

# 9 Preferred Resource Plan

## GENERAL DISCUSSION

The Preferred Resource Plan details the expected specific activities of Otter Tail with respect to the resources associated with the preferred plan in the 2006 – 2011 time period. It also identifies possible resources that could be used to serve customer loads over the entire 2006 – 2020 resource planning period. This section only discusses issues associated with the base planning scenario. Discussion of the resources appropriate to the low and high load growth planning scenarios are included in Section 11, Contingencies.

## PREFERRED RESOURCE PLAN

The Otter Tail preferred resource plan is the plan selected by the IRP-Manager model with one potential change. The model selected an LM6000 for implementation in 2011. A review of the IRP-Manager base plan indicated the model selected more capacity in 2011 than was needed. The LM6000 could possibly be delayed until 2013, resulting in a cost savings to customers. The Company's specific resource plan is tabulated in Table 9-A. 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. Following is a description and comment on each of the resources identified in Table 9-A.

### **Biomass Cogeneration**

Otter Tail receives half of the electrical output of the Potlatch Cogeneration plant. This amounts to about 5.75 MW of capacity and about 30 – 34 million kWh annually. This facility and a wood products facility located on the same site was sold to another company in September 2004. It is still known at MAPP and MISO as the Potlatch facility, and will continue to be so known in the future. Otter Tail has chosen to list it under the same name for consistency. A contract was signed in December of 2004 and this contract period expires on December 31, 2005. It is Otter Tail's intention to negotiate for renewal of this contract.

## 9-2 Preferred Resource Plan

**Table 9-A  
2006-2020 Potential Future Resources  
Base Case Planning Scenario (MW)**

<b>Alternative</b>	<b>2005 Win</b>	<b>2006 Sum</b>	<b>2006 Win</b>	<b>2007 Sum</b>	<b>2007 Win</b>	<b>2008 Sum</b>	<b>2008 Win</b>	<b>2009 Sum</b>	<b>2009 Win</b>	<b>2010 Sum</b>	<b>2010 Win</b>	<b>2011 Sum</b>	<b>2011 Win</b>	<b>2012 Sum</b>	<b>2012 Win</b>
Potlatch Biomass	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
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	35.6
Short Term Purchase	0	0	0	10	0	20	0	30	5	95	0	0	0	0	0
Big Stone Plant II	0	0	0	0	0	0	0	0	0	0	120	120	120	120	120
Enbridge 70.5 MW Wind Farm <sup>a</sup>	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1
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
Aeroderivative CT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46.9
2012-20 MW Wind <sup>a</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3
2014-20 MW Wind <sup>a</sup>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Integrated Gasification CC-A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Integrated Gasification CC-B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	28.7	22.8	31.9	34.9	36.1	46.4	39.2	57.9	48.3	124.5	167.3	151.2	176.4	156.0	228.3

a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating.

**Table 9-A  
2006-2020 Potential Future Resources  
Base Case Planning Scenario (MW)**

<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	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
DSM/Conservation	13.6	37.4	15.0	42.4	16.5	45.9	17.9	49.4	19.3	53.0	20.7	57.8	23.5	62.9	27.4
Short Term Purchase	0	0	0	0	0	0	5	0	15	0	25	0	35	0	45
Big Stone Plant II	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Enbridge 70.5 MW Wind Farm <sup>a</sup>	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6	14.1	10.6
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
Aeroderivative CT	44.6	46.9	44.6	46.9	44.6	46.9	44.6	46.9	44.6	46.9	44.6	46.9	44.6	46.9	44.6
2012-20 MW Wind <sup>a</sup>	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3
2014-20 MW Wind <sup>a</sup>	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3
Integrated Gasification CC - A	0	0	0	0	0	0	0	0	0	87.4	72.2	87.4	72.2	87.4	72.2
Integrated Gasification CC - B	0	0	0	0	0	0	0	0	0	87.4	72.2	87.4	72.2	87.4	72.2
<b>Total</b>	<b>202.7</b>	<b>234.1</b>	<b>204.1</b>	<b>239.1</b>	<b>205.6</b>	<b>242.6</b>	<b>212.0</b>	<b>246.1</b>	<b>223.4</b>	<b>424.5</b>	<b>379.2</b>	<b>429.3</b>	<b>392.0</b>	<b>434.4</b>	<b>405.9</b>

a. The wind capacity amounts are the expected MAPP accreditation rating, not nameplate rating.

