PUBLIC DOCUMENT
TRADE SECRET DATA HAS BEEN EXCISED

APPLICATION FOR INTEGRATED RESOURCE PLAN APPROVAL 2009 - 2023

SUBMITTED TO THE MINNESOTA PUBLIC UTILITIES COMMISSION

August 1, 2008

AVANT
ENERGY SERVICES

200 South Sixth Street Suite 300 Minneapolis, MN 55402
tel. 612.349.6868 fax. 612.349.6108 www.avantenergy.com

August 1, 2008

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

RE: 2008 Resource Plan
Docket No. E____/RP-08-____

Dear Dr. Haar:

The Minnesota Municipal Power Agency (MMPA) is pleased to submit its 2008 Integrated Resource Plan to the Minnesota Public Utilities Commission.

The Plan contains a discussion of a wide variety of analytical, market and policy issues and presents a five-year action plan and long range plan that MMPA believes is needed to continue to meet member needs for a low-cost, reliable, and environmentally sound energy supply. Given the volatility in commodity markets, and especially in energy commodities, the Plan was designed to provide a high level of flexibility. Overall, MMPA believes the Plan reflects the key issues facing the Agency and its members and provides members with a clear understanding of the Agency's proposed path.

Pursuant to Commission Rule 7829.3200, MMPA respectfully requests a variance from the portions of Rule 7610.0310 that require a utility to provide customer count data by class. Compliance with this rule would impose an excessive burden upon MMPA because, as a wholesale supplier to its members, the Agency has no retail customers. Therefore, it does not keep this data. Moreover, granting the variance would neither adversely affect the public interest nor conflict with standards imposed by law.

Enclosed is MMPA's 2008 Integrated Resource Plan, both the Public and the Non-public version. Paper copies have been served upon the Office of the Attorney General – Residential Utilities Division, and members of the Environmental Quality Board.

Please contact me at (612) 252-6524 or David Niles at (612) 252-6531 if you have any questions.

Very truly yours,

Avant Energy Services
Agent for MMPA

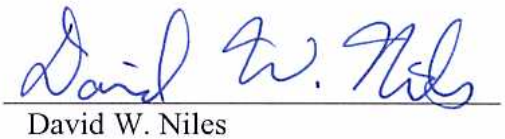
James D. Larson

enc.
cc: Service list

CERTIFICATE OF SERVICE

STATE OF MINNESOTA)
) ss.
COUNTY OF HENNEPIN)

David W. Niles of the City of St. Louis Park, County of Hennepin, in the State of Minnesota, says that on the 1st day of August, 2008, he served or caused to be served the enclosed document on the attached list of persons by eFiling or by mailing to them copies thereof, enclosed in an envelope, postage prepaid, and by depositing same in the post office at Minneapolis, Minnesota.



David W. Niles

In the Matter of
Minnesota Municipal Power Agency's
2008 Integrated Resource Plan

Docket No. E____/RP-08-____
INITIAL SERVICE LIST

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

Sharon Ferguson
Docket Coordinator
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Curt Nelson
OAG-RUD
900 Bremer Tower
445 Minnesota St
St Paul, MN 55101-2130

Dana Badgerow
Commissioner
Dept. of Administration
200 Administration Bldg.
St. Paul, MN 55155

Mark Holsten
Commissioner
Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155

Gene Hugoson
Commissioner
Dept. of Agriculture
625 No. Robert St.
St. Paul, MN 55155

Randy Kramer
Chair
Board of Water and Soil Resources
42808 Co. Rd. 11
Bird Island, MN 55310

Dr. Sanne Magnan
Commissioner
Dept. of Health
625 N. Robert Street
St. Paul, MN 55155

Dan McElroy
Commissioner – Department of
Employment & Economic Development
500 Metro Square Building – 121 E. 7th Pl.
St. Paul, MN 55101

Brad Moore
Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Tom Sorel
Commissioner
Department of Transportation
395 John Ireland Blvd.
St. Paul, MN 55155

John Wells
Strategic Planning Director
MN Environmental Quality Board
658 Cedar St, Ste 300
St Paul, MN 55155

Table of Contents

Section 1. Executive Summary

This section is intended to provide a brief overview of the Minnesota Municipal Power Agency's (MMPA) first Integrated Resource Plan (IRP).

Electric Utility Industry Facing Unprecedented Uncertainty

The electric utility industry currently faces unprecedented levels of uncertainty. Energy-related commodity prices are high and volatile, with oil at near all-time highs. The transmission interconnection process adds significant planning uncertainty regarding both the schedule and cost of new generation projects. Potential carbon legislation further increases uncertainty regarding future technology selection.

MMPA Energy and Demand Growth Projected to Be Slower than Historical Levels

MMPA's energy and demand growth are projected to be significantly lower than historical levels. Although the twenty-year historical growth rate is above three percent, the projected growth rate for the period 2009 to 2023 is less than two percent. This slower growth rate is attributed to projected economic and population slowdowns and improved conservation efforts, among other factors.

MMPA Expects to Meet 2010 Conservation Goal

The Agency expects to meet Minnesota's 2010 conservation goal. MMPA is in the process of expanding its conservation program offerings and is planning to introduce a branded marketing effort to improve customer penetration rates.

MMPA Needs More Capacity in the Future

MMPA needs more capacity in the future. The Agency's need for additional capacity grows from 82 MW in 2013 to 152 MW in 2023. This need arises from the expiration of existing contracts and member demand growth.

MMPA Has Many Projects at Various Development Stages to Meet Its Electric Supply Needs

MMPA has many projects at various stages of development to meet its electric supply needs. Planning flexibility is vital to success given the high level of uncertainty in the electric utility industry. A utility cannot be certain that any one project can be implemented. Therefore, the Agency is developing a large number of resource prospects that could meet its future needs.

Preferred Plan Includes Distributed Generation, Wind, and Baseload

The Agency's preferred plan includes a mix of distributed generation, wind energy, and several baseload contracts. The short-term action plan is discussed in Section 12 and the long range plan is presented in Section 13.

MMPA Has Made a Good Faith Effort to Meet the REO and Is Positioned to Exceed the RES

MMPA has made a good faith effort to meet Minnesota's Renewable Energy Objective and is positioned to exceed the Renewable Energy Standard. The Faribault Energy Park plant is capable of burning biofuels. The Agency currently has an 80 MW wind PPA and is also developing approximately 288 MW of other wind projects, including a Hometown WindPower project that would put a wind turbine in each member community.

MMPA's Plan Is In the Public Interest

MMPA's IRP is in the public interest. The Agency's plan allows MMPA to maintain flexibility during this period of unprecedented uncertainty, reducing risks to its customers while keeping rates as low as practical. MMPA's plan also minimizes negative environmental impacts through its emphasis on conservation and renewable energy. Section 15 further describes how MMPA's plan is in the public interest.

Section 2. About MMPA

This section provides overview information about the Minnesota Municipal Power Agency.

MMPA Is a Municipal Power Agency

MMPA is a municipal power agency formed in 1992 under Chapter 453 of Minnesota Statutes. The Agency is a political subdivision of the state of Minnesota. MMPA began supplying power to its members in 1995.

MMPA Has 11 Members

The eleven members of MMPA are the following Minnesota cities:

- Anoka
- Arlington
- Brownton
- Buffalo
- Chaska
- East Grand Forks
- Le Sueur
- North St. Paul
- Olivia
- Shakopee
- Winthrop

MMPA's member municipal utilities serve 57,000 retail customers in Minnesota with a combined population of approximately 117,000.

MMPA Sold 1,363,466 MWh in 2007

MMPA sold 1,363,466 MWh of energy to its eleven member municipal utilities in 2007.

The Agency's 2007 Peak Load Was 284 MW

MMPA's peak load (including 2.4% transmission system losses) during the summer of 2007 was 284 MW on July 26, 2007. The Agency's record peak load occurred on July 31, 2006, and was 297 MW.

Avant Energy Manages MMPA

Avant Energy manages the Minnesota Municipal Power Agency. Avant is an innovator, bringing new technologies and new ways of doing business to the energy industry. An example of this innovation is building in the capacity to generate electricity from

renewable, biomass resources at Faribault Energy Park, along with combined cycle, natural gas generation, which will be discussed in detail below.

Avant's services to MMPA include:

- Day-to-day management of the Agency's operations
- Electricity purchasing and selling and relationship management with the Midwest Independent Transmission System Operator (MISO)
- Overall long-term strategic management of the Agency
- Project development for power generation, from planning through operations

MMPA's First Owned Plant Was Completed in 2007

Faribault Energy Park (FEP), the first power plant to be owned by the Agency, was completed in 2007. The plant was built in two phases. The 159 MW simple cycle phase became operational in April 2005. The combined cycle phase, which increased both the capacity and fuel efficiency of the plant, became operational in the summer of 2007. MMPA's ownership of FEP marks a transition from a resource portfolio based solely on contracts to one that also includes Agency-owned assets. FEP is described in more detail in Section 8.

Section 3. Business Environment

This section discusses the business environment in which MMPA operates. MMPA's IRP must recognize the uncertainty in electricity markets when making planning decisions for the future.

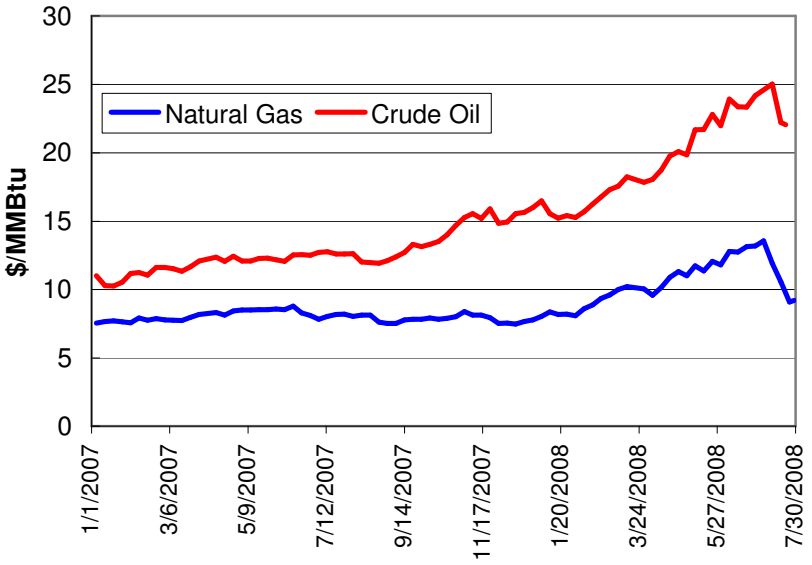
Electric Industry Faces Unprecedented Levels of Uncertainty

The electric utility industry currently faces unprecedented levels of uncertainty. These uncertainties include commodity prices, transmission availability, carbon legislation, and the global economy.

Commodity Prices Are High and Volatile

Prices for a large number of commodities, including grains, metals, and energy, are currently very high and volatile. The price of both crude oil and natural gas futures for summer 2008 delivery have increased more than 65% since December 2007 before dropping significantly during the last two weeks of July. The following chart shows the history of oil and gas futures for August 2008 delivery as expressed in $ per MMBtu.

Oil and Natural Gas Futures Prices
August 2008 Delivery



The graph illustrates the significant increase in commodities prices that has occurred since the end of last year. These high and volatile prices increase uncertainty in the electric utility industry.

