BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

In the Matter of the Application of
Otter Tail Power Company for Authority
to Increase Rates for Electric Service in South Dakota
Docket No. EL10-011

Testimony of George W. Evans
on Behalf of the Commission Staff

February 18, 2011

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I. Qualifications

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

A. George W. Evans. I am currently a Vice President with Slater Consulting. My address is P.O. Box 2449, Robbinsville, North Carolina.

Q. Does the Appendix to this testimony describe your education and summarize your experience in public utility regulation?

A. Yes, it does.

Q. Have you testified previously before the South Dakota Public Utilities Commission?

A. Yes. I presented expert testimony on behalf of the South Dakota Public Utilities Commission Staff in Docket No. EL95-003, which was filed in June 1995. In that testimony, I discussed the modeling and assumptions utilized in the development of the Black Hills Power, Inc. Integrated Resource Plan (IRP). In addition, I appeared before this Commission in June 2010 in Docket No. EL09-018, where I presented expert testimony concerning the 2007 Black Hills Power IRP.

Q. Have you presented expert testimony in other jurisdictions concerning integrated resource planning?

A. Yes, I have. I presented expert testimony concerning integrated resource planning on eleven previous occasions, before the Georgia Public Service Commission, the Alabama Public Service Commission, the Mississippi Public Service Commission, the Public Service Commission of Oklahoma, and the South Carolina Public Service Commission.

Q. Have you presented expert testimony specifically concerning wind generation?

A. Yes, I have. I presented testimony before the Utah Public Service Commission in 2009 regarding wind integration costs for the PacifiCorp system, and I testified on behalf of several wind developers before the Corporation Commission of the State of Oklahoma.

II. Purpose of Testimony and Summary of Conclusions

Q. What is the purpose of your appearance in this case?

A. My testimony concerns the inclusion of the Luverne wind generating facility (Luverne) in the application of Otter Tail Power Company (the Company or Otter Tail) to increase rates for electric service.

Q. What have you concluded regarding the Luverne wind facility?

A. I have concluded Otter Tail has failed to show that Luverne is needed to serve its customers; that it has failed to show that Luverne is reasonable and cost effective compared to alternative sources for electricity, and that the IRP model supporting the addition of Luverne is fatally flawed and cannot be relied upon.

Q. What is the basis for your conclusions?

A. My conclusions are based on my analysis of the Company's filings, the Company's responses to information requests in this proceeding, the Company's responses to informal questions concerning its IRP, my review and analysis of the Company's IRP modeling data and model results, and my review and analysis of additional IRP runs that Otter Tail has performed at my request. My testimony will cover the following findings:

- The Luverne capacity is not needed by Otter Tail to serve its customers.

- In justifying Luverne, Otter Tail makes the erroneous assumption that wind generation is completely predictable and reliable.

- Luverne is not needed to satisfy the South Dakota renewable objectives.

- Otter Tail's claim that Luverne will reduce overall costs is unfounded.

- Otter Tail did not compare Luverne to alternative generating sources for electricity, other than market power purchases.

- The Company failed to include the costs of wind integration in its IRP.

- Otter Tail's IRP results used to justify Luverne do not properly model the Otter Tail generation system.

- The IRP computer model utilized by Otter Tail to justify Luverne is unreliable and is not sophisticated enough to properly consider wind facilities.

III. The Luverne Facility

Q. Please describe Otter Tail's Luverne wind facility.

A. Luverne is a 49.5 megawatt wind facility located in Steele County, North Dakota. The facility is a portion of the Luverne Wind Energy Center, which was developed jointly by Otter Tail and NextEra, and which began commercial operation in September 2009. Construction costs for Luverne total approximately $72 million, net of federal stimulus dollars.

IV. Otter Tail's Justification for Luverne

Q. What has Otter Tail relied upon to justify the addition of Luverne?

A. Otter Tail asserts that "The Luverne Wind Project ... completes development of 160 MW of wind generation that was shown in OTP's 2006-2010 Integrated Resource Plan to be part of a least-cost plan for fulfilling OTP's need for

additional capacity and energy resources."[1] In addition, the Company claims that "These wind investments were made because they were economic alternatives."[2]

Q. What information has the Company provided to justify the selection of Luverne?

A. The Company's response to Information Request SD-PUC-05-01 (attached as Exhibit ___ (GWE-1)) describes the information provided to staff to support the Company's selection of Luverne. Although the IRP process that eventually led to the selection of Luverne began with the Company's 2006 – 2020 IRP, which was finalized in 2005, it is the October 2006 update to this IRP that the Company points to as justification for Luverne. The only IRP runs initially provided by Otter Tail to support Luverne are four IRP cases from the October 2006 IRP "update".

