MONTANA-DAKOTA
UTILITIES CO.
A Division of MDU Resources Group, Inc.

400 North Fourth Street
Bismarck, ND 58501
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October 20, 2011

Executive Secretary
North Dakota Public Service Commission
State Capitol Building
Bismarck, ND 58505-0480

Re: Direct Testimony
Case Nos. PU-11-395 and PU-11-396

Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc., herewith submits for filing the Direct Testimonies of Ms. Andrea L. Stomberg, Mr. Alan L. Welte, Mr. Darcy J. Neigum, and Mr. Robert C. Morman in support of the Application for an Advance Determination of Prudence and a Certificate of Public Convenience and Necessity submitted in the above referenced cases on July 7, 2011.

The original and seven (7) copies of this letter of transmittal and Direct Testimonies have been provided to the Commission.

Please acknowledge receipt by stamping or initialing the duplicate copy of this letter attached hereto and returning the same in the enclosed self-addressed, stamped envelope.

Sincerely,

Tamie A. Aberle
Regulatory Affairs Manager

Cc: Dan Kuntz
Attachment

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Direct testimonies - Andrea Stomberg, Alan Welte, Darcy Neigum, and Robert Morman
Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc.
Tamie Aberle

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Direct testimonies - Andrea Stomberg, Alan Welte, Darcy Neigum, and Robert Morman
Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc.
Tamie Aberle

Direct Testimony

of

Andrea L. Stomberg

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the Public Service Commission of North Dakota

Case Nos. PU-11-395 & PU-11-396

Direct Testimony
of
Andrea L. Stomberg

Q. Would you please state your name and business address?

A. Yes. My name is Andrea L. Stomberg, and my business address is 400 North Fourth Street, Bismarck, North Dakota 58501.

Q. What is your position with Montana-Dakota Utilities Co.?

A. I am the Vice President of Electric Supply for Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc.

Q. What are your responsibilities as the Vice President of Electric Supply?

A. My responsibilities include power production and transmission, system operations and planning, environmental, compliance and electric dispatch.

Q. Would you please outline your educational and professional background?

A. I graduated from the University of Washington with a bachelor's degree in Geology, from Oregon State University with a Master of Science degree in Soils, and from the University of Mary, Bismarck, with a masters in business management. I worked for the North American Coal

Corporation for ten years in surface mine permitting, reclamation planning and oversight. I worked for Montana-Dakota for about 15 years in the environmental field prior to my current position.

Q. **Have you testified in other proceedings before regulatory bodies?**

A. Yes, I have testified before this Commission and I have filed written testimony with the Minnesota and South Dakota Public Utilities Commissions.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to introduce Montana-Dakota's proposal to construct an 88 MW simple cycle combustion turbine (Project) near the R.M. Heskett Station in Mandan, North Dakota and provide support for the Company's request for a determination that public convenience and necessity will be served by the construction and operation of the Project, that Montana-Dakota is fit, willing and able to provide such service and that the Project is a prudent and reasonable resource for Montana-Dakota's North Dakota electric customers. I will also introduce other Company witnesses who will explain the project in more detail.

Q. What is the Project that Montana-Dakota is proposing?

A. As will be described in more detail by Mr. Alan Welte, Generation Manager for Montana-Dakota, the Project includes a simple cycle combustion turbine which will be used primarily as a capacity and peaking power resource. The Project will also include the facilities necessary to

interconnect the generator to the transmission system, and a 10-inch natural gas pipeline to provide fuel for the turbine. Mr. Welte will discuss the site selection as well as how Montana-Dakota determined the type of combustion turbine to construct.

Q. Would you please explain the need for the Project?

A. Mr. Darcy Neigum, System Operations and Planning Manager for the Company will provide a thorough discussion of Montana-Dakota's need for the electric generation capacity, as well as the information presented in the 2011 Integrated Resource Plan submitted to the Commission on May 12, 2011 that provides the analysis that led to the selection of the 88 MW combustion turbine as a prudent solution to meeting the generation capacity requirements of its electric customers. Mr. Neigum will also discuss the various sensitivity analyses conducted to ensure the Project is a cost effective resource addition.