Transmission Interconnection Approval Process Causes Unprecedented Schedule Uncertainty	The transmission interconnection approval process of the Midwest Independent Transmission System Operator (MISO) causes unprecedented schedule uncertainty for new generation planning. A January 2008 article in the *Star Tribune* highlighted the length of the queue, reporting that under MISO's rules, it could take more than 600 years to study all outstanding interconnection requests. Although MISO has been forming groups to expedite these studies, recently it has not been meeting its tariff deadlines for milestones in the transmission study process.
Transmission Interconnection Approval Process Causes Unprecedented Cost Uncertainty	The transmission interconnection approval process also causes unprecedented cost uncertainty for power supply planning. A utility planning a generation project does not find out the cost of transmission upgrades necessary to build the project until after the transmission study process is complete. This introduces significant uncertainty into the planning process for utilities.
Carbon Legislation Will Likely Increase Cost of Fossil Fuel Based Generation	Carbon legislation will likely increase the cost of fossil fuel based generation. Various bills regulating carbon emissions, such as cap and trade systems and carbon taxes, have been introduced in the United States Congress. Uncertainty regarding the amount of a tax or the price of an allowance under a cap and trade system complicates power supply planning. This IRP uses the low and high costs of $4 and $30 per ton of carbon dioxide as established by the Public Utilities Commission in evaluating resource alternatives.
Weak Dollar Creates Higher Domestic Fuel Prices	Weakness of the US dollar has driven the price of oil higher. As the global oil market is denominated in dollars, a decline in the value of the dollar gives foreign buyers more purchasing power, increasing the global demand for oil. The prices of other fuels, such as natural gas and fuel oil, have also increased. These higher and more volatile fuel prices increase power supply planning uncertainty.
Weak Dollar Creates Higher Capital Costs	A weak dollar also increases capital costs for power generation equipment. The weaker dollar makes US-produced power generation equipment more affordable to foreign buyers, increasing demand and cost. At the same time, foreign-made power generation equipment is more costly because of the low value of the dollar relative to the foreign currency.

General Economic Weakness Increases Uncertainty

The current general economic weakness increases uncertainty for the electric utility industry. The turmoil in the housing and financial markets increases uncertainty regarding future levels of energy consumption. Similarly, price increases in necessities such as food and gasoline reduce the level of discretionary spending for many individuals. This IRP does not quantify the energy market effects of this general economic weakness, but planning decisions must recognize this increased level of uncertainty.

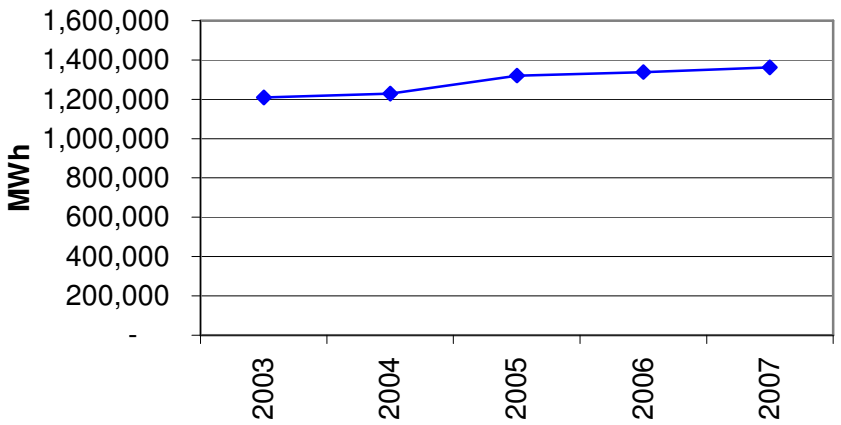
Section 4. Projected Energy Requirements – 2008 to 2023

This section discusses the projected slowdown between MMPA's historical and future energy requirements.

MMPA's Historical Energy Growth Rate Is 3.9%

Over the period 1988 to 2007, MMPA's energy usage (for the nine member cities for which 20 years of historical data is available) grew at a compound annual growth rate of 3.9%. The following graph shows historical MMPA energy requirements for the years 2003 to 2007, the time period for which data is available for all eleven MMPA member cities.

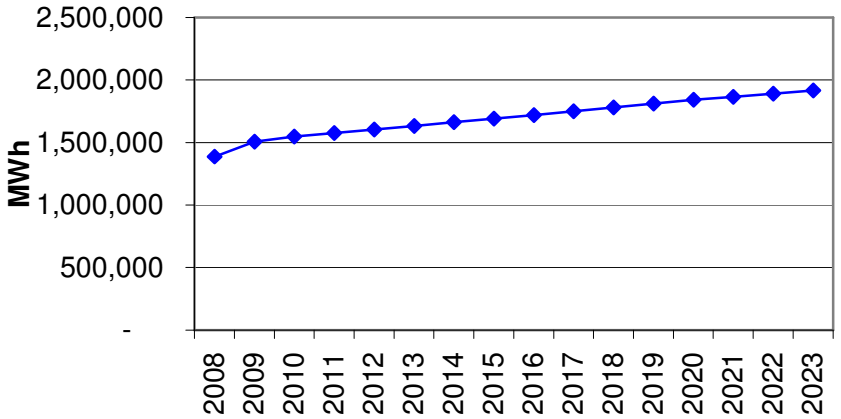
Minnesota Municipal Power Agency
Historical Member Energy Requirements (MWh)



MMPA's Projected Energy Growth Rate Is 1.7%

Over the projection period for this IRP (2009 to 2023), the base compound annual growth rate of member energy requirements (before conservation and new electric uses) is projected to be 1.7%. The following graph shows projected MMPA base energy requirements for the period 2008 to 2023.

Minnesota Municipal Power Agency
Projected Base Member Energy Requirements (MWh)



MMPA Begins Serving Additional Shakopee Load in 2009

Historically, the Agency has only supplied approximately 85% of the City of Shakopee's energy requirements, with the remainder being served under a contract with Xcel Energy. That contract expires at the end of 2008, and starting in 2009, MMPA will serve 100% of Shakopee's energy requirements. As a result, MMPA's projected energy requirements show a larger increase from 2008 to 2009 than any other year.

Growth Rate Projected to Decline Because of Conservation and Slower Income and Population Growth

The slowdown in energy growth is attributed to MMPA's energy conservation efforts as well as projected slower growth of both income and population in member cities over the projection period.

The population of MMPA's member cities grew at a compound annual growth rate of 2.4% from 1988 to 2006. However, the Metropolitan Council and the Minnesota State Demographic Center project that population growth between 2006 and 2023 will occur at a 1.9% compound annual growth rate. Several of MMPA's member cities are now fully built out. As developable land in member cities declines, population growth is expected to slow.

Woods and Poole, the source of MMPA's income data, report that income per capita grew at a compound annual growth rate of 2.1% from 1988 to 2005. It projects that the compound annual growth rate for the period 2005 to 2023 will be 1.1%, a significant slowdown.

Linear Regression Model Used to Project Growth

A linear regression model was used to project energy usage for this IRP. The variables in the model are:

- Weather (Heating degree days and cooling degree days)
- Population
- Income per capita

Details on the inputs and assumptions of this model can be found in Appendix A. MMPA's advance forecast information can be found in Appendix B.

Current Economic Conditions Suggest Growth Rates Could Be Lower

Current economic conditions suggest that growth rates could be even lower than MMPA's model projects. Crises in the housing and financial markets have increased the level of uncertainty in the overall economy. Price increases for basic goods such as food and energy reduce the amount of discretionary spending available to consumers.

New Conservation Assumed to Reduce Annual Energy Growth Rate by 0.7%

New conservation measures are assumed to reduce the Agency's annual energy growth rate from 2010 onwards by 0.7%. Starting in 2010, MMPA will be spending significantly more money on energy conservation, as the Agency's load curtailment expenditures will no longer count towards CIP spending. It is also assumed that MMPA's current level of energy conservation is built into the historical energy usage data that is an input to the linear regression model.

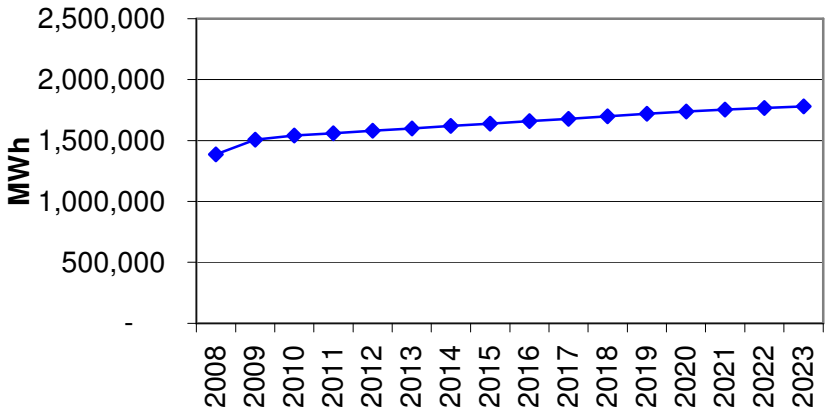
New Electric Uses Assumed to Increase Annual Energy Growth Rate by 0.2%

The projected annual growth rate of energy requirements from the regression model was also increased by 0.2% starting in 2010 to reflect expected new uses of electricity. These new uses include ground source heat pumps and increased electric use for transportation and are described in more detail below.

Combined, the net effect of conservation and new electric uses is to decrease the base annual growth rate of energy from the linear regression models by 0.5%.

The following graph shows projected MMPA energy requirements during the years 2008 to 2023 with the assumed conservation reduction.

Minnesota Municipal Power Agency
Projected Member Energy Requirements with
Conservation and New Electric Use Adjustments (MWh)



Additional Customers Would Increase Energy Requirements

MMPA's projected energy requirements would increase if the Agency were to take on additional customers or members. This IRP assumes that the Agency does not take on new customers or members during the projection period.

Decreased Supply from WAPA Would Increase Energy Requirements

Two of MMPA's 11 members currently receive allocations of energy (approximately 95,000 MWh per year) from the Western Area Power Administration (WAPA). WAPA has recently been reducing the amount of energy and power available to its customers. This represents a policy change from the past. If WAPA continues to decrease the energy available to its customers, MMPA's energy requirements would increase, as the Agency provides all of the energy to the two cities that is not supplied by WAPA. This IRP assumes that WAPA supplies remain at 2006 to 2010 contract amounts throughout the projection period.

Increased Electric Use for Transportation Would Increase Energy Requirements

Interest in the use of electricity for transportation is increasing. With recent sharp increases in the price of gasoline, consumers are looking for transportation alternatives. Furthermore, traditional transportation fuels such as gasoline and diesel fuel produce significant amounts of carbon dioxide and other pollutants. The use of vehicles powered with electricity from renewable sources would significantly reduce carbon emissions from transportation. Such a transition would increase MMPA's energy requirements.

Ground Source Heat Pumps for Heating Would Increase Energy Requirements

Interest in ground source heat pumps for space heating and cooling is also increasing. Heat pumps powered by renewable electricity would produce significantly less carbon dioxide and other pollutants than burning fossil fuels for heating. Increased use of ground source heat pumps would increase MMPA's energy requirements for heating but would reduce MMPA's energy requirements for cooling (as ground source heat pumps are more efficient at cooling because they discharge heat to groundwater, which is approximately 52 degrees, as opposed to a traditional central air conditioning system, which discharges heat to the air at a significantly higher temperature). The net effect would be to increase MMPA's energy requirements.

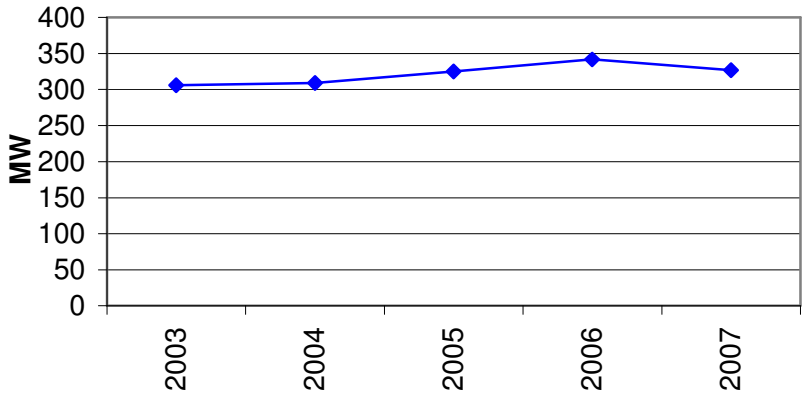
Section 5. Projected Demand Requirements – 2008 to 2023

This section discusses the projected slowdown between MMPA's historical and future demand requirements.

MMPA's Historical Demand Growth Is 3.1%

Over the period 1988 to 2007, MMPA's coincident peak demand (for the nine cities for which twenty years of historical data is available) grew at a compound annual growth rate of 3.1%. The following graph shows historical MMPA peak capacity requirements during this period (including 2.4% losses and 15% reserves) for the years 2003 to 2007, the time period for which data is available for all eleven MMPA member cities.

