2.3% | 30.7% | 2.4% | 3.1% | 1.4% | 2.7% | 3.7% | 5.0% |
| AFR 2003 | | | | **2.4%** | **-4.4%** | -6.4% | -6.9% | -8.2% | **-3.1%** | 24.6% | -2.9% | -1.7% | -2.2% | -1.7% | -1.0% | 4.4% |
| AFR 2004 | | | | | **0.0%** | **0.0%** | -3.9% | -3.5% | 3.7% | **30.8%** | 1.7% | 4.8% | 4.1% | 5.6% | 4.3% | 0.0% |
| AFR 2005 | | | | | | **-5.0%** | **-6.9%** | -6.3% | 3.1% | 30.7% | **2.5%** | 3.3% | 2.0% | 4.4% | 3.1% | 6.9% |
| AFR 2006 | | | | | | | **-0.2%** | **-0.7%** | 4.5% | 34.3% | 5.9% | **7.0%** | 6.0% | 7.5% | 8.0% | 0.7% |
| AFR 2007 | | | | | | | | **-2.4%** | **2.2%** | 31.4% | 3.5% | 4.8% | **3.6%** | 5.2% | 6.9% | 2.2% |
| AFR 2008 | | | | | | | | | **2.5%** | **31.0%** | 3.2% | 3.7% | 2.4% | **3.6%** | 7.7% | 31.0% |
| AFR 2009 | | | | | | | | | | **0.0%** | **-21.1%** | -15.6% | -11.9% | -8.9% | -11.5% | 21.1% |
| AFR 2010 | | | | | | | | | | | **-0.1%** | **-1.4%** | -2.6% | -1.5% | -1.4% | 1.4% |
| AFR 2011 | | | | | | | | | | | | **-1.5%** | **-3.5%** | -2.4% | -2.4% | 3.5% |
| AFR 2012 | | | | | | | | | | | | | **-3.7%** | **-3.0%** | -3.4% | 3.0% |
| AFR 2013 | | | | | | | | | | | | | | **-2.8%** | -2.8% | |

We leave it to the reader to decide whether a 5-year error rate (in blue) of between –4.8% and 30.8% is accurate or not.

*a. Forecast Bands and Forecast Accuracy*

For resource planning, the CEO's Figure 10 above shows the importance of reviewing a forecast band. First, there are 105 data points (difference between forecast and actual) in the CEO's Figure 10. 52 of the observations are positive (forecast too high), 50 are negative (forecast too low), and 3 are zero (forecast was right on). Thus, MP's demand forecasts (when compared to actual) are as likely to be high as low; thus, in general there does not appear to be a systematic bias in the demand forecasts.

Second, 37 percent of the data points in Figure 10 are between the Department's ±2.5 percent (mid-high and mid-low) forecast bands.[6] The percentage rises to 71 percent when the Department's ±5 percent (high and low) forecast bands are considered.[7] Thus, the Department's forecast bands account for a large majority of the data points in CEO's Figure 10.

Third, the average five-year ahead forecast error reported by MP is approximately 3.4 percent.[8] Excluding 2009, the average five-year ahead forecast error drops to approximately 0 percent.

Fourth, the Department calculated the absolute value of the data points in CEO's Figure 10 and then averaged the present year, first forecast year, second forecast year, and so on for the forecasts. The goal was to determine if there were significant differences across years—specifically, whether the difference between forecasted and actual demand grows and whether the difference is within the Department's five percent band. The results are shown below in Table 1.

Table 1: Average Demand Forecast Error by Forecast Year

| | Using All Values | Excluding 2009 |
|---|---|---|
| Present Year | 2.1% | 2.3% |
| 1st Forecast Year | 7.2% | 5.2% |
| 2nd Forecast Year | 7.5% | 5.3% |
| 3rd Forecast Year | 6.6% | 3.8% |
| 4th Forecast Year | 7.3% | 4.7% |
| 5th Forecast Year | 7.1% | 4.1% |
| 6th Forecast Year | 6.9% | 4.4% |
| 7th Forecast Year | 8.0% | 4.2% |
| 8th Forecast Year | 7.3% | 3.1% |
| 9th Forecast Year | 7.2% | 3.1% |
| 10th Forecast Year | 1.9% | 1.9% |
| 11th Forecast Year | 1.8% | 1.8% |
| 12th Forecast Year | 2.9% | 2.9% |
| 13th Forecast Year | 0.2% | 0.2% |

[6] Note that, since MP's peak demand is typically between 1,500 and 2,000 MW, one percentage point equals approximately 15 MW to 20 MW.
[7] The percentage of data points captured by the Department's ±5 percent forecast band rises to 78 percent if comparisons to actuals in 2009 are excluded (the forecasts are off by significant margins in that year, likely due to an unexpected decrease in demand from MP's large customers).
[8] Appendix A of MP's Petition at page 42.

