Debbra A. Davey Supervisor, Accounting

April 15, 2014

VIA ELECTRONIC FILING

Dr. Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: In the Matter of Minnesota Power's 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study
Docket No. E015/D-14-_______

Dear Dr. Haar:

Minnesota Power hereby electronically submits its 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study. An Affidavit of Service is also included.

Please contact me at 218-355-3714 if you have any questions regarding this filing.

Sincerely,

/s/ Debbra A. Davey

Debbra A. Davey

kl
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study	Docket No. E015/D-14-___ 2014 REMAINING LIFE DEPRECIATION PETITION AND PRODUCTION PLANT DEPRECIATION STUDY

SUMMARY

Minnesota Power hereby petitions the Minnesota Public Utilities Commission ("Commission") for approval of its 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study ("Petition and Study"). Minnesota Power is requesting that the remaining lives of all facilities be adjusted for one year's passage of time, with the exception of Laskin Energy Center and the hydroelectric production plant facilities. Laskin Energy Center's proposed life extension through 2030 is based on Minnesota Power's plans to convert units 1 and 2 of its Laskin Energy Center to gas peaking generation facilities by the end of 2015. Minnesota Power believes a gas peaking generation facility has a fifteen year life. Therefore, Minnesota Power is requesting this life extension through 2030. Hydroelectric production plant facilities proposed life extensions are based on current and planned capital investments resulting in a projected operating life of the units extending through at least 2063. Minnesota Power proposes estimated salvage rates be adjusted in accordance with the results of the latest decommissioning study dated December 2013. The estimated salvage rate changes and proposed life extensions result in an estimated decrease to 2014 annual depreciation expense of $902,210.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study	Docket No. E015/D-14-___ 2014 REMAINING LIFE DEPRECIATION PETITION AND PRODUCTION PLANT DEPRECIATION STUDY

I. INTRODUCTION

Pursuant to Minn. Stat. §§ 216B.08 and 216B.11, and Minn. Rules 7825.0600 and 7825.0700, Minnesota Power hereby petitions the Minnesota Public Utilities Commission ("Commission") for approval of its 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study ("Petition and Study"). This Petition and Study establishes the 2014 remaining lives and salvage rates for all of Minnesota Power's production plant assets, along with certain general plant accounts. The remaining lives and salvage rates will be used to determine depreciation expense for these assets effective January 1, 2014.

II. BASIS FOR PREPARING THIS PETITION

On March 1, 2013, Minnesota Power filed its 2013 Integrated Resource Plan ("2013 IRP") for the years 2013-2027 in Docket No. E015/RP-13-53. The Commission approved Minnesota Power's 2013 IRP on November 12, 2013. For purposes of this Petition and Study, Minnesota Power is utilizing the information and forecast periods provided in the approved 2013 IRP.

Minnesota Power engaged a consulting firm to prepare a Site Decommissioning Study in 2013 (report dated December 2013) and incorporated it into this Petition and Study as is required every five years. These new decommissioning estimates were used to calculate new estimated salvage rates. This latest Site Decommissioning Study and supporting schedules can be found in Appendix D.

III. PROCEDURAL REQUIREMENTS

Pursuant to Minn. Rules 7825.3200, 7825.3500 and 7829.1300, subp. 3, Minnesota Power provides the following required information.

A. Name, Address and Telephone Number of Utility (Minn. Rules 7825.3500(A) and 7829.1300, subp. 3(A))

Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 722-2641

B. Name, Address and Telephone Number of Utility Attorney (Minn. Rules 7825.3500(A) and 7829.1300, subp. 3(B))

Christopher D. Anderson
Associate General Counsel
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 723-3961
canderson@allete.com

C. Date of Filing and Date Proposed Rates Take Effect (Minn. Rules 7825.3500(B) and 7829.1300, subp. 3(C))

This Petition and Study is being filed on April 15, 2014. Minnesota Power respectfully requests that the Commission approve the Petition and Study, with depreciation rates to become effective as of January 1, 2014.

D. Statute Controlling Schedule for Processing the Filing (Minn. Rules 7829.1300, subp. 3(D))

This Petition and Study is made in accordance with Minn. Stat. § 216B.11 and prior Commission orders. No statutorily imposed time frame for a Commission decision applies to this filing.

E. Utility Employee Responsible for Filing (Minn. Rules 7825.3500(E) and 7829.1300, subp. 3(E))

Debbra A. Davey
Supervisor, Accounting
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 355-3714
ddavey@allete.com

F. Service List

Pursuant to Minn. Rules 7829.0700, Minnesota Power requests that the following persons be placed on the Commission's official service list for this matter:

Christopher D. Anderson
Associate General Counsel
Minnesota Power
30 West Superior Street
Duluth, MN 55802
canderson@allete.com

Debbra A. Davey
Supervisor, Accounting
Minnesota Power
30 West Superior Street
Duluth, MN 55802
ddavey@allete.com

G. Service on Other Parties

Pursuant to Minn. Stat. § 216.17, subd. 3 and Minn. Rules 7829.1300, subp. 2, Minnesota Power has eFiled this Petition and Study with the Department of Commerce, Division of Energy Resources and served a copy on the Antitrust and Utilities Division of the Office of Attorney General. A summary of the filing prepared in accordance with Minn. Rules 7829.1300, subp. 1 is being served on all parties on Minnesota Power's general service list.

H. Summary of Filing

A one-paragraph summary accompanies this Petition and Study pursuant to Minn. Rules 7829.1300, subp. 1.

IV. REMAINING LIFE ADJUSTMENTS

Minnesota Power has reviewed its remaining lives and salvage value estimates for thermal, hydroelectric and wind production facilities. Minnesota Power has determined that all remaining lives of these facilities should be adjusted for one year's passage of time, with the exception of Laskin Energy Center and the hydroelectric production plant facilities. Laskin Energy Center's proposed life extension through 2030 is based on Minnesota Power's plans to convert units 1 and 2 of its Laskin Energy Center to gas peaking generation facilities by the end of 2015. Minnesota Power believes a gas peaking generation facility has a fifteen year life. Therefore, Minnesota Power is requesting this life extension through 2030. Hydroelectric production plant facilities life extensions are based on current and planned capital investments resulting in a projected operating life of the units extending through at least 2063. Minnesota Power proposes estimated salvage rates be adjusted in accordance with updated decommissioning estimates for the thermal production facilities from the latest decommissioning study dated December 2013.

For purposes of this Petition and Study, Minnesota Power is utilizing the information and forecast periods provided in the 2013 IRP. Appendix C of the 2013 IRP specifically addresses Minnesota Power's fossil generation resources.

Minnesota Power engaged a consulting firm to prepare a Site Decommissioning Study in 2013 (report dated December 2013) and incorporated it into this Petition and Study as is required every five years. These new decommissioning estimates were used to calculate new estimated salvage rates. This latest Site Decommissioning Study and supporting schedules can be found in Appendix D.

The following schedule indicates the requested changes to remaining lives and salvage rates:

	Proposed Remaining Life (Years)	Salvage
Thermal Production Plants		
Hibbard Renewable Energy Center	11.0	(2.42%)
Laskin Energy Center	17.0	(14.50%)
Boswell Energy Center		
Unit 1	11.0	(6.09%)
Unit 2	11.0	(7.90%)
Unit 3	21.0	(4.50%)
Unit 4	22.0	(4.62%)
Common	16.0	(2.06%)

	Proposed Remaining Life (Years)	Salvage

Taconite Harbor Energy Center	13.0	(4.16%)
Cloquet Energy Center	11.0	0
Hydroelectric Production Plants		
Prairie River HE Station	50.0	0
Thomson HE Station	50.0	0
Fond du Lac HE Station	50.0	0
Winton HE Station	50.0	0
Knife Falls HE Station	50.0	0
Scanlon HE Station	50.0	0
Little Falls HE Station	50.0	0
Blanchard HE Station	50.0	0
Sylvan HE Station	50.0	0
Pillager HE Station	50.0	0
Birch Lake Reservoir	50.0	0
Boulder Lake Reservoir	50.0	0
Fish Lake Reservoir	50.0	0
Island Lake Reservoir	50.0	0
Rice Lake Reservoir	50.0	0
Whiteface Reservoir	50.0	0
Gauging Stations and White Iron Lake Reservoir	50.0	0
Other Production Plants		
Taconite Ridge I Wind	29.0	0
Bison 1 Wind – Phase 1	31.0	0
Bison 1 Wind – Phase 2	32.0	0
Bison 2 Wind	33.0	0
Bison 3 Wind	33.0	0
Bison 4 Wind	35.0	0

Within the 2013 IRP, Minnesota Power recognized that a key factor in the latter portion of the long-term plan period will be the aging of its generation fleet and uncertainty of carbon and other environmental compliance policies. During the 2013-2027 forecast period of this 2013 IRP, Minnesota Power's proposed to remove Taconite Harbor Unit 3 (THEC 3) from Minnesota Power's system by the end of 2015. Minnesota Power also proposes to refuel Laskin Units 1 and 2 to operate on natural gas by 2015. A reconciliation of these statements to the proposed remaining lives is as follows:

Hydroelectric Production Facilities

All of Minnesota Power's hydroelectric facilities hold Federal Energy Regulatory Commission ("FERC") licenses and the facilities are being maintained in accordance with the terms of these licenses. The reservoirs, dams and gauging stations are expected to have a useful economic and operating life matching that of the hydro stations they support. Currently Minnesota Power's hydroelectric facilities remaining lives are set based on the FERC licenses which expire at various dates extending from 2021 through 2036. Minnesota Power proposes life extensions for all its hydraulic production facilities as a result of significant capital investments in these facilities, due primarily to the historic rainfall event in 2012. Minnesota Power is requesting proposed life extensions for its hydroelectric production plant facilities based on current and planned capital investments, which based on current engineering estimates will result in a projected operating life of the units extending through at least 2063. This extends well beyond the 2027 date in the 2013 IRP.

Wind Production Facilities

Taconite Ridge I Wind Energy Center, a 25 MW wind production facility with ten turbines, was placed in service on June 30, 2008. All production assets of the wind facility are expected to operate beyond 2027, with an estimated remaining life through 2043.

In March 2009, Minnesota Power filed a petition for approval of investments and expenditures in the Bison 1 Wind Project (Docket No. E015/M-09-285). Minnesota Power received Commission approval on July 7, 2009. Minnesota Power developed this 81.8 MW project as an integral part of the Company's Renewable Plan for obtaining 25 percent of its electricity for its retail customers from renewable energy sources by the year 2025. Minn. Stat. § 216B.1691. The Project was constructed in two phases. Phase 1 has 16 turbines (36.8 MW of wind energy generation), the generator outlet line, operating and maintenance facilities, collector substation and interconnections to the Square Butte substation. On December 8, 2010, all 16 wind turbines that comprise Phase 1 were placed in commercial operation. On December 31, 2011, seven of the fifteen Phase 2 wind turbines were placed in commercial operation; with the remaining eight placed in commercial operation on January 31, 2012 (45 MW of wind energy generation). All production assets of the Bison 1 Wind facilities are expected to operate beyond 2027, with estimated remaining lives through 2045 and 2046 for Phase 1 and Phase 2, respectively.