Minnesota Municipal Power Agency
Historical Coincident Peak Capacity Requirement (MW)
Includes 2.4% Losses and 15% Reserves



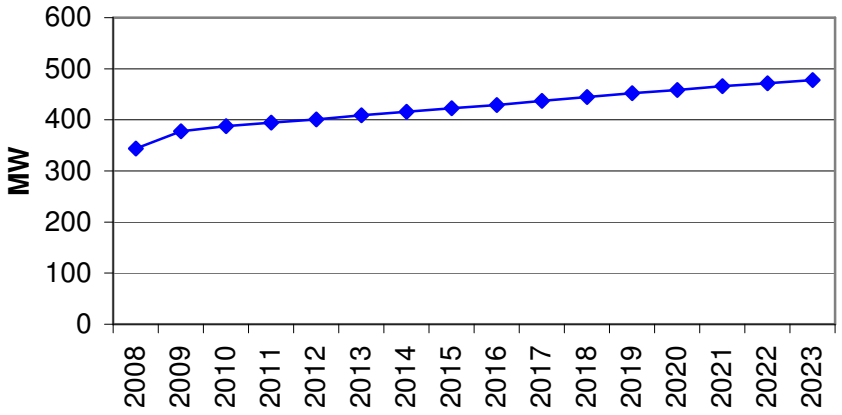
Load Factor Approach Used to Project Demand

Coincident demand for the Agency was projected using a historical average load factor which was applied to MMPA's projected energy requirements. Details of the methodology can be found in Appendix A. MMPA's advance forecast information can be found in Appendix B.

MMPA's Projected Demand Growth Is 1.7%

Over the projection period, the base compound annual growth rate of member coincident peak demand (before conservation) is projected to be 1.7%. The following graph shows projected MMPA peak capacity requirements during the projection period, including 2.4% losses and 15% reserves.

Minnesota Municipal Power Agency
Projected Base Coincident Peak Capacity Requirements (MW)
Includes 2.4% Losses and 15% Reserves



MMPA Begins Serving Additional Shakopee Load in 2009

The Agency has only supplied approximately 85% of the City of Shakopee's power requirements, with the remainder being served under a contract with Xcel Energy. This contract expires at the end of 2008, and starting in 2009, MMPA will serve 100% of Shakopee's power requirements. As a result, MMPA's projected demand requirements show a larger increase from 2008 to 2009 than any other year.

Growth Rate Declining Because of Conservation and Slower Income and Population Growth

The slowdown in coincident peak demand growth is attributed to MMPA's energy conservation efforts as well as projected slower growth of both income and population in member cities over the projection period.

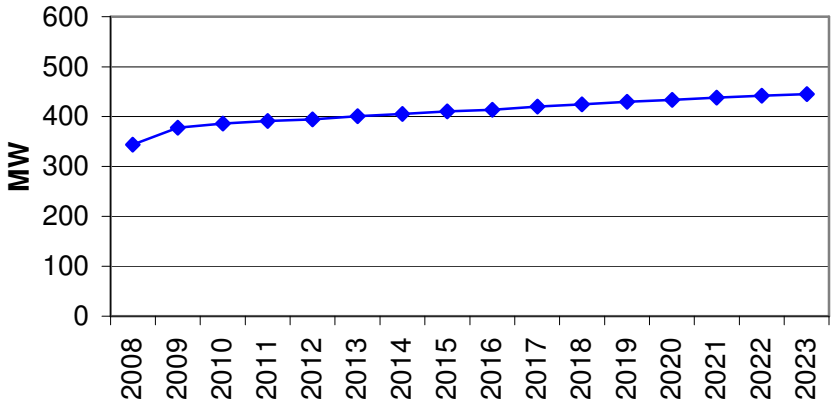
The population of MMPA's member cities grew at a compound annual growth rate of 2.4% from 1988 to 2006. However, the Metropolitan Council and the Minnesota State Demographic Center project that population growth between 2006 and 2023 will occur at a 1.9% compound annual growth rate. Some of MMPA's cities are fully or nearly fully built out. As developable land in member cities declines, population growth is expected to slow.

Woods and Poole, the source of MMPA's income data, report that income per capita grew at a compound annual growth rate of 2.1% from 1988 to 2005. It projects that the compound annual growth rate for the period 2005 to 2023 will be 1.1%, a significant slowdown.

New Conservation and Electric Uses Assumed to Reduce Net Annual Growth Rate of Peak Demand Requirements by 0.5%

As discussed in Section 4, the net effect of new conservation measures and new electric uses is assumed to reduce the annual growth rate of MMPA's energy requirements by 0.5%. This in turn reduces the annual growth rate of the Agency's peak demand requirements by 0.5%, resulting in a compound annual growth rate of peak demand requirements of 1.2%. The graph below shows projected MMPA peak capacity requirements during the projection period adjusted for new conservation and new electric uses.

Minnesota Municipal Power Agency
Projected Member Peak Capacity Requirements with New Conservation and New Electric Use Adjustments
Includes 2.4% Losses and 15% Reserves (MW)



Additional Customers Would Increase Demand Requirements

MMPA's projected coincident peak demand would increase if the Agency were to take on additional customers or members. This IRP assumes that the Agency does not take on new customers or members during the projection period.

Decreased Supply from WAPA Would Increase Demand Requirements

Two of MMPA's 11 members receive allocations of power (approximately 15 MW) from the Western Area Power Administration. WAPA has recently been reducing the amount of energy and power available to its customers. This represents a policy change from the past. If WAPA continues to decrease the power available to its customers, MMPA's demand requirements would increase, as the Agency provides all of the power to the two cities that is not supplied by WAPA.

Effect of Electric Use for Transportation on Demand Requirements Is Unclear

Interest in the use of electricity for transportation is increasing. With recent sharp increases in the price of gasoline, consumers are looking for transportation alternatives. Furthermore, traditional transportation fuels such as gasoline and diesel fuel produce significant amounts of carbon dioxide and other pollutants. The use of vehicles powered with electricity from renewable sources would significantly reduce carbon emissions from transportation. The effect of this transition on MMPA's demand requirements is unclear. The charging of electric vehicles would primarily occur at night. It is possible that these vehicles could be hooked to the grid in parking lots during the day and used as a power source during times of peak demand. However, a high level of penetration of electric vehicles would be necessary to affect MMPA's level of demand.

Increased Electric Use for Ground Source Heat Pumps Would Decrease Summer Demand Requirements

Interest in ground source heat pumps for space heating and cooling is also increasing. Increased electric use for ground source heat pumps would decrease MMPA's summer demand requirements. They are more efficient at cooling than traditional central air conditioning systems, because heat pumps discharge heat to groundwater, which is approximately 52 degrees. Traditional central AC systems discharge heat to the air at a significantly higher temperature.

Section 6. Demand Side Management

This section discusses MMPA's energy conservation and demand side management efforts.

MMPA's Energy Efficiency Programs Saved 11,800,000 kWh in 2007

MMPA's energy efficiency programs saved approximately 11,800,000 kWh in 2007, representing 0.86% of the Agency's energy usage for the year. Eight of the Agency's eleven members, representing approximately half of the Agency on a kWh basis, participate in a Conservation Improvement Program (CIP) managed by the Agency. The other three members manage their own energy efficiency programs at the municipal utility level.

MMPA Is Currently Enhancing Its CIP Offerings

MMPA is currently in the process of adding new programs to its CIP portfolio. This will expand the programs available to both residential and commercial/industrial customers and should significantly increase the energy savings achieved through CIP. These new programs include the following:

- Commercial/Industrial Energy Audits
- Rebates for Efficient Variable Speed Drives
- Air Conditioner Efficiency Incentives
- Refrigerator/Freezer Disposal Incentives

Agency Introducing Brand to Increase Conservation Awareness

The Agency is in the process of introducing a branded image for its conservation efforts. The program, entitled "WeSave," is intended to increase retail customer awareness of member utilities conservation offerings. It is the Agency's plan to have a graphical image associated with the program that will appear on all customer bills and conservation marketing materials.

MMPA Expects to Meet 2010 Energy Savings Goal

MMPA expects to meet the 2010 energy savings goal as established by the Minnesota Legislature. With the Agency's load curtailment expenditures not counting towards CIP expenditures in 2010 and beyond, MMPA believes that it will have significantly larger kWh savings in the future than it has in the past.

MMPA Has 16,337 kW of Curtailable Load

MMPA currently has 16,337 kW of curtailable load. This curtailable load primarily consists of customers with standby generation, interruptible load agreements with customers, and air conditioning control.

Load Management Program Delays Need for New Generation

The Agency's load management and energy conservation programs delay the need for new generation. By curtailing load at peak times, MMPA can reduce the amount of capacity it must have while also decreasing reserve requirements.

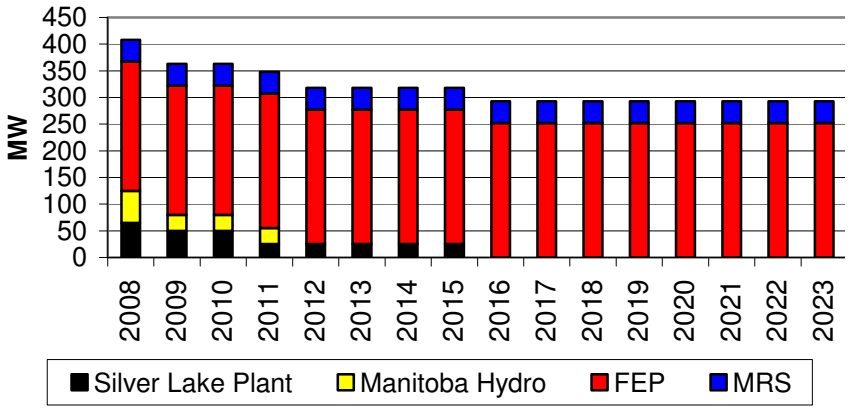
Section 7. Existing Resources

MMPA's existing resource portfolio is a mix of owned generation and power purchase agreements.

MMPA Has 408 MW of Power Supply Resources

MMPA has a power supply portfolio that consists of 408 MW of both contractual resources and Agency-owned generation. The graph below shows MMPA's resources over the period 2008 to 2023.

Minnesota Municipal Power Agency
Power Supply Resources – Summer Capacity in MW
2008 to 2023



Faribault Energy Park Is an Innovative 252 MW Combined Cycle Power Plant

Faribault Energy Park is the first power supply resource financed and built by MMPA. The plant was built in two phases, with simple cycle operation beginning in April 2005. The combined cycle phase began operations in the summer of 2007, improving the fuel efficiency and increasing the maximum accredited summer output of the plant to 252 MW.

FEP is an innovative power plant that uses a series of created wetlands for water management at the plant. Rainwater is collected and filtered before being used for steam production and equipment cooling. The wetlands area is open to the public as a park with several small trails.

The plant is also designed to be a "working classroom," with an observation room where visitors can view both the steam turbine and the plant's control room.

The plant uses natural gas as its primary fuel, with fuel oil as a backup. FEP also has the capability to produce approximately 25 MW of biomass energy using biofuels such as recycled vegetable oil, soy oil, and camelina oil.

MMPA's total capacity from FEP is reduced by 10 MW from 2008 to 2010 because of a capacity sale to another utility.

Minnesota River Station Is a 41 MW Peaking Combustion Turbine

The Minnesota River Station (MRS) plant is MMPA's peaking resource. The City of Chaska, one of the Agency's members, owns the plant and sells the entire output to MMPA under a long-term contract. MRS became operational in the summer of 2001 and is accredited for 41 MW in the summer. Like FEP, Minnesota River Station uses natural gas as its primary fuel, with fuel oil as a backup.

60 MW Manitoba Hydro Contract Provides Capacity and On-Peak Energy

MMPA has a long-term contract with the Manitoba Hydro-Electric Board (Manitoba Hydro) that provides for 60 MW of capacity and on-peak energy through April 30, 2009, and 30 MW of capacity and on-peak energy from May 1, 2009 through April 30, 2012. This contract is an intermediate-type resource for the Agency.

Contracts with Rochester Public Utilities Provide 65 MW of Capacity and Energy

MMPA has two contracts with Rochester Public Utilities (RPU) related to the output of RPU's Silver Lake Plant. MMPA purchases 50 MW of capacity and energy from SLP through October 31, 2010, and 25 MW of capacity and energy from SLP from November 1, 2010, through October 31, 2015. Under a short-term contract, MMPA purchases 15 MW of SLP capacity through October 31, 2008.