## **9-4 Preferred Resource Plan**

---

### **Enbridge 70.5 MW Wind Farm**

Otter Tail has filed for approval of the 70.5 MW Enbridge Wind Farm with the regulatory commissions in Minnesota, North Dakota, and South Dakota. If approved, this wind farm would be scheduled to enter service in late 2005 or early 2006, contingent upon extension of the Production Tax Credit. If the Enbridge Wind Farm is not approved for development, Otter Tail will continue to seek other cost-effective wind development alternatives in accordance with the Company's wind development strategy.

### **Wind**

The model selected 20 MW of wind in 2012 in addition to the wind manually implemented in the model, if the total cost to Otter Tail is 3 cents/kWh or less, flat cost, over the life of the installation. Additional sensitivities related to wind costs and implementation are discussed later in this section.

### **DSM/Conservation**

Table 9-A includes the estimated capacity impacts from DSM selected by the IRP-Manager model and those DSM impacts that cannot be modeled but have been included as CIP programs. The Table 9-A data includes the impact to reserve requirements from DSM program implementation. Table 9-B includes the estimated annual and cumulative DSM energy savings. The IRP-Manager optimization runs selected more DSM than had been selected by the model in previous resource plan filings. This is partly a reflection of the fact that the Company's resource needs in previous plan filings have been dominated by peaking needs. Otter Tail's need for baseload resources in the 5 – 6 year time frame, coupled with the rapid escalation in wholesale power prices, has increased avoided costs and made more conservation cost-effective.

### **Baseload Pulverized Coal**

The model selected 120 MW, the maximum it was allowed to select, of the proposed Big Stone Plant II unit. At the time of the development of this plan, Otter Tail only has rights for up to 116 MW of capacity unless other interested parties decide to lower their share. Of the 120 MW total, 115 MW of the capacity was selected as cost-effective. The model would have selected this option even if Otter Tail did not need capacity. The energy needs are present to justify the generation. The remaining 5 MW was selected as the least cost option to meet reserve margin requirements.

### **Aeroderivative Combustion Turbine**

The IRP-Manager model selected a GE LM6000 for implementation in 2011 for capacity reasons in order

<b>Table 9-B Estimated kWh Savings Due to Conservation<sup>a</sup></b>		
<b>Year</b>	<b>Incremental Annual Savings – kWh</b>	<b>Cumulative Annual Savings - kWh</b>
2004	8,318,920	8,318,920
2005	10,580,567	18,899,487
2006	7,397,714	26,297,201
2007	7,397,714	33,694,915
2008	7,397,714	41,092,629
2009	7,397,714	48,490,343
2010	8,468,909	56,959,252
2011	8,536,941	65,496,193
2012	9,519,220	75,015,413
2013	9,519,219	84,534,632
2014	9,879,151	94,413,783
2015	9,967,782	104,381,565
2016	8,947,000	113,328,361
2017	8,952,329	122,280,690
2018	8,952,328	131,233,018
2019	16,663,000	147,896,348
2020	21,154,133	169,050,481

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

to meet reserve requirements. Otter Tail delayed that unit until 2013 in the base plan. The LM6000 alternative was a proxy for an aeroderivative CT option. If and when implemented for capacity reserves the actual unit installed could be a different make or model, depending upon the best value at the time bids are sought from suppliers. It is also possible that short-term peaking capacity may be available for less cost at that time or a period of time that could delay this unit further.