In March 2011, Minnesota Power filed a petition for approval of investments and expenditures in the Bison 2 Wind Project (Docket No. E015/M-11-234). Minnesota Power received Commission approval on September 8, 2011. Minnesota Power developed this 105 MW project as an integral part of the Company's Renewable Plan for obtaining 25 percent of its electricity for its retail customers from renewable energy sources by the year 2025. Minn. Stat. § 216B.1691. The project consists of 35 turbines (105 MW of wind energy generation), meteorological tower, access roads, collector system, and collector substation, which were placed in commercial operation December 18, 2012. All production assets of the Bison 2 Wind facilities are expected to operate beyond 2027, with estimated remaining lives through 2047.

In June 2011, Minnesota Power filed a petition for approval of investments and expenditures in the Bison 3 Wind Project (Docket No. E015/M-11-626). Minnesota Power received Commission approval on November 2, 2011. Minnesota Power developed this 105 MW project as an integral part of the Company's Renewable Plan for obtaining 25 percent of its electricity for its retail customers from renewable energy sources by the year 2025. Minn. Stat. § 216B.1691. The project consists of 35 turbines (105 MW of wind energy generation), meteorological tower, access roads, collector system, and collector substation which were placed in commercial operation December 18, 2012. All production assets of the Bison 3 Wind facilities are expected to operate beyond 2027, with estimated remaining lives through 2047.

In September 2013, Minnesota Power filed a petition for approval of investments and expenditures in the Bison 4 Wind Project (Docket No. E015/M-13-907). Minnesota Power received Commission approval on December 10, 2013. Minnesota Power is developing this 204.8 MW project as an integral part of the Company's Renewable Plan for obtaining 25 percent of its electricity for its retail customers from renewable energy sources by the year 2025. Minn. Stat. § 216B.1691. The project consists of 64 turbines (204.8 MW of wind energy generation), meteorological tower, access roads, collector system, and collector substation which are scheduled to be in-service by year-end 2014. As approved for Minnesota Power's Taconite Ridge I Wind assets, Bison 1 Wind Phase 1 and 2 assets, Bison 2 Wind assets, and Bison 3 Wind assets, Minnesota Power is similarly proposing the wind production assets for Bison 4 Wind be depreciated over a 35 year period upon being placed in service. All production assets of the Bison 4 Wind facilities are expected to operate beyond 2027, with estimated remaining lives through 2049.

Current engineering estimates are uncertain as to a decommissioning timeframe and salvage value of the wind production assets. Minnesota Power does anticipate decommissioning of the sites; however, an active salvage market for recycled components may offset some or all of the costs of doing so. Therefore, at this time, Minnesota Power does not propose a net salvage value be included in the depreciation rates.

Regulated Thermal Production Facilities

Minnesota Power's thermal units have remaining lives extending through the resource planning period or beyond with the exception of Hibbard Renewable Energy Center, Boswell Units 1 and 2, Taconite Harbor Energy Center, and Cloquet Energy Center. Minnesota Power recognizes that a key factor in resource planning will be carbon and environmental legislation/regulation and its impact on its generation fleet. In the 2013 IRP, Minnesota Power proposed to refuel Laskin Units 1 and 2 to operate on natural gas by 2015 and proposed to remove THEC 3 from Minnesota Power's system by the end of 2015 and these proposals were approved by the Commission. As proposed in the 2013 IRP, Minnesota Power plans to continue to depreciate Taconite Harbor Energy Center and Laskin Energy Center each as one facility with one remaining life. See details in Minnesota Power's 2013 IRP and its Appendix L: *Accounting for Proposed Retirements and Decommissioning Study Discussion.*

The table below summarizes the differences between the proposed remaining lives of its facilities and the end of the 2013 Resource Plan planning period:

Thermal Production Plant	Proposed Remaining Life	2013 IRP
Hibbard Renewable Energy Center	2024	2027
Laskin Energy Center	2030	2027
Boswell Energy Center		
Unit 1	2024	2027
Unit 2	2024	2027
Unit 3	2034	2027
Unit 4	2035	2027
Common	2030	2027
Taconite Harbor Energy Center	2026	2027
Cloquet Energy Center	2024	2027

Hibbard Renewable Energy Center ("HREC") Units 3 and 4, located at the M. L. Hibbard Facility, operate as peaking resources and have been providing a portion of Minnesota Power's spinning reserves since 2004. Steam that drives HREC Units 3 and 4 turbine generators had been provided by the City of Duluth's Steam District #2, which also provides large quantities of steam to the adjacent NewPage paper mill. In 2008 Minnesota Power came to agreement with the City of Duluth and NewPage to purchase the steam production assets, HREC Units 3 and 4 boilers and related facilities, from the City and supply steam to NewPage under a long term contract. On September 22, 2009, the Commission issued an Order approving the purchase (Docket No. E015/PA-08-928). The assets were transferred to Minnesota Power on September 30, 2009. The current remaining life of these units is estimated to extend to 2024 which is three year less than the 2027 date in the 2013 IRP. Minnesota Power will consider a change in the current remaining life in a future Depreciation Petition filing.

Laskin Energy Center ("Laskin") units 1 and 2 are sister boilers – similar in design and intended operation. Both units provide base load and peaking energy. Laskin is treated as one unit and has one remaining life for purposes of computing annual depreciation accruals. Ongoing reinvestment has maintained the units in good overall condition. Minnesota Power plans to convert units 1 and 2 of its Laskin Energy Center to gas peaking generation facilities by the end of 2015. The vast majority of Laskin's existing assets are expected to be required to serve the new mission; however, some assets will no longer be used after the conversion to a gas plant in 2015. The assets to be retired will be determined after detailed analysis. Minnesota Power proposes continuing to treat Laskin as one unit with one remaining life for purposes of computing annual depreciation accruals. At the conversion of Laskin, assets retired in 2015 will be accounted for as normal retirement units of utility plant. Laskin Units 1 and 2 will continue operating as gas peaking generation facilities, and the remaining net plant balances retired will be recovered over the remaining lives of those facilities. See additional information in Minnesota Power's 2013 IRP and its Appendix L: *Accounting for Proposed Retirements and Decommissioning Study Discussion.* Minnesota Power proposes a life extension through 2030 based on plans to convert units 1 and 2 of its Laskin Energy Center to gas peaking generation facilities by the end of 2015. Minnesota Power believes a gas peaking generation facility has a fifteen year life. Therefore, Minnesota Power is requesting this life extension through 2030. This proposed economic life of 2030 extends beyond the 2027 date in the 2013 IRP.

Boswell Energy Center Units 1 and 2 are sister boilers – similar in design and intended operation. Both units provide base load energy and limited ancillary services. The units operate with emission control equipment including low NOx burners and bag houses to control particulates and mercury emissions. Minnesota Power has installed additional NOx emission reduction control systems including Rotating Opposed Fired Air and selective non-catalytic reduction at Boswell Units 1 and 2. Additional environmental investments are under consideration for Boswell Units 1 and 2 with implementation post-2015. The nature and timing of any future environmental investments has yet to be determined pending resolution of new environmental regulations and associated system requirements. The current remaining life of these units is estimated to extend to 2024 which is three year less than the 2027 date in the 2013 IRP. Minnesota Power will consider a change in the current remaining life in a future Depreciation Petition filing.

Boswell Energy Center Unit 3 provides base load energy operating at a high load factor. On October 27, 2006, Minnesota Power submitted its Boswell 3 Environmental Improvement Plan ("Boswell 3 Plan") which addresses the Mercury Emissions Reduction

Act of 2006 as well as new state and federal emission control regulations and is one of Minnesota Power's steps toward meeting overall system requirements for mercury reductions, regional haze and interstate air quality (Docket No. E-015/M-06-1501). Under the Boswell 3 Plan, Minnesota Power installed the most mature, commercially available technology to significantly reduce emissions of mercury and well-established control technologies that have the ability to meet Best Available Control Technology performance standards to significantly reduce NO_X, SO_2 and PM. Minnesota Power began on-site construction for the Boswell 3 Plan in spring 2007 and placed the retrofit in-service in November 2009. The current economic life of 2034 extends well beyond the 2027 date in the 2013 IRP.

Boswell Energy Center Unit 4 ("BEC4") provides base load energy operating at a high load factor and is jointly owned by Minnesota Power (80 percent) and WPPI Energy (20 percent). The unit operates with NO_X emission reduction control systems including low NO_X burners and selective non-catalytic reduction, along with a high efficiency turbine rotor. Additional emission reduction options were studied in consideration of the Minnesota Mercury Reduction Act and additional federal regulatory standards that may apply. These options for BEC4 were provided to the Commission on June 30, 2011 in a report required under Minn. Stat. § 216B.6851, subd. 5 (Docket No. E015/M-11-712). On August 31, 2012, Minnesota Power filed with the Minnesota Public Utilities Commission and Minnesota Pollution Control Agency its mercury emission reduction plan filing for BEC4 in compliance with Minn. Stat. § 216B.6851. Minnesota Power received Commission approval on November 5, 2013. Minnesota Power is executing an environmental retrofit project on BEC4 as a multi-pollutant solution for reducing mercury, particulate matter, sulfur dioxide, and other hazardous air pollutants being addressed by United States Environmental Protection Agency ("EPA") regulations while also reducing plant wastewater. Minnesota Power plans to install a semi-dry flue gas desulfurization system, fabric filter and powder activated carbon injection system to help achieve compliance with the Minnesota Mercury Emission Reduction Act ("MERA"), the EPA Mercury and Air Toxics Rule, and other enacted or pending federal and state environmental rulemakings regulating air and water emissions and solid byproducts from coal-fired power plants. Through multi-pollutant control technology, Minnesota Power will cost-effectively achieve the mercury emission reduction required by MERA while ensuring compliance with other regulatory programs over the long term. Current operation and maintenance practices will continue with performance of routine maintenance inspections and actions implemented as needed. The current economic life of 2035 extends beyond the 2027 date in the 2013 IRP.

Taconite Harbor consists of three units of similar size and unit configuration. Significant reinvestment was made as the units were restarted in 2002 after Minnesota Power acquired the facility in 2001. Taconite Harbor is treated as one unit and has one remaining life for purposes of computing annual depreciation accruals. The Taconite Harbor units received significant investment in the period 2006 to 2008 as part of Minnesota Power's AREA initiative. Taconite Harbor Units 1 and 2 were fitted with Mobotec multi-emission control technology designed to reduce NO_X, SO_2 and mercury emissions and electrostatic precipitator upgrades to reduce particulate emissions. Ongoing reinvestment continues to maintain them in overall good condition. Current operation and maintenance practices will continue with performance of routine maintenance inspections and actions implemented as needed. Minnesota Power has identified that the investment in retrofit technology for THEC 3 would not be in the best interest of its customers. To protect affordability for customers in the near term and reduce emissions further in the region, Minnesota Power proposes to cease coal operation for the THEC 3 by the end of 2015. The assets to be retired will be determined after detailed analysis. Minnesota Power proposes continuing to treat Taconite Harbor as one unit with one remaining life for purposes of computing annual depreciation accruals. At the retirement of THEC 3, assets retired in 2015 will be accounted for as normal retirement units of utility plant. Taconite Harbor Units 1 and 2 will continue operations, and the remaining net plant balances of THEC 3 that are retired will be recovered over the remaining lives of those plants. See additional information in Minnesota Power's 2013 IRP and its Appendix L: *Accounting for Proposed Retirements and Decommissioning Study Discussion.* The current remaining life of these units is estimated to extend to 2026 which is one year less than the 2027 date in the 2013 IRP. In Minnesota Power's next resource plan filing due on or before September 1, 2015, the Commission ordered Minnesota Power to include full analysis of the effects of retiring or repowering the Taconite Harbor 1 and 2 plants, including transmission and distribution effects. Minnesota Power will consider a change in life after that filing.