During 2010, Montana-Dakota relied on the Midwest Independent System Operator, Inc. (MISO) energy market for 15 percent of the retail customers' energy requirements, and purchased approximately 20 percent of the retail customers' capacity resources from other entities. Two significant events contributed to the capacity purchases and the forecasted 150 MW deficit in meeting the capacity needs of customers: the 2006 expiration of a 66 MW contract for capacity and energy with Basin Electric Power Cooperative, and the abandonment of the Big Stone II project which would have provided 116 MW of capacity and energy.

Additionally, Montana-Dakota's load continues to grow, particularly in the northwest part of North Dakota, in response to the oil development in that area.

Montana-Dakota asserts this level of reliance on the market and others to provide generation capacity to customers results in long term price and reliability risks to customers. Montana-Dakota seeks to mitigate these risks by building a portion of the needed capacity. Montana-Dakota plans to issue a request for proposals in 2012 to evaluate the ability of the market to provide the remainder of the generation capacity requirements.

Q. Did Montana-Dakota consider a baseload coal resource as a viable means of meeting the total projected capacity deficit of 150 MW?

A. Yes, as more fully discussed by Mr. Neigum, a coal-fired resource was modeled in the IRP. However, there are a number of reasons why building a baseload coal resource to meet our capacity and energy needs is problematic at this time. Those reasons include: Montana-Dakota's need for resources is about 150 MW and even encompassing reasonable growth assumptions, the construction of a coal plant of this small size is currently not cost effective. The Big Stone II plant, a nominal 600 MW plant was estimated to cost around $3,000/kw. Prior to Montana-Dakota's involvement with Big Stone II, the Company was considering constructing a coal fired plant at Gascoyne North Dakota. Several different sizes were evaluated, but the smallest, a 175 MW plant, was estimated to cost approximately 30 percent more than Big Stone II, because it lacked the

economies of scale that could be captured with a larger plant.

Q. Have you considered the risk of gas price volatility?

A. Yes. The combustion turbine was modeled with both increases and decreases in gas pricing, and in each case was shown to be a least-cost resource. Montana-Dakota will be seeking long-term gas supply contracts to minimize price volatility and mitigate supply concerns, and believes that natural gas resources are now much more robust than even a few years ago. This will be discussed in more detail by Mr. Bob Morman, Gas Supply Manager in his testimony.

Q. Is Montana-Dakota fit, willing and able to construct, operate and maintain the Project?

A. Yes. Montana-Dakota has built and currently operates and maintains similar, albeit somewhat smaller, combustion turbines at other locations on its integrated system.

Q. Would you please summarize your request before the Commission?

A. Yes. For the reasons provided in Montana-Dakota's Application submitted on July 7, 2011 and the testimony provided by Company witnesses, the Company requests the Commission issue a Certificate of Public Convenience and Necessity to construct the 88 MW gas turbine and associated facilities and make a determination that the resource addition is prudent and reasonable.

Q. Does this complete your testimony?

A. Yes, it does.

Direct Testimony

of

Alan L. Welte

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the Public Service Commission of North Dakota

Case Nos. PU-11-395 and PU-11-396

Direct Testimony
of
Alan L. Welte

Q. Please state your name and business address.

A. My name is Alan L. Welte and my business address is 400 North Fourth Street, Bismarck, North Dakota 58501.

Q. By whom are you employed and in what capacity?

A. I am the Generation Manager in the power production department of Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc.

Q. Please describe your duties and responsibilities with Montana-Dakota.

A. I have manager responsibility for the day-to-day operations of Montana-Dakota's electric generation facilities, represent Montana-Dakota's interests in joint owned generation facilities operated by other companies, and I am also responsible for new generation development.

Q. Please outline your educational and professional background.

A. I hold a Bachelor's Degree in Mechanical Engineering from North Dakota State University. My work experience includes eight years of experience as a plant engineer, twelve years of experience as a plant

manager, and seven years of generation development and operational responsibilities in my current position which includes coal-fired, gas-fired, and renewable generation.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to describe the 88 MW combustion turbine project (Project) identified as part of the Montana-Dakota's least cost generation expansion plan and the analysis performed to determine the equipment type, location, and Project cost estimate.

