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November 1, 2006

Illona Jeffcoat-Sacco  
Executive Secretary  
North Dakota Public Service Commission  
State Capitol - 600 East Boulevard  
Bismarck, ND 58505-0480



RE: ND Wind Projects

Dear Ms. Jeffcoat-Sacco:

By memorandum dated March 8, 2005, you and Bill Binek stated the opinion that the Commission has the authority to grant a utility's application to recover costs during construction of large projects through a rate phase-in plan. Otter Tail Power Company may apply for such a rate phase-in plan related to our Big Stone II generating plant project. However, the purpose of this letter is to request an assurance of Commission authority in a slightly different situation.

Otter Tail Power Company is seriously considering multiple opportunities to invest in a 30-40 MW wind farm in North Dakota. The investment would become rate base generation. Total rate base investment is expected to be about \$50-70 million.

Otter Tail Power Company does not expect to file a general rate case in North Dakota before late 2008, which means that we would lose rate recovery of the investment in the wind farm for 12 to 18 months, depending on exactly when it becomes operational and when a rate case is filed. In the meantime, Otter Tail Power Company proposes to apply to the Commission for authority to implement a Renewable Generation Rider that would recover the revenue requirements on this wind farm from the time it becomes operational until it becomes part of base rate in a general rate case.

While Otter Tail Power Company expects to make application to the Commission with full support and details for calculation and implementation of cost recovery, Otter Tail Power Company requests confirmation that the Commission has the authority to grant such an application based on its merits.

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Renewable Generation Rider application  
Otter Tail Corporation

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Otter Tail Power Company anticipates the need to commit to one of these projects by mid-November. We realize this timeframe does not allow for full application review and approval, but would request the following prior to commitment:

1. Confirmation that the project is considered prudent under NDCC 49-05-16 due to its North Dakota location.
2. Confirmation of the March 8, 2005 memo indicating that North Dakota has the authority to implement a renewable generation rider.
3. A reasonable assurance the commission would approve such an application, assuming the merits of the project can be shown and a reasonable recovery mechanism can be developed.
4. A procedural schedule for the application review process.

To assist the commission staff in development of timely opinions we have attached a recently completed filing to the Minnesota PUC of Otter Tail Power Company's Integrated Resource Plan indicating the recommendation of up to 160 MW of wind as part of our least cost portfolio of resources.

If you have questions, please contact me at 218-739-8353 or [CMacFarlane@otpc.com](mailto:CMacFarlane@otpc.com). If you want to meet to discuss the project, we will be glad to come to Bismarck in the next two weeks for such a meeting. We appreciate your assistance on this important project.

Yours very truly,



Chuck MacFarlane, President  
Otter Tail Power Company

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

LeRoy Koppendrayer	Chair
R. Marshall Johnson	Commissioner
Kenneth Nickolai	Commissioner
Thomas W. Pugh	Commissioner
Phyllis Reha	Commissioner

In the Matter of Otter Tail Power  
Company's 2006 – 2020 Resource  
Plan

DOCKET NO. E-017/RP-05-968

**OTTER TAIL POWER COMPANY SUPPLEMENTAL INFORMATION AND  
ANALYSIS RESULTS ON ITS RESOURCE PLAN**

**PROCEDURAL HISTORY**

On June 30, 2005, Otter Tail Corporation, dba Otter Tail Power Company (Otter Tail or the Company), filed its proposed Resource Plan covering the period 2006 – 2020, pursuant to Minnesota Statutes §216B.2422 and Minnesota Rule Chapter 7843.

On August 16, 2005, the Minnesota Department of Commerce (the Department) filed comments on completeness of Otter Tail's filing.

On January 3, 2006, Excelsior Energy Inc. (Excelsior) and the Department filed comments, and Joint Comments were filed by the Izaak Walton League of America (IWLA), Minnesotans for an Energy-Efficient Economy (ME3), the Union of Concerned Scientists (UCS), and Minnesota Center for Environmental Advocacy (the Joint Intervenors).

On February 28, 2006 the Joint Intervenors requested the establishment of an additional round of public comments.

On May 1, 2006, Otter Tail Power filed reply comments.

On July 20, 2006 the Commission met to consider the matter and issued its Order on August 9, 2006 deferring consideration of OTP's resource plan, directing updated information, allowing comment, finding good faith REO efforts, and directing the Company's next resource plan filing.