In 2000, Minnesota Power acquired an ownership interest in Sappi/Cloquet Generator No. 5 ("S/C5") at Sappi's Cloquet paper mill as a non-regulated asset. See In the Matter of a Request by Minnesota Power, Inc. for a Personal Property Tax Exemption Finding, Docket No. E-015/M-00-572. Under the parties' agreement, Minnesota Power has an ownership interest in S/C5 for a period of 15 years, through May 2016, at which time Sappi may choose at its own discretion to purchase the generator from Minnesota Power for $1. As part of Minnesota Power's prior general rate case (Docket No. E015/GR-08-415), the Department of Commerce, Division of Energy Resources [formerly the Office of Energy Security ("OES")] recommended that S/C5 be included in Minnesota Power's rate base. The Administrative Law Judge ("ALJ") agreed with OES's recommendation to include S/C5 in Minnesota Power's rate base. *See* ALJ Finding Paragraph 272. In its May 4, 2009 Order, the Commission adopted the ALJ's finding and S/C5 is now a regulated asset. The current remaining life of these units is estimated to extend to 2024, which is three years less than the 2027 date in the 2013 IRP. Minnesota Power is in discussions with Sappi regarding an extension to this ownership and operating agreement, and will consider a change in life after an agreement is reached.

Minnesota Power will continue to address the reconciliation between remaining lives and the latest approved Integrated Resource Plan (currently the 2013 IRP) in a reasonable and timely manner. Minnesota Power received approval of its 2013 IRP in an order dated November 12, 2013. As these reconciliation issues are addressed, Minnesota Power will review its remaining lives, making any adjustment based on the factors known at that time.

Minnesota Power has also reviewed its remaining lives and salvage value estimates for certain general plant accounts. These accounts include Account 3900-Structures and Improvements and Account 3928-Transportation Equipment/Fixed-Wing Aircraft.

Minnesota Power recommends no changes except for the passage of one year's time for Accounts 3900 and 3928.

Acct. No.	Class of Utility Plant	Remaining Life (Years)	Net Salvage
3900	Structures & Improvements	24.0	0%
3928	Transportation Equipment		
	Fixed-Wing Aircraft	4.0	75%

Enclosed in Appendix A please find depreciation schedules as required by Commission filing requirements, Minn. Rules 7825.0700, subp. 1: Plant in Service, Analysis of Depreciation Reserve, and Summary of Annual Depreciation Accruals. Also, enclosed in Appendix B is a schedule comparing Minnesota Power's depreciation expense calculated using its current decommissioning probabilities and its depreciation expense calculated without decommissioning uncertainties. Last, enclosed in Appendix C is a schedule of supplemental depreciation expense recorded during 2013 pursuant to the Commission's Order in the 2012 Depreciation Docket, as well as a schedule of supplemental depreciation expense to be recorded in the future.

V. FUTURE ADDITIONS OR RETIREMENTS AFFECTING CURRENT CERTIFICATION

Subpart B of this section requires a list of any major future additions or retirements to the plant accounts that the utility believes may have a material effect on the current certification results. Minnesota Power does not have any major future additions or retirements to plant accounts that would materially impact the 2014 depreciation accruals. In its 2013 IRP, Minnesota Power proposed to remove Taconite Harbor Unit 3 (THEC 3) from Minnesota Power's system by the end of 2015 and the Commission found that proposal reasonable. Minnesota Power also proposed to refuel Laskin Units 1 and 2 to operate on natural gas by 2015 and the Commission found that proposal reasonable. See Minnesota Power's 2013 IRP, Appendix L: *Accounting for Proposed Retirements and Decommissioning Study Discussion* for the planned accounting for the assets to be retired as a result of these proposals.

VI. CONCLUSION

Minnesota Power respectfully requests that the Commission approve the 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study. Minnesota Power requests that the remaining lives of all facilities be adjusted for one year's passage of time, with the exception of Laskin Energy Center and the hydroelectric production plant facilities. Laskin Energy Center's proposed life extension through 2030 is based on Minnesota Power's plans to convert units 1 and 2 of its Laskin Energy Center to gas peaking generation facilities by the end of 2015. Minnesota Power believes a gas peaking generation facility has a fifteen year life. Therefore, Minnesota Power is requesting this life extension through 2030. Hydroelectric production plant facilities life extensions are based on current and planned capital investments resulting in a projected operating life of the units extending through at least 2063. Minnesota Power proposes estimated salvage rates be adjusted in accordance with the results of the latest decommissioning study dated December 2013. The proposed changes to remaining lives and estimated salvage rates result in an estimated decrease to 2014 annual depreciation expense of $902,210.

Date: April 15, 2014

Respectfully submitted,

/s/ Debbra A. Davey

Debbra A. Davey
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STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING
COUNTY OF ST. LOUIS	)	

Kristie Lindstrom of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 15th day of April, 2014, she served Minnesota Power's 2014 Remaining Life Depreciation Petition and Production Plant Depreciation Study to the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The remaining parties on the attached service list were served as so indicated on the list.

/s/ Kristie Lindstrom

____

Subscribed and sworn to before me this 15th day of April, 2014.

/s/ Mary K Johnson

____

Notary Public - Minnesota
My Commission Expires Jan. 31, 2016

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	Yes	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	Yes	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	Yes	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
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Lori	Hoyum	lhoyum@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
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John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	Yes	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Susan	Ludwig	sludwig@mnpower.com	Minnesota Power	30 West Superior Street Duluth, MN 55802	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Paper Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	Yes	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Andrew	Moratzka	apmoratzka@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Thomas	Scharff	thomas.scharff@newpagecorp.com	New Page Corporation	P.O. Box 8050 610 High Street Wisconsin Rapids, WI 544958050	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Ron	Spangler, Jr.	rlspangler@otpco.com	Otter Tail Power Company	215 So. Cascade St. PO Box 496 Fergus Falls, MN 565380496	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Karen	Turnboom	karen.turnboom@newpagecorp.com	NewPage Corporation	100 Central Avenue Duluth, MN 55807	Electronic Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List
Laurance R.	Waldoch		Lindquist & Vennum	4200 IDS Center 80 South 8th Street Minneapolis, MN 554022274	Paper Service	No	GEN_SL_Minnesota Power_GEN_SL_Minnesota Power_Minnesota Power General Service List

Appendix A

MINNESOTA POWER
PRODUCTION PLANT
COMPARISON OF PRESENT AND PROPOSED REMAINING LIVES
2014

			Current Proposed Rates			Proposed Rates - Dec. 2013 Decomm. Costs			Effect of
	Depreciable Plant Balance 12/31/13	Depreciation Reserve 12/31/13	Remaining Life (01/01/14)	Salvage Value (01/01/14)	2014 Annual Accrual	Remaining Life (01/01/14)	Salvage Value (01/01/14)	2014 Annual Accrual	Rate Changes to 2014 Accrual
Steam Generation									
Hibbard SE Station:	86,787,487	50,093,020	11.0	0.00%	3,335,861	11.0	-2.42%	3,526,793	190,932
Laskin Energy Center	79,791,987	52,959,071	11.0	-10.87%	3,227,846	17.0	-14.50%	2,258,986	(968,860)
Boswell Energy Center:	1,066,980,611	421,886,200			35,132,096			35,722,372	590,276
Unit No. 1	46,701,347	22,782,857	11.0	-1.82%	2,251,678	11.0	-6.09%	2,432,964	181,286
Unit No. 2	36,004,767	22,861,362	11.0	-2.27%	1,269,156	11.0	-7.90%	1,453,435	184,279
Unit No. 3	450,167,039	122,824,106	21.0	-4.19%	16,485,949	21.0	-4.50%	16,552,402	66,453
Unit No. 4	354,606,502	164,801,698	22.0	-3.84%	9,246,441	22.0	-4.62%	9,372,165	125,724
Common	179,500,956	88,616,177	16.0	-1.77%	5,878,872	16.0	-2.06%	5,911,406	32,534
Taconite Harbor Energy Center	154,605,927	49,134,992			9,169,005			9,261,494	92,489
Structure/Unit	149,597,502	44,626,290	13.0	-3.60%	8,488,979	13.0	-4.16%	8,553,421	64,442
Ash Ponds*	5,008,425	4,508,702	1.0	-3.60%	680,026	1.0	-4.16%	708,073	28,047
Cloquet Energy Center	8,225,802	5,301,693	11.0	0.00%	265,828	11.0	0.00%	265,828	-
Total Steam Generation	1,396,391,814	579,374,976			51,130,636			51,035,473	(95,163)
Wind Generation									
Bison 1A	76,089,393	7,752,056	31.0	0.00%	2,204,430	31.0	0.00%	2,204,430	-
Bison 1B	73,284,514	2,090,094	32.0	0.00%	2,224,826	32.0	0.00%	2,224,826	-
Bison 2	150,367,219	5,942,260	33.0	0.00%	4,376,514	33.0	0.00%	4,376,514	-
Bison 3	150,322,344	4,448,301	33.0	0.00%	4,420,426	33.0	0.00%	4,420,426	-
Subtotal Bison	450,063,470	20,232,711			13,226,196			13,226,196	
Taconite Ridge I Energy Center	47,116,499	4,849,559	29.0	0.00%	1,457,481	29.0	0.00%	1,457,481	-
Total Wind Generation	497,179,969	25,082,270			14,683,677			14,683,677	-
Hydroelectric Production Plants									
Prairie River HE Station	5,109,867	821,411	7.8	0.00%	549,802	50	0.00%	85,769	(464,033)
Thomson HE Station	25,694,188	14,855,700	18.1	0.00%	598,811	50	0.00%	216,770	(382,041)
Fond du Lac HE Station	18,436,905	3,612,008	16.7	0.00%	887,718	50	0.00%	296,498	(591,220)
Winton HE Station	5,031,118	2,734,600	22.3	0.00%	102,983	50	0.00%	45,930	(57,053)
Knife Falls HE Station	3,328,194	1,779,314	16.3	0.00%	95,023	50	0.00%	30,978	(64,045)
Scanlon HE Station	2,526,602	1,496,798	16.1	0.00%	63,963	50	0.00%	20,596	(43,367)
Little Falls HE Station	7,813,849	4,113,045	8.8	0.00%	420,546	50	0.00%	74,016	(346,530)
Blanchard HE Station	9,874,571	5,542,918	17.8	0.00%	243,351	50	0.00%	86,633	(156,718)
Sylvan HE Station	2,191,000	1,481,450	8.0	0.00%	88,694	50	0.00%	14,191	(74,503)
Pillager HE Station	2,047,253	1,283,942	11.8	0.00%	64,687	50	0.00%	15,266	(49,421)
Birch Lake Reservoir	304,571	211,152	22.3	0.00%	4,189	50	0.00%	1,868	(2,321)
Boulder Lake Reservoir	483,407	312,431	18.6	0.00%	9,192	50	0.00%	3,420	(5,772)
Fish Lake Reservoir	945,803	200,690	18.6	0.00%	40,060	50	0.00%	14,902	(25,158)
Island Lake Reservoir	1,459,633	1,025,031	18.6	0.00%	23,366	50	0.00%	8,692	(14,674)
Rice Lake Reservoir	73,324	50,661	18.6	0.00%	1,218	50	0.00%	453	(765)
Whieface Reservoir	1,078,938	571,220	18.6	0.00%	27,297	50	0.00%	10,154	(17,143)
Gauging Stations	125,451	59,730	18.2	0.00%	3,611	50	0.00%	1,314	(2,297)
White Iron Lake Reservoir	28,934	13,391	22.3	0.00%	697	50	0.00%	311	(386)
Total Hydroelectric Production Plants	86,553,608	40,165,492			3,225,208			927,761	(2,297,447)
Total Generation	1,980,125,391	644,622,738			69,039,521			66,646,911	(2,392,610)
					2014 Impact of Increase in Annual Accural 2008-2012 Due to Using Gross Salvage Rates				1,490,400
									(902,210)