Q. Were major modifications made to Otter Tail's IRP in the October 2006 update?

A. Yes. For the October 2006 update, the Company modified the price forecast for regional spot market power purchases, included a new proposal from Manitoba Hydro, updated the fuel price forecasts for natural gas, fuel oil and coal, and modified the construction costs and operating parameters for a number of generating alternatives.

Q. What do all these changes mean concerning the October 2006 update?

A. Otter Tail's October 2006 update to its IRP is actually a new IRP – the Company has modified most of the basic assumptions used in the original IRP, and is thus creating an IRP that has no relation to the original IRP, or any other "updates".

Q. What computer simulation model has Otter Tail utilized?

A. Otter Tail relies on the EPRI IRP-Manager computer simulation model to develop the IRP results used to justify Luverne. The four IRP runs from the October 2006 IRP supplied as support for Luverne are IRP-Manager scenarios.

V. Capacity Need

Q. What is the basis for your assertion that the Luverne capacity is not needed to serve Otter Tail's customers?

A. Otter Tail has stated that "wind was selected because it lowered total overall costs and not because of capacity requirements." Attached as Exhibit ___ (GWE-2) is an email from the Company that includes this statement. In fact, Otter Tail

[1] Lines 17-21, page 10 of the Direct Testimony of Mr. Kyle Sem
[2] Lines 21-22, page 10 of the Direct Testimony of Mr. Kyle Sem

has confirmed that, without the Luverne wind capacity, Otter Tail has no need for additional capacity until the year 2015, under the assumptions used for the October 2006 IRP. See the email response included as Exhibit ___ (GWE-3). Also attached as Exhibit ___(GWE-4) are two tables that show that, without Luverne, Otter Tail had no need for additional capacity until the year 2015. The last line of pages 1 and 2 of this exhibit show the surplus capacity arising from Otter Tail's base plan, which includes Luverne. The same line on pages 3 and 4 shows the surplus (and deficit) capacity that exists without Luverne included in the plan. The first capacity need without Luverne occurs in the year 2015.

Q. What then, is the Company's claimed basis for the construction of the Luverne wind farm?

A. Otter Tail states that it has constructed the Luverne wind farm only to lower total overall costs.

Q. Is this a reasonable assertion?

A. No, it is not. This is my first encounter with an electric utility that has constructed a generating facility only to attempt to lower costs. Normally, utilities only enter into the construction of new generation when there is a clear need for additional generating capacity. This is the purpose of an IRP – to identify future capacity needs and select additional generating resources and demand-side management resources that will serve the needs of customers in a cost effective and reliable manner. In this case, Otter Tail has invested some $72 million in the Luverne wind farm when customers have no need for the generation. Construction of new generation is a risky matter, even when the construction is undertaken for a forecasted need. Otter Tail chose to construct Luverne even though there was no need for the facility.

VI. Wind as a Predictable Energy Source

Q. What is the basis for your claim that Otter Tail assumed in its IRP that wind generation (including Luverne) is completely predictable and reliable?

A. Attached as Exhibit ___ (GWE-5) is a portion of the Otter Tail IRP-Manager input data from the October 2006 IRP, showing that potential wind facilities were assumed to be "Firm" purchases. The meaning of a "Firm" purchase is described at the bottom of the first page of the pages extracted from the IRP-Manager user's manual attached as Exhibit ___ (GWE-6). IRP-Manager will assume that wind energy is completely dependable and will be delivered exactly as forecast. Customer demand for electricity will be reduced by the forecasted wind energy,

meaning that the other generating resources (coal, gas, and other generating units) will have a lower demand to serve.