Curiously, the difference between actual and forecasted sales tends to become smaller the further the forecast surpasses the sixth or seventh year. This phenomenon is likely due to the relatively small number of data points making any one observation of much greater importance.[9] In any case, excluding 2009, the average of the absolute values of the forecast errors at a given number of years in the future is less than five percent in all cases except the first and second forecast years. However, in the first and second forecast years, the absolute values are still close to five percent.

The Department repeated the above analysis for MP's energy forecasts (the CEO's Figure 10 is for MP's demand forecast). The equivalent data for MP's energy forecast is available in Figure 12 on page 41 of Appendix A of MP's Petition. Based on our analysis, the Department makes the following observations.

First, similar to the results for the demand forecasts, MP's energy forecasts (when compared to actual) are as likely to be high as low.[10] Thus, thus, in general, there does not appear to be a systematic bias in the energy forecasts in MP's Figure 12.

Second, the average five-year ahead forecast error reported by MP is approximately 5.6 percent.[11] Excluding 2009, the average five-year ahead forecast error drops to approximately 1.7 percent.

Third, 42 percent of the data points in the energy forecasts are between the Department's ±2.5 percent (mid-high and mid-low) forecast bands. The percentage rises to 72 percent when the Department's ±5 percent (high and low) forecast bands are considered.[12] Thus, the Department's forecast bands account for a large majority of the data points in MP's Figure 12.

Fourth, as noted above, the Department calculated the absolute value of the data points, this time using the figures in MP's Figure 12, and then averaged the present year, first forecast year and so forth across the forecasts. The goal was to determine if there were significant differences across years—that is, does the difference between forecast and actual energy sales grow. The results are shown below in Table 2.

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[9] The forecast error refers to the difference between the predicted and actual values.
[10] Again, there are 105 data points (difference between forecast and actual), but slightly different figures: 51 of the observations indicate that the forecast was too high, 52 indicated that the forecast was too low and 2 indicated that there was no difference between the forecast and actual amounts.
[11] Appendix A of MP's Petition at page 41.
[12] The percentage of data points captured by the Department's ±5 percent forecast band rises to 79 percent if comparisons to actuals in 2009 are excluded (the forecasts are off by significant margins in that year, likely due an unexpected decrease in demand from MP's large customers).

Table 2: Average Energy Forecast Error by Forecast Year

| | Using All Values | Excluding 2009 |
|---|---|---|
| Present Year | 1.3 | 1.0 |
| 1st Forecast Year | 5.0 | 2.5 |
| 2nd Forecast Year | 5.9 | 3.1 |
| 3rd Forecast Year | 6.7 | 3.2 |
| 4th Forecast Year | 7.3 | 3.4 |
| 5th Forecast Year | 8.4 | 4.9 |
| 6th Forecast Year | 8.7 | 5.4 |
| 7th Forecast Year | 8.2 | 4.9 |
| 8th Forecast Year | 7.7 | 3.5 |
| 9th Forecast Year | 8.3 | 3.1 |
| 10th Forecast Year | 3.3 | 3.3 |
| 11th Forecast Year | 4.8 | 4.8 |
| 12th Forecast Year | 4.1 | 4.1 |
| 13th Forecast Year | 3.5 | 3.5 |

The difference tends to grow in the initial years, but becomes smaller after the sixth forecast year. In any case, excluding 2009, the average of the absolute values of the forecast errors at a given number of years in the future is less than five percent in all cases except the sixth forecast year. Even in the sixth forecast year the absolute value is still close to five percent.

On page 7 of its initial Comments, the Department stated:

> Changes in forecast methodology or other factors outside of the forecasting model--such as unusual weather, economic changes, or changes in consumption by large customers—may lead to significant, but reasonable, differences between a current forecast and previous forecasts. However, generally speaking, a review of how well a forecast predicts usage over a prior period is a good indicator of the quality of the overall forecasting process.

In summary, the Department concludes that our use of ±2.5 percent (mid-high and mid-low) and ±5 percent (high and low) forecast bands reasonably captures the uncertainty present in MP's forecasts.

*b. Forecast Bands and the Expansion Plan*

At page 24 the CEO states "As this Commission well knows, capacity additions and retirements are highly dependent on the load forecast."