The ash ponds have a 5 year life, as they are built and filled in on a 5-year cycle.
** New Ash Ponds with 5 year life added in 2010*

Sources: MP Plant In Service report, PowerPlant Depr-1033 report and Remaining Life Comparison to IRP

Minnesota Power
Plant in Service - 2013
Steam Production

Facility	Plant Accout	Beginning Balance	Current Additions	Current Retirements	Current Transfer/Adjustments	Ending Balance
Boswel Energy Center Common: 0115	3100 Land & Land Rights, Fee	4,295,713.93				4,295,713.93
	3110 Structures & Improv	20,712,101.32	165,890.17	(48,219.42)		20,829,772.07
	3111 Structures & Improv, Pollution	16,549,660.11	(501.20)		(2,273,213.87)	14,275,945.04
	3120 Boiler Plant Equip	52,370,863.33	1,328,877.33	(113,033.90)		53,586,706.76
	3121 Boiler Plant Equip, Pollution	69,372,768.13	2,278,554.31		2,273,213.87	73,924,536.31
	3140 Turbogenerator Units	1,057,687.06				1,057,687.06
	3141 Turbogenerator Units,Pollution	67,393.37				67,393.37
	3150 Accessory Elec Equip	8,687,172.99	(44,285.46)			8,642,887.53
	3151 Accessory Elec Equip,Pollution	2,301,997.61				2,301,997.61
	3160 Misc Power Plt Eq	4,446,180.52	419,124.18	(51,408.57)		4,813,896.13
	3161 Misc Power Plt Eq, Pollution	133.76				133.76
	Total	**179,861,672.13**	**4,147,659.33**	**(212,661.89)**	**-**	**183,796,669.57**
Boswell Energy Center Unit 1: 0111	3100 Land & Land Rights, Fee	59,858.35				59,858.35
	3110 Structures & Improv	2,811,970.98	111,058.00	(122,207.00)		2,800,821.98
	3111 Structures & Improv, Pollution	31,336.53				31,336.53
	3120 Boiler Plant Equip	13,332,919.03	731,500.20	(341,191.00)		13,723,228.23
	3121 Boiler Plant Equip, Pollution	12,837,337.34	252,573.10	(301,415.00)		12,788,495.44
	3140 Turbogenerator Units	8,684,012.20	48,395.23			8,732,407.43
	3141 Turbogenerator Units,Pollution	215,707.27				215,707.27
	3150 Accessory Elec Equip	7,482,582.56	690,000.90			8,172,583.46
	3151 Accessory Elec Equip,Pollution	236,766.85	-			236,766.85
	3160 Misc Power Plt Eq					-
	Total	**45,692,491.11**	**1,833,527.43**	**(764,813.00)**	**-**	**46,761,205.54**
Boswell Energy Center Unit 2: 0112	3100 Land & Land Rights, Fee	59,687.82	-	-	-	59,687.82
	3110 Structures & Improv	1,498,496.98	311,653.03	-	-	1,810,150.01
	3111 Structures & Improv, Pollution	1,039.83	-	-	-	1,039.83
	3120 Boiler Plant Equip	12,594,234.64	323,103.07	-	-	12,917,337.71
	3121 Boiler Plant Equip, Pollution	8,940,521.42	81,886.67	-	-	9,022,408.09
	3140 Turbogenerator Units	8,901,899.28	-	-	-	8,901,899.28
	3141 Turbogenerator Units,Pollution	53,247.44	-	-	-	53,247.44
	3150 Accessory Elec Equip	3,298,684.42	-	-	-	3,298,684.42
	3160 Misc Power Plt Eq		-	-	-	-
	Total	**35,347,811.83**	**716,642.77**	**-**	**-**	**36,064,454.60**

Minnesota Power
Plant in Service - 2013
Steam Production

Facility	Plant Accout	Beginning Balance	Current Additions	Current Retirements	Current Transfer/Adjustments	Ending Balance
Boswell Energy Center Unit 3: 0113	3100 Land & Land Rights, Fee	3,104,623.53			-	3,104,623.53
	3110 Structures & Improv	21,222,347.94	13,751.74	(70,102.08)	-	21,165,997.60
	3111 Structures & Improv, Pollution	19,558,786.06			-	19,558,786.06
	3120 Boiler Plant Equip	84,542,842.53	460,940.82	(156,238.57)	-	84,847,544.78
	3121 Boiler Plant Equip, Pollution	246,339,120.48	(58,699.93)		-	246,280,420.55
	3140 Turbogenerator Units	34,273,556.15			-	34,273,556.15
	3141 Turbogenerator Units,Pollution	5,238,203.92			-	5,238,203.92
	3150 Accessory Elec Equip	35,504,746.93			-	35,504,746.93
	3151 Accessory Elec Equip,Pollution	2,722,017.86			-	2,722,017.86
	3160 Misc Power Plt Eq	575,765.44			-	575,765.44
	Total	**453,082,010.84**	**415,992.63**	**(226,340.65)**	**-**	**453,271,662.82**
Boswell Energy Center Unit 4: 0114	3100 Land & Land Rights, Fee	355,534.09			-	355,534.09
	3110 Structures & Improv	28,367,435.71	(3,453.95)		-	28,363,981.76
	3111 Structures & Improv, Pollution	15,082,516.58			-	15,082,516.58
	3120 Boiler Plant Equip	114,591,700.95	752,772.70	(308,548.30)	-	115,035,925.35
	3121 Boiler Plant Equip, Pollution	78,932,143.23	601,144.56	(38,364.38)	-	79,494,923.41
	3140 Turbogenerator Units	56,775,590.02	1,080,941.08		-	57,856,531.10
	3141 Turbogenerator Units,Pollution	12,136,296.62			-	12,136,296.62
	3150 Accessory Elec Equip	28,557,298.73			-	28,557,298.73
	3151 Accessory Elec Equip,Pollution	16,690,357.20			-	16,690,357.20
	3160 Misc Power Plt Eq	925,632.28	33,933.47		-	959,565.75
	3161 Misc Power Plt Eq, Pollution	429,105.31			-	429,105.31
	Total	**352,843,610.72**	**2,465,337.86**	**(346,912.68)**	**-**	**354,962,035.90**
Cloquet Energy Center: 0170	3110 Structures & Improv	1,112,885.18		-	-	1,112,885.18
	3120 Boiler Plant Equip	1,401,448.87		-	-	1,401,448.87
	3140 Turbogenerator Units	5,218,558.16	(118,512.34)	-	-	5,100,045.82
	3141 Turbogenerator Units,Pollution	72,348.34		-	-	72,348.34
	3150 Accessory Elec Equip	539,073.80		-	-	539,073.80
	Total	**8,344,314.35**	**(118,512.34)**	**-**	**-**	**8,225,802.01**

Minnesota Power
Plant in Service - 2013
Steam Production

Facility	Plant Accout	Beginning Balance	Current Additions	Current Retirements	Current Transfer/Adjustments	Ending Balance
Hibbard EC 100% HEC - Loc 101: 0101	3100 Land & Land Rights, Fee	30,716.52			-	30,716.52
	3110 Structures & Improv	4,368,318.03	84,770.69	(96,836.00)	-	4,356,252.72
	3111 Structures & Improv, Pollution				-	-
	3120 Boiler Plant Equip	53,699,942.41	3,860,111.64	(2,440,361.99)	-	55,119,692.06
	3121 Boiler Plant Equip, Pollution	12,103,735.25	22.13	(78,662.00)	-	12,025,095.38
	3140 Turbogenerator Units	10,744,589.71	(413,587.69)		-	10,331,002.02
	3150 Accessory Elec Equip	4,370,054.15	309,794.37	(641,174.58)	-	4,038,673.94
	3160 Misc Power Plt Eq	705,084.51	211,686.52		-	916,771.03
	Total	**86,022,440.58**	**4,052,797.66**	**(3,257,034.57)**	**-**	**86,818,203.67**
LASKIN ENERGY CENTER: 0105	3100 Land & Land Rights, Fee	253,164.48			-	253,164.48
	3110 Structures & Improv	5,917,193.81	175,507.61	(12,835.00)	-	6,079,866.42
	3111 Structures & Improv, Pollution	4,734,811.21	36,187.19		-	4,770,998.40
	3120 Boiler Plant Equip	23,877,236.73	133,331.51		-	24,010,568.24
	3121 Boiler Plant Equip, Pollution	25,298,369.87	524,962.52		-	25,823,332.39
	3140 Turbogenerator Units	11,005,824.12			-	11,005,824.12
	3141 Turbogenerator Units,Pollution	754,598.17			-	754,598.17
	3150 Accessory Elec Equip	5,249,850.42	102,369.55	(15,551.21)	-	5,336,668.76
	3151 Accessory Elec Equip,Pollution	628,544.24			-	628,544.24
	3160 Misc Power Plt Eq	1,413,162.55	117,135.39	(166,746.30)	-	1,363,551.64
	3161 Misc Power Plt Eq, Pollution	18,035.02			-	18,035.02
	Total	**79,150,790.62**	**1,089,493.77**	**(195,132.51)**	**-**	**80,045,151.88**
Taconite Harbor Energy Center: 0185	3100 Land & Land Rights, Fee	143,350.45		-	-	143,350.45
	3110 Structures & Improv	10,200,699.24	1,677,788.50	(525,090.75)	-	11,353,396.99
	3111 Structures & Improv, Pollution	5,332,466.79	39,236.50	-	-	5,371,703.29
	3120 Boiler Plant Equip	36,312,168.03	3,728,922.01	(334,394.91)	-	39,706,695.13
	3121 Boiler Plant Equip, Pollution	62,271,550.53	117,709.52	-	-	62,389,260.05
	3140 Turbogenerator Units	11,603,834.61	3,242,706.48	(932,558.68)	-	13,913,982.41
	3141 Turbogenerator Units,Pollution	552,793.99		-	-	552,793.99
	3150 Accessory Elec Equip	14,002,424.67	(80,535.89)	-	-	13,921,888.78
	3151 Accessory Elec Equip,Pollution	6,234,191.44		-	-	6,234,191.44
	3160 Misc Power Plt Eq	1,069,986.56	92,028.56	-	-	1,162,015.12
	Total	**147,723,466.31**	**8,817,855.68**	**(1,792,044.34)**	**-**	**154,749,277.65**
	Grand Total	**1,388,068,608.49**	**23,420,794.79**	**(6,794,939.64)**	**-**	**1,404,694,463.64**