## **INTRODUCTION**

Otter Tail's initial resource plan included consideration of the Big Stone Plant II (BSPII) project proposal as a potential resource alternative. The IRP-Manager model has selected BSPII as part of the optimized resource plan. In early 2006 the BSPII project team and the consulting firm issued requests for bids on several of the major components of the BSPII project. Some of the bid packages were received just prior to the Commission's July 20, 2006 hearing. Although the bid packages had not yet been fully reviewed, there was indication that costs for the project could be higher than the preliminary engineering estimates. The Commission chose to defer a decision on the merits of Otter Tail's proposed Resource Plan pending receipt and review of updated cost figures and model runs based on those costs. The Commission ordered Otter Tail to file supplemental information updating its April base case runs that were included as part of its reply comments as soon as practicable.

### **Updated Planning Process**

Otter Tail used the same planning process and planning software, IRP-Manager, which was used for the April base case runs. That database also served as the starting point for updating information. Where new data was available, Otter Tail incorporated the information into the analysis. The following topics identify data changes that were made in the various sub-sections of the model.

#### **Demand**

The load forecast that was used in the April base case runs was used in the new analysis. This is the base load forecast from the initial resource planning analysis, plus the significant load additions that were incorporated into the April data. Otter Tail had previously notified the Commission of four new large industrial loads, totaling about 23 MW of winter season demand and 24 MW of summer season demand.

#### **Wholesale Market Information**

Otter Tail purchased an updated regional wholesale price forecast from Global Energy Decisions to provide monthly on-peak and off-peak spot market price forecasts to represent the MISO

market. Global Energy Decisions models the whole eastern interconnection to develop spot market wholesale electricity price forecasts. The specific forecast used was for the Minnesota region. As with the April computer runs, Otter Tail did not allow the model to sell surplus energy to the wholesale market, except for Dump Energy in those situations where minimum generation production levels exceeded retail load levels.

### Manitoba Hydro Long-Term Proposal

Otter Tail received a new long-term 20-year capacity and energy proposal from Manitoba Hydro for use in the updated analysis. As with the previous proposals, this proposal is covered by a confidentiality agreement and not available for release except to regulatory agencies in a proprietary manner.

### Fuel Prices

Otter Tail updated the fuel price forecasts used within the model.

For natural gas prices Otter Tail had previously used the most current forecast developed from the Energy Information Administration (EIA). During 2006 Otter Tail became aware of studies performed by the Lawrence Berkeley National Laboratory (LBNL) that compared the EIA forecasts to actual prices. The EIA forecasts had been historically low. The latest study results<sup>1</sup> from LBNL indicated that the EIA Annual Energy Outlook 2006 was understating the price of natural gas by an average of \$2.30/MBTU. Instead of using the EIA forecast, Otter Tail chose to purchase and use a natural gas price forecast from Global Energy Decisions that matched up with the wholesale market price forecast previously mentioned. Since natural gas is frequently the fuel on the margin for wholesale energy, it is an added benefit to have these two forecasts linked.

Fuel oil makes up a very small percentage of the fuel mix for Otter Tail. The oil price forecast was updated to current prices, and then merged to the EIA forecast over time.

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<sup>1</sup> Memo from Mark Bolinger and Ryan Wiser, Lawrence Berkeley National Laboratory, dated December 19, 2005.

Coal prices were updated to reflect current contract pricing and then specific forecasts for each facility were developed based on the specific circumstances (contract terms and conditions, regional indices, etc.) applicable to each facility.

#### Demand-side Alternatives

No changes were made to any demand-side alternatives available to the model.

#### Renewable Resources

No changes were made to the cost of wind alternatives. Otter Tail had increased the cost of wind generation prior to completion of the April 2006 model runs. The proposals received in response to the Company's March 2005 Request-for-Proposals (RFP) for Renewable Energy Objective (REO) qualifying renewable resources indicated the modeled costs were appropriate.

One change was made to the physical modeling of wind resources. The Company's RFP process for up to 75 MW of resources is not fully completed. The Company is in final negotiations on a project. Agreements may be finalized in the next few weeks. The final MW amount has not been officially established, but could be up to 75 MW. The new model runs included 40 MW of wind to represent the expected minimum amount Otter Tail would take under the RFP. Additional 20 MW blocks of wind were made available to the model.

There are two key assumptions in the modeling of wind. The first is that the federal Production Tax Credit was available at all times. The second assumption is that all wind was modeled as being purchased from wind developers. While Otter Tail is considering ownership of wind generation, the IRP-manager model is not well equipped to properly handle all of the federal and state incentives. The Department had indicated that they did not have a preference as to which method was used to model wind, so it was modeled as a purchased resource.