The Department agrees that resource plans should be reviewed under various assumptions about demand, and for that reason reviewed scenarios TEBE (retire both Taconite Harbor and Boswell early) and TEBL (retire Taconite Harbor early and Boswell later) under the median, mid-low (2.5% reduction) and low (5% reduction) forecast scenarios, assuming +30 GWh of energy efficiency (EE) and under the modeling approach with $CO_2$ costs included, using the utility discount rate, and the spot market turned on. The results were as follows:

- TEBE:
  - Wind reduced by 1 unit (100 MW) in the mid-low, and low forecasts;
  - Solar reduced by 1 unit (50 MW) in the mid-low, and low forecasts;
  - Bridge purchased power agreement (PPA) duration reduced by two years in the low forecast;
  - Natural Gas CC no change (1 unit chosen in all circumstances) and
  - Natural Gas combustion turbine (CT) no change (no units in all circumstances).
- TEBL:
  - Wind reduced by 1 unit (100 MW) in the mid-low, and low forecasts;
  - Solar reduced by 1 unit (50 MW) in the low forecast;
  - Bridge PPA no change;
  - Natural Gas CC no change (1 unit chosen in all circumstances) and
  - Natural Gas CT no change (no units in all circumstances).

In other words, somewhat fewer wind and solar resources would be added under lower sales forecasts. However, the early retirement for Boswell 1 and 2 is less expensive than a later retirement regardless of the forecast used. Therefore, while it is true that capacity additions and retirements can be dependent on the load forecast, in this case the differences in the expansion plans are relatively minor and low forecast contingencies would result in fewer renewable units being selected.

## *B. CEO'S COMMENTS ON DEMAND SIDE MANAGEMENT (DSM)*

### *1. Background*

In its initial Comments, the Department evaluated the Company's four energy savings scenarios, which are again presented below in Table 3.

Table 3 - Minnesota Power's DSM Scenarios

| Scenarios | | |
|---|---|---|
| *Annual Savings at the Generator (GWh)* | *% of Sales (rounded)* | *Plan* |
| 46.5 | 1.50% | Existing |
| 57.3 | 1.87 % | + 11 GWh |
| 61.2 | 2.00% | + 15 GWh |
| 76.5 | 2.50% | + 30 GWh |

The Department's analysis indicated that the highest savings scenario (76.5 GWh) was the most cost-effective. The 76.5 GWh DSM scenario would provide a low-cost supply for some of the Company's energy needs and help the Company to possibly defer the need for future resource acquisitions in a time of significant uncertainty with respect to the Company's load.

*2. Reply Comments*

*a. Clean Energy Organizations (CEO)*

The CEO indicated that MP failed to account accurately for energy savings in its modeling efforts, incorrectly modeled costs, and ignored the CIP-exempt customers in the Company's proposal of future levels of energy efficiency. Additionally, the CEO noted its concern with the Company's use of embedded energy savings assumptions.

Below, the Department briefly responds to the CEO's concerns with embedded energy savings and treatment of CIP-exempt customers.

*b. Embedded energy savings*

The CEO noted several times that MP's embedded energy savings assumptions are too high, which could result in possible underestimation of the Company's level of cost-effective energy savings. The Company assumed that its forecast includes [TRADE SECRET DATA HAS BEEN EXCISED] of embedded energy savings from the non CIP-exempt customers. On page 33 of its Comments, the CEO stated:

> This approach is flawed. Minnesota Power uses sales data going back to 1990 to produce its load forecast, a period of time in which Minnesota Power almost certainly did not achieve close to the level of savings that it has in the past few years. Yet the Company assumes that the last five years of CIP savings are the only years that are indicative of the level of savings embedded in its load forecast going forward.

The Department does not agree with the CEO's conclusions. In fact, MP may have underestimated the embedded energy savings in its forecast. Table 4 below shows the Company's actual energy savings from 2007-2014.