Minnesota Power
Plant in Service - 2013
Steam Production

Facility	Plant Accout	Beginning Balance	Current Additions	Current Retirements	Current Transfer/Adjustments	Ending Balance
Summary all Steam Plants	3100 Land & Land Rights, Fee	8,302,649.17	-	-	-	8,302,649.17
	3110 Structures & Improv	96,211,449.19	2,536,965.79	(875,290.25)	-	97,873,124.73
	3111 Structures & Improv, Pollution	61,290,617.11	74,922.49	-	(2,273,213.87)	59,092,325.73
	3120 Boiler Plant Equip	392,723,356.52	11,319,559.28	(3,693,768.67)	-	400,349,147.13
	3121 Boiler Plant Equip, Pollution	516,095,546.25	3,798,152.88	(418,441.38)	2,273,213.87	521,748,471.62
	3140 Turbogenerator Units	148,265,551.31	3,839,942.76	(932,558.68)	-	151,172,935.39
	3141 Turbogenerator Units,Pollution	19,090,589.12	-	-	-	19,090,589.12
	3150 Accessory Elec Equip	107,691,888.67	977,343.47	(656,725.79)	-	108,012,506.35
	3151 Accessory Elec Equip,Pollution	28,813,875.20	-	-	-	28,813,875.20
	3160 Misc Power Plt Eq	9,135,811.86	873,908.12	(218,154.87)	-	9,791,565.11
	3161 Misc Power Plt Eq, Pollution	447,274.09	-	-	-	447,274.09
	Grand Total	**1,388,068,608.49**	**23,420,794.79**	**(6,794,939.64)**	**-**	**1,404,694,463.64**

MINNESOTA POWER
PRODUCTION PLANT
COMPARISON OF PROPOSED REMAINING LIVES TO PROPOSED REMAINING LIVES WITH 100% DECOMMISSIONING PROBABILITIES
2014

			Proposed Rates - Dec. 2013 Decomm. Costs			Proposed Rates - Dec. 2013 Decomm. Costs - Using 100% Decomm. Probabilities			Effect of 100% Decomm.
	Depreciable Plant Balance 12/31/13	Depreciation Reserve 12/31/13	Remaining Life (01/01/14)	Salvage Value (01/01/14)	2014 Annual Accrual	Remaining Life (01/01/14)	Salvage Value (01/01/14)	2014 Annual Accrual	Probabilities to 2014 Accrual
Steam Generation									
Hibbard SE Station:	86,787,487	50,093,020	11.0	-2.42%	3,526,793	11.0	-4.85%	3,718,515	191,722
Laskin Energy Center	79,791,987	52,959,071	17.0	-14.50%	2,258,986	17.0	-14.50%	2,258,986	-
Boswell Energy Center:	1,066,980,611	421,886,200			35,722,372			37,538,818	1,816,446
Unit No. 1	46,701,347	22,782,857	11.0	-6.09%	2,432,964	11.0	-12.17%	2,691,095	258,131
Unit No. 2	36,004,767	22,861,362	11.0	-7.90%	1,453,435	11.0	-15.79%	1,711,687	258,252
Unit No. 3	450,167,039	122,824,106	21.0	-4.50%	16,552,402	21.0	-6.00%	16,873,950	321,548
Unit No. 4	354,606,502	164,801,698	22.0	-4.62%	9,372,165	22.0	-9.25%	10,118,450	746,285
Common	179,500,956	88,616,177	16.0	-2.06%	5,911,406	16.0	-4.13%	6,143,636	232,230
Taconite Harbor Energy Center	154,605,927	49,134,992			9,261,494			9,433,260	171,766
Structure/Unit	149,597,502	44,626,290	13.0	-4.16%	8,553,421	13.0	-5.20%	8,673,099	119,678
Ash Ponds*	5,008,425	4,508,702	1.0	-4.16%	708,073	1.0	-5.20%	760,161	52,088
Cloquet Energy Center	8,225,802	5,301,693	11.0	0.00%	265,828	11.0	0.00%	265,828	-
Total Steam Generation	1,396,391,814	579,374,976			51,035,473			53,215,407	2,179,934
Wind Generation									
Bison 1A	76,089,393	7,752,056	31.0	0.00%	2,204,430	31.0	0.00%	2,204,430	-
Bison 1B	73,284,514	2,090,094	32.0	0.00%	2,224,826	32.0	0.00%	2,224,826	-
Bison 2	150,367,219	5,942,260	33.0	0.00%	4,376,514	33.0	0.00%	4,376,514	-
Bison 3	150,322,344	4,448,301	33.0	0.00%	4,420,426	33.0	0.00%	4,420,426	-
Subtotal Bison	450,063,470	20,232,711			13,226,196			13,226,196	
Taconite Ridge I Energy Center	47,116,499	4,849,559	29.0	0.00%	1,457,481	29.0	0.00%	1,457,481	-
Total Wind Generation	497,179,969	25,082,270			14,683,677			14,683,677	-
Hydroelectric Production Plants									
Prairie River HE Station	5,109,867	821,411	50.0	0.00%	85,769	50.0	0.00%	85,769	-
Thomson HE Station	25,694,188	14,855,700	50.0	0.00%	216,770	50.0	0.00%	216,770	-
Fond du Lac HE Station	18,436,905	3,612,008	50.0	0.00%	296,498	50.0	0.00%	296,498	-
Winton HE Station	5,031,118	2,734,600	50.0	0.00%	45,930	50.0	0.00%	45,930	-
Knife Falls HE Station	3,328,194	1,779,314	50.0	0.00%	30,978	50.0	0.00%	30,978	-
Scanlon HE Station	2,526,602	1,496,798	50.0	0.00%	20,596	50.0	0.00%	20,596	-
Little Falls HE Station	7,813,849	4,113,045	50.0	0.00%	74,016	50.0	0.00%	74,016	-
Blanchard HE Station	9,874,571	5,542,918	50.0	0.00%	86,633	50.0	0.00%	86,633	-
Sylvan HE Station	2,191,000	1,481,450	50.0	0.00%	14,191	50.0	0.00%	14,191	-
Pillager HE Station	2,047,253	1,283,942	50.0	0.00%	15,266	50.0	0.00%	15,266	-
Birch Lake Reservoir	304,571	211,152	50.0	0.00%	1,868	50.0	0.00%	1,868	-
Boulder Lake Reservoir	483,407	312,431	50.0	0.00%	3,420	50.0	0.00%	3,420	-
Fish Lake Reservoir	945,803	200,690	50.0	0.00%	14,902	50.0	0.00%	14,902	-
Island Lake Reservoir	1,459,633	1,025,031	50.0	0.00%	8,692	50.0	0.00%	8,692	-
Rice Lake Reservoir	73,324	50,661	50.0	0.00%	453	50.0	0.00%	453	-
Whieface Reservoir	1,078,938	571,220	50.0	0.00%	10,154	50.0	0.00%	10,154	-
Gauging Stations	125,451	59,730	50.0	0.00%	1,314	50.0	0.00%	1,314	-
White Iron Lake Reservoir	28,934	13,391	50.0	0.00%	311	50.0	0.00%	311	-
Total Hydroelectric Production Plants	86,553,608	40,165,492			927,761			927,761	-
Total Generation	1,980,125,391	644,622,738			66,646,911			68,826,845	**2,179,934**
									Increase to 2014 Accrual

The ash ponds have a 5 year life, as they are built and filled in on a 5-year cycle.

** New Ash Ponds with 5 year life added in 2010*

Sources: MP Plant In Service report, PowerPlant Depr-1033 report and Remaining Life Comparison to IRP

MINNESOTA POWER
By Year and Total Impact of Increase in Annual Accural 2008-2012 Due to Using Gross Salvage Rates

	2013	2014	2015	2016	Total
Steam Generation					
Laskin Energy Center	147,000	588,000	588,000	441,000	1,764,000
Boswell					
Unit No. 1	11,100	44,400	44,400	33,300	133,200
Unit No. 2	12,300	49,200	49,200	36,900	147,600
Unit No. 3	77,400	309,600	309,600	232,200	928,800
Unit No. 4	86,700	346,800	346,800	260,100	1,040,400
Common	42,000	168,000	168,000	126,000	504,000
Taconite Harbor Energy Center					
Structure/Unit	(4,200)	(16,800)	(16,800)	(12,600)	(50,400)
Ash Ponds	300	1,200	1,200	900	3,600
Total	**372,600**	**1,490,400**	**1,490,400**	**1,117,800**	**4,471,200**

Site Decommissioning Study 2013

Prepared For

Minnesota Power

December 2013

Project No. 68913

Site Decommissioning Study 2013

prepared for

Minnesota Power
Duluth, Minnesota

December 2013

Project No. 68913

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) was retained by Minnesota Power (MP) to conduct a Site Decommissioning Study (Study) for four of the Minnesota Power (MP) facilities (Plants, Facilities) in the northern Minnesota area - Boswell Energy Center (BEC), Laskin Energy Center (LEC), Taconite Harbor Energy Center (THEC) and Hibbard Renewable Energy Center (HREC). The purpose of the Site Demolition Cost Study was to review the Facilities and to make a recommendation to MP regarding the total cost to dismantle the Plants and return it to a condition suitable for redevelopment.

The site demolition costs were developed using the information provided by MP and any in-house data available to BMcD. Quantity take-offs were performed for several major plant facilities and equipment. Demolition activities were determined and man-hours were estimated to complete each demolition activity. Market pricing for man-hour rates and unit pricing were then developed for each task, and these rates were applied to the assumed quantities for the Plants to determine the total cost of dismantlement.

1.2 RESULTS

Burns & McDonnell has prepared estimates in current dollars (2013$) for the dismantlement of the Plants. These costs are summarized in Table 1.1. When MP determines that the Plants should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a salvage contractor to offset a portion of the site dismantlement costs. MP will incur costs in the demolition and restoration of the sites less the salvage value of equipment and bulk steel.

Asbestos remediation would take place prior to commencement of any other demolition activities. Abatement would need to be performed in compliance with all state and federal regulations, including, but not limited to requirements for sealing off work areas and maintaining negative pressure throughout the removal process. Final clearances and approvals would need to be achieved prior to performing further demolition activities.

Table 1.1 Site Decommissioning Cost Estimate (2013$)

Asset	Demolition Cost	Credits	Net Project Cost	Project Duration
Boswell Energy Center (EC)	$95,994,000	($8,339,000)	$87,655,000	18 to 20 months
Hibbard EC	$8,329,000	($2,815,000)	$5,514,000	12 months
Laskin EC	$14,133,000	($2,565,000)	$11,568,000	12 months
Taconite Harbor EC	$11,497,000	($3,458,000)	$8,039,000	12 months

The total project costs presented above include the costs to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Plant. Included are the costs to dismantle the power generating equipment owned by MP as well as the costs to dismantle the MP owned balance of plant facilities.