Q. Please describe Montana-Dakota's 88 MW combustion turbine Project?

A. The Project includes a natural gas-fired, 88 MW, Simple Cycle Combustion Turbine (SCCT) and the facilities to interconnect with Montana-Dakota's existing electric system. The Project is proposed to be located near Mandan, North Dakota adjacent to Montana-Dakota's R.M. Heskett Station. The Project also includes a 10-inch natural gas pipeline, approximately 24 miles in length, interconnecting with the Northern Border Pipeline Company (Northern Border) near St. Anthony, North Dakota to supply the natural gas requirements for the SCCT.

Q. What is a Simple Cycle Combustion Turbine?

A. Simple Cycle Combustion Turbines are generally built to start up quickly to serve peak capacity needs. They usually supply a limited amount of energy because they are fueled by natural gas which results in a higher fuel cost than with coal base load generation facilities. In the

SCCT, air is drawn in at the front of the unit and is compressed using rows of rotating blades. The compressed air is then sent to a combustion chamber where it is mixed with fuel and the mixture is ignited. The hot combustion gas is then expanded through rotating turbine blades delivering power through a shaft connected to the generator where electricity is produced.

Q. What type of combustion turbine is proposed for Montana-Dakota's Project?

A. The two primary SCCT types were analyzed. The heavy-duty (Frame) type designed to drive stationary generation resources, and the aero-derivative (Aero) type derived from engines used in the aircraft industry. The results indicated that the lower capital cost, lower operation and maintenance cost, better emissions control, ability to perform on-site maintenance, lower natural gas inlet pressure requirement, less susceptibility to cold weather operational issues, and Montana-Dakota's operating experience associated with the Frame SCCT outweighs the lower fuel cost and shorter on-site construction time offered by the Aero SCCT.

Q. What locations were considered for the construction of the SCCT?

A. Locations near Baker, Montana; Mobridge, South Dakota; Bismarck/Mandan, Linton, Richardton, Tioga, and Williston, North Dakota were originally screened with the Richardton, Linton, and Mandan, North Dakota sites selected for final consideration.

Q. What criteria were used to evaluate the Richardton, Linton, and Mandan, North Dakota sites?

A. The primary criteria used to evaluate the sites were natural gas supply, electric transmission interconnection, and water supply. Environmental permitting and other factors such as synergies and cost reductions that could be achieved by locating the SCCT near an existing Montana-Dakota generating facility were also considered. Unit capital cost and capacity estimates were developed for each site.

Q. What were the results of the site evaluation study?

A. The Mandan site has the lowest estimated capital cost, the highest projected capacity, and lowest potential operating costs if integrated with the Heskett Station. Higher natural gas pipeline costs for the Mandan site are offset by reduced electric transmission interconnection and upgrade costs, and the ability to share the existing Heskett Station water intake.

The capital cost estimate of $71.59 million for the Mandan site was lower than the $73.47 million cost for the Richardton site and $74.61 million for the Linton site. A lower elevation at the Mandan site yields a projected capacity of 88,054 kW, which is higher than the 87,388 kW capacity projected for the Linton site and the 86,279 kW capacity projected for the Richardton site. A lower site elevation translates to an increase in the amount of air that can be combusted with the fuel in the SCCT and an increase in the capacity. The base load cost estimate of $813 per kW for the Mandan site was lower than the $851 per kW cost for

the Richardton site and $854 per kW cost for the Linton site.

Detailed operation and maintenance cost estimates were not developed as part of the preliminary engineering, but the sharing of facilities, equipment, supervision, and labor with the R.M. Heskett Station is anticipated to result in cost reductions at the Mandan site in comparison to the other sites.

Q. What costs were used in the generation expansion modeling?

A. Adjustments were made to the Mandan capital cost estimate to address potential environmental permitting complexities. A conservative case capital cost of $75.42 million or $857 per kW was used in the generation expansion modeling reflecting a contingency for these additional costs. Even with these adjustments, the Mandan total was still comparable to the Richardton and Linton site costs. The preliminary capital cost and other factors were developed from site visits, manufacturer's budgetary pricing, consulting engineers, Montana-Dakota's experience and expertise, and other available sources.