A significant change has taken place with respect to Otter Tail's biomass resources. On August 30, 2006 Otter Tail received notification that the Potlatch Cogeneration facility was being permanently shut down due to a loss of the fuel source (wood waste). The shut down was effective immediately. This facility is located on the site of a wood products manufacturing plant that is experiencing a closing of about 50% of its production capability. Without the wood waste

from that production, there is insufficient wood waste to continue fueling the cogeneration facility. Otter Tail was receiving about 5.8 MW of capacity and 33,000-34,000 MWh of generation annually. This unit was shut down in the model as of the end of August 2006. Otter Tail's previous resource plan had included this facility.

### Supply-side Alternatives

In 2002 Otter Tail hired Black & Veatch to develop costs and operating parameters for a number of supply-side alternatives. Following the Commission's July 20 hearing, Otter Tail hired Black & Veatch to complete an update to some of the supply-side alternatives, incorporating information learned about commodity and labor costs in the BSPII process. This process caused a delay in developing the new modeling results, as the updated Black & Veatch data was not available until the end of August.

Otter Tail used the updated Black & Veatch information, the 2006 Gas Turbine World handbook, information from General Electric, data from Company owned facilities, and publicly available information to develop updated supply-side alternatives. Table 1 on the next page identifies the resources made available to the model, the number of units available, winter and summer season ratings, and the years that the alternative was available to the model.

One final change was made to the particulate emission rate of the Big Stone I unit. During 2002 an Advanced Hybrid® particulate control technology was added to the unit. This was a \$13.4 million project co-funded by the Big Stone Plant co-owners and the U.S. Department of Energy's National Energy Technology Laboratory Power Plant Improvement Initiative. A small-scale demonstration project had been operated for a few years at Big Stone prior to the decision being made to advance with a full-sized demonstration project. While the technology was a very effective control technology, its performance could not be sustained over extended operating periods. Since 2002 a variety of modifications and changes were made in an attempt to improve the long-term viability of the technology. The myriad of problems associated with the technology was affecting plant operations and energy availability. During the preparation for the updated IRP modeling, the Big Stone Plant co-owners decided that the Advanced Hybrid® technology needed to be removed and replaced with a proven technology. The particulate emission rate for Big Stone Plant I was changed to reflect the expected design performance of the replacement system, which should be in place by late 2007.

**Table I**  
**Supply-Side Alternatives Evaluated With IRP-Manager**

<b>Resource Type</b>	<b># of Units Available</b>	<b>Winter Season Rating (MW)</b>	<b>Summer Season Rating (MW)</b>	<b>Years Available</b>
GE LM6000PC CT	3	48.4	42.5	2009 - 2020
GE Frame 7EA CT	2	95.3	74.8	2009 - 2020
Combined Cycle Based on GE Frame 7EA	1	141.3	116.7	2010 - 2020
Combined Cycle Based on GE MS 6001FA	1	115.1	95.1	2010 - 2020
Combined Cycle Based on Hitachi H2025	1	88.1	72.8	2010 - 2020
Combined Cycle Based on GE LM6000PC	1	59.3	44.9	2010 - 2020
IGCC	2	88.1	72.8	2015 - 2020
Big Stone Plant II	Up to 120 MW Summer Rating	Up to 126 MW Winter Rating	Up to 120 MW Summer Rating	2011
Phosphoric Acid Fuel Cell	2	20 MW	20 MW	2009 - 2020
Manitoba Hydro Purchase	1	120 MW	120 MW	2011 - 2020
Manitoba Hydro Purchase	1	50 MW	50 MW	2011 - 2020
Wind	8	20 MW <sup>2</sup>	20 MW <sup>2</sup>	2008 - 2020
Spot Market	1	70 MW	70 MW	2008
Spot Market	1	80 MW	80 MW	2009
Spot Market	1	95 MW	125 MW	2010

The cost and pertinent operating parameters of the supply-side options are shown in Table II. Some of this data is considered proprietary and has been omitted from the public version of these comments. The shaded cells indicate the proprietary data contained in the table.

<sup>2</sup> Nameplate rating. Expected accreditation level for peak months is 20% winter and 15% summer.