1.3 STATEMENT OF LIMITATIONS

In preparation of this site demolition cost, Burns & McDonnell has relied upon information provided by MP. While Burns & McDonnell has no reason to believe that the information provided, and upon which Burns & McDonnell has relied, is inaccurate or incomplete in any material respect, Burns & McDonnell has not independently verified such information and cannot guarantee its accuracy or completeness.

Burns & McDonnell's estimates and projections of demolition costs are based on experience, qualifications and judgment. Since Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, contractors' procedures and methods, and other factors, Burns & McDonnell does not guarantee the accuracy of its estimates and projections.

Burns & McDonnell's estimates and projections of costs do not include allowances for unforeseen environmental liabilities associated with unexpected environmental contamination due to events not considered part of normal operations, such as fuel tank ruptures, oil spills, etc. Estimates also do not include allowances for environmental remediation associated with changes in classification of hazardous materials.

* * * * *

2.0 PLANT DESCRIPTIONS

The following section provides a general description of each Facility.

2.1 BOSWELL ENERGY CENTER

The BEC consists of four units, all coal-fired steam generators with turbine generators. Unit 1 and Unit 2 are pulverized coal-fired Riley-Stoker Wall-Fired Steam Generators. Boswell Unit 1 was commissioned in 1958, and Boswell Unit 2 was commissioned in 1960. Boswell Unit 1 and Unit 2 are both rated at 69 MW (net) and 75 MW (gross) each. Boswell Units 1 and 2 currently employ low NO_x burners and Selective Non-Catalytic Reduction (SNCR) system for NO_x control and a fabric filter for particulate control. No SO_2 control is currently installed at these units. Unit 1 and Unit 2 utilize once-through cooling drawing water from the nearby lake.

Boswell Unit 3 is a pulverized coal-fired Combustion Engineering Tangentially-Fired Steam Generator commissioned in 1973. Boswell Unit 3 is rated at 350 MW (net) and 375 MW (gross). In 2009, air quality control systems were installed to control NO_x, SO_2, particulates, and mercury emissions. Low NO_x Burners (LNBs), Overfire Air (OFA) system, and Selective Catalytic Reduction (SCR) using ammonia were installed to reduce NO_x emissions; while Wet Limestone Forced Oxidation Flue Gas Desulfurization (FGD) system was installed to reduce SO_2 emissions. Dry ground limestone is used as reagent for the FGD system. Fabric Filter was installed to collect fly ash and Activated Carbon Injection System is used to control mercury emissions. Fly ash collected is conditioned and disposed on-site in one of the ash ponds. A wet cooling tower is used to reject waste heat to the atmosphere for Unit 3.

Boswell Unit 4 is a pulverized coal-fired Combustion Engineering Tangentially-Fired Steam Generator commissioned in 1980. BEC Unit 4 is rated at 537 MW (net) and 585 MW (gross). Boswell Unit 4 currently employs low NO_x burners and close-coupled OFA (CCOFA) for NO_x control, a venturi scrubber for particulate control, and a spray tower absorber for SO_2 control. A small portion of the flue gas (2 to 5 percent) bypasses the venturi scrubber and spray tower absorber. This bypass stream is treated by an ESP for particulate control before being blended with the remainder of the flue gas, where it acts to reheat the flue gas treated by the venturi scrubber and spray tower absorber. Similar to Unit 3, a wet cooling tower is used for heat rejection for Unit 4.

2.2 HIBBARD RENEWABLE ENERGY CENTER

The Hibbard Renewable Energy Center (HREC) is located in Duluth, Minnesota approximately five miles southwest of MP's General Office. Four (4) units are located at the HREC. Unit 1 and Unit 2 have been abandoned in place while Unit 3 is rated for 35 MW (gross) and Unit 4 is rated for 39.5 MW (gross). The units at HREC were originally built to burn coal, but were converted to burn fuel oil in the 1970s and eventually shut down in 1982. In 1987, the facility was converted to burn biomass fuel to mainly produce steam for an adjacent paper mill. Electro-Static Precipitator (ESP) was also installed directly above the boiler roof. Unit 3 also has OFA installed to reduce NO_x emissions. Due to the space constraints of the site, ash is trucked offsite to landfill.

2.3 LASKIN ENERGY CENTER

LEC consists of two identical units. Unit 2 commenced commercial operation on July 1, 1953, and Unit 1 on October 1, 1953. The two units are Combustion Engineering, tangentially-fired pulverized coal, natural circulation units with three drums designed for balanced draft firing. The Laskin units were originally designed for a maximum continuous capacity of 425,000 lbs/hr, firing pulverized bituminous coal. Steam conditions at the superheater outlet were 1,350 psig and 955 degrees Fahrenheit (F) with a feedwater temperature of 420 degrees F. In 1966 the steam generators were upgraded to produce 525,000 lbs/hr steam flow at 1,315 psig and 955 degrees F. This upgrade included addition of a desuperheater and modification of the superheater and boiler bank baffles. Each unit has three Raymond Bowl RB-533 coal mills and associated tilting tangential burners. The station’s originally 40,000/44,000 kW hydrogen cooled Westinghouse non-reheat condensing turbine generators were upgrade in 1966 to produce 60,000 kW (gross). By the end of 1970, the units had been converted to burn Powder River Basin (PRB) coal. This conversion required upgrades to each unit’s feed pumps, fans, mill exhauster fans, and the addition of wet particulate scrubbers. The wet particulate scrubbers also achieve approximately 50 percent SO_2 control. The units employ low NO_x burners and separated overfire air (SOFA) system to control NO_x. A 300-ft high common chimney was also installed at that time.

2.4 TACONITE HARBOR ENERGY CENTER

THEC consists of three coal-fired units, each approximately 75 MW (gross), located near the town of Schroeder, MN. The site is located adjacent to Lake Superior. Unit 1 and Unit 2 were originally constructed in the mid 1950s, both having a commercial operation date of 1957. Unit 3 was constructed 10 years later and has a commercial operation date of 1967.

THEC receives coal via barge delivery at the Cliffs Erie barge unloading facility located adjacent to the Plant. The barge unloading facility is not property of the Plant. THEC also includes several buildings such as an administrative building, warehouse, water intake pump house, fuels garage, and water treatment building. There are several large silos for lime and ash storage located in the pollution control equipment (FSI) building. A large coal yard is located on-site and an off-site landfill is located a few miles from the site.

THEC has a large substation and switchyard located adjacent to the site, which is assumed to remain in operation after the facility is retired. The substation will remain in operation to support the transmission system in the area.

The facility utilizes once through cooling from water supplied from Lake Superior. Similar to other facilities constructed during the same time period, THEC has a significant amount of asbestos based insulation and siding.

* * * * *

3.0 SITE DEMOLITION COST

Burns & McDonnell has prepared dismantlement estimates for the four Plants. When MP determines that the site should be retired, the above grade equipment and steel structures are assumed to have sufficient scrap value to a salvage contractor to offset a portion of the site dismantlement costs. However, MP will incur costs of dismantlement of the Plants and restoration of the sites to the extent that those costs exceed the salvage value of equipment and bulk steel.

The site demolition cost includes the cost to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Plants. The site will be seeded and restored to green space. Included are the costs to dismantle all of the assets owned by MP at the site, including power generating equipment and balance of plant facilities.

The site demolition costs were developed using information provided by MP, and in-house data Burns & McDonnell has collected from previous project experience. Burns & McDonnell estimated quantities for equipment based on a visual inspection of the facilities, combined with Burns & McDonnell’s in house database of plant equipment quantities, and Burns & McDonnell’s professional judgment and MP provided drawings. This resulted in an estimate of quantities for the tasks required to be performed for each dismantlement effort.

Current market pricing for man-hour rates and unit pricing were then developed for each task. The man-hour rates and unit pricing were developed for the site based on the labor rates, equipment costs, and disposal costs specific to the area in which the work is to be performed. These rates were applied to the quantities for the Plant to determine the total cost of dismantlement for each site.

3.1 GENERAL DECOMMISSIONING ASSUMPTIONS FOR ALL SITES

The following assumptions were made as the basis for all the cost estimates:

1. All above grade structures and buildings are included for demolition, unless otherwise noted herein.
2. All estimates include the demolition of all buildings onsite, including administration buildings, maintenance buildings, warehouses, storage buildings, and any other ancillary buildings. Any spare parts, tools, inventory, or equipment in the buildings will be transferred to another facility or sold prior to decommissioning activities commencing, the value of which is excluded from the estimates.

3. All facilities will be decommissioned to zero generating output. Existing utilities will remain in place for use by the contractor for the duration of these demolition activities.
4. All work will take place in the most cost efficient method.
5. Transmission switchyards and substations within the boundaries of the plant are not part of the demolition scope. The GSU transformers are assumed to be removed, but the transmission infrastructure is assumed to remain operational for support of the transmission system.
6. Step up transformers, auxiliary transformers, and spare transformers are included for removal and scrap value in the estimate.
7. Abatement of asbestos and arsenic in the boiler refractory (where applicable) will precede any other demolition work. After final air quality clearances have been reached, demolition can proceed.
8. Removal of asbestos will be done in accordance with any and all applicable Federal, State and Local laws, rules, and regulations.
9. The estimate includes an allowance for abatement of asbestos containing material (ACM), unless otherwise stated.
10. Equipment and structures covered with lead-based paint are assumed to be removed and handled by OSHA certified personnel. The lead-based paint is assumed to be abated by the scrap dealer upon recycling.
11. MP will remove all burnable coal, fuel oil, and chemicals prior to commencement of demolition activities.
12. Coal pile will be closed by removing 6-inches of material for offsite disposal as a non-hazardous waste, backfilling with clean fill, covering with 6-inch of topsoil and hydroseeded to establish vegetation.
13. If present, all PCB oil will be removed and disposed of properly.
14. No environmental costs have been included to address site clean-up of contaminated soils, hazardous materials, or other conditions present on-site having a negative environmental impact, other than those specifically listed in these assumptions. No allowances are included for unforeseen environmental remediation activities.
15. Handling and disposal of hazardous material will be performed in compliance with the approved methods of MP and governing agencies.
16. Site areas will be graded to achieve suitable site drainage to natural drainage patterns, but grading will be minimized to the extent possible.
17. All landfill dikes will be removed and re-graded with the dike material used as fill.