Q. Please provide a breakdown of the capital costs for the combustion turbine, transmission interconnection, and natural gas pipeline portions of the project that were provided in the advance determination of prudence application (ADP).

A. A capital cost estimate before adding allowance for funds used during construction (AFUDC) is $75.0 million. Of the total, the SCCT cost is estimated at $54.4 million, the transmission interconnection cost is

estimated at $2.2 million, and the natural gas pipeline is estimated at $18.4 million. This results in a total project cost, including $10.6 million of AFUDC, of $85.6 million.

Q. Would you please explain the difference between the total costs utilized for the generation expansion modeling and in the costs identified in the ADP?

A. The difference of $10.2 million is the result of refining the cost estimate from the time the IRP was developed until the ADP application was submitted. The increase is primarily due to adding AFUDC and due to adjustments related to the natural gas pipeline size and a contingency for environmental controls equipment. The difference however, is within the High Combustion Turbine Cost sensitivity model scenario cost and therefore, does not change the result of the modeling analysis and the recommended least-cost plan for future resources.

Q. What is the anticipated schedule for commercial operation of the SCCT?

A. The SCCT Project is anticipated to be available for commercial operation on March 1, 2015. To achieve this date, a number of studies, permits and agreements will need to be completed during 2012 and early 2013. These include the air permit, siting permit, as well as the MISO Definitive Planning Study, MISO Facilities Study, and the MISO Generator Interconnect Agreement execution. Construction of the SCCT project is anticipated to start at the beginning of the second quarter 2013. This

schedule will allow the SCCT to receive MISO planning reserve credits for the summer of 2015.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Direct Testimony

of

Darcy J. Neigum

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the Public Service Commission of North Dakota

Case Nos. PU-11-395 and PU-11-396

Direct Testimony
of
Darcy J. Neigum

Q. Please state your name and business address.

A. My name is Darcy J. Neigum and my business address is 400 North Fourth Street, Bismarck, North Dakota 58501.

Q. By whom are you employed and in what capacity?

A. I am the System Operations and Planning Manager of Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc.

Q. Please describe your duties and responsibilities with Montana-Dakota.

A. I have manager responsibility for the day-to-day operations of the Company's electric control center and system operations planning department. The system operations planning department is responsible for performing the Company's electric resource planning and expansion studies.

Q. Please outline your educational and professional background.

A. I hold a Bachelor's Degree in Electrical and Electronics Engineering from North Dakota State University as well as a Masters of

Business Administration from the University of Mary. My work experience includes four years as a nuclear plant engineer, three years of experience as a plant engineer at a coal-fired power plant in North Dakota, and thirteen years of generation development and operational responsibilities which include coal-fired, gas-fired, and renewable generation.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to describe the analysis process used to identify the 88 MW combustion turbine project as part of the Company's least cost generation expansion plan and to describe how the unit will be used to service the needs of Montana-Dakota's customers.

Q. Please describe Montana-Dakota's customer needs for future capacity and energy resources?

A. Montana-Dakota is a net buyer of capacity and energy from others to meet customer demand and energy requirements. In 2010, 15 percent of the energy to serve customer requirements came from the MISO energy market and 20 percent of the capacity to service customer requirements came from third party purchases.

As indicated in Table 4-1 of the Main Report in Montana-Dakota's 2011 Integrated Resource Plan (2011 IRP), when Montana-Dakota's current capacity purchase agreement expires in 2015, Montana-Dakota is forecasted to be deficit 149.5 MW of capacity to meet customer demand requirements. This capacity deficit is forecasted to continue to grow until a new third party contract purchase agreement is secured or a new capacity

resource is constructed. The 149.5 MW represents 25 percent of the capacity requirements that Montana-Dakota will need to serve peak customer demand.

Q. What was the purpose of the modeling runs included in Montana-Dakota's 2011 IRP?

A. The Electric Generation Expansion Analysis System (EGEAS) modeling runs were used to determine the least cost expansion plan available to Montana-Dakota to meet future customer demand and energy requirements under various scenarios.