## **9-6 Preferred Resource Plan**

---

### **Integrated Gasification Combined Cycle (IGCC)**

The IRP-Manager model selected two small IGCC units for implementation in 2018 for reserve margin and energy needs. The IGCC modeled was simply an alternative to represent the potential for a future IGCC technology fueled with western sub-bituminous coal. At this time, no such IGCC unit exists and those costs and performance parameters modeled are only rough approximations. If an IGCC technology fueled by western sub-bituminous coal does become available in that time frame, close to the parameters that were modeled, IGCC would appear to be a strong candidate for energy supply. The Hoot Lake #2 and #3 units were modeled as retiring at the end of 2017. Otter Tail needs to replace that capacity as well as supply additional load growth.

### **Reduction in Transmission Losses**

Otter Tail has identified three transmission projects that will result in reductions in transmission line losses. These three projects are the Appleton – Canby 41.6 kV to 115 kV update (600 kW summer, and 1100 kW winter), Fargo – Mapleton 41.6 kV – 115 kV update (200 kW summer and 80 kW winter), and the Audubon – Detroit Lakes – Frazee – Perham – Rush Lake 41.6 kV – 115 kV update (1300 kW summer and 750 kW winter). Other projects are being studied at this time, but loss impacts are not yet known.

## **ENVIRONMENTAL EXTERNALITY OPTIMIZATION RESULTS**

The base case optimization model was executed in three modes: no environmental externality values, low environmental externality values, and high environmental externality values. The environmental externality values changed the results primarily by implementing a purchase from Manitoba Hydro, in addition to the 120 MW of Big Stone II, and by advancing newer units to earlier operational dates to unload existing generation (and thus avoid emissions).

The low environmental externality values case changed from the base preferred plan by:

- Adding a 105 MW long-term purchase from Manitoba Hydro in 2011, which primarily reduced generation at existing units.
- Adding an LM6000 aeroderivative CT in 2014.
- Moving one of the IGCC units in the base case from 2018 to 2015.
- Eliminating one conservation program previously selected for 2017

- Eliminating the second IGCC unit in 2018.

The high environmental externality values case changed from the base preferred plan by:

- Moving one conservation program from a 2010 implementation date to 2011.
- Adding a 105 MW long-term purchase from Manitoba Hydro in 2011, which primarily reduced generation at existing units.
- Moving one conservation program from a 2011 implementation date to 2012.
- Adding an LM6000 CT aeroderivative CT in 2013.
- Moving both IGCC units from 2018 to 2015.
- Eliminating one conservation program previously selected for 2017.

The present-worth costs for the three plans are shown in Table 9-C.

<b>Table 9-C Present-Worth of Revenue Requirements for Base Scenarios Values in Millions of 2004\$</b>		
<b>Scenario</b>	<b>Revenue Requirements</b>	<b>% Increase from Base</b>
Base Case – No Externality Values	\$3,421.263	-
Base Case – With Low Externality Values	\$3,617.095	5.72%
Base Case – With High Externality Values	\$3,752.216	9.67%

**BIG STONE PLANT II SENSITIVITY**

The IRP-Manager scenario analyzer was used to determine if more than 120 MW of Big Stone Plant II could be owned and reduce the present-worth revenue requirements by moving other resources, such as the LM6000 chosen by the model in 2011, to a later installation date. Additional cases with 125 MW and 135 MW of Big Stone Plant II were modeled but the results were more expensive than the 120 MW case.

## 9-8 Preferred Resource Plan

---

### WIND SENSITIVITY

The future cost of wind generation has a great deal of uncertainty due to the unknown future of the Production Tax Credit. The future existence or lack of existence of the PTC creates almost a 60% difference in the cost range of wind generation. To determine the degree of sensitivity of wind implementation to cost by the optimization model, several sensitivity runs were completed with wind at varying costs. The actual amount of additional wind installation expected to be economic at the time of implementation is directly dependent upon the cost, obviously.

The sensitivity runs allowed the model to select additional 10 MW blocks of wind at a total cost of 2.0 cents, 2.5 cents, and 3.0 cents per kilowatt-hour. The costs were modeled as a flat cost over a 30-year life. There was no cost escalation used. In other words, the wind cost remained the same in every year without any consideration of the cost of money or cost escalators.