18. All existing basements will be used to bury non-hazardous debris, with the exception of the Hibbard Renewable Energy Center. Concrete in trenches and basements will be perforated to create drainage.
19. All structures at grade and above will be demolished. All structures below grade will be abandoned in-place unless deemed hazardous by Minnesota Power (MP) or otherwise stated in the assumptions as being demolished.
20. Major equipment, electrical cabling, and structural steel are included for scrap value. All other demolished materials are considered debris.
21. Costs for offsite disposal are included for materials in excess of the onsite inert debris disposal capacity. With the exception of the Hibbard Renewable Energy Center site, concrete, masonry, and bricks are assumed to be disposed in the on-site landfill.
22. Valuation and sale of land and all replacement generation costs are excluded from this scope.
23. Credits for salvage value are based on scrap value alone. Resale of equipment and materials is not included.
24. Labor costs are based on a regular forty (40)-hour workweek without overtime.
25. Soil testing and any other on-site testing has not been conducted for this study.
26. Sewers, catch basins, and ducts will be collapsed to two feet below grade, filled and sealed on the upstream side. Horizontal runs will be abandoned in place after being closed.
27. Underground piping will be abandoned in place if it is less than four feet in diameter. Circulating water pipes will be capped, have the tops broken up, and backfilled the pipe hollow with on-site soil.
28. Intake and discharge structures that will no longer serve a purpose after station operation will be filled and closed unless otherwise noted in the site specific assumptions. Equipment and structures above the seawall will be removed.
29. Existing sheet piling along the plant property shorelines to the natural bodies of water will remain in place.
30. Crushed rock is assumed to be disposed of on-site by using it for clean fill, disposed in the on-site landfill, or will be recycled by the demolition contractor for beneficial use.
31. Costs are included to clean out the fuel oil tanks and to remove the soil within the immediate vicinity of the tanks to account for the potential for this soil to be contaminated during normal operations.
32. Disturbed site areas will be seeded after they are graded to provide suitable ground cover to prevent soil erosion.
33. Pricing for all estimates is in 2013 dollars and excludes escalation.

34. Project indirects are included at ten (10) percent for field overhead, three (3) percent for home office costs, and ten (10) percent for profit on both labor and material costs.
35. A ten (10) percent contingency was included on the direct costs in the estimates to cover unknowns as well as owner indirects.
36. Scrap value of steel is included at $200 per ton.
37. Scrap value of copper is included at $2.55 per pound.
38. Market conditions may result in cost variations at the time of contract execution.

3.2 SITE SPECIFIC DECOMMISSIONING ASSUMPTIONS

Assumptions specific to each of the individual facilities are outlined below.

3.2.1 Boswell Energy Center

1. The following Boswell Energy Center facilities are assumed to be demolished:
    a. Unit 1, Unit 2, Unit 3, and Unit 4 Power blocks, including boilers, turbines and turbine hall, fan room, diesel-fired generator set, coal bunkers, fly and bottom ash silos, precipitators, administrative building, and stacks
    b. Unit 2 Selective Non-Catalytic Reduction (SNCR) system
    c. Unit 3 selective catalytic reduction (SCR) system
    d. Absorber building
    e. Coal handling equipment, coal rotary unloader and indexer, silos, and conveyors
    f. Low point sump building
    g. Warehouse
    h. Dry chemical storage building
    i. Water treatment building and clarifiers
    j. Intake structure on Blackwater Lake for Unit 1 and Unit 2, including circulating water pumps
    k. Cooling towers, tower basins, and circulating water pumps serving Unit 3 and Unit 4
    l. Pollution control equipment storage
    m. Concrete foundations and miscellaneous structures to grade
    n. Rail and ballast south of Old Highway No. 6, including rail loop
2. The following assumptions were made specific to the Boswell Energy Center, as the basis of the cost estimate.
    a. All auger cast piles and steel tube piles underneath foundations will remain
    b. All sheet piling along the lake shore remains
    c. The 230 kV substation and transmission lines and associated appurtenances remain

d. Intake water building foundation will be removed and the excavation filled in with inert demolition material
e. Asbestos costs are based on material estimates included in surveys provided by MP
f. Water generated during dewatering of the ash ponds will be treated through the onsite water treatment system prior to closure
g. Cover for ash ponds will consist of the following cap design:
   - 40 mil Low Density Polyethylene Geomembrane
   - 6-inch granular drainage layer
   - 6 inch vegetated topsoil layer
   - Hydroseeded

3.2.2 Hibbard Renewable Energy Center

1. The following HREC facilities are assumed to be demolished:
   a. Power block, including boilers, turbines and turbine hall, forced draft (FD) and Induced Draft (ID) fans room, coal bunkers, fly and bottom ash silos, and stack
   b. Unit 3 and Unit 4 fly ash precipitators
   c. Remaining coal handling equipment and conveyors
   d. Wood fuel unloading, hogging, handling and storage equipment including hogging structure and A-frame storage building.
   e. Warehouse
   f. Intake water house including traveling water screens
   g. Concrete foundations and miscellaneous structures to grade
   h. Pipe trestle (aboveground piping, structural steel, foundations) and underground piping connecting the Facility and the paper mill. Demolition of the trestle up to and including the "slanted vertical piping" as it rises out of the ground near the paper mill
2. The following assumptions were made for the HREC as the basis of the cost estimate.
   a. No on-site disposal of demolished materials will be permitted. All demolition debris will be hauled off and disposed of in an off-site landfill.
   b. Asbestos costs are based on material estimates included in surveys provided by MP
   c. Instruments containing mercury based on the plant inventory report
   d. Refractory containing arsenic assumed for Unit 1 and Unit 2 boilers, and for Unit 3 and Unit 4 from the level above the gas burners and upwards (original boiler casing and refractory).
   h. All auger cast piles and steel tube piles underneath foundations to remain.
   i. All sheet piling along the lake shore remains

j. The 115 kV substation and transmission lines and associated appurtenances remain
e. Intake water building (serving Unit 2, Unit 3, and Unit 4) foundation will be removed and the excavation filled in with inert demolition material
f. No pond closure costs were included
g. Costs for the removal, transportation and offsite disposal of 1-foot of soil beneath the former fuel oil tank are included. Costs for backfilling, grading and hydroseeding are also included.

3.2.3 Laskin Energy Center

1. The following Laskin Energy Center facilities are assumed to be demolished:
   a. Power block, including boilers, turbines and turbine hall, fan room, diesel-fired generator set, coal bunkers, fly and bottom ash silos, administrative building
   b. Particulate scrubber building containing particulate scrubbers, FD fans and motor drives, ID fans and motor drives
   c. Concrete stack and liners and stack foundation
   d. Coal handling equipment and conveyors, including coal thawing shed and bottom discharge coal car unloader with rapper
   e. Warehouse and garage
   f. Lime building
   g. Water intake pump house, including circulating water pumps, service water pumps, and newly installed vertical diesel-driven fire pump
   h. Under construction waste water treatment facility building containing sand filters adjacent to the water intake pump house
   i. Wastewater building with cake filter system
   j. Concrete foundations and miscellaneous structures to grade
2. The following assumptions were made specific to the Laskin Energy Center, as the basis of the cost estimate.
   a. The 115 kV/138 kV substation and transmission lines and associated appurtenances remain
   b. Plant railroad spur and rail bridge are included in the estimate
   c. All sheet piling along the Colby Lake shore remains
   d. Asbestos costs are based on material estimates included in surveys provided by MP
   e. Ash Pond Cell C and Cell D will not require any closure, therefore costs have not be included
   f. Ash Pond Cell A, B, and E will be closed with the following cap design:
      - Geomembrane Foundation Layer/Interim Cover (flyash, bottom ash, or sand)
      - 40 mil Low Density Polyethylene Geomembrane (or 24 inch clay as alternative)

- 12 inch Granular Drainage Layer
- 12 inch Rooting Soil Layer
- 6 inch Vegetated Topsoil Layer

3.2.4 Taconite Harbor Energy Center

1. The following Taconite Harbor Energy Center facilities are assumed to be demolished:
   a. Power block, including boilers, turbines and turbine hall, fan room, diesel-fired generator set, coal bunkers, fly and bottom ash silos, precipitators, administrative building, and stacks
   b. Fuels garage
   c. Transportation oil storage tanks
   d. Sedimentation pond
   e. Coal handling equipment and conveyors
   f. Storage buildings
   g. Fuel oil storage tanks
   h. Water treatment building
   i. Pollution control equipment storage
   j. Cooling water pump and screen house
   k. Cold storage building
   l. Concrete foundations and miscellaneous structures to grade
2. The following assumptions were made for the Taconite Harbor Energy Center as the basis of the cost estimate
   a. The holding pond will have two feet of sludge and an additional five feet of soil removed before filling with inert debris, 1.5 feet of proper soil cover, and will be seeded
   b. Asbestos costs are based on material estimates included in surveys provided by MP

* * * * *

4.0 RESULTS

Table 4.1 presents a summary of the decommissioning costs for the four Plants. The summary provides a breakout of the major decommissioning activities and the scrap value for the Plant.

Table 4.1 Site Decommissioning Costs (2013$)

Category	Costs (2013$)			
	Boswell	**Hibbard**	**Laskin**	**Taconite**
Mobilization	$150,000	$150,000	$150,000	$150,000
Demolition & Disposal	$25,999,000	$6,598,000	$2,969,000	$4,882,000
Asbestos Abatement Allowance	$1,691,000	$205,000	$643,000	$1,869,000
Galbestos Removal & Disposal	$518,000	$0	$0	$624,000
Other Hazardous Material Disposal	$188,000	$81,000	$211,000	$167,000
Site Grading & Fill	$1,734,000	$507,000	$1,012,000	$764,000
Site Restoration	$102,000	$31,000	$63,000	$147,000
Landfill and Pond Closure	$56,885,000	$0	$7,800,000	$1,849,000
Project Indirects	Included Above	Included Above	Included Above	Included Above
Project Contingency (10%)	$8,727,000	$757,000	$1,285,000	$1,045,000
Total Project Costs	**$95,994,000**	**$8,329,000**	**$14,133,000**	**$11,497,000**
Scrap Value	**($8,339,000)**	**($2,815,000)**	**($2,565,000)**	**($3,458,000)**
Net Project Costs	**$87,655,000**	**$5,514,000**	**$11,568,000**	**$8,039,000**

The cost estimates presented in Table 4.1 assume the steam turbine generators (STGs) are demolished and scrapped. Should MP decide to salvage the STGs and sell them to a third party, the overall net project costs may decrease by $1 to $2 Million per plant depending on the market conditions for used STGs. The demolition costs would increase due to additional cost to remove the STGs properly for reuse; however the additional revenue from selling the STGs would more than offset the additional demolition costs.

Table 4.2 presents the decommissioning costs on a per unit basis.