The EGEAS modeling runs in the 2011 IRP included Montana-Dakota's existing generation resources, current purchased capacity and energy agreements, and current demand and energy forecast data. The only unit retirement in the study timeframe was the Williston Combustion turbines which are to be retired by the end of 2011.

Future supply resource options in the EGEAS model included results from a 2010 Request for Proposals (2010 RFP); self-built generating resources including coal, gas, and wind; new demand side-management programs; and a Big Stone resource which included the costs of the plant's required air quality control system (AQCS) upgrade equipment.

Q. What was the scope of Montana-Dakota's 2010 RFP?

A. The 2010 RFP was issued on June 1, 2010 and requested proposals for all capacity and energy resources totaling 25 MW to 225

MW for a period of at least five years, with five year extension options available, beginning June 1, 2015. The 2010 RFP considered all potential resources including new and existing thermal generation, renewable generation, and demand-side management programs.

Q. What was the response the Company received to the 2010 RFP?

A. Montana-Dakota received responses from eight separate entities regarding the 2010 RFP. Three of the proposals were for wind generation projects. One of the proposals was for a wind and wind plus nuclear combination. Two of the proposals were for simple cycle and combined cycle gas turbines. One proposal was from a regional utility offering wholesale tariff rates. And one proposal was for a commercial and industrial demand response program to be offered to Montana-Dakota's customers.

Q. Did Montana-Dakota receive any feedback from neighboring utilities or historical capacity suppliers regarding the 2010 RFP?

A. One of the entities who has supplied capacity to Montana-Dakota in the past did provide a notice of intent to bid but did not submit a proposal over concerns of future environmental regulation and the uncertainty of availability and need for excess capacity resources in the future.

Another entity which has supplied capacity to Montana-Dakota was only able to offer wholesale tariff rates whereas a year earlier they were able to offer a firm price for a peaking capacity type resource. Uncertainty

of regulation and future resource availability was a major concern over the type of resource offer provided.

Q. What were the results of the analysis of the 2010 RFP?

A. Using the EGEAS model, three proposals from the 2010 RFP were identified as potential resources for Montana-Dakota's least cost resource expansion plan.

Of the identified proposals, one was a new combustion turbine project to be located in Illinois. This proposal was not considered viable as it contained a 20 year term and the resource would be located three states away from Montana-Dakota's service territory. In MISO's recently filed capacity auction and resource adequacy construct, this resource would be located two capacity zones away from Montana-Dakota service territory and the capacity credits may have delivery issues and additional costs in order to meet Montana-Dakota's customer demand requirements.

Another proposal was from a new 150 MW wind project to be located in North Dakota which had potentially large unaccounted network upgrade costs required to interconnect to Montana-Dakota's transmission system. Receipt of energy at the offered price was not considered a viable opportunity.

The third proposal was for a 25 MW demand response program for Montana-Dakota's commercial and industrial customers. An agreement for implementation of a demand response program was entered into with

Constellation New Energy on September 29, 2011 as a result of the proposal.

Q. What resource alternatives did Montana-Dakota include in its supply side analysis contained in the 2011 IRP?

A. Montana-Dakota's supply side resources in the 2011 IRP included the following self-built and third-party resources:

Self-built resources

- 43 MW simple cycle combustion turbine;
- 88 MW simple cycle combustion turbine;
- 140 MW combined cycle combustion turbine;
- 30 MW blocks of coal-fired generation;
- 30 MW blocks of wind generation (with and without federal production tax credits); and
- Big Stone AQCS project.

Third-party resources

- 10 MW blocks of purchased capacity through 2014;
- 25 MW blocks of purchased wind generation proposal;
- 25 MW Demand Response program proposal;
- 155 MW simple cycle combustion turbine proposal; and
- 345 MW combined cycle combustion turbine proposal.

Q. Why were these supply-side resources included in the modeling for the 2011 IRP?

A. These resources were selected as a representative selection of self-built resources likely available to the Company and third-party resources that were offered to the Company through the 2010 RFP.