\*\*\* START PROPRIETARY DATA \*\*\*

<p align="center"><b>Table II</b>  <b>Cost of Supply-side Alternatives (2006\$ except as noted)</b></p>					
<b>Alternative</b>	<b>Capital Cost (\$/kW)<sup>3</sup></b>	<b>Fixed O&amp;M Cost (\$/kW-year)<sup>3</sup></b>	<b>Variable O&amp;M Cost (\$/MWh)</b>	<b>Transmission Cost (\$/kW)<sup>3</sup></b>	<b>Full Load Heat Rate (Btu/kWh)</b>
GE LM6000PC CT					
GE Frame 7EA CT					
GE Frame 7EA Based Combined Cycle					
GE MS 6001FA Based Combined Cycle					
Hitachi H2025 Based Combined Cycle					
GE LM6000PC Based Combined Cycle					
IGCC (Assumed Hoot Lake location)					
Big Stone Plant II					
Phos. Acid Fuel Cell					
Manitoba Hydro PPA					
Wind-A					
Wind-B					
Wind-C					
Wind-D					
Wind-E					
Wind-F					
Wind-G					
Wind-H					
Spot Market					
Spot Market					
Spot Market					

\*\*\* END PROPRIETARY DATA \*\*\*

**Estimated Load & Capability Status**

Table III contains the updated estimated load and capability status for the resource plan. The data includes updated URGE test results on generation, and takes into consideration the loss of the Potlatch biomass-fueled cogeneration facility. Otter Tail has executed spot market capacity purchases for the 2005 winter season, the 2006 summer season, and the 2006 winter season. Those purchases are not included in the data because spot market purchases are listed in the resource plan development results.

<sup>3</sup> The capital cost is based on the winter rating of the resource, except for the spot market purchases.

**Table III**  
**2006-2020 Base Case Planning Scenario Load & Capability Prior to Resource Plan Information**  
**Resources Initially at 2005 Accreditation Levels (MW) and Updated for 2006 Test Results**

**For Demonstration Purposes Only - Do Not Use as Final OTP Load & Capability**

MAPP LOAD & CAPABILITY CALCULATION	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN
	2005	2006	2006	2007	2007	2008	2008	2009	2009	2010	2010	2011	2011	2012	2012
SEASONAL MAX. DEMAND	733	665	747	681	779	718	788	728	801	743	810	755	819	767	832
SCHEDULE L PURCHASES	80	29	80	29	80	29	80	29	80	29	80	29	80	29	80
SEASONAL SYSTEM DEMAND	653	636	667	652	699	689	708	699	721	714	730	726	739	738	752
ANNUAL SYSTEM DEMAND	689	653	667	667	699	699	708	708	721	721	730	730	739	739	752
FIRM PURCHASES - TOTAL	6	5	6	5	6	5	6	5	6	5	6	5	6	5	6
FIRM SALES - TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEASONAL ADJ NET DEMAND	647	631	661	647	693	684	702	694	715	709	724	721	733	733	746
ANNUAL ADJ NET DEMAND	683	648	661	662	693	694	702	703	715	716	724	725	733	734	746
NET GENERATING CAP	704	675	705	679	705	679	705	679	705	679	705	679	705	679	705
PART. PURCHASE - TOTAL	102	52	52	52	52	52	52	52	52	2	2	2	2	2	2
PART. SALES - TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ NET CAPABILITY	806	727	757	731	757	731	757	731	757	681	707	681	707	681	707
NET RESERVE CAP OBLIG	102	97	99	99	104	104	105	105	107	107	109	109	110	110	112
TOTAL FIRM CAP OBLIG	749	728	760	746	797	788	807	799	822	816	833	830	843	843	858
SURPLUS OR DEFICIT CAP	57	-1	-3	-15	-40	-57	-50	-68	-65	-135	-126	-149	-136	-162	-151

  