Table 4.2 Decommissioning Costs per Unit (2013$)

	Demolition Costs	Scrap Value	Net Project Costs
Boswell			
Unit 1	$2,209,500	($662,000)	$1,547,500
Unit 2	$2,209,500	($662,000)	$1,547,500
Unit 3	$8,007,500	($2,698,000)	$5,309,500
Unit 4	$8,838,500	($2,649,000)	$6,189,500
Common Area	$9,117,000	($1,668,000)	$7,449,000
Landfill and Pond Closure	$56,885,000	N/A	$56,885,000
Project Contingency	$8,727,000	N/A	$8,727,000
Hibbard			
Unit 1	$1,775,500	($781,000)	$994,500
Unit 2	$1,103,500	($486,000)	$617,500
Unit 3	$1,344,500	($592,000)	$752,500
Unit 4	$887,500	($391,000)	$496,500
Common Area	$2,459,000	($563,000)	$1,896,000
Landfill and Pond Closure	$0	N/A	$0
Project Contingency	$757,000	N/A	$757,000
Laskin			
Unit 1	$1,100,500	($834,000)	$266,500
Unit 2	$1,100,500	($834,000)	$266,500
Common Area	$2,848,000	($898,000)	$1,950,000
Landfill and Pond Closure	$7,800,000	N/A	$7,800,000
Project Contingency	$1,285,000	N/A	$1,285,000
Taconite Harbor			
Unit 1	$1,169,000	($605,000)	$564,000
Unit 2	$1,753,000	($908,000)	$845,000
Unit 3	$1,753,000	($908,000)	$845,000
Common Area	$3,928,000	($1,037,000)	$2,891,000
Landfill and Pond Closure	$1,849,000	N/A	$1,849,000
Project Contingency	$1,045,000	N/A	$1,045,000

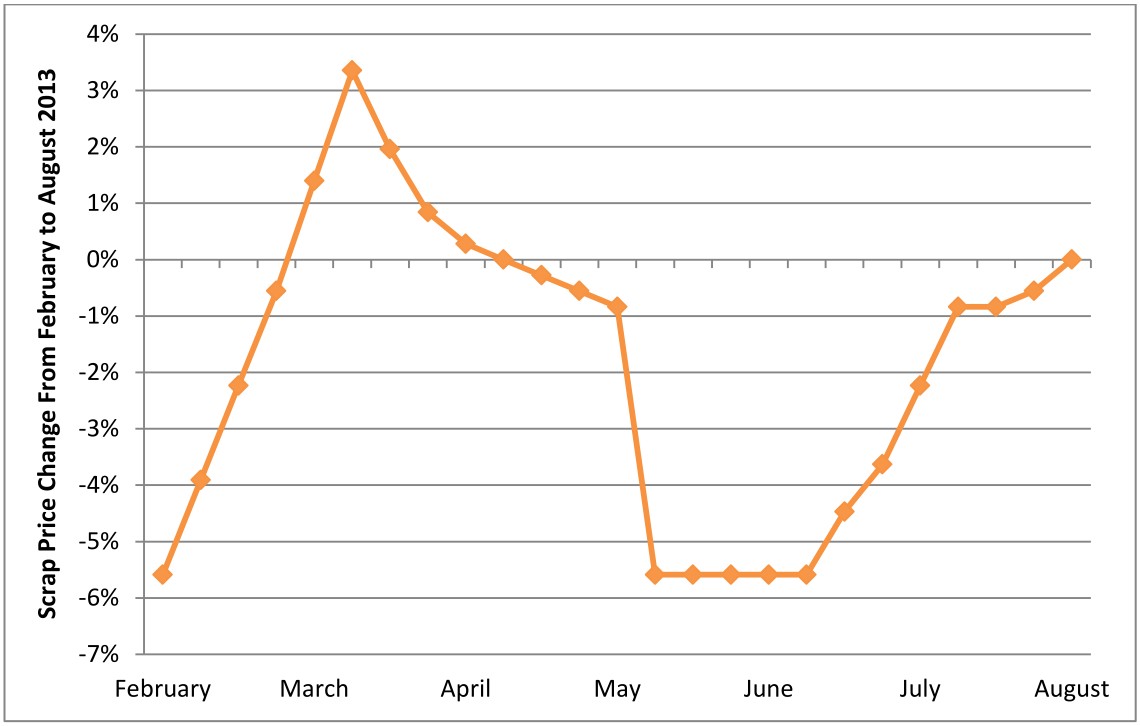
4.1 SCRAP COST SENSITIVITES

As indicated in Table 4.1, scrap value offsets anywhere from 5 percent to 35 percent of the total project costs. However, the scrap value of metals is volatile and can fluctuate quickly based on supply and demand of the metal. Recent information solicited from regional scrap dealers indicate that scrap price for steel is around $200 per ton and approximately $2.55 per pound for copper. These scrap prices are used as the basis for this report to determine the total scrap value of the projects.

It is common for steel and copper prices to fluctuate throughout the year depending upon demand and available material. Figure 4.1 shows the percentage price change for ferrous scrap from February to

August 2013, based on publically available data from a scrap metal pricing index. As shown in the figure, the percentage price changed by approximately 9% from February to mid-March before dropping back down to the same price level in May.

Figure 4.1 Percentage Fluctuation in Scrap Prices from February to August 2013[1]



The information provided in Figure 4.1 is based on U.S. National average values. Scrap prices typically also fluctuate between regions and local dealers depending upon the local market. To examine the impact of the various fluctuations of scrap values on the overall project cost, a sensitivity analysis was performed which identified the spectrum of cost to each plant in relation to the fluctuation in scrap prices. The sensitivity analysis identified the overall net project costs using the following scrap ranges:

- Scrap Steel Price: ±20% or ±$40 per ton, i.e. a range from $160 to $240 per ton.
- Scrap Copper Price: ±20% or ±$0.51 per pound, i.e. a range from $2.04 to $3.06 per pound.

The following figures show the sensitivity of the net project costs to the scrap value of steel and copper.

[1] www.metalprices.com

Figure 4.2 Boswell Net Project Cost Sensitivity Analysis

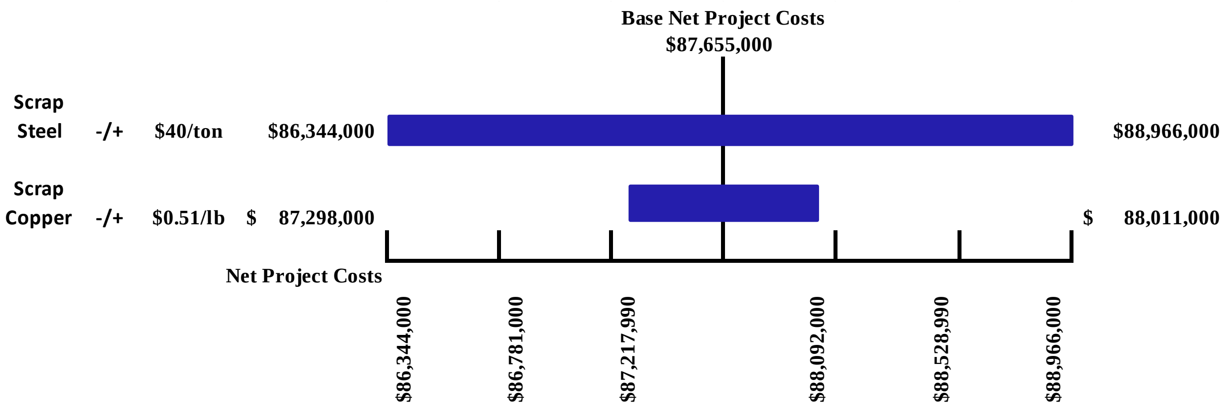


Figure 4.3 Hibbard Net Project Cost Sensitivity Analysis

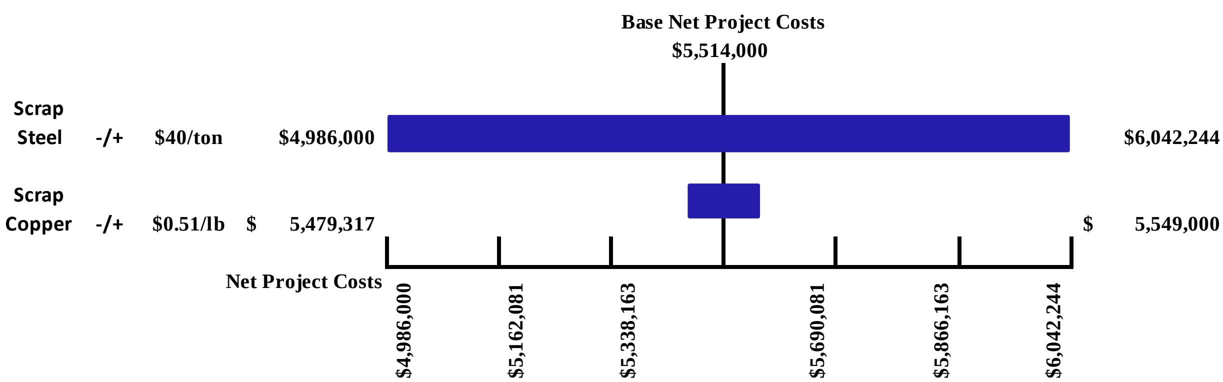


Figure 4.4 Laskin Net Project Cost Sensitivity Analysis

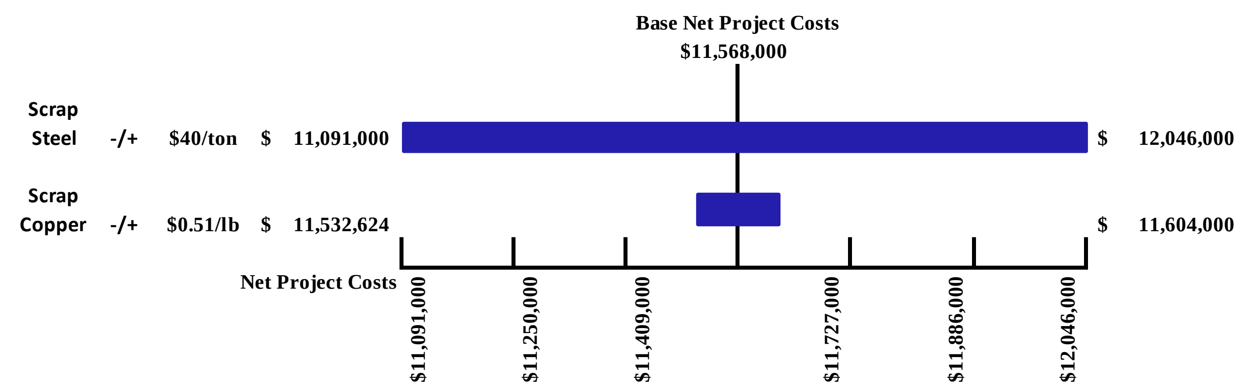
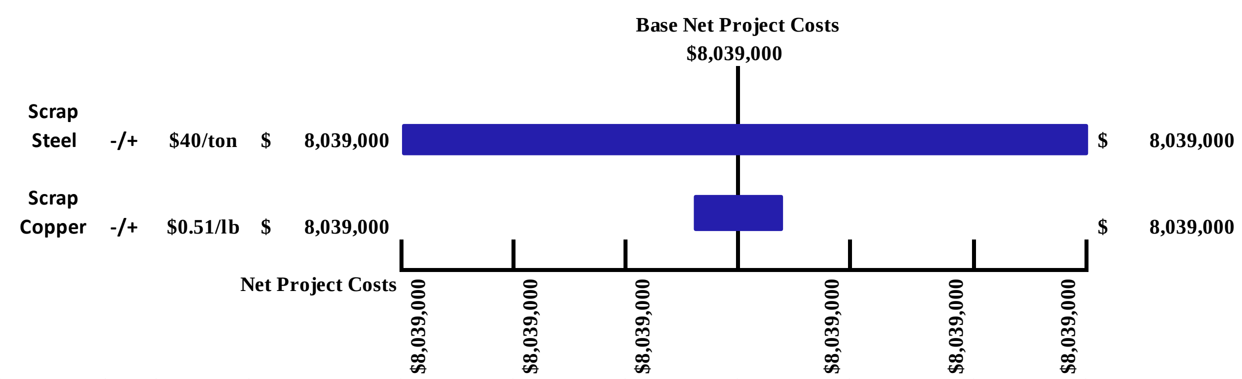


Figure 4.5 Taconite Harbor Net Project Cost Sensitivity Analysis



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