MMPA Buys Energy from MISO Under Current Market Structure

MMPA buys all energy for its load from the MISO energy market. Under the current market structure, MMPA also sells the output of all of its power supply resources to MISO, which began operating day-ahead and real-time energy markets on April 1, 2005.

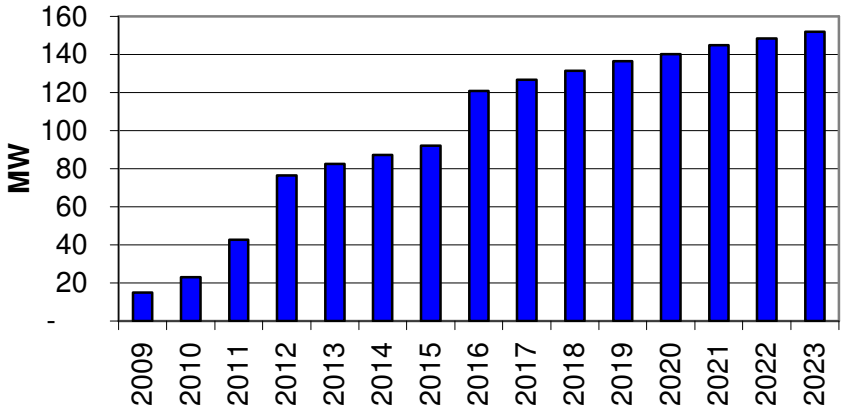
Section 8. Additional Generation Requirements

This section describes MMPA's projected additional generation requirements over the planning period.

MMPA Is Projected to Need New Capacity in 2009

MMPA is projected to need new capacity in 2009. The chart below shows MMPA's projected capacity need by year during the projection period.

Minnesota Municipal Power Agency
Projected Capacity Needs Above Existing Resources



MMPA's Projected Capacity Need Grows from 15 MW in 2009 to 152 MW in 2023

MMPA's projected capacity need grows from 15 MW in 2009 to 152 MW in 2023. The increasing need is the result of member growth and the expiration of existing supply contracts.

A Lower Reserve Margin Would Decrease Capacity Requirements

MMPA currently participates in the Mid-Continent Area Power Pool (MAPP) Generation Reserve-Sharing Pool (GRSP). The Agency is required to carry capacity reserves of 15% above its peak demand. Other groups, such as the Midwest/MISO Planning Reserve Sharing Group (PRSG), have lower reserve requirements. If MMPA were to join a group with a lower planning reserve requirement, it would decrease the Agency's capacity requirements in future years.

Section 9. Planning Approach and Resource Prospects

This section outlines MMPA's planning approach and describes both the conventional and renewable resource prospects considered by the Agency in this IRP.

MMPA Seeks to Maintain Flexibility in Its Power Supply Plan

MMPA seeks to maintain flexibility in its power supply plan. The unprecedented uncertainty in the electric utility industry makes flexibility vital to any planning process.

MMPA Has Developed Resource Prospects, Not Certainties

MMPA views its potential future power supply alternatives as resource prospects, not certainties. The high amount of uncertainty in the electric utility industry makes it impossible to rely completely on any particular resource being implementable in a given year. Transmission, permitting, or environmental regulation, among other factors, can change either the feasibility or economics of any given resource prospect.

Agency Is Committed to Sustainable Energy

The Agency is committed to sustainable energy. MMPA plans to meet or exceed both Minnesota's Renewable Energy Objective (REO) and Renewable Energy Standard (RES). Section 14 further discusses MMPA's plan to meet these renewable requirements.

MMPA Is Developing 7 Resource Prospects with Up to 631 MW of Capacity

MMPA is developing seven resource prospects, with up to 631 MW of capacity. Because some of these prospects are wind projects, the total accredited capacity would be less than 631 MW. The resource prospects are as follows:

<u>Renewable</u>

- Hometown WindPower Project – ~3 MW
- Utility-Scale Wind Projects – 288 MW
- Seeking Wind PPAs with Developers

<u>Conventional</u>

- Short-Term Capacity Contract – 30 MW
- New Simple Cycle Plant (MRS II) – 150 MW
- Distributed Generation – Up to 110 MW
- Baseload Contract (Possibly Nuclear) – 50 MW

These resource prospects are greater than MMPA's needs because of the uncertainty in the electric utility industry. By developing projects in excess of its needs, the Agency retains the planning

flexibility that is vital to success in today's market.

MMPA Is Developing Hometown WindPower Projects

MMPA is in the process of developing the Hometown WindPower program. Under this program, MMPA would install a wind turbine in each member community. The Agency plans to size these turbines so that they would define but not dominate a community. This initiative is also designed to raise consumer awareness of sustainable and renewable energy.

Agency Is Developing 288 MW of Other Wind Projects

The Agency is developing three other wind projects totaling 288 MW at various sites in Minnesota. These projects are in different points in the transmission study process and transmission has not been secured for any of these projects. If the Agency can obtain transmission, the earliest that it would begin receiving energy from each of these projects would be 2010, 2011, and 2012, respectively. MMPA is contemplating selling portions of each project that are not needed to meet the Agency's Renewable Energy Standard obligations.

MMPA Is Seeking PPAs with Wind Developers

MMPA is seeking purchased power agreements (PPAs) with other wind developers. The current environment in the wind industry is unstable because of uncertainty regarding extension of the production tax credit (PTC) and uncertainty regarding transmission availability. As discussed further in Section 11, the Agency would also consider C-BED projects to the extent that they are feasible and economic. MMPA has no firm plans at this time regarding potential PPAs but continues to work with developers.

Agency Is Pursuing Extensions of Current Contracts and Other Purchases

The Agency is pursuing extensions of contracts with its current power supply partners. MMPA is also investigating power purchase agreements with other utilities.

MMPA Is Considering MRS Site Expansion

MMPA is also considering an additional power generation project at the Minnesota River Station site. The Agency has explored the option of building a 150 MW simple cycle unit adjacent to the existing combustion turbine. MMPA has received transmission approval for a project at this site and is currently studying the economics of the project.

Agency Is Pursuing Distributed Generation to Meet Reserve Requirements

The Agency is also pursuing the concept of distributed generation in certain member communities. Under this approach, MMPA would install small natural gas-fired generators in 5 to 10 MW increments in larger member cities. The Agency estimates that it could install up to 110 MW of distributed generation across its member communities by 2023. MMPA's analysis indicates that distributed generation is the least cost way for the Agency to meet its reserve requirements. Distributed generation also improves system reliability in member communities and, by connecting with members' distribution systems, could avoid the uncertainty associated with the transmission interconnection process.

MMPA Is Investigating Participation in a Nuclear Plant

MMPA is investigating participation in a nuclear plant to meet a portion of its baseload needs. The relatively small size of the Agency would require that it partner with other utilities to pursue a nuclear resource. Such partnership could take the form of either a power purchase agreement or joint ownership of a plant.

Section 10. Analytical Model and Results

This section describes the analytical model used by MMPA to determine both its short range action plan and its long-range plan.

Total Cost Model Used to Evaluate Traditional Resource Alternatives

A total cost per kilowatt model was used to evaluate traditional resource alternatives. This model graphs a given resource's total cost on the vertical (y) axis in dollars per kilowatt. The resource's capacity factor is displayed on the horizontal (x) axis as a percentage of the time the resource is operating.

Various Technologies Were Evaluated

The Agency's total cost model was used to evaluate the following conventional dispatchable technologies:

- Coal
- Combined Cycle Combustion Turbine
- Simple Cycle Combustion Turbine
- Distributed Generation
- Nuclear

Cost Estimates and Other Assumptions Were Developed for Each Technology

Cost estimates, including capital cost, fixed and variable O&M, and fuel costs were developed for each technology. Other assumptions, such as the heat rate and emissions rates for various pollutants, were also developed.

Environmental Externalities Were Considered

Cases using both the low and high environmental externality costs as established by the Public Utilities Commission for various emissions (NO_x, CO, PM_{10}, and Pb) were used in the analysis. The recently-established low and high values of $4 and $30 per ton of CO_2 were also included in the analysis. A case with no environmental externality or CO_2 costs was also evaluated.

Model Indicates Most Cost-Effective Mix of Resources

The results of MMPA's total cost model are shown below. The most cost-effective mix of resources is represented by the line segments that run closest to the bottom of the graph. In all cases, this least-cost mix starts with resources with low capital and fixed O&M costs but high variable and fuel costs and then transitions to technologies with higher capital costs but lower operating costs.

The resource with the lowest fixed costs was assumed to be used to meet the Agency's reserve requirements.

[TRADE SECRET DATA BEGINS

TRADE SECRET DATA ENDS]

Nuclear Is Not Part of the Least Cost Mix in No Externality Cost Scenario	A nuclear resource is not part of the least cost mix in the scenario with no environmental externality costs. The low variable cost is not sufficient to offset the high level of fixed costs that a nuclear plant would have.
Coal Is the Least Cost Baseload Resource in No Externality Cost Scenario	A scrubbed coal plant is the least cost baseload resource in the scenario with no environmental externality costs. The model suggests that a coal plant would be the least cost resource for a plant with a capacity factor of more than about 30%, indicating that coal would be a significant portion of the least cost mix in this scenario.
Combined Cycle Is an Intermediate Resource in No Externality Cost Scenario	A combined cycle plant is part of the least cost mix in the scenario with no environmental externality costs. The model indicates that a combined cycle plant would be the least cost resource for capacity factors between approximately 10% and 30%, making the plant an intermediate resource.

DG and Simple Cycle Are Peaking Resources in No Externality Cost Scenario

Either a distributed generation (DG) or simple cycle resource (or a combination of the two) is part of the least cost mix in the scenario with no environmental externality costs. These resources would be economical for capacity factors of less than 10%, making them peaking resources. They would also meet MMPA's reserve requirements as the resources with the lowest fixed cost.

[TRADE SECRET DATA BEGINS

TRADE SECRET DATA ENDS]

Nuclear Is Not Part of the Least Cost Mix in Low Externality Cost Scenario

Similar to the no externality cost case, a nuclear resource is not part of the least cost mix in the scenario with low environmental externality costs. The low variable cost is not sufficient to offset the high level of fixed costs that a nuclear plant would have.

Coal Is the Least Cost Baseload Resource in Low Externality Cost Scenario

A scrubbed coal plant is the least cost baseload resource in the scenario with low environmental externality costs. The model suggests that a coal plant would be the least cost resource for a plant with a capacity factor of more than about 35%, indicating that coal

would be a significant portion of the least cost mix in this scenario.

Combined Cycle Is an Intermediate Resource in Low Externality Cost Scenario	A combined cycle plant is part of the least cost mix in the scenario with low environmental externality costs. The model indicates that a combined cycle plant would be the least cost resource for capacity factors between approximately 10% and 35%, making the plant an intermediate resource.
DG and Simple Cycle Are Peaking Resources in Low Externality Cost Scenario	Either a distributed generation (DG) or simple cycle resource (or a combination of the two) is part of the least cost mix in the scenario with low environmental externality costs. These resources would be economical for capacity factors of less than 10%, making them peaking resources. They would also meet MMPA's reserve requirements as the resources with the lowest fixed cost.