Q. Is Otter Tail's "Firm" modeling of wind reasonable?

A. No, it is not. According to the 2006 Minnesota Wind Integration Study, "Wind generation cannot be controlled or precisely predicted." (see the first paragraph of the last page of Exhibit ___ (GWE-7)). In other words, wind is the opposite of a "Firm" resource. The same study goes on to state that "Energy from wind generating facilities must be taken "as delivered", which necessitates the use of other controllable resources to keep the demand and supply of electric energy in balance." In other words, other generating resources (such as coal-fired resources, gas-fired resources and other controllable resources), must cover for the unpredictability of wind generation. However, with Otter Tail's modeling of wind in its IRP, customer load is simply reduced by the assumed wind generation so that other generating resources do not need to cover for the unpredictability of the wind. Otter Tail has assumed that wind is fully predictable and reliable.

Q. Was Otter Tail aware of the 2006 Minnesota Wind Integration Study you have quoted?

A. Yes, they were. Mr. Daryl Hanson and Ms. JoAnn Thompson represented Otter Tail on the Technical Review Committee for this study - see the second page of Exhibit ___ (GWE-7).

Q. Is the 2006 Minnesota Wind Integration Study unusual in any way?

A. No, it is not. There have been many similar studies in recent years. I discuss several such studies in the Wind Integration section below.

Q. In your experience, do other electric utilities assume that wind generation is fully predictable and reliable?

A. No, they do not. No other electric utility that I am aware of makes the faulty assumption that wind is fully predictable or reliable.

Q. What is the impact of Otter Tail's assumption concerning wind?

A. Otter Tail's assumption that wind is fully predictable and reliable greatly exaggerates the cost benefits of wind generation. As a result, the Company's claim that Luverne will provide cost savings is fatally flawed.

VII. South Dakota Renewables Objective

Q. What is the South Dakota renewable objective per SDCL 49-34A-101?

A. South Dakota has in place a voluntary objective that ten percent of all electricity sold at retail within the state by the year 2015 be obtained from renewable, recycled and conserved sources.

Q. Is Luverne necessary for Otter Tail to meet the South Dakota objective?

A. No. The Company's response to Information Request SD-PUC-07-22, which is attached as Exhibit ___ (GWE-8), indicates that Otter Tail exceeded the ten percent objective in 2009 without Luverne.

Q. How does the South Dakota renewable objective compare to those in North Dakota and Minnesota?

A. As shown in the Company's response to Information Request SD-PUC-01-20, which is attached as Exhibit ___ (GWE-9), North Dakota has a renewable objective identical to the South Dakota objective, while Minnesota has a more aggressive renewable "standard" beginning in 2012.

VIII. Claimed Cost Reduction

Q. Do you agree with the Company's assertion that the October 2006 IRP shows that Luverne would lower overall costs?

A. No, I do not. The first problem is that Otter Tail assumed that wind is fully predictable and reliable, as discussed above.

Q. Are there other ways in which Otter Tail failed to properly model wind?

A. Yes. Otter Tail failed to include the costs of wind integration. Wind integration costs are discussed in a following section of my testimony. Also, the IRP assumed that all wind would be purchased from wind developers at a flat rate, implying that wind costs would not change over time.

Q. Is this the case with Luverne?

A. No, it is not. Information provided by the Company in its response to Information Request SD-PUC-08-01 (which is included as Exhibit ___(GWE-10)) shows that Luverne per unit costs will be very high initially, and will decline in future years.

Q. Did you find other problems with Otter Tail's claim concerning cost savings from wind?

A. Yes. Otter Tail's claimed cost savings are highly dependent on the fuel price forecasts, load forecast and wholesale purchase price forecast used in the IRP development. To have any assurance that the claimed cost savings would be realized, Otter Tail should have developed a series of scenarios using higher and lower fuel price forecasts, higher and lower load forecasts, and higher and lower wholesale price forecasts. In other words, Otter Tail should have asked a series of questions such as – will these claimed cost savings from wind hold up if gas prices are lower than predicted? This is standard practice in the industry, and Otter Tail's failure to perform these analyses renders the claimed cost savings virtually meaningless.

Q. Did Otter Tail evaluate the potential impacts of higher and lower gas prices?

A. No, they did not. In fact, the Company's claim that Luverne would lower overall costs is based on only one fuel price forecast, one load forecast and one forecast of wholesale market prices. This is unprecedented in my experience – not to evaluate multiple scenarios for such inherently speculative forecasts. The Company's claim of potential cost savings has no foundation.