At the 2.5 and 3.0 cents per kilowatt-hour cost levels, the model did not select any additional wind until 2019. At a cost of 2.0 cents per kilowatt-hour, the model selected additional wind beginning in 2017. The model results are indicating that the system begins to experience minimum load operational problems at the current level of wind included in the plan. This is exacerbated if additional wind is implemented. Those situations tend to arise at night, on weekends, and on other low load days that primarily occur in April through October. When minimum load problems arise, the system has more generation than load. All generation, except the directly non-dispatchable facilities such as wind are backed down to minimum generation levels, and the excess energy must be dumped to the wholesale market at a loss. That increases the operational costs of implementing more wind. It is not feasible to shut down thermal baseload units since those units are needed to meet the daytime peaks and cannot be restarted in sufficient time.

The preferred plan includes enough qualifying renewable facilities to comply with the Renewable Energy Objective across the entire Otter Tail system, as shown in Section 10. These resources consist of hydro, biomass, and wind. The hydro and biomass resources together account for just more than 1% of the objective. The wind generation component comprises the other 9% + that is included in the plan.

**50 AND 75% CONSERVATION AND RENEWABLE PLANS**

Minnesota Statutes §216B.2422, Subd. 2 states that "a utility shall include the least cost plan for meeting 50 and 75 percent of all new and refurbished capacity needs through a combination of conservation and renewable energy resources." The statute is somewhat confusing in how it should be administered, because not all resource alternatives have equal lives or are present throughout the term of the 15-year plan. Also, some alternatives only provide capacity in the summer season or the winter season. In order to evaluate the Otter Tail plan in accordance with the statute, a weighted value of MW-seasons was used.

The proposed 50% renewable plan replaces 85 MW of the proposed 120 MW Big Stone Plant II unit proposal with an 85 MW purchase of hydroelectric energy. This requires an assumption that Manitoba Hydro would still be willing to make an 85 MW sale to Otter Tail under the terms and conditions contained in the proposal. That proposal has long since expired.

Developing a plan comprised of 75% renewable energy and conservation is much more difficult than the 50% plan. Operational issues come into consideration, primarily minimum load concerns at night and on weekends. Using the weighted MW-season methodology caused a problem when considering peaking resources. The only potential renewable peaking resource would be a peaking purchase from Manitoba Hydro. This option would have much less operational flexibility than owning a new CT. Beyond that issue though, to get to the 75% level requires a significantly larger block of capacity from Manitoba Hydro. Attempts to use more wind generation in the mix compounds the minimum load problems. The IRP-Manager model can handle these situations, simply dumping energy to the market at a loss when those situations occur, but it does raise the cost of the plan to absorb those losses.

The proposed 75% renewable plan replaces the entire 120 MW Big Stone Plant II proposal with a 130 MW purchase of hydroelectric energy. An additional 30 MW of wind commences operation in 2010. One of the two IGCC units in 2018 is replaced with a second purchase from Manitoba Hydro for 85 MW.

A number of the alternatives included in this plan are far enough into the future that there is a significant uncertainty as to the cost. As time goes by there may be other potential alternatives that become available to Otter Tail that could prove to be more economic than the 50% and 75% conservation and renewable plans presented here. The 75% plan also required some significant assumptions about the cost of wind

## 9-10 Preferred Resource Plan

generation in 2010.

Table 9-D identifies the capacities and number of seasons for each resource option included in the 50% renewable and conservation plan for the base case planning scenario. Table 9-E provides the same data for the 75% renewable and conservation plan for the base case planning scenario.