[TRADE SECRET DATA BEGINS

TRADE SECRET DATA ENDS]

Nuclear Is Least Cost Baseload Resource in High Externality Cost Scenario	A nuclear resource is part of the least cost resource mix in the scenario with high environmental externality costs. The lack of costly carbon emissions drives the total cost of a nuclear plant below that of a coal plant at high capacity factor levels. The model suggests that a nuclear plant would be the least cost resource for a capacity factor of more than about 50%, indicating that nuclear would be the baseload resource in this scenario.
Coal Is Not Part of the Least Cost Mix in High Externality Cost Scenario	A scrubbed coal plant is not part of the least cost resource mix in the scenario with high environmental externality costs. The higher cost of carbon emissions results in a coal plant being uneconomical in this scenario.
Combined Cycle Is an Intermediate Resource in High Externality Cost Scenario	A combined cycle plant is part of the least cost mix in the scenario with high environmental externality costs. The model indicates that a combined cycle plant would be the least cost resource for capacity factors between approximately 10% and 50%, making the plant an intermediate resource. The lower relative cost of gas to baseload technologies leads to a combined cycle plant being a significantly larger part of the least cost resource mix under the high externality cost scenario compared to the other two scenarios.
DG and Simple Cycle Are Peaking Resources in High Externality Cost Scenario	Either a distributed generation (DG) or simple cycle resource (or a combination of the two) is part of the least cost mix in the scenario with high environmental externality costs. These resources would be economical for capacity factors of less than 10%, making them peaking resources. They would also meet MMPA's reserve requirements as the resources with the lowest fixed cost.
MMPA Needs Baseload Resource Under All Cases	As the graphs above demonstrate, MMPA needs a baseload resource under all three environmental cases. As discussed above, coal is the lowest cost baseload resource in the no and low environmental externality cost scenarios, and nuclear is the lowest cost baseload resource in the high environmental externality cost scenarios.
FEP Meets MMPA's Combined Cycle Needs	All three cases also show that combined cycle generation is a portion of the least-cost solution. MMPA's Faribault Energy Park resource meets this need for a combined cycle facility.

Renewable Energy Is Pursued As Needed to Meet RES

MMPA's analysis assumes that renewable energy is pursued as needed to meet Minnesota's Renewable Energy Standard. A description of MMPA's efforts to meet the REO and RES can be found in Section 14.

Section 11. Short Range Action Plan

This section outlines MMPA's short range action plan for the years 2009 to 2013.

MMPA's Preferred Plan Includes Short-Term Contract and Distributed Generation

The following table outlines MMPA's preferred short range action plan:

Minnesota Municipal Power Agency
Preferred Short Range Action Plan
2009 to 2013

Year	Resource Addition
2009	30 MW Short-Term Capacity Contract (5 Years)
2011	Add 20 MW of Distributed Generation
2012	Add 30 MW of Distributed Generation
2013	Add 10 MW of Distributed Generation

The first step in the Agency's preferred plan is 30 MW short-term (five-year) capacity contract. This could either be an extension of an existing contract or a new contract with another entity.

MMPA's analysis from the previous section shows that the Agency has a need for both baseload and peaking resources. Two uncertainties particularly complicate MMPA's planning process – fuel prices and environmental legislation.

The analysis in this IRP is based on a natural gas price of $11 per MMBtu. If gas prices return to 2004 to 2005 futures levels (when Faribault Energy Park was being planned and developed), then combined cycle technology would likely be a lower cost resource than baseload alternatives. The Agency believes that it is wise to wait to commit significant capital to a technology until price volatility subsides.

The choice of coal versus nuclear as a preferred baseload technology depends on future environmental legislation. MMPA believes that it would be wise to not commit to a baseload generation technology until some of the uncertainty surrounding environmental legislation is resolved.

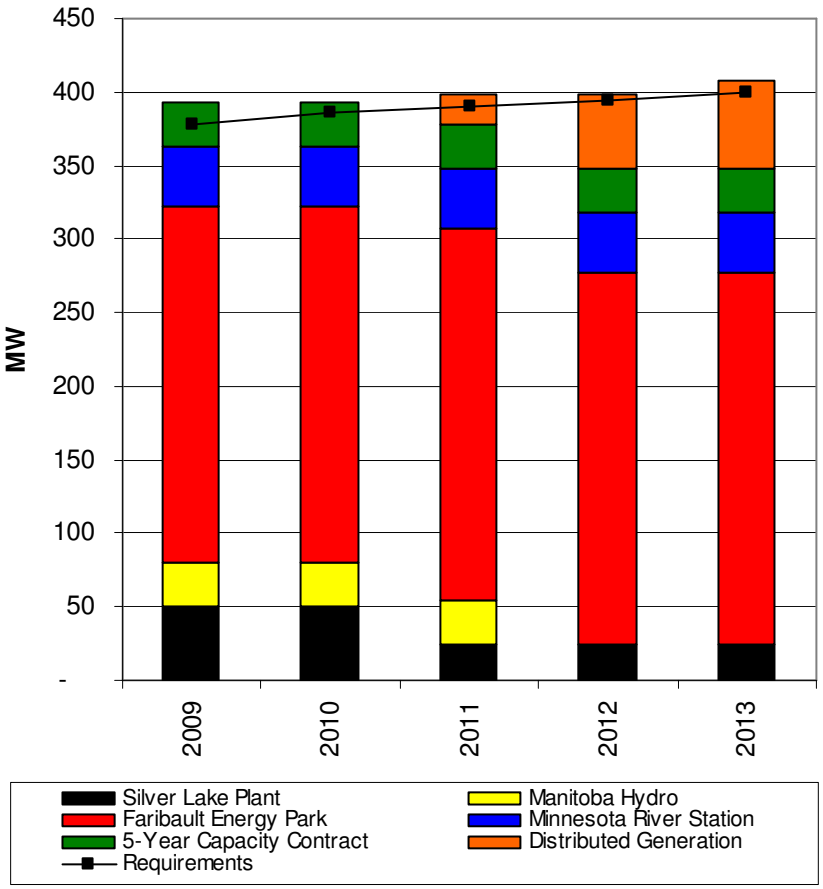
Therefore, the Agency's preferred short range action plan focuses primarily on distributed generation, as it can be built more quickly and for a lower cost than either baseload technology. Because distributed generation can be built in smaller increments than most other technologies, MMPA could build new generation to match its needs and avoid the short-term excess capacity that often results

from building a larger resource. The use of distributed generation also gives the Agency flexibility to respond to changes in projected demand growth.

MMPA is also pursuing renewable energy from a variety of sources. In some cases, the Agency may be able to complete a renewable energy project more quickly by interconnecting as an energy-only resource (forgoing any accredited capacity). Because of this approach and the uncertainty of timing on renewable projects, the table above does not show MMPA's renewable efforts, which instead are described below.

The following graph shows MMPA's power supply resources and projected capacity requirements under the preferred short range action plan.

Minnesota Municipal Power Agency
Power Supply Resources and Requirements (Summer MW)
Preferred Short Range Action Plan
2009 to 2013



MMPA's Preferred Plan Is Implementable

MMPA's preferred short range action plan is implementable even with the high level of uncertainty in the electric utility industry. The plan is also flexible, giving the Agency the opportunity to respond to changes in member demand, economic conditions, or relative fuel prices.

In addition to the plan outlined above, MMPA plans to take five actions regarding its future power supply as are described below.

Continue to Develop and Market Cost-Effective Conservation Programs

MMPA will continue to develop and market cost-effective conservation programs for its member utilities to offer to their retail customers. The Agency's philosophy is to focus on programs that generate the most energy savings per dollar spent. MMPA also remains committed to providing energy efficiency programs that benefit Minnesota's low income households.

Continue Developing Hometown WindPower Projects in Member Cities

MMPA will continue to develop the Hometown WindPower projects in its member cities. The Agency plans to have a wind turbine installed in each member community by the end of 2010. This project is expected to produce renewable energy, but no significant capacity because of the small size of each unit and the capacity factor of wind generation.

Continue Developing Larger-Scale Wind Projects

The Agency will also continue to develop the three larger-scale wind projects discussed in Section 9. These projects are expected to provide the renewable energy for MMPA's compliance with Minnesota's Renewable Energy Standard.

Pursue C-BED Projects Where Available and Economic

MMPA is also committed to Community Based Energy Development (C-BED). The Agency will pursue C-BED projects where they are available and economic. MMPA's website advertises the Agency's interest in C-BED projects and provides contact information for interested developers.

Pursue Baseload Resource through Contract

As discussed above, MMPA's power supply planning process indicates that the Agency needs a baseload resource. The power supply contracts that are ramping down and expiring over the next several years (Manitoba Hydro and Rochester Public Utilities) represent a significant portion of MMPA's current baseload resources. These resources need to be replaced with baseload resources to maintain a diversified power supply portfolio and to effectively manage the Agency's total power supply cost. The size of MMPA's need over the projection period precludes it from cost-

effectively building any baseload generation by itself. Instead, the Agency proposes to contract with other entities for a baseload resource. Given the long lead time for new baseload projects, the first contract to meet MMPA's baseload needs could be from an existing resource.

Section 12. Long Range Plan

This section outlines the Agency's long range plan for the years 2014 to 2023.

Preferred Plan: Add Distributed Generation and Baseload Resource

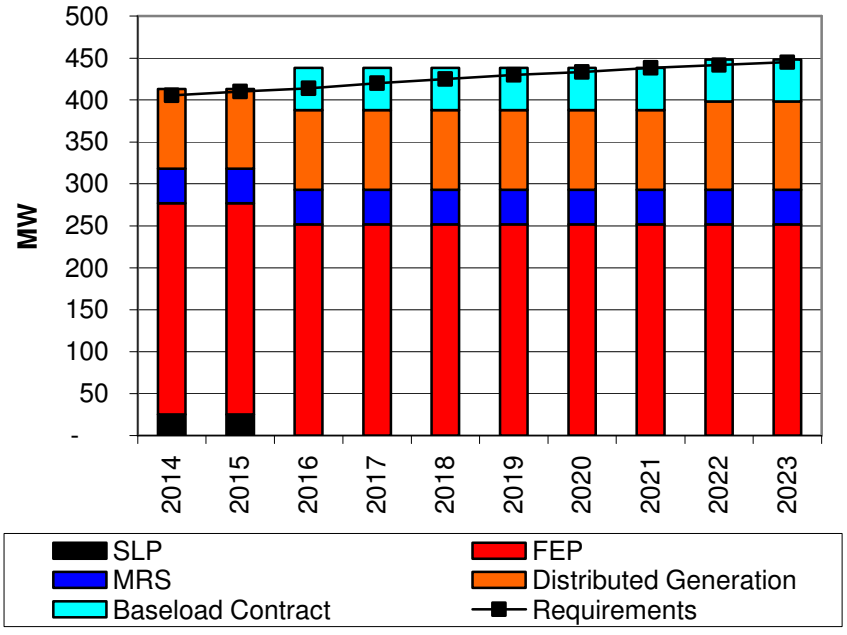
The Agency's long range plan involves distributed generation and the addition of a second baseload resource. The following table outlines MMPA's preferred long range plan:

Minnesota Municipal Power Agency
Preferred Long Range Plan
2013 to 2023

Year	Resource Addition
2014	35 MW of Distributed Generation
2016	50 MW Baseload Contract
2022	10 MW of Distributed Generation

The following graph shows MMPA's power supply resources and projected capacity needs under the preferred long range plan.

Minnesota Municipal Power Agency
Power Supply Resources and Requirements (Summer MW)
Preferred Long Range Plan



Largest Annual Increase in MMPA Capacity Needs Is 29 MW	The single largest annual increase in MMPA's capacity needs (above its existing resources) between 2013 and 2023 is 29 MW in 2016, when the Agency's contract for the Silver Lake Plant expires. This makes it difficult for the Agency to add generation in large increments.
Develop Strategies to Reduce Environmental Footprint	The Agency also plans to develop strategies to reduce its environmental footprint. These could take the form of further conservation programs or programs that encourage switching from fossil fuels to renewable energy.
Investigate Partnering in a Nuclear Plant	MMPA is investigating partnering with other utilities in a nuclear plant. If the future cost of carbon emissions is high, nuclear technology would be the lowest total cost baseload resource alternative for MMPA. The federal government has shown renewed interest in nuclear power over the last several years, with the inclusion of the "Next Generation Nuclear Plant Project" in the Energy Policy Act of 2005 and the creation of tax incentives for new nuclear plants.
Investigate Biomass as a Renewable Resource	The Agency also plans to investigate biomass as a renewable resource as part of its long range plan. A biomass facility could potentially meet both a portion of the Agency's baseload needs and a portion of its renewable obligation.

Section 13. Transmission

This section describes the Agency's position on transmission.

MMPA Does Not Currently Own Transmission Assets

MMPA does not currently own any transmission assets. The Agency purchases all of its transmission requirements from Xcel Energy under a grandfathered contract and from MISO.

MMPA Is Prepared to Partner in Projects that Enhance Electricity Delivery to Members

The Agency is prepared to partner in transmission projects that would enhance the delivery of electricity to MMPA's member communities. Such investment in the transmission system may be necessary as the Agency continues to develop its wind power projects.