Q. Did Otter Tail present any other analyses to attempt to justify the Luverne addition?

A. Yes, they did. The Company has presented a series of additional IRP-Manager runs that were performed prior to the October 2006 IRP.

Q. Do these additional runs satisfy your concerns?

A. No, they do not. These additional IRP-Manager runs were based on entirely different assumptions, and have no relation to the October 2006 IRP.

Q. What dollar level of savings from Luverne was predicted by the Otter Tail October 2006 IRP?

A. Otter Tail did not produce a prediction of the dollar savings from Luverne. To get to this question, I requested that Otter Tail perform an additional IRP-Manager case, in which the Luverne wind capacity is removed. Exhibit ___ (GWE-11) shows the communications between myself and Otter Tail concerning the additional IRP-Manager case without Luverne. The predicted Luverne cost savings can be computed by taking the difference in total costs between these two cases – with and without Luverne.

Q. What was the result of this comparison?

A. The comparison of these two IRP-Manager runs showed that Otter Tail's predicted cost savings over 27 years from Luverne amount to approximately $6.0 million in present worth revenue requirements in 2003 dollars.

Q. Why do the estimated savings cover 27 years?

A. In the Otter Tail IRP, the new wind is installed in 2008 and the IRP modeling ends in 2034. So within the IRP, Luverne operates for 27 years.

Q. What average dollar savings does Otter Tail attribute to the Luverne generation?

A. In 2003 dollars, Otter Tail claims that Luverne will provide savings of approximately $1.63 per megawatt-hour of wind generation. This is a small average savings, and would likely be wiped out completely, if Otter Tail included wind integration costs.

Q. Has the Company produced any information to show that Luverne has actually provided cost savings?

A. No, they have not, as shown in the Company's responses to Information Requests SD-PUC-08-01 (Exhibit ___ (GWE-10)) and SD-PUC-08-02, which is attached as Exhibit ___ (GWE-12). The Company claims it is not possible to ascertain whether Luverne has provided any savings, though they do make the unfounded claim that "...the Luverne project is expected to result in net energy savings over the life of the project as compared to other generation resources and purchases."[3]

IX. Comparison to Alternatives

Q. What is the basis for your assertion that Otter Tail did not compare Luverne to all alternatives?

A. My examination of the IRP modeling data provided by Otter Tail revealed that Otter Tail had only compared Luverne to market energy purchases, not to any other type of generating alternative, such as combustion turbines, coal-fired generation, or any other generating alternative.

Q. Did the Company confirm your conclusion?

[3] See the Company's response to Information Request SD-PUC-08-01 in Exhibit ___ (GWE-10), first sentence of the second paragraph in the response

A. Yes, they did, as shown in Exhibit ___ (GWE-2). See the Company's response to my last question on the second page of this exhibit, where they confirm that only market purchases were available as a supply-side alternative to potential wind additions in 2008 (which include Luverne). So Otter Tail is claiming that "...the Luverne project is expected to result in net energy savings over the life of the project as compared to other generation resources and purchases"[4] without an analysis that this is the case. The Company's claim that Luverne will provide savings compared to other generation resources is completely unfounded. The Luverne addition was not directly compared to other generation resources.

Q. The Company claims that IRP-Manager compared a generic combustion turbine generator to Luverne. Do you agree?

A. No, I do not. The choices made available to IRP-Manager in 2008 included only market purchases, wind, and demand-side management programs. IRP-Manager does utilize a generic combustion turbine generator to "fill-in" expansion plans that are lacking in capacity, but only for comparison with other plans. The fact remains that IRP-Manager was only allowed to choose between market purchases, wind and demand-side resources in the year 2008, which is the year that Luverne was selected.

Q. The Company argues that given the time frame for approvals, no other generating resources could have been considered. Do you agree?

A. No, I do not. Otter Tail could have allowed IRP-Manager to select among other generating resources in 2008 to demonstrate that Luverne was a better choice, but this was not done. In any case, Luverne was not placed in service until the fall of 2009, so the Company's claim lacks merit.

Q. Does Otter Tail claim to have compared Luverne to generating resources other than combustion turbines?

A. No, they do not. Otter Tail makes no assertion that Luverne was compared to combined cycle generating resources, coal-fired generating resources, or any generating resources other than combustion turbines.