<b>Table 9 - D</b> <b>Analysis of 50% Conservation and Renewable Resource Plan</b> <b>Base Case Planning Scenario</b>					
<b>Alternative</b>	<b>MW</b>	<b>Seasons</b>	<b>Electricity Conservation MW-Seasons</b>	<b>Renewable MW-Seasons</b>	<b>Non-Renewable Non-Conservation MW-Seasons</b>
DSM Conservation Impacts	Var.	30	733.6		
Potlatch Purchase	5.8	30		174.0	
Baseload Coal Resource	35	20			700.0
Peaking Resource	Var.	16			732.0
Spot Market Purchase	Var.	10			285.0
Enbridge Wind Farm	Var.	30		370.5	
2012 Wind Farm	Var.	18		63.0	
2014 Wind Farm	Var.	14		49.0	
Transmission Loss Reduction	Var.	30	57.2		
IGCC Coal	Var.	6			957.6
Manitoba Hydro Purchase	85	20		1700.0	
<b>Individual Total and % of Total</b>	<b>NA</b>	<b>NA</b>	<b>790.8</b> <b>13.6%</b>	<b>2356.5</b> <b>40.5%</b>	<b>2674.6</b> <b>45.9%</b>

<p align="center"><b>Table 9 - E</b>  <b>Analysis of 75% Conservation and Renewable Resource Plan</b>  <b>Base Case Planning Scenario</b></p>					
<b>Alternative</b>	<b>MW</b>	<b>Seasons</b>	<b>Electricity Conservation MW-Seasons</b>	<b>Renewable MW-Seasons</b>	<b>Non-Renewable Non-Conservation MW-Seasons</b>
DSM Conservation Impacts	Var.	30	733.6		
Potlatch Purchase	5.8	30		174.0	
30 MW Wind in 2010	Var.	22		115.5	
Peaking Resource	Var.	16			732.0
Spot Market Purchase	Var.	9			211.0
Enbridge Wind Farm	Var.	30		370.5	
2012 Wind Farm	Var.	18		63.0	
2014 Wind Farm	Var.	14		49.0	
Transmission Loss Reduction	Var.	30	57.2		
IGCC Coal	Var.	6			478.8
Manitoba Hydro Purchase	130	20		2600	
Manitoba Hydro Purchase II	85	6		510	
<b>Individual Total and % of Total</b>	<b>NA</b>	<b>NA</b>	<b>790.8</b> <b>13.0%</b>	<b>3882.0</b> <b>63.7%</b>	<b>1421.8</b> <b>23.3% %</b>

Table 9-F presents the direct costs associated with the preferred plan for the base case planning scenario and then the 50% and 75% renewable and conservation plans. As shown by the data, the 50% and 75% renewable and conservation plans would cause a significant price increase to customers.

## 9-12 Preferred Resource Plan

<b>Table 9-F</b> <b>Comparison of 50% and 75% Renewable Plans to Base Case Planning Scenario Preferred Plan</b> (Present Value of Revenue Requirements, Millions 2004\$)		
<b>Scenario</b>	<b>Present-Worth Cost</b>	<b>Change from Base Case</b>
Preferred Plan	\$3,421.263	-
50% Renewable & Conservation	\$3,477.281	+\$56.018
75% Renewable & Conservation	\$3,541.337	+\$120.074

### **PREFERRED PLAN IS IN THE PUBLIC INTEREST**

The Company believes that the preferred plan is in the public interest. Customer exposure to rate increases from a variety of sources will be minimized. The Company is committed to operating its existing generation facilities as efficiently as practicable while minimizing adverse effects on the environment. New resources have been selected that will meet the Company's needs while maintaining flexibility and limiting the risk of exposure to changes in financial, social and technological factors beyond its control. In addition, customers will be provided with increased opportunities to improve their energy efficiency. The preferred plan includes compliance with the Minnesota renewable energy objective across the entire Otter Tail tri-state system throughout the planning period.

Otter Tail is a small utility that serves customers in three states. To provide operating efficiencies, the Company works hard to operate and plan its system as a single entity to the benefit of all customers. At times that creates challenges as compliance must be maintained with a myriad of statutes, rules, and regulations in three separate states and three separate regulatory commissions. Otter Tail believes that this resource plan meets that challenge and successfully provides a plan that is functional and satisfies the needs of all three states.