MMPA's Distributed Generation Approach Would Benefit Transmission System

The distributed generation approach proposed by MMPA in this Integrated Resource Plan would benefit the transmission system. By locating generation closer to load, the strain on the bulk transmission system is reduced. Furthermore, the use of distributed generation (as opposed to larger plants) helps transmission system planning by not increasing the number of proposed projects in the interconnection queue.

Section 14. Meeting the REO/RES

This section describes MMPA's efforts toward meeting the state of Minnesota's Renewable Energy Objective (REO) and Renewable Energy Standard (RES).

MMPA Purchases Wind Power

The Agency has purchased wind power from both Dairyland Power Cooperative and Great River Energy over the past few years. Some of the energy goes towards MMPA's Green Power Choice option, with the remainder towards meeting MMPA's REO.

MMPA Developed Coon Rapids Hydropower Project

MMPA began development work for a hydropower project on the Coon Rapids Dam on the Hennepin/Anoka county border in 2001. The project would have been an 8MW small hydroelectric facility. The Agency voted to abandon development efforts on the project in 2006 when it decided that local opposition to the project would make implementation success unlikely.

MMPA Signed 47.5 MW PPA in 2005

In 2005, MMPA signed a power purchase agreement with a developer to purchase the full output of a 47.5 MW wind farm. The Agency was supposed to start taking energy delivery by the end of 2006. This PPA formed the basis of MMPA's plans for compliance with the REO in the 2007 to 2010 timeframe. In 2006, the Agency realized that the developer would be unable to complete the project. At that time, MMPA took over development of the project, which is now one of the three larger-scale wind projects described in this Integrated Resource Plan.

Faribault Energy Park Can Produce Biomass Energy

The Agency began planning for the inclusion of biomass capability at Faribault Energy Park in 2005. Now that the plant is operational, its duct burners are capable of running on biofuels such as recycled vegetable oil, soy oil, and camelina oil, in addition to natural gas. When running on biofuels, the duct burners produce approximately 25 MW of renewable energy.

MMPA Is Developing Hometown WindPower Projects

MMPA has been developing its Hometown WindPower program since 2006. This effort would make MMPA the first power agency with a wind turbine in each of its member communities. Assuming 11 turbines with a size of 250 kW each and a capacity factor of 20%, this program would produce approximately 4,800 MWh of renewable energy annually for the Agency.

MMPA Executed an 80 MW PPA in 2006

MMPA executed an 80 MW PPA with a wind developer in 2006. This project was estimated to have a 40% capacity factor (approximately 280,000 MWh per year output), although the developer will not have to perform unless transmission availability and production tax credit issues are resolved.

MMPA Is Developing 288 MW of Other Wind Projects

MMPA began developing three other utility-scale wind projects totaling approximately 288 MW during 2006. Transmission arrangements for these projects have not been finalized yet, and the earliest possible deliveries of renewable energy would occur between 2010 and 2012. Assuming an average capacity factor of 36%, these projects would produce approximately 900,000 MWh of energy. As this amount of energy is significantly above what MMPA needs to meet the Renewable Energy Standard, the Agency is seeking to partner with other utilities to share in the output of these projects.

MMPA Is Seeking PPAs with Wind Developers

MMPA is also seeking purchased power agreements (PPAs) with other wind developers. The current environment in the wind industry is unstable because of uncertainty regarding extension of the production tax credit (PTC) and uncertainty regarding transmission availability. As discussed further in Section 11, the Agency would also consider C-BED projects to the extent that they are feasible and economic. MMPA has no firm plans at this time regarding potential PPAs but continues to work with developers.

MMPA Has Made a Good Faith Effort to Meet the REO and Is Positioned to Exceed the RES

MMPA has made a good faith effort to meet the REO and is positioned to exceed the RES through its mix of contracts and developed resources. The Agency is developing projects expected to be able to produce over 1,150,000 MWh of renewable energy by 2012. This is nearly six times the amount of energy required under the RES in 2012 and over three times the amount of energy required under the RES in 2023.

Section 15. MMPA's Plan Is In the Public Interest

This section discusses how MMPA's Integrated Resource Plan is in the public interest.

MMPA's Plan Provides Flexibility in Uncertain Environment

MMPA's IRP gives the Agency flexibility during this time of unprecedented uncertainty regarding commodity prices, transmission availability, carbon legislation, and cost of new generation. The Agency creates this flexibility by developing multiple resource prospects in excess of its projected needs, giving it options for meeting its future capacity requirements. The use of distributed generation provides further flexibility for MMPA because of the ability to install facilities in smaller increments and on a quicker timetable than other resources.

MMPA's Plan Limits Environmental Effects

The Agency's plan limits negative environmental effects. MMPA is aggressively pursuing both increased energy conservation and a number of renewable energy projects. Furthermore, the Agency is investigating participation in a nuclear facility as one of its baseload resource prospects, which would have no carbon emissions.

MMPA's Plan Meets the Public Interest Criteria in Rule 7843

MMPA's plan meets the public interest criteria set out in Commission Rule 7843.0500 Subp. 3, which are:

- Maintain or improve the adequacy and reliability of utility service
- Keep the customers' bills and the utility's rates as low as practicable, given regulatory and other constraints
- Minimize adverse socioeconomic effects and adverse effects upon the environment
- Enhance the utility's ability to respond to changes in the financial, social, and technological factors affecting its operations
- Limit the risk of adverse effects on the utility and its customers from financial, social, and technological factors that the utility cannot control

MMPA's plan promotes adequate and reliable service, particularly through its use of distributed generation, which locates generation close to member load, increasing reliability of the system. The Agency's plan also keeps rates as low as practical given uncertainties about future commodity prices and carbon regulation by adding peaking and baseload resources that move MMPA closer to its least cost resource portfolio. MMPA balances socioeconomic

and environmental considerations by both promoting energy conservation and developing a number of renewable resource prospects. The Agency enhances its ability to respond to changes by maintaining a flexible plan with many resource options. MMPA limits risk to its customers by maintaining a balanced power supply portfolio consisting of hydro, wind, biomass, gas, fuel oil, and coal resources.

Appendix A. Load Projection Methodology

This appendix describes the methodology used to project MMPA's energy and demand requirements for this Integrated Resource Plan.

Members' Energy Requirements Were Projected Using Linear Regression

Linear regression analysis was used to project MMPA member energy requirements. Three separate projections were prepared and their results summed to calculate projected total MMPA energy. These projections can be summarized as follows:

- MMPA 9 – Includes the cities of Anoka, Arlington, Brownton, Chaska, Le Sueur, North St. Paul, Olivia, Shakopee and Winthrop with monthly historical energy usage from 1988 through 2007.
- East Grand Forks – Monthly historical energy usage from 1996 to 2007.
- Buffalo – Monthly historical energy usage from 2000 to 2007.

The three different projections were prepared because of data constraints for East Grand Forks and Buffalo.

Total MMPA energy requirements were projected by running these three regression models and summing the results.

Explanatory Variables Used Were Weather, Income, and Population

For the regression analysis, weather, income, and population were used as explanatory variables.

Weather

Monthly heating degree days (HDD) and cooling degree days (CDD) were used to represent the effects of weather on energy consumption. Historical weather data comes from the National Oceanic and Atmospheric Administration (NOAA). Data from the MSP weather station was used for MMPA 9 and Buffalo models, while data from the Fargo weather station (the closest available) was used for the East Grand Forks model. Normal average weather for the projection period was assumed to be the 30-year average monthly HDD and CDD, using data from NOAA for the period 1978 to 2007.

Income per Capita

Woods and Poole Economics' *Minnesota State Profile 2007 State and County Projections to 2030* was the source for both historical and projected income data. This data is provided at the county level. As a result, an income variable for each model run was created with

weights based on annual member energy usage.

Population

Historical population for the period 1988 to 2006 was based on data from *Historic Household and Population Estimates* as prepared by the Minnesota Department of Administration. No data was available for the year 1989, so linear smoothing of 1988 and 1990 data was used. Population projections for the period 2007 to 2023 are based on Metro Council and Minnesota State Demographic Data.

All of the above-listed variables were used in the MMPA 9 model. For the East Grand Forks model, CDD and population were excluded because of low t-stat results. There is little air conditioning load in East Grand Forks, and the devastating 1997 flood likely explains the low t-stat for population. Income per capita was excluded from the Buffalo regression, also because of low t-stat results.

Annual Growth Rate Reduced by 0.7% to Reflect New Conservation

The projected annual growth rate of energy requirements from the regression model was reduced by 0.7% starting in 2010, representing MMPA's assumption regarding new conservation measures. It is assumed that historical energy data contains embedded results from past conservation efforts (which in 2007 equaled 0.86% of MMPA's 2007 energy requirement).

Annual Growth Rate Increased by 0.2% to Reflect New Electric Uses

The projected annual growth rate of energy requirements from the regression model was also increased by 0.2% starting in 2010 to reflect expected new uses of electricity. These new uses include ground source heat pumps and increased electric use for transportation.

Combined, the net effect of conservation and new electric uses is to decrease the base annual growth rate of energy from the linear regression models by 0.5%.

Members' Energy Requirements Were Reduced for WAPA-Supplied Energy

Once conservation and new electric uses were accounted for, projected members' energy requirements were reduced for energy supplied by WAPA. These WAPA allocations were assumed to stay at the 2006 through 2010 contract level throughout the projection period.

Agency Demand Was Projected Using Load

To project the Agency's demand requirements, a historical average load factor was calculated using 2003 to 2007 data. A five-year

Factor Approach	average was used because it was the only period for which hourly data (necessary to calculate the Agency's coincident peak) was available for all member cities. The historical load factor was then applied to the conservation-adjusted energy projections to obtain projected peak demand requirements for MMPA.
Agency Demand Was Reduced for WAPA-Supplied Capacity	Similar to the energy projections, projected Agency demand was reduced for capacity supplied by WAPA. These WAPA allocations were assumed to stay at the 2006 through 2010 contract level throughout the projection period.
Capacity Requirements Include Losses and Reserves	To determine the Agency's total capacity requirements, 2.4% transmission system losses were added to the projected demand requirements. Mid-Continent Area Power Pool (MAPP) reserves of 15% were also added.

Appendix B. Advance Forecast

This appendix contains MMPA's advance forecast information as outlined in Commission Rule 7610.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION

7610.0120 REGISTRATION

ENTITY ID#	(leave blank)
REPORT YEAR	2007

UTILITY DETAILS	
UTILITY NAME	Minnesota Municipal Power Agency
STREET ADDRESS	200 South Sixth Street, Suite 300
CITY	Minneapolis
STATE	Minnesota
ZIP CODE	55426
TELEPHONE	612-349-6868
	Scroll down to see allowable UTILITY TYPES
* UTILITY TYPE	Public

CONTACT INFORMATION	
CONTACT NAME	James Larson
CONTACT TITLE	Vice President, Regulatory Affairs
CONTACT STREET ADDRESS	200 South Sixth Street, Suite 300
CITY	Minneapolis
STATE	Minnesota
ZIP CODE	55426
TELEPHONE	612-349-6868
CONTACT E-MAIL	james.larson@avantenergy.com

COMMENTS

PREPARER INFORMATION	
PERSON PREPARING FORMS	David Niles
PREPARER'S TITLE	Manager, Financial Planning & Analysis
DATE	7/31/2008

ALLOWABLE UTILITY TYPES

Code

Private
Public
Co-op

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item A. SYSTEM FORECAST OF ANNUAL ELECTRIC CONSUMPTION BY ULTIMATE CONSUMERS

Provide actual data for your entire system for the past year, your estimate for the present year and all future forecast years.

Please remember that the number of customers should reflect the number of customers at year's end, not the number of meters.