Q. What were the results of the modeling studies that Montana-Dakota conducted as part of the 2011 IRP?

A. Based on the base case modeling assumptions, the least-cost plan of future resources requirements to serve Montana-Dakota's customer requirements for the 2011 – 2015 period included:

- Purchase of 10 MW of capacity in 2013 and 20 MW of capacity in 2014;
- Installation of two 88 MW combustion turbines in 2015;
- Contract for a 25 MW commercial demand response;
- Installation of the Big Stone AQCS project in 2015; and
- Implementation or continuance of demand side management programs contained in Chapter 3 of the 2011 IRP.

Q. What sensitivity studies did Montana-Dakota conduct as part of the 2011 IRP modeling activities?

A. Montana-Dakota conducted ten sensitivity studies as part of the modeling for the 2011 IRP which included:

- Base with new demand side management programs;
- Low natural gas (minus $1 per Dkt from the base case);
- High natural gas (plus $3 per Dkt from the base case);
- $30 per ton carbon tax on all thermal generation;

- $50 per ton carbon tax on all thermal generation;
- High environmental case ($30 carbon tax, plus $3 per Dkt increase in natural gas cost, $1.25 per MW adder to coal generation for mercury, and $3.00 per MW adder to coal generation for coal ash disposal);
- High capital cost for combustion turbines;
- High capital cost for Big Stone AQCS;
- Low customer growth; and
- High customer growth.

Q. How did the various sensitivities affect the least cost plan available to the Company?

A. While the total net present value of costs of the generation portfolio changed with each scenario, the addition of the 88 MW combustion turbine, the Big Stone AQCS project, and the new commercial and industrial demand response program were selected as part of the least cost resource mix in each of the scenarios studied.

Q. How will the new 88 MW combustion turbine be used to serve customer needs?

A. The 88 MW combustion turbine will be used to serve customer peak demand requirements and reduce the dependency on third party capacity purchases as well as supplying energy when the marginal cost of the 88 MW combustion turbine is less than the next marginal cost unit

available to the market. The 88 MW combustion turbine is forecasted to have a 10 to 20 percent capacity factor in 2015.

Q. Why doesn't Montana-Dakota rely entirely on the market to supply future capacity and energy resources?

A. Market prices fluctuate up and down but over time the general trend is that market prices increase with inflation and changes to the cost of supply and demand. In 2015, without the addition of the 88 MW combustion turbine, Montana-Dakota would be purchasing 25 percent of its capacity resources from others to serve customer peak demand requirements.

The value of capacity resources is tied to an actual resource cost, which includes specific net book and fixed operations and maintenance costs. For markets, the value of capacity is tied to competition in supply resources and the cost of new entry (CONE) resources. MISO annually calculates the value of CONE, which is a revenue requirement of a new simple cycle combustion turbine, and establishes a penalty to those entities who are short capacity resource requirements based on the current value of CONE. As the amount of excess capacity in the current market decreases, either through load growth or unit retirements, the market value of capacity will approach the value of CONE. The cost of new entry resources or CONE increases over time with inflation and the cost of material increases due to demand and scarcity. Long-term price stability is maintained either through self- construction of new resources or

entry into long-term capacity agreements with specific resources owned by others.

Market purchases may be appealing in the short-term but over time they will correct themselves due to changes in supply and demand. Montana-Dakota has not added a large capacity resource to its generation portfolio since the Glendive Unit II combustion turbine was built in 2003. A power purchase agreement with Basin Electric Power Cooperative for 66 MW of baseload capacity from the Antelope Valley Station Unit II expired in November 2006, which left Montana-Dakota dependent on capacity purchase agreements and market energy prices. Montana-Dakota was unable to acquire additional coal-fired baseload resources when the Big Stone II project was abandoned. Continued reliance on market purchases subjects customers to unknown future prices of capacity and energy. At the expiration of purchased power agreements, there are no remaining assets for continued customer benefit and customers are subjected to the cost impacts of replacement agreements with future market resources.

A long term goal should be to have no more than 10 percent of capacity and energy requirements exposed to markets. This allows some benefits to customers when prices are low and limits the volatility customers experience when prices are high.