X. Wind Integration Costs

Q. What are wind integration costs?

[4] See the Company's response to Information Request SD-PUC-08-01 in Exhibit ___ (GWE-10), first sentence of the second paragraph in the response

A. The intermittent nature of wind generation adds to the cost of providing reliable power to customers. In general terms, the dispatchable generating resources (such as combustion turbines, diesels, coal-fired generation, etc.) must increase generation to cover unexpected interruptions in wind generation and also must decrease generation in response to any unexpected increase in wind generation. As more wind generation is added, the problems caused by wind can increase dramatically. The general areas of wind integration costs are the following:

- Fossil Commitment
- Regulation
- Load Following
- Trading

Q. How does wind cause added costs in fossil commitment?

A. Fossil commitment is the process of deciding (on a daily or weekly basis), what fossil fuel generating units should be committed to operate during the day or week. The process depends on an hourly forecast of customer needs, and an hourly forecast of wind energy. The forecasting of customer needs is fairly reliable. That for wind generation is not so reliable. If wind is expected across the peak hours of the day, but does not materialize, additional fossil units will have to be operated without warning, or market purchases at a possible high cost will be required. On the other hand, if wind generation is not expected, but does appear, operating fossil units may have to be backed off to non-efficient levels, or removed from service. In short, wind generation makes the process of efficient fossil commitment much more difficult, resulting in less efficient operations.

Q. How does wind cause added costs in regulation?

A. Regulation is the second-to-second matching of generation to customer needs. Utilities flag certain fossil units to be regulating units, and these fossil units are placed on electronic controls to provide the needed level of regulation. With wind generation, additional regulation is required to cover the unexpected loss or unexpected gains in wind generation.

Q. How does wind effect load following?

A. Customer needs for electricity generally ramp up quickly in the mid-morning hours and then ramp down quickly in the evening. To follow these movements, electric utilities must have operating generating units that can quickly increase and decrease generation, or follow the load. Wind generation exacerbates the problem, and can force utilities to have additional fossil generation operating to follow the load.

Q. What impact does wind have on trading?

A. Electric utilities are constantly doing wholesale trading with other electric utilities, on a day-ahead basis, hour-ahead basis, or spot basis. To maximize profits for sales, and minimize costs from purchases, each utility forecasts available excess generation for sales, and forecasts needs for purchases. With wind generation, there is additional risk in entering into such transactions, thus reducing profits from sales, and adding costs to purchases.

Q. Are these wind integration costs captured by the computer models used in Integrated Resource Planning, such as IRP-Manager?

A. No, they are not. The computer models used in Integrated Resource Planning are not detailed enough to capture these costs, with the possible exception of the fossil commitment costs.

Q. Does the IRP-Manager capture the fossil commitment wind integration costs?

A. No, it does not.

Q. Could Otter Tail have corrected this problem with wind integration costs?

A. Yes. To account for wind integration costs, Otter Tail should have included an additional dollar per megawatt-hour cost for each modeled wind facility. This is an accepted practice in the industry.

Q. Were there regional studies of the costs of wind integration before October 2006?

A. Yes. There have been many. Attached as Exhibit ___ (GWE-13) are two pages from a review entitled "Wind Integration Cost and Ancillary Service Impacts" developed by the National Renewable Energy Laboratory in August 2006. The second page of Exhibit ___ (GWE-13)) lists five regional wind integration cost studies that were all performed prior to May 2006.

Q. Do you have other examples?

A. Yes. Attached as Exhibit ___ (GWE-14) is a March 2004 announcement from the Bonneville Power Administration setting wind integration costs charged to its customers at $4.50 per megawatt-hour.

Q. Have there been such studies in Minnesota?

A. Yes, there have been several that I am aware of. The second study shown on page two of Exhibit ___ (GWE-13) is a joint study by Xcel and the Minnesota Department of Commerce. Attached as Exhibit ___ (GWE-15) is the presentation from the 2006 study sponsored by the Minnesota Public Utilities Commission. This study estimates wind integration costs will range from $2.11 to $4.41 per megawatt-hour.