			FARM	NON-FARM RESIDENTIAL	COMMERCIAL	MINING *	INDUSTRIAL	STREET & HIGHWAY LIGHTING	OTHER	SYSTEM TOTALS	Calculated System Totals
Past Year	2007	No. of Cust.									0
		MWH									0
Present Year	2008	No. of Cust.									0
		MWH									0
1st Forecast Year	2009	No. of Cust.									0
		MWH									0
2nd Forecast Year	2010	No. of Cust.									0
		MWH									0
3rd Forecast Year	2011	No. of Cust.									0
		MWH									0
4th Forecast Year	2012	No. of Cust.									0
		MWH									0
5th Forecast Year	2013	No. of Cust.									0
		MWH									0
6th Forecast Year	2014	No. of Cust.									0
		MWH									0
7th Forecast Year	2015	No. of Cust.									0
		MWH									0
8th Forecast Year	2016	No. of Cust.									0
		MWH									0
9th Forecast Year	2017	No. of Cust.									0
		MWH									0
10th Forecast Year	2018	No. of Cust.									0
		MWH									0
11th Forecast Year	2019	No. of Cust.									0
		MWH									0
12th Forecast Year	2020	No. of Cust.									0
		MWH									0
13th Forecast Year	2021	No. of Cust.									0
		MWH									0
14th Forecast Year	2022	No. of Cust.									0
		MWH									0

* MINING needs to be reported as a separate category only if annual sales are greatere than 1,000 GWH. Otherwise, include MINING in the INDUSTRIAL category.

COMMENTS

MMPA is requesting an exemption from this forecast page, as it sells all of its electricity to its eleven member municipal utilities at wholesale. The Agency does not project customer count by class as part of its future energy and demand forecasts. As discussed in the Integrated Resource Plan, MMPA uses projected population of member cities to project energy and demand requirements.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item A. MINNESOTA-ONLY FORECAST OF ANNUAL ELECTRIC CONSUMPTION BY ULTIMATE CONSUMERS

Provide actual data for your Minnesota service area only, for the past year, your best estimate for the present year and all future forecast years.

Please remember that the number of customers should reflect the number of customers at year's end, not the number of meters.

			FARM	NON-FARM RESIDENTIAL	COMMERCIAL	MINING *	INDUSTRIAL	STREET & HIGHWAY LIGHTING	OTHER	MN-ONLY TOTALS	Calculated MN-Only Totals
Past Year	2007	No. of Cust.									0
		MWH									0
Present Year	2008	No. of Cust.									0
		MWH									0
1st Forecast Year	2009	No. of Cust.									0
		MWH									0
2nd Forecast Year	2010	No. of Cust.									0
		MWH									0
3rd Forecast Year	2011	No. of Cust.									0
		MWH									0
4th Forecast Year	2012	No. of Cust.									0
		MWH									0
5th Forecast Year	2013	No. of Cust.									0
		MWH									0
6th Forecast Year	2014	No. of Cust.									0
		MWH									0
7th Forecast Year	2015	No. of Cust.									0
		MWH									0
8th Forecast Year	2016	No. of Cust.									0
		MWH									0
9th Forecast Year	2017	No. of Cust.									0
		MWH									0
10th Forecast Year	2018	No. of Cust.									0
		MWH									0
11th Forecast Year	2019	No. of Cust.									0
		MWH									0
12th Forecast Year	2020	No. of Cust.									0
		MWH									0
13th Forecast Year	2021	No. of Cust.									0
		MWH									0
14th Forecast Year	2022	No. of Cust.									0
		MWH									0

* MINING needs to be reported as a separate category only if annual sales are greatere than 1,000 GWH. Otherwise, include MINING in the INDUSTRIAL category.

COMMENTS

MMPA is requesting an exemption from this forecast page, as it sells all of its electricity to its eleven member municipal utilities at wholesale. The Agency does not project customer count by class as part of its future energy and demand forecasts. As discussed in the Integrated Resource Plan, MMPA uses projected population of member cities to project energy and demand requirements.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item B. FORECAST OF ANNUAL SYSTEM CONSUMPTION AND GENERATION DATA (Express in MWH)

NOTE: (Column 1 + Column 2) = (Column 3 + Column 5) - (Column 4 + Column 6)

It is recognized that there may be circumstances in which the data entered by the utility is more appropriate or accurate than the value in the corresponding automatically-calculated cell. If the value in the automatically-calculated cell does not match the value that your utility entered, please provide an explanation in the Comments area at the bottom of the worksheet.

		Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	CALCULATED
		CONSUMPTION BY ULTIMATE CONSUMERS IN MINNESOTA in MWH [7610.0310 B(1)]	CONSUMPTION BY ULTIMATE CONSUMERS OUTSIDE OF MINNESOTA in MWH [7610.0310 B(2)]	RECEIVED FROM OTHER UTILITIES in MWH [7610.0310 B(3)]	DELIVERED FOR RESALE in MWH [7610.0310 B(4)]	TOTAL ANNUAL NET GENERATION in MWH [7610.0310 B(5)]	TRANSMISSION LINE SUBSTATION AND DISTRIBUTION LOSSES in MWH [7610.0310 B(6)]	TOTAL WINTER CONSUMPTION in MWH [7610.0310 B(7)]	TOTAL SUMMER CONSUMPTION in MWH [7610.0310 B(7)]	(GENERATION + RECEIVED) MINUS (RESALE + LOSSES) MINUS (CONSUMPTION) SHOULD EQUAL ZERO
Past Year	2007	1,363,466	0	1,763,687	702,969	302,748	0	646,092	717,375	0
Present Year	2008	1,481,584	0	1,830,413	1,128,080	779,250	0	731,245	750,339	0
1st Forecast Year	2009	1,603,988	0	1,822,398	997,660	779,250	0	791,159	812,830	0
2nd Forecast Year	2010	1,644,851	0	1,817,586	951,985	779,250	0	811,590	833,261	0
3rd Forecast Year	2011	1,672,851	0	1,823,176	939,575	789,250	0	825,590	847,261	0
4th Forecast Year	2012	1,700,989	0	1,851,793	955,055	804,250	0	839,659	861,330	0
5th Forecast Year	2013	1,729,210	0	1,754,734	834,775	809,250	0	853,769	875,440	0
6th Forecast Year	2014	1,758,102	0	1,783,626	837,275	811,750	0	868,216	889,886	0
7th Forecast Year	2015	1,786,953	0	1,808,883	833,680	811,750	0	882,641	904,312	0
8th Forecast Year	2016	1,816,093	0	1,816,093	811,750	811,750	0	897,211	918,882	0
9th Forecast Year	2017	1,845,457	0	1,845,457	811,750	811,750	0	911,893	933,564	0
10th Forecast Year	2018	1,875,234	0	1,875,234	811,750	811,750	0	926,782	948,452	0
11th Forecast Year	2019	1,905,686	0	1,905,686	811,750	811,750	0	942,008	963,678	0
12th Forecast Year	2020	1,936,339	0	1,936,339	811,750	811,750	0	957,334	979,005	0
13th Forecast Year	2021	1,960,944	0	1,960,944	811,750	811,750	0	969,637	991,307	0
14th Forecast Year	2022	1,985,641	0	1,985,641	816,750	816,750	0	981,985	1,003,656	0

COMMENTS

Under the Midwest Independent Transmission System Operator's (MISO) energy market, utilities purchase all of their load from MISO and sell all of the output from their generating resources to MISO. This table has been completed reflecting that structure of the industry.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item C. PEAK DEMAND BY ULTIMATE CONSUMERS AT THE TIME OF ANNUAL SYSTEM PEAK (in MW)

		FARM	NON-FARM RESIDENTIAL	COMMERCIAL	MINING	INDUSTRIAL	STREET & HIGHWAY LIGHTING	OTHER	SYSTEM TOTALS	Calculated System Totals
Last Year Peak Day	2007									0

7610.0310 Item D. PEAK DEMAND BY MONTH FOR THE LAST CALENDAR YEAR (in MW)

		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Last Year	2007	199	203	182	176	214	268	284	277	278	192	203	205

COMMENTS

MMPA is requesting an exemption from Item C of this page, as it does not possess the information necessary to classify the system peak by class of service. The Agency sells all of its power and energy to its eleven member utilities at wholesale. The peak demand presented in Item D includes 2.4% transmission system losses.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item E. PART 1: FIRM PURCHASES (Express in MW)

			NAME OF OTHER UTILITY =>							
Past Year	2007	Summer								
		Winter								
Present Year	2008	Summer								
		Winter								
1st Forecast Year	2009	Summer								
		Winter								
2nd Forecast Year	2010	Summer								
		Winter								
3rd Forecast Year	2011	Summer								
		Winter								
4th Forecast Year	2012	Summer								
		Winter								
5th Forecast Year	2013	Summer								
		Winter								
6th Forecast Year	2014	Summer								
		Winter								
7th Forecast Year	2015	Summer								
		Winter								
8th Forecast Year	2016	Summer								
		Winter								
9th Forecast Year	2017	Summer								
		Winter								
10th Forecast Year	2018	Summer								
		Winter								
11th Forecast Year	2019	Summer								
		Winter								
12th Forecast Year	2020	Summer								
		Winter								
13th Forecast Year	2021	Summer								
		Winter								
14th Forecast Year	2022	Summer								
		Winter								

COMMENTS

The Agency Does not Have any Firm Purchases from Other Utilities

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item E. PART 2: FIRM SALES (Express in MW)

			NAME OF OTHER UTILITY =>						
Past Year	2007	Summer							
		Winter							
Present Year	2008	Summer							
		Winter							
1st Forecast Year	2009	Summer							
		Winter							
2nd Forecast Year	2010	Summer							
		Winter							
3rd Forecast Year	2011	Summer							
		Winter							
4th Forecast Year	2012	Summer							
		Winter							
5th Forecast Year	2013	Summer							
		Winter							
6th Forecast Year	2014	Summer							
		Winter							
7th Forecast Year	2015	Summer							
		Winter							
8th Forecast Year	2016	Summer							
		Winter							
9th Forecast Year	2017	Summer							
		Winter							
10th Forecast Year	2018	Summer							
		Winter							
11th Forecast Year	2019	Summer							
		Winter							
12th Forecast Year	2020	Summer							
		Winter							
13th Forecast Year	2021	Summer							
		Winter							
14th Forecast Year	2022	Summer							
		Winter							

COMMENTS

The Agency Does not Have any Firm Sales to Other Utilities

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item F. PART 1: PARTICIPATION PURCHASES (Express in MW)

NAME OF OTHER UTILITY =>			Rochester Public Utilities	Manitoba Hydro Electric Board	Future Purchase	Future Purchase			
Past Year	2007	Summer	100	60					
		Winter	100	60					
Present Year	2008	Summer	100	60					
		Winter	50	60					
1st Forecast Year	2009	Summer	50	30	30				
		Winter	50	30	30				
2nd Forecast Year	2010	Summer	50	30	30				
		Winter	25	30	30				
3rd Forecast Year	2011	Summer	25	30	30				
		Winter	25	30	30				
4th Forecast Year	2012	Summer	25	0	30				
		Winter	25	0	30				
5th Forecast Year	2013	Summer	25	0	30				
		Winter	25	0	30				
6th Forecast Year	2014	Summer	25	0					
		Winter	25	0					
7th Forecast Year	2015	Summer	25	0					
		Winter	0	0					
8th Forecast Year	2016	Summer	0	0		50			
		Winter	0	0		50			
9th Forecast Year	2017	Summer	0	0		50			
		Winter	0	0		50			
10th Forecast Year	2018	Summer	0	0		50			
		Winter	0	0		50			
11th Forecast Year	2019	Summer	0	0		50			
		Winter	0	0		50			
12th Forecast Year	2020	Summer	0	0		50			
		Winter	0	0		50			
13th Forecast Year	2021	Summer	0	0		50			
		Winter	0	0		50			
14th Forecast Year	2022	Summer	0	0		50			
		Winter	0	0		50			

COMMENTS

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item F. PART 2: PARTICIPATION SALES (Express in MW)