The North Dakota Century Code prohibits the use of environmental cost values in the selection of a utility resource. Conversely, MN Stat. 216B.2422 expressly requires the consideration of environmental externality values in the development of the resource plan. It is noteworthy that the planning scenarios without externality costs and those with externality costs all picked the Big Stone Plant II project in the optimized plans. The use of the environmental externality values changed the preferred plan very little in

the first half of the planning period. Otter Tail will file two or three more resource plans prior to the later portion of the planning period and the resources for that time period will be re-evaluated again. Thus the legal requirements of both states relative to the use or non-use of environmental externalities has been met, since the two plans are essentially the same for the first half of the planning period.

The planning process selected 120 MW of the Big Stone Plant II proposal, with all but 5 MW of that amount being selected on the basis of cost-effectiveness. That measure clearly indicates the need for Otter Tail and its customers to add significant energy resources to the resource portfolio. The fact that most of the capacity associated with this proposal was selected based on cost-effectiveness indicates that Big Stone Plant II will have a positive influence in keeping customer rates below the level of other resource selections. The Big Stone II proposal is for a state-of-the-art facility utilizing the best environmental-control technologies commercially available at the time of construction.

The environmental externality cases did not cause significant enough changes to the base plan to justify the additional costs. Similarly, the 50% and 75% renewable and conservation plans would impose 17 – 20% higher costs on a present-worth of revenue requirements basis. These are additional costs that are not necessary.

As a small utility, Otter Tail and its customers cannot realize the economic benefits of certain technologies and economies of scale unless it partners with other small utilities seeking the same type of resource. The Big Stone Plant II proposal is exactly that. A group of primarily smaller utilities, with similar but different level of need for a baseload resource, have been working together to explore the feasibility and economics of such a project. Significant analysis has shown the Big Stone Plant II project to be the most economic baseload alternative available to meet customer needs.

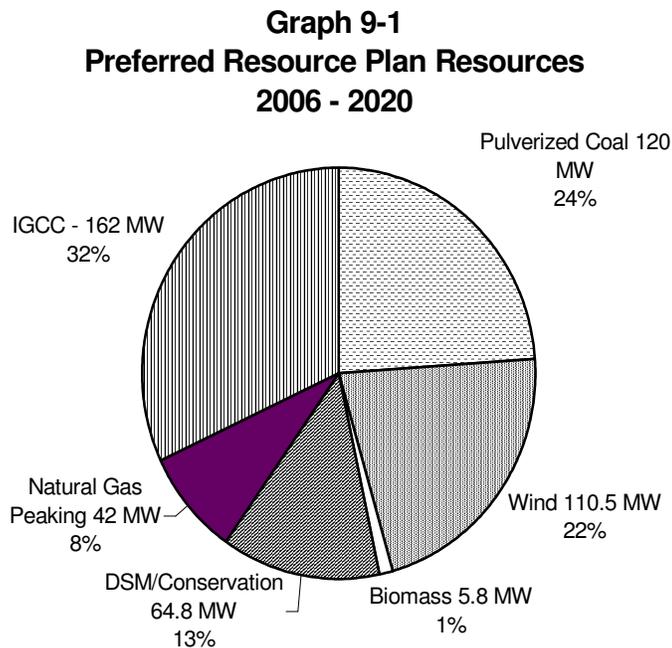
The Big Stone Plant II proposal will require some additions to the transmission system. The site is located within the boundaries of the North Dakota generation area. The electrical system of the North Dakota generation area is limited by stability, the ability of the system to get itself back in balance after a system disturbance. Historically, the Big Stone Plant site has provided enhancement to the electrical stability of the region. The Big Stone Plant II proposal will add to that enhancement, providing further enhancement benefits. The transmissions studies are still on-going, but the intent is to optimize the transmission additions to be complimentary to other regional transmission needs.

## 9-14 Preferred Resource Plan

---

The resource plan includes significant opportunity for customers to reduce their energy needs and costs through the Company's conservation programs. Approximately 13% or more of the capacity needs in this resource plan are identified as coming from conservation and DSM measures. The MN Department of Commerce will play a significant role in helping Otter Tail to shape its CIP programs in the future, but there is already a long history of the DOC and Otter Tail working together to accomplish that goal. For a number of years the Company's CIP has included conservation measures targeted specifically at low-income persons and households. This resource plan filing expects that to continue into the future.