Q. What is the recommendation derived from the results of the 2011 IRP?

A. Based on the analysis of the resource expansion models and the consideration of customer impacts, market availability of capacity and energy, and other factors such as environmental regulations; Montana-Dakota's recommended resource plan is to pursue the following resources to meet its customers requirements for the 2011-2015 time period:

- Purchase 10 MW of capacity in 2013 and 20 MW in 2014 through the MISO capacity auction or bilateral agreements;
- Contract for the 25 MW demand response program offered by Constellation New Energy with 5 MW of dispatchable commercial or industrial demand response the summer of 2012; a total of 15 MW the summer of 2013; and the full 25 MW the summer of 2014;
- Implement the portfolio of demand side management programs identified in chapter 3 Table 3-3 of the 2011 IRP that are expected to provide an additional peak demand reduction of 24.5 MW and an annual energy savings of 7.3 MWh equivalent by 2015;
- Install the AQCS equipment required to continue operating the Big Stone Plant beyond 2015; and
- Construct one 88 MW simple-cycle combustion turbine to be operational by March 1, 2015.

The recommended resource plan is considered to be the best plan to economically and reliably meet customers' requirements. Montana-

Dakota also plans to issue a new request for proposal for capacity and energy resources in 2012 to start the next planning process.

Q. Does this conclude your direct testimony?

A. Yes, it does.

Direct Testimony

of

Robert C. Morman

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

Before the Public Service Commission of North Dakota

Case Nos. PU-11-395 and PU-11-396

Direct Testimony
of
Robert C. Morman

Q. Please state your name and business address.

A. My name is Robert C. Morman and my business address is 400 North Fourth Street, Bismarck, North Dakota 58501.

Q. By whom are you employed and in what capacity?

A. I am the Gas Supply Manager for Montana-Dakota Utilities Co. (Montana-Dakota), a Division of MDU Resources Group, Inc.

Q. Please describe your duties and responsibilities with Montana-Dakota.

A. As manager I am responsible for the day to day and long range planning for the purchase of natural gas and obtaining transportation and storage capacity to meet the demand of Montana-Dakota natural gas customers.

Q. Please outline your educational and professional background.

A. I hold a Bachelor's Degree in Accounting and Business Administration from the University of Mary. My work experience includes eighteen years of experience with Williston Basin Interstate Pipeline Company in areas of operations, measurement accounting and gas

control. I also have twelve years of experience with Montana Dakota Utilities in the measurement and gas supply departments. For the past seven years I have been the Manager of Gas Supply.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is explain the natural gas supply and pipeline requirements for the combustion turbine project identified as part of Montana-Dakota's least cost generation expansion plan.

Q. Please describe the natural gas requirements of Montana-Dakota's combustion turbine project?

A. The combustion turbine that was selected will require up to 25,000 decatherm (dk) per day of natural gas delivered to the project site at a pressure of 500 pounds per square inch (psig). This amount of gas and economic efficiencies for needed delivery pressure for the required supply can only be supplied by large capacity, high pressure pipelines.

Q. Please describe what types of service are available to provide the supply of natural gas and what service Montana-Dakota chose.

A. Generally speaking there are two type of service available to provide natural gas to the combustion turbine. These services are firm and interruptible. Firm service means the supply of natural gas will be available anytime the supply of gas is needed and the only time natural gas may not be available is when there are operational problems on the pipeline. Interruptible service is exactly that; the service may be interrupted and may not be available when the turbine is required to run.

As the combustion turbine is part of the electric supply to meet Montana-Dakota's peak demand, firm service is required.

Q. How will the natural gas be delivered to the combustion turbine?

A. Because of the high pressure required to meet natural gas demand for the combustion turbine, the gas will be delivered through a high pressure steel pipeline versus a lower pressure system, for which a compressor station would be also required. Montana-Dakota requested pipeline proposals from the two interstate pipelines in the area of the combustion turbine which are Williston Basin Interstate Pipeline (Williston Basin) and Northern Border Pipeline (Northern Border). Montana-Dakota also considered the option of constructing and owning a pipeline to provide service to the combustion turbine.

Q. What was the outcome of your analysis?

A. While proposals were received from both Williston Basin and Northern Border, Montana-Dakota's choice is to construct and own the pipeline that connects with Northern Border. Northern Border is a large diameter, high pressure pipeline with services and marketers that are familiar with providing natural gas to electric peaking facilities similar to the proposed combustion turbine. Williston Basin's existing system is not capable of delivering the supply quantities and associated pressure without substantial system upgrades at significantly higher costs than the construction of a line from Northern Border. In fact, Williston Basin did provide a proposal to construct a line from Northern Border which was

combustion turbine is part of the electric supply to meet Montana-Dakota's peak demand, firm service is required.