NAME OF OTHER UTILITY =>			Rochester Public Utilities	Northern States Power (Xcel)	Ameren				
Past Year	2007	Summer	12	10	0				
		Winter	35	0	0				
Present Year	2008	Summer	35	45	10				
		Winter	0	25	0				
1st Forecast Year	2009	Summer	0	10	0				
		Winter	0	0	0				
2nd Forecast Year	2010	Summer	0	10	0				
		Winter	0	0	0				
3rd Forecast Year	2011	Summer	0	0	0				
		Winter	0	0	0				
4th Forecast Year	2012	Summer	0	0	0				
		Winter	0	0	0				
5th Forecast Year	2013	Summer	0	0	0				
		Winter	0	0	0				
6th Forecast Year	2014	Summer	0	0	0				
		Winter	0	0	0				
7th Forecast Year	2015	Summer	0	0	0				
		Winter	0	0	0				
8th Forecast Year	2016	Summer	0	0	0				
		Winter	0	0	0				
9th Forecast Year	2017	Summer	0	0	0				
		Winter	0	0	0				
10th Forecast Year	2018	Summer	0	0	0				
		Winter	0	0	0				
11th Forecast Year	2019	Summer	0	0	0				
		Winter	0	0	0				
12th Forecast Year	2020	Summer	0	0	0				
		Winter	0	0	0				
13th Forecast Year	2021	Summer	0	0	0				
		Winter	0	0	0				
14th Forecast Year	2022	Summer	0	0	0				
		Winter	0	0	0				

COMMENTS

This spreadsheet reflects transactions entered into as of July 31, 2008. In 2007 and 2008, sales to some utilities varied month-by-month within a season. Data is shown for the peak month of each season.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item G. LOAD AND GENERATION CAPAC (Express in MW)

			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15
			SEASONAL MAXIMUM DEMAND	SCHEDULE L. PURCHASE AT THE TIME OF SEASONAL SYSTEM DEMAND	SEASONAL SYSTEM DEMAND	ANNUAL SYSTEM DEMAND	SEASONAL FIRM PURCHASES (TOTAL)	SEASONAL FIRM SALES (TOTAL)	SEASONAL ADJUSTED NET DEMAND (3 - 5 + 6)	ANNUAL ADJUSTED NET DEMAND (4 - 5 + 6)	NET GENERATING CAPABILITY	PART. PURCHASES (TOTAL)	PART. SALES (TOTAL)	ADJUSTED NET CAPABILITY (9 + 10 - 11)	NET RESERVE CAPACITY OBLIGATION	TOTAL FIRM CAPACITY OBLIGATION (7 + 13)	SURPLUS (+) OR DEFICIT (-) CAPACITY (12 - 14)
Past Year	2007	Summer	284	-	284	284	-	-	284	284	293	160	22	431	43	327	105
		Winter	205	-	205	284	-	-	205	284	338	160	35	463	43	248	216
Present Year	2008	Summer	299	-	299	299	-	-	299	299	293	160	90	363	45	344	19
		Winter	232	-	232	299	-	-	232	299	338	110	25	423	45	277	147
1st Forecast Year	2009	Summer	329	-	329	329	-	-	329	329	293	110	10	393	49	378	15
		Winter	237	-	237	329	-	-	237	329	338	110	-	448	49	286	162
2nd Forecast Year	2010	Summer	336	-	336	336	-	-	336	336	293	110	10	393	50	386	7
		Winter	240	-	240	336	-	-	240	336	338	85	-	423	50	290	133
3rd Forecast Year	2011	Summer	340	-	340	340	-	-	340	340	313	85	-	398	51	391	7
		Winter	242	-	242	340	-	-	242	340	358	85	-	443	51	293	150
4th Forecast Year	2012	Summer	343	-	343	343	-	-	343	343	343	55	-	398	51	394	4
		Winter	246	-	246	343	-	-	246	343	388	55	-	443	51	297	146
5th Forecast Year	2013	Summer	348	-	348	348	-	-	348	348	353	55	-	408	52	400	8
		Winter	249	-	249	348	-	-	249	348	398	55	-	453	52	301	152
6th Forecast Year	2014	Summer	352	-	352	352	-	-	352	352	388	25	-	413	53	405	8
		Winter	252	-	252	352	-	-	252	352	433	25	-	458	53	305	154
7th Forecast Year	2015	Summer	357	-	357	357	-	-	357	357	388	25	-	413	54	411	3
		Winter	254	-	254	357	-	-	254	357	433	-	-	433	54	308	126
8th Forecast Year	2016	Summer	360	-	360	360	-	-	360	360	388	50	-	438	54	414	24
		Winter	258	-	258	360	-	-	258	360	433	50	-	483	54	312	171
9th Forecast Year	2017	Summer	365	-	365	365	-	-	365	365	388	50	-	438	55	420	19
		Winter	261	-	261	365	-	-	261	365	433	50	-	483	55	316	168
10th Forecast Year	2018	Summer	369	-	369	369	-	-	369	369	388	50	-	438	55	424	14
		Winter	264	-	264	369	-	-	264	369	433	50	-	483	55	319	164
11th Forecast Year	2019	Summer	374	-	374	374	-	-	374	374	388	50	-	438	56	430	8
		Winter	267	-	267	374	-	-	267	374	433	50	-	483	56	323	160
12th Forecast Year	2020	Summer	377	-	377	377	-	-	377	377	388	50	-	438	57	434	5
		Winter	270	-	270	377	-	-	270	377	433	50	-	483	57	327	157
13th Forecast Year	2021	Summer	381	-	381	381	-	-	381	381	388	50	-	438	57	438	0
		Winter	272	-	272	381	-	-	272	381	433	50	-	483	57	329	154
14th Forecast Year	2022	Summer	384	-	384	384	-	-	384	384	398	50	-	448	58	442	7
		Winter	274	-	274	384	-	-	274	384	443	50	-	493	58	332	162
									-								

COMMENTS

Seasonal Demands as shown include 2.4% Transmission System Losses

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0310 Item H. ADDITIONS AND RETIREMENTS (Express in MW)

		ADDITIONS	RETIREMENTS
Past Year	2007	94	0
Present Year	2008	0	0
1st Forecast Year	2009	0	0
2nd Forecast Year	2010	0	0
3rd Forecast Year	2011	20	0
4th Forecast Year	2012	30	0
5th Forecast Year	2013	10	0
6th Forecast Year	2014	35	0
7th Forecast Year	2015	0	0
8th Forecast Year	2016	0	0
9th Forecast Year	2017	0	0
10th Forecast Year	2018	0	0
11th Forecast Year	2019	0	0
12th Forecast Year	2020	0	0
13th Forecast Year	2021	0	0
14th Forecast Year	2022	10	0

COMMENTS
The 2007 addition reflects the conversion of Faribault Energy Park from simple cycle to combined cycle operation.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0430 FUEL REQUIREMENTS AND GENERATION BY FUEL TYPE

Please use the appropriate code for the fuel type as shown in the list at the bottom of the worksheet.

		FUEL TYPE 1		FUEL TYPE 2		FUEL TYPE 3		FUEL TYPE 4	
		Name of Fuel	NG	Name of Fuel	FO2	Name of Fuel		Name of Fuel	
		Unit of Measure	MMBtu	Unit of Measure	MMBtu	Unit of Measure		Unit of Measure	
		QUANTITY OF FUEL USED	NET MWH GENERATED	QUANTITY OF FUEL USED	NET MWH GENERATED	QUANTITY OF FUEL USED	NET MWH GENERATED	QUANTITY OF FUEL USED	NET MWH GENERATED
Past Year	2007	2,586,584	294,567	70,809	8,181				
Present Year	2008	5,484,150	770,500	78,750	8,750				
1st Forecast Year	2009	5,484,150	770,500	78,750	8,750				
2nd Forecast Year	2010	5,484,150	770,500	78,750	8,750				
3rd Forecast Year	2011	5,579,150	780,500	78,750	8,750				
4th Forecast Year	2012	5,721,650	795,500	78,750	8,750				
5th Forecast Year	2013	5,769,150	800,500	78,750	8,750				
6th Forecast Year	2014	5,792,900	803,000	78,750	8,750				
7th Forecast Year	2015	5,792,900	803,000	78,750	8,750				
8th Forecast Year	2016	5,792,900	803,000	78,750	8,750				
9th Forecast Year	2017	5,792,900	803,000	78,750	8,750				
10th Forecast Year	2018	5,792,900	803,000	78,750	8,750				
11th Forecast Year	2019	5,792,900	803,000	78,750	8,750				
12th Forecast Year	2020	5,792,900	803,000	78,750	8,750				
13th Forecast Year	2021	5,792,900	803,000	78,750	8,750				
14th Forecast Year	2022	5,840,400	808,000	78,750	8,750				

LIST OF FUEL TYPES

BIT - Bituminous Coal
COAL - Coal (general)
DIESEL - Diesel
FO2 - Fuel Oil #2 (Mid-distillate)
FO6 - Fuel Oil #6 (Residual fuel oil)
LIG - Lignite
LPG - Liquefied Propane Gas
NG - Natural Gas
NUC - Nuclear
REF - Refuse, Bagasse, Peat, Non-wc
STM - Steam
SUB - Sub-bituminous coal
HYD - Hydro (water)
WIND - Wind
WOOD - Wood
SOLAR - Solar

COMMENTS

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0500 TRANSMISSION LINES

Subpart 1. **Existing transmission lines**. Each utility shall report the following information in regard to each transmission line of 200 kilovolts now in existence:

A. a map showing the location of each line;
B. the design voltage of each line;
C. the size and type of conductor;
D. the approximate location of d.c. terminals or a.c. substations; and
E. the approximate length of each line in Minnesota.

Subpart 2. **Transmission line additions**. Each generating and transmission utility, as defined in part 7610.0100, shall report the information required in subpart 1 for all future transmission lines over 200 kilovolts that the utility plans to build within the next 15 years.

Subpart 3. **Transmission line retirements**. Each generating and transmission utility, as defined in part 7610.0100, shall identify all present transmission lines over 200 kilovolts that the utility plans to retire within the next 15 years.

In Use (enter X for selection)	To Be Built (enter X for selection)	To Be Retired (enter X for selection)	DESIGN VOLTAGE	SIZE OF CONDUCTOR	TYPE OF CONDUCTOR	D.C. OR A.C. (specify)	LOCATION OF D.C. TERMINALS OR A.C. SUBSTATIONS	INDICATE YEAR IF "TO BE BUILT" OR "RETIRED"	LENGTH IN MINNESOTA (miles)

COMMENTS

MMPA does not own, nor does it expect to own during the forecast period, any transmission lines above 200 kilovolts.

MINNESOTA ELECTRIC UTILITY INFORMATION REPORTING - FORECAST SECTION (Continued)

7610.0600, item A. 24 - HOUR PEAK DAY DEMAND

Each utility shall provide the following information for the last calendar year:

A table of the demand in megawatts by the hour over a 24-hour period for:

1. the 24-hour period during the summer season when the megawatt demand on the system was the greatest; and
2. the 24-hour period during the winter season when the megawatt demand on the system was the greatest

	DATE	DATE	
	7/26/07	12/13/07	<= ENTER DATES
TIME OF DAY	MW USED ON SUMMER PEAK DAY	MW USED ON WINTER PEAK DAY	
0100	208	143	
0200	193	136	
0300	182	132	
0400	176	131	
0500	175	134	
0600	182	143	
0700	194	164	
0800	214	183	
0900	231	184	
1000	245	184	
1100	258	184	
1200	272	185	
1300	277	181	
1400	281	183	
1500	284	181	
1600	280	180	
1700	269	189	
1800	258	205	
1900	247	205	
2000	239	201	
2100	232	203	
2200	230	193	
2300	216	179	
2400	196	161	

COMMENTS
MMPA's reported MW include 2.4% transmission system losses.

Appendix C. IRP Cross Reference Index

The following table provides a cross reference index for the various regulatory requirements related to Integrated Resource Plan filings.

Statute or Rule	Description of Requirement	Location in IRP Filing
7843.0400 Subp 2	Include most recent advanced forecasts filed with DOC and MEQB	Appendix B
7843.0400 Subp 3	Describe resource options considered, including information supporting selection of proposed resources	Sections 9 and 10
7843.0400 Subp 3	Include a five-year action plan	Section 11
7843.0400 Subp 3	Explain why the plan is in the public interest	Section 15
7843.0400 Subp 4	Include a non-technical summary not to exceed 25 pages	Section 1
216B.1612	Consideration of C-BED Projects	Section 11
216B.1691 Subp 3	Description of efforts towards meeting REO/RES	Section 14
216B.2422 Subp 3	Use commission values and other external factors including socioeconomic costs when evaluating and selecting resource options	Section 10
216B.2422 Subp 2	Include in IRP a least cost plan for meeting 50% and 75% of all new and refurbished capacity needs through a combination of conservation and renewable energy resources	Section 14