MAPP LOAD & CAPABILITY CALCULATION	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM
	2013	2013	2014	2014	2015	2015	2016	2016	2017	2017	2018	2018	2019	2019	2020
SEASONAL MAX. DEMAND	783	841	794	850	806	862	822	871	833	879	844	886	855	894	866
SCHEDULE L PURCHASES	29	80	29	80	29	80	29	80	29	80	29	80	29	80	29
SEASONAL SYSTEM DEMAND	754	761	765	770	777	782	793	791	804	799	815	806	826	814	837
ANNUAL SYSTEM DEMAND	754	761	765	770	777	782	793	793	804	804	815	815	826	826	837
FIRM PURCHASES - TOTAL	5	6	5	6	5	6	5	6	5	6	5	6	5	6	5
FIRM SALES - TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEASONAL ADJ NET DEMAND	749	755	760	764	772	776	788	785	799	793	810	800	821	808	832
ANNUAL ADJ NET DEMAND	749	755	760	764	772	776	788	787	799	798	810	809	821	820	832
NET GENERATING CAP	679	705	679	705	679	705	679	705	679	562	537	562	537	562	537
PART. PURCHASE - TOTAL	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
PART. SALES - TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ADJ NET CAPABILITY	681	707	681	707	681	707	681	707	681	564	539	564	539	564	539
NET RESERVE CAP OBLIG	112	113	114	115	116	116	118	118	120	120	122	121	123	123	125
TOTAL FIRM CAP OBLIG	861	868	874	879	888	892	906	903	919	913	932	921	944	931	957
SURPLUS OR DEFICIT CAP	-180	-161	-193	-172	-207	-185	-225	-196	-238	-349	-393	-357	-405	-367	-418

### **Base Case Results – No Environmental Externalities**

The resource plan, without consideration of environmental externalities, as selected by the IRP-Manager model is shown in Table IV. The table shows the estimated MW impact of each resource group by MAPP season. It is important to recognize that the MAPP 15% reserve capacity obligation is a *minimum* obligation. It is quite likely that the Company will seek to have a small margin above the 15% obligation to reduce the risk of falling below the requirement and being forced to purchase capacity at the MAPP Service Schedule B rate. That rate is estimated to be \$96,940/MW per MAPP season beginning with the 2005 summer season.

The results are very similar to the results from the April update filed with the Commission, with the following exceptions:

- A 50 MW purchase from Manitoba Hydro was added in 2011, in addition to the Big Stone Plant II project,
- Half of the IGCC capacity previously selected in 2018 was replaced with natural gas-fired combustion turbine capacity, and
- The level of DSM increased by approximately 10% on a kWh basis.

It is important to highlight a couple of items. The 50 MW of Manitoba Hydro purchase is not necessarily an optimized amount. Due to limitations in the number of hourly priced transactions allowed within IRP-Manager, the optimized MW level of such a purchase could be a little higher or lower than the 50 MW level. Based on the rankings and selection order of the resources, optimizing the purchase level from Manitoba Hydro would not reduce the amount of the Big Stone Plant II alternative, but may slightly increase the amount.

The increased level of conservation is mostly a result of the model advancing the implementation dates of some of the conservation programs from the April analysis. The annual and cumulative amounts of conservation impacts are shown in Table V.

The present-worth value of the total revenue requirements is \$3,627,947,000 (2003\$). The data is shown in 2003 dollars because that was the financial base year in the IRP-manager model when work began on this resource plan in 2004.

**Table IV**  
**2006-2020 Potential Future Resources<sup>4</sup>**  
**Base Case Planning Scenario (MW)**  
**Without Environmental Externalities**

Alternative	2005 Win	2006 Sum	2006 Win	2007 Sum	2007 Win	2008 Sum	2008 Win	2009 Sum	2009 Win	2010 Sum	2010 Win	2011 Sum	2011 Win	2012 Sum	2012 Win
Potlatch Biomass	5.8	5.8	0	0	0	0	0	0	0	0	0	0	0	0	0
DSM/Conservation	8.0	4.9	11.2	6.4	14.3	7.9	17.4	9.4	21.5	11.0	25.5	12.7	30.6	14.5	36.2
Short Term Purchase	20	32	87	50	70	70	80	80	95	125	0	0	0	0	0
Big Stone Plant II	0	0	0	0	0	0	0	0	0	0	121.6	115	121.6	115	121.6
Wind <sup>a, b</sup>	0	0	0	0	8	6	32	24	32	24	32	24	32	24	32
Transmission Loss Reduction	0.8	1.5	0.8	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9
GE LM6000 CT-A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IGCC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHEB Purchase	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50
<b>Total</b>	<b>34.6</b>	<b>44.2</b>	<b>99</b>	<b>58.5</b>	<b>94.2</b>	<b>86</b>	<b>131.3</b>	<b>115.5</b>	<b>150.4</b>	<b>162.1</b>	<b>231</b>	<b>203.8</b>	<b>236.1</b>	<b>205.6</b>	<b>241.7</b>

- a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating. The data shown represent 160 MW of nameplate rating of wind generation.
- b. The actual wind amount is to be determined in the next IRP, following discussions with MISO about limits on market energy imports to the OTP system.