**Table 4: MP's Actual Energy Savings Compared to MP's Embedded Energy Savings Assumption of [TRADE SECRET DATA HAS BEEN EXCISED]**

| Year | CIP First-Year kWh Savings | Annual Savings as Percent of MP Embedded Energy Savings Assumption |
|---|---|---|
| 2007 | 44,168,014 | [TRADE SECRET DATA HAS BEEN EXCISED] |
| 2008 | 48,845,282 | |
| 2009 | 52,897,732 | |
| 2010 | 60,503,220 | |
| 2011 | 69,091,422 | |
| 2012 | 63,159,196 | |
| 2013 | 77,630,645 | |
| 2014 | 76,338,363 | |
| 2007-2014 | 61,579,234 | |

As shown in Table 4, MP's actual CIP energy savings over the eight-year period are an average of [TRADE SECRET DATA HAS BEEN EXCISED] percent higher than MP's [TRADE SECRET DATA HAS BEEN EXCISED] GWh of embedded energy savings assumption.[13] Further, as a counterpoint to the CEO's criticism regarding the use of 1990s data, the Department notes that the data used to produce the load forecast also includes recent data points up to the year 2014, and thus includes the significant amount of energy savings that are reflected in Table 4 above. Consequently, the Department does not agree with the CEO's concerns. However, the Department is open to discussing this issue in the future in the context of developing best practices for DSM evaluation in IRPs.

*c. Treatment of CIP–Exempt Customers*

The CEO argued that MP should be treating CIP-exempt customers as a source of incremental energy savings. The Department agrees that MP should encourage its exempt customers to be as efficient as possible. However, given that Minnesota Statutes, section 216B.16, subd. 6b does not allow MP to charge ratepayers for providing CIP services to the exempt customers, it is not clear how MP would engage with the customers and document the energy savings. The Department is open to specific, tractable proposals from the CEO regarding how to achieve higher energy savings from CIP-exempt customers.

[13] The Department notes that MP's [TRADE SECRET DATA HAS BEEN EXCISED]

*d. Recommendation*

The Department continues to recommend that the Commission establish an annual energy savings goal of 76.5 GWh. Energy efficiency is Minnesota's preferred energy resource[14] and in this resource plan has been shown to result in least-cost planning scenarios as higher levels of energy savings are modeled.

## IV. DEPARTMENT RECOMMENDATIONS

The Department recommends that the Commission approve:

A five-year action plan that includes MP:

- acquiring up to 300 MW of wind capacity in about 2018;
- acquiring solar units of 11 MW in 2016 and 12 MW in 2020;
- shutting down the Taconite Harbor 1 and 2 units in 2017,
- procuring average annual average energy savings of 76.5 GWh, and
- conducting a distribution study to identify interconnection points on its distribution system for small-scale distributed generation resources.

A long-term action plan that includes MP:

- procuring approximately 100 MW of wind, 50 MW of solar, and 200 MW of CC generation, partly to replace Boswell units 1 and 2, and
- shutting down Boswell units 1 and 2 once the CC generation is online.

/lt

[14] Minn. Stat. §216B.2401

> The legislature finds that energy savings are an energy resource, and that cost-effective energy savings are preferred over all other energy resources. The legislature further finds that cost-effective energy savings should be procured systematically and aggressively in order to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports, and reduce pollution and emissions that cause climate change.

## CERTIFICATE OF SERVICE

I, Linda Chavez, hereby certify that I have this day served copies of the following document on the attached list of persons by electronic filing, e-mail, or by depositing a true and correct copy thereof properly enveloped with postage paid in the United States Mail at St. Paul, Minnesota.

**MINNESOTA DEPARTMENT OF COMMERCE – REPLY COMMENTS**

Docket Nos. **E015/RP-15-690**

Dated this **4th** day of **March, 2016**.

/s/Linda Chavez

_____

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| William A. | Blazar | bblazar@mnchamber.com | Minnesota Chamber Of Commerce | Suite 1500<br>400 Robert Street North<br>St. Paul,<br>MN<br>55101 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Jon | Brekke | jbrekke@grenergy.com | Great River Energy | 12300 Elm Creek Boulevard<br><br>Maple Grove,<br>MN<br>553694718 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Christina | Brusven | cbrusven@fredlaw.com | Fredrikson Byron | 200 S 6th St Ste 4000<br><br>Minneapolis,<br>MN<br>554021425 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Leigh | Currie | lcurrie@mncenter.org | Minnesota Center for Environmental Advocacy | 26 E. Exchange St., Suite 206<br><br>St. Paul,<br>Minnesota<br>55101 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Emma | Fazio | emma.fazio@stoel.com | Stoel Rives LLP | 33 South Sixth Street<br>Suite 4200<br>Minneapolis,<br>MN<br>55402 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Sharon | Ferguson | sharon.ferguson@state.mn.us | Department of Commerce | 85 7th Place E Ste 500<br><br>Saint Paul,<br>MN<br>551012198 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Dave | Frederickson | Dave.Frederickson@state.mn.us | MN Department of Agriculture | 625 North Robert Street<br><br>St. Paul,<br>MN<br>551552538 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Edward | Garvey | garveyed@aol.com | Residence | 32 Lawton St<br><br>Saint Paul,<br>MN<br>55102 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |

| First Name | Last Name | Email | Company Name | Address | Delivery Method | View Trade Secret | Service List Name |
|---|---|---|---|---|---|---|---|
| Barbara | Gervais | toftemn@boreal.org | Town of Tofte | P O Box 2293<br>7240 Tofte Park Road<br>Tofte,<br>MN<br>55615 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Janice | Hall | N/A | Cook County Board of Commissioners | 411 W 2nd St<br>Court House<br>Grand Marais,<br>MN<br>55604-2307 | Paper Service | No | OFF_SL_15-690_RP-15-690 |
| Lori | Hoyum | lhoyum@mnpower.com | Minnesota Power | 30 West Superior Street<br><br>Duluth,<br>MN<br>55802 | Electronic Service | Yes | OFF_SL_15-690_RP-15-690 |
| Michael | Krikava | mkrikava@briggs.com | Briggs And Morgan, P.A. | 2200 IDS Center<br>80 S 8th St<br>Minneapolis,<br>MN<br>55402 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| John | Lindell | agorud.ecf@ag.state.mn.us | Office of the Attorney General-RUD | 1400 BRM Tower<br>445 Minnesota St<br>St. Paul,<br>MN<br>551012130 | Electronic Service | Yes | OFF_SL_15-690_RP-15-690 |
| Pam | Marshall | pam@energycents.org | Energy CENTS Coalition | 823 7th St E<br><br>St. Paul,<br>MN<br>55106 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Daryl | Maxwell | dmaxwell@hydro.mb.ca | Manitoba Hydro | 360 Portage Ave FL 16<br>PO Box 815, Station Main<br>Winnipeg,<br>Manitoba<br>R3C 2P4<br><br>Canada | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Marion Ann | McKeever | N/A | Satellites Country Inn | 9436 W Hwy 61<br><br>Schroeder,<br>MN<br>55613 | Paper Service | No | OFF_SL_15-690_RP-15-690 |
| Herbert | Minke | hminke@allete.com | Minnesota Power | 30 W Superior St<br><br>Duluth,<br>MN<br>55802 | Electronic Service | Yes | OFF_SL_15-690_RP-15-690 |
| David | Moeller | dmoeller@allete.com | Minnesota Power | 30 W Superior St<br><br>Duluth,<br>MN<br>558022093 | Electronic Service | Yes | OFF_SL_15-690_RP-15-690 |

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| Andrew | Moratzka | apmoratzka@stoel.com | Stoel Rives LLP | 33 South Sixth Street<br>Suite 4200<br>Minneapolis,<br>MN<br>55402 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| David W. | Niles | david.niles@avantenergy.com | Minnesota Municipal Power Agency | Suite 300<br>200 South Sixth Street<br>Minneapolis,<br>MN<br>55402 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Samantha | Norris | samanthanorris@alliantenergy.com | Interstate Power and Light Company | 200 1st Street SE PO Box 351<br><br>Cedar Rapids,<br>IA<br>524060351 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Britt | See Benes | britt@ci.aurora.mn.us | City of Aurora | 16 W 2nd Ave N<br>PO Box 160<br>Aurura,<br>MN<br>55705 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Ron | Spangler, Jr. | rlspangler@otpco.com | Otter Tail Power Company | 215 So. Cascade St.<br>PO Box 496<br>Fergus Falls,<br>MN<br>565380496 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| John Linc | Stine | john.stine@state.mn.us | MN Pollution Control Agency | 520 Lafayette Rd<br><br>Saint Paul,<br>MN<br>55155 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Eric | Swanson | eswanson@winthrop.com | Winthrop Weinstine | 225 S 6th St Ste 3500<br>Capella Tower<br>Minneapolis,<br>MN<br>554024629 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Cam | Winton | cwinton@mnchamber.com | Minnesota Chamber of Commerce | 400 Robert Street North<br>Suite 1500<br>St. Paul,<br>Minnesota<br>55101 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |
| Daniel P | Wolf | dan.wolf@state.mn.us | Public Utilities Commission | 121 7th Place East<br>Suite 350<br>St. Paul,<br>MN<br>551012147 | Electronic Service | Yes | OFF_SL_15-690_RP-15-690 |
| Charles | Zelle | charlie.zelle@state.mn.us | Department of Transportation | MN Dept of Transportation<br>395 John Ireland Blvd<br>St. Paul,<br>MN<br>55155 | Electronic Service | No | OFF_SL_15-690_RP-15-690 |