The preferred plan presents a balanced approach of resource mix. Graph 9-1 presents a pictorial representation of the magnitude of resource additions in the preferred plan.



The plan satisfies all rules and requirements of the MN statutes and rules, provides a clear concise report to interested parties of what Otter Tail intends to do to satisfy customer needs in the near term, and identifies the resources the Company is considering for viable options for the long term.

**Socio-economic Impacts**

The Big Stone Plant II proposal is a key element of this resource plan. An economic study of the impact of the proposal on the four county area<sup>1</sup> around the plant site has been completed by Stuefen Research & Business Research Bureau. The study was conducted using IMPLAN (Impact Analysis for PLANning).<sup>2</sup>

The IMPLAN results are that every one million dollars in construction will directly result in 4.8 jobs and \$396,900 of income being created. In addition, the same investment will result in \$174,600 of goods and services being purchased in the four county area, resulting in an addition \$90,300 of income for local businesses and 2.5 indirect jobs being created. Finally, induced spending is the household spending of persons employed in the construction of the plant, resulting in \$190,800 of spending for each one million dollars of construction.

In total, the construction impact is expect to employ 2,550 persons creating a direct added value of \$211,041,504, a total of 1,308 persons in indirect job creation with an indirect added value of \$48,003,852, and finally an induced employment of 689 persons for added value of \$27,733,042.

Following construction, operation of the facility is estimated to require 35 additional full-time personnel. The associated economic impact of these salaries is expected to create another 28.8 full-time jobs through induced impacts.

The project would provide considerable property tax revenues to the local school district and governmental entities.

The wind generation additions in the preferred resource plan will create construction jobs, although not to the extent of the Big Stone Plant II project. Based on previous wind projects the Company has been involved with, the Enbridge Wind project will create potentially 100-200 short-term construction jobs and a handful of full-time jobs once construction is complete. The economic impact of this project is likely to be mostly local.

---

<sup>1</sup> The four counties are Big Stone and Lac Qui Parle in Minnesota, and Grant and Codington counties in South Dakota.

<sup>2</sup> IMPLAN was developed at the University of Minnesota over a period of years in conjunction with the

## 9-16 Preferred Resource Plan

---

### FIVE-YEAR ACTION PLAN

The preferred plan will require considerable activity within the next five years to bring about the resources selected in the plan. Table 9-G identifies the major activities and the approximate timelines for those activities, beginning with 2005. Some of these activities are already on-going at the time of filing of this resource plan. The months indicated in the table are approximate representations.

There are many other related activities that will be taking place to support the major items identified in the table that will involve many stakeholders, regulatory agencies, and interested parties.

<b>Table 9-G Five-Year Action Plan Activities</b>	
<b>Year</b>	<b>Activity</b>
2005	January - Begin process for PSD permit, BACT/MACT review – Big Stone Plant II April – May – File Enbridge Wind proposal with all three state Commissions May - Begin EIS Study – Big Stone Plant II June – Big Stone II participant signing to proceed with Phase III, Engineering and Design July - File 2006-2020 Resource Plan July - File Application for SD Energy Facility Permit – Big Stone Plant II July - File 2006-2007 CIP with MN Dept. of Commerce August - File Certificate of Need for Big Stone Plant II transmission located in Minnesota Fall – Negotiate new long-term PPA for the Potlatch Cogeneration Facility November - File for SD Water Appropriations Permit – Big Stone II End of 2005 – Begin operation of Enbridge Wind
2006	Oct – Financial closing for Big Stone Plant II
2007	April – Commence sitework and construction – Big Stone II July – File 2008 – 2022 Resource Plan July – File 2008-2009 CIP with MN Dept. of Commerce
2008	
2009	July – File 2010 – 2024 Resource Plan July – File 2010-2011 CIP with MN Dept. of Commerce
2010	August – Initial Synchronization and Energy Production testing – Big Stone Plant II