<sup>4</sup> Data is presented on a MAPP seasonal basis. The summer season is straightforward, from May – October. The winter season crosses the end of the year. For example, Winter 2010 is from November 2010 – April 2011. Since OTP is typically peaking in January, the Winter 2010 data actually represents January 2011 data.

**Table IV**  
**2006-2020 Potential Future Resources<sup>6</sup>**  
**Base Case Planning Scenario (MW)**  
**Without Environmental Externalities**

Alternative	2013 Sum	2013 Win	2014 Sum	2014 Win	2015 Sum	2015 Win	2016 Sum	2016 Win	2017 Sum	2017 Win	2018 Sum	2018 Win	2019 Sum	2019 Win	2020 Sum
Potlatch Biomass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DSM/Conservation	13.9	38.1	15.6	43.2	17.3	46.9	18.9	50.6	20.6	54.3	22.2	59.3	25.4	64.6	29.5
Short Term Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Stone Plant II	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115
Wind <sup>a, b</sup>	24	32	24	32	24	32	24	32	24	32	24	32	24	32	24
Transmission Loss Reduction	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1
GE LM6000 CT-A	0	0	0	0	0	0	0	0	0	48.4	42.5	48.4	42.5	48.4	42.5
GE LM6000 CT-B	0	0	0	0	0	0	0	0	0	48.4	42.5	48.4	42.5	48.4	42.5
GE LM6000 CT-C	0	0	0	0	0	48.4	42.5	48.4	42.5	48.4	42.5	48.4	42.5	48.4	42.5
IGCC	0	0	0	0	0	0	0	0	0	88.1	72.8	88.1	72.8	88.1	72.8
MHEB Purchase	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
<b>Total</b>	205	243.6	206.7	248.7	208.4	300.8	252.5	304.5	254.2	493.1	413.6	498.1	416.8	503.4	420.9

- a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating. The data shown represent 160 MW of nameplate rating of wind generation.
- b. The actual wind amount is to be determined in the next IRP, following discussions with MISO about limits on market energy imports to the OTP system.

**Table V**  
**Base Case Without Environmental Externalities**  
**Estimated kWh Savings Due to Conservation<sup>a</sup>**

<b>Year</b>	<b>Incremental Annual Savings (kWh)</b>	<b>Cumulative Annual Savings (kWh)</b>
2004-05 CIP	21,161,584	21,161,584
2006	8,068,279	29,229,863
2007	8,068,279	37,298,142
2008	8,068,279	45,366,421
2009	8,068,279	53,434,700
2010	9,139,475	62,574,174
2011	9,207,506	71,781,506
2012	10,189,785	81,971,465
2013	10,982,636	92,954,001
2014	10,982,536	103,936,537
2015	10,982,536	114,919,073
2016	9,961,550	124,880,623
2017	9,961,555	134,842,178
2018	9,961,551	144,803,729
2019	17,672,547	162,476,276
2020	22,163,358	184,639,634

a. 2004-05 CIP data is included since the impacts of those programs are not included in the load forecast

### **Base Case with High Environmental Externalities**

The IRP-manager model was used to execute an optimized resource planning run incorporating the high environmental externality values as established by the Commission. For this plan, the objective function for the model was changed to minimize the total present-worth value of revenue requirements and environmental externalities. Additionally, the cost-effectiveness test was modified to include the consideration of the environmental externality values.

The inclusion of the high environmental externality values in the analysis had minimal impact on the resource plan. The primary changes take place in 2012 (2011 winter season) and beyond.

These changes include:

- slightly increased conservation levels,
- eliminating two of the natural gas-fired CT's, and
- doubling the amount of IGCC capacity added in 2018.

The plan options available to IRP-Manager were the same as listed in Table I. The results of the optimization run are shown in Table VI.

The annual and cumulative kWh savings due to conservation are shown in Table VII.

The present-worth value of the total revenue requirements for the high environmental externality plan is \$3,666,258,000 (2003\$). The total present-worth value of the environmental externalities associated with this plan is \$39,163,000 (2003\$).