Q. Have commissions accepted the idea of wind integration costs?

A. Yes. Attached as Exhibit ___ (GWE-16) is a press release from the Idaho Public Utilities Commission discussing the resolution of wind integration costs for Idaho's regulated utilities, and the setting of wind integration costs at $5.10 per megawatt-hour for PacifiCorp, and at $6.50 per megawatt-hour for Avista and Idaho Power. Also, the Public Service Commission of Utah, in its final order for Docket No. 09-035-23, approved a value of $6.62 per megawatt-hour for PacifiCorp's wind integration costs.

Q. Will wind integration costs increase in future years?

A. Yes, they will. As utilities add wind generation, the impacts on the dispatchable generating resources are more pronounced. In addition, since wind integration costs are based on the costs of the dispatchable generating resources, as fuel prices and operating costs increase, wind integration costs will increase.

Q. Do you have an example?

A. Yes, I do. The 2005 PacifiCorp study (see page 2 of Exhibit ___ (GWE-13)) produced a wind integration cost of $4.60 per megawatt-hour. In PacifiCorp's 2010 study[5], wind integration costs are set at $9.70 per megawatt-hour.

Q. Has Otter Tail claimed that wind integration costs were included in its 2006 IRP?

A. No, they have not. However, Otter Tail does claim that the costs assumed for wind facilities were high enough to cover the inclusion of wind integration costs.

Q. Does this overcome your concerns with wind integration costs?

A. No, it does not. If wind integration costs had been included in the IRP, the wind integration costs would need to increase over time to reflect increased wind

[5] PacifiCorp's 2010 Wind Integration Resource Study is available at http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/Wind_Integration/PacifiCorp_2010WindIntegrationStudy_090110.pdf

penetration and the increased costs of dispatchable resources. Otter Tail's claim that the assumed costs of wind were high enough to cover wind integration costs assumes that wind integration costs will not increase in the future. In any case, without actually making the IRP runs with the proper wind integration costs included, it's impossible to know the outcome. IRP-Manager may not have selected Luverne, if the Company had included proper wind integration costs.

XI. Modeling the Otter Tail System

Q. Has Otter Tail provided any information to show that the IRP modeling used in the October 2006 IRP is reasonably close to actual operating results?

A. No, they have not.

Q. What is the purpose of comparing IRP modeling results to actual operating results?

A. Such a comparison is a required first step in developing a computer model of an electric utility's operations, such as the IRP-Manager modeling used by Otter Tail in its IRP, and is standard utility practice. Without this "benchmarking" of the model results, there is little assurance that the modeling will produce valid results.

Q. Have you performed this benchmarking?

A. Yes, I have. I've compared recorded historical results (from the Company's FERC Form 1 filings) for the calendar years 2003, 2004 and 2005 with Otter Tail's IRP-Manager results. The results of this comparison are shown in Exhibit ___ (GWE-17). As shown on Exhibit ___ (GWE-17), there are large discrepancies in the generation of the Otter Tail peaking units in 2003 and 2004 – IRP-Manager grossly underestimated the generation of the peaking units in these years. Also, the fuel costs of the peaking units in 2005 are dramatically underestimated by IRP-Manager.

Q. What can you conclude from this comparison?

A. The IRP-Manager modeling results are not representative of Otter Tail's actual operations, and are thus not reliable.

XII. Using IRP-Manager

Q. Is the IRP-Manager a state-of-the-art computer model?

A. No, it is not. The Company has informed me that optimization runs of IRP-Manager, in which the model selects resources in future years, can require as long as two weeks to complete. Apparently, IRP-Manager can only be used on older, slower computers and has never been adapted to modern computers.

Q. Are you aware of any other utilities that use IRP-Manager?

A. No, I am not. The IRP-Manager User's Guide supplied by the Company is dated October 9, 1996.

Q. What do you conclude concerning IRP-Manager?

A. IRP-Manager is (and was in 2006) an outdated, unusable computer model that does not have the capabilities required to develop Integrated Resource Plans for Otter Tail. I understand that Otter Tail is now using the Strategist® model in place of IRP-Manager.

Q. Are you familiar with the Strategist model?

A. Yes, I am. Strategist is used for integrated resource planning by a number of electric utilities.

Q. Does Strategist have the ability to model wind generation as a non-firm resource?

A. Yes, it does.

XIII. Conclusion

Q. What do you conclude?

A. The IRP results, used by Otter Tail to justify Luverne, are fatally flawed and cannot be relied upon.

Q. Does this conclude your direct testimony?

A. Yes it does.