**Table VI**  
**2006-2020 Potential Future Resources<sup>5</sup>**  
**Base Case Planning Scenario (MW)**  
**With High Environmental Externalities**

Alternative	2005 Win	2006 Sum	2006 Win	2007 Sum	2007 Win	2008 Sum	2008 Win	2009 Sum	2009 Win	2010 Sum	2010 Win	2011 Sum	2011 Win	2012 Sum	2012 Win
Potlatch Biomass	5.8	5.8	0	0	0	0	0	0	0	0	0	0	0	0	0
DSM/Conservation	8.0	4.9	11.2	6.4	14.3	7.9	17.4	9.4	21.5	11.0	25.5	12.7	31.1	14.8	36.7
Short Term Purchase	20	32	87	50	70	70	80	80	95	125	0	0	0	0	0
Big Stone Plant II	0	0	0	0	0	0	0	0	0	0	121.6	115	121.6	115	121.6
Wind <sup>a, b</sup>	0	0	0	0	8	6	32	24	32	24	32	24	32	24	32
Transmission Loss Reduction	0.8	1.5	0.8	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9
GE LM6000 CT-A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IGCC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHEB Purchase	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50
<b>Total</b>	<b>34.6</b>	<b>44.2</b>	<b>99</b>	<b>58.5</b>	<b>94.2</b>	<b>86</b>	<b>131.3</b>	<b>115.5</b>	<b>150.4</b>	<b>162.1</b>	<b>231</b>	<b>203.8</b>	<b>236.6</b>	<b>205.9</b>	<b>242.2</b>

- a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating. The data shown represent 160 MW of nameplate rating of wind generation.
- b. The actual wind amount is to be determined in the next IRP, following discussions with MISO about limits on market energy imports to the OTP system.

<sup>5</sup> Data is presented on a MAPP seasonal basis. The summer season is straightforward, from May – October. The winter season crosses the end of the year. For example, Winter 2010 is from November 2010 – April 2011. Since OTP is typically peaking in January, the Winter 2010 data actually represents January 2011 data

**Table VI**  
**2006-2020 Potential Future Resources<sup>7</sup>**  
**Base Case Planning Scenario (MW)**  
**With High Environmental Externalities**

<b>Alternative</b>	<b>2013 Sum</b>	<b>2013 Win</b>	<b>2014 Sum</b>	<b>2014 Win</b>	<b>2015 Sum</b>	<b>2015 Win</b>	<b>2016 Sum</b>	<b>2016 Win</b>	<b>2017 Sum</b>	<b>2017 Win</b>	<b>2018 Sum</b>	<b>2018 Win</b>	<b>2019 Sum</b>	<b>2019 Win</b>	<b>2020 Sum</b>
Potlatch Biomass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DSM/Conservation	14.2	38.6	15.9	43.7	17.6	47.4	19.2	51.1	20.9	54.8	22.5	59.8	25.7	65.1	29.8
Short Term Purchase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Big Stone Plant II	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115	121.6	115
Wind <sup>a, b</sup>	24	32	24	32	24	32	24	32	24	32	24	32	24	32	24
Transmission Loss Reduction	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1	1.9	2.1
GE LM6000 CT-A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GE LM6000 CT-C	0	0	0	0	0	48.4	42.5	48.4	42.5	48.4	42.5	48.4	42.5	48.4	42.5
IGCC	0	0	0	0	0	0	0	0	0	176.2	145.6	176.2	145.6	176.2	145.6
MHEB Purchase	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
<b>Total</b>	<b>205.3</b>	<b>244.1</b>	<b>207</b>	<b>249.2</b>	<b>208.7</b>	<b>301.3</b>	<b>252.8</b>	<b>305</b>	<b>254.5</b>	<b>484.9</b>	<b>401.7</b>	<b>489.9</b>	<b>404.9</b>	<b>495.2</b>	<b>409</b>

- a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating. The data shown represent 160 MW of nameplate rating of wind generation.
- b. The actual wind amount is to be determined in the next IRP, following discussions with MISO about limits on market energy imports to the OTP system.

**Table VII**  
**Base Case With High Environmental Externalities**  
**Estimated kWh Savings Due to Conservation<sup>a</sup>**

<b>Year</b>	<b>Incremental Annual Savings (kWh)</b>	<b>Cumulative Annual Savings (kWh)</b>
2004-05 CIP	21,161,584	21,161,584
2006	8,068,279	29,229,863
2007	8,068,279	37,298,142
2008	8,068,279	45,366,421
2009	8,068,279	53,434,700
2010	9,139,475	62,574,174
2011	9,207,506	71,781,680
2012	10,982,537	82,764,217
2013	10,982,536	93,746,753
2014	10,982,535	104,729,288
2015	10,982,535	115,711,823
2016	9,961,555	125,673,378
2017	9,961,551	135,634,929
2018	9,961,548	145,596,477
2019	17,672,553	163,269,030
2020	22,163,354	185,432,384

a. 2004-05 CIP data is included since the impacts of those programs are not included in the load forecast

### **Renewable Energy Objective**

Otter Tail did not anticipate needing to address the Renewable Energy Objective (REO) in this update filing. The previous resource plan filings associated with this docket had demonstrated the Company's plans and intentions with respect to compliance with the REO across its entire system. The sudden announcement of the permanent closing of the Potlatch Cogeneration Facility on August 30, 2006 will have an impact on the amount of Otter Tail's REO qualifying energy. The Company will have no problem meeting the objective in 2006, as it was anticipated that there would be surplus REO qualifying energy. With the loss of this facility, compliance will be more difficult in 2007, and Otter Tail will need to look at solutions. A new wind farm on-line by the end of 2007 may resolve the issue of having sufficient REO qualifying energy for that year.

Of equal concern is that the Potlatch facility met the Company's biomass goal under the REO statute, even beyond 2010 when the biomass requirement increased. The Company has not yet had time to begin looking at alternatives for compliance with the biomass portion of the statute. Otter Tail had just commenced discussions with a potential REO qualifying biomass facility at about the time the Company was notified of the Potlatch facility closing. This facility, if discussions are successful, would potentially provide about 1/3 of the biomass capacity and energy the Company was previously receiving. However, the planned startup date would not be until 2009, leaving 2007 and 2008 as biomass compliance issues for the Company to address.

Otter Tail intends to report more fully in its resource plan filing to be submitted in 2007.

### **Update on Renewable Resource RFP**

Otter Tail issued an RFP for up to 75 MW of REO qualifying energy in March 2006. Over the course of the summer, the proposals were evaluated and a short list of finalists identified. In July discussions began with the selected vendor to reach agreement on terms and conditions to be consummated in a contract. Over the course of the negotiations, a risk issue was identified that could not be overcome in order to guarantee a 2007 commercial operation date. On September 21, the parties mutually agreed that the risk allocation issue would not be resolved unless market conditions for 2007 wind project changed and influenced one party to accept certain risks.

The Company is now in negotiations with a different vendor from the short list. If negotiations are successful, contracts could be signed within a number of weeks. The goal of both parties is to bring a project to commercial operation by the end of 2007. Otter Tail should be able to report more completely on the development of a project in its next resource plan filing.

### Summary

As requested by the Commission, Otter Tail has completed updated resource plans using the latest cost data wherever such data was available and could be incorporated into the model. Cases with and without the high environmental externality values were developed. The inclusion of the values had little impact on the resource plan prior to 2012. The use of environmental externalities results in increased conservation beginning in 2012, and additional IGCC capacity to replace the Hoot Lake units in 2018.

Otter Tail respectfully requests that the Commission approve its 2005 resource plan application based on the updated information and analysis. Because the no environmental externality and high environmental externality value plans are so similar through 2011, the Commission can approve either plan with the same result. The Commission has already ordered the Company to file a new resource plan in 2007, at the same time or prior to the time that Otter Tail files its rate case with the Commission.

There are two issues remaining from this resource plan filing that the Company intends to resolve in its next resource plan filing. First, as Otter Tail identified in its earlier reply comments, the availability of MISO wholesale market energy to back up wind generation is a key determinant in the amount of wind generation the planning model will select. If energy imports are capped and wind must be backed up by peaking capacity, the model will select less wind generation. Otter Tail intends to involve its transmission planners and MISO in a discussion to determine a viable level of wholesale energy imports from the market to the Otter Tail system.

As mentioned earlier, the 50 MW purchase from Manitoba Hydro that was selected by IRP-Manager is not necessarily an optimum number. The optimum level may be slightly higher or lower. Otter Tail intends to make that determination in its next resource plan filing, using the capabilities of its new planning model. Otter Tail has purchased the Strategist planning model,

and in the very near future will begin gearing up the database and that model for the 2007 resource plan filing.

Otter Tail respectfully requests the Commission's approval of its resource plan. We also apologize for the approximate one-month delay in submitting this filing from the original intended schedule (mid-September). President Chuck MacFarlane previously submitted a letter to the Commission expressing regrets for the delay and offering explanations of the causes.

Any questions regarding this submittal can be directed to me by telephone at 218-739-8269 or via email at [bmorlock@otpc.com](mailto:bmorlock@otpc.com).

Sincerely,

Bryan D. Morlock, P.E.  
Manager, Resource Planning