Q. How will the natural gas be delivered to the combustion turbine?

A. Because of the high pressure required to meet natural gas demand for the combustion turbine, the gas will be delivered through a high pressure steel pipeline versus a lower pressure system, for which a compressor station would be also required. Montana-Dakota requested pipeline proposals from the two interstate pipelines in the area of the combustion turbine which are Williston Basin Interstate Pipeline (Williston Basin) and Northern Border Pipeline (Northern Border). Montana-Dakota also considered the option of constructing and owning a pipeline to provide service to the combustion turbine.

Q. What was the outcome of your analysis?

A. While proposals were received from both Williston Basin and Northern Border, Montana-Dakota's choice is to construct and own the pipeline that connects with Northern Border. Northern Border is a large diameter, high pressure pipeline with services and marketers that are familiar with providing natural gas to electric peaking facilities similar to the proposed combustion turbine. Williston Basin's existing system is not capable of delivering the supply quantities and associated pressure without substantial system upgrades at significantly higher costs than the construction of a line from Northern Border. In fact, Williston Basin did provide a proposal to construct a line from Northern Border which was

similar in cost to Montana-Dakota's self build project option however, service and cost guarantees could only be made for a maximum of a seven year period and thereafter Montana-Dakota would be subject to potentially maximum pipeline rates and/or a deterioration of the quality of service that could be provided.

Q. Would you please describe the scope and cost of the pipeline proposed for the combustion turbine?

A. To provide the natural gas required Montana-Dakota will construct a pipeline 24 miles in length that runs from Northern Border near St. Anthony, ND to the Heskett site near Mandan, ND. The cost of the pipeline will be approximately $18.4 million and deliver gas at the required minimum pressure of 500 psig. The proposals from Northern Border and Williston Basin essentially mirrored the self build project evaluated by Montana-Dakota without the benefit of long term rate and service guarantees.

Q. How will Montana-Dakota purchase the gas to be delivered to the turbine?

A. Montana-Dakota requested gas pricing proposals from numerous marketers that have contracted capacity on Northern Border. Four responses were received and the cost of providing natural gas service by the respondents was substantially less than Montana-Dakota obtaining firm transportation capacity on Northern Border. The quotes that were

received were from reputable marketers that Montana-Dakota is currently or has done business with in the past.

Q. Why is Montana-Dakota proposing to purchase the required natural gas supplies for the turbine from a marketer on Northern Border?

A. By purchasing gas from a marketer Montana-Dakota does not have to contract for firm transportation service on Northern Border. The marketer has contracted for capacity on Northern Border and will provide the required firm service to Montana-Dakota for a reservation fee that will entitle Montana-Dakota to have "on-call" access to the gas on short-term notice that is required for the electric peaking service of the Combustion Turbine. The estimated reservation cost is between $375,000 and $400,000 annually as compared to an annual cost in excess of $2.0 million dollars if Montana-Dakota were to separately contract for firm transportation capacity on Northern Border. This recognizes the ability of the marketer to manage the required supply and service in conjunction with an overall portfolio, thus enabling the marketer to offer a more economically attractive alternative. The services offered by the marketer include imbalance management with plant usage swings, nomination, confirmation and accounting functions. Finally, there currently is no incremental firm transportation service available on Northern Border.

Q. Given your experience in the natural gas supply business is it your recommendation that new electric generation needs consider natural gas as a supply source?

A. Yes. With the advancement in drilling technologies over the past five to ten years the U.S. has discovered oil and natural gas shale plays that only a short time ago were thought to be uneconomical to produce. Not only are they economical to produce but the amount of gas and oil being discovered is substantial. Estimates of potential reserves have been reported to be in excess of 50 years of supply at the current usage. These large volumes of reserves should provide price stability for years to come. In addition, natural gas is cleaner burning and more environmentally friendly than alternative supply sources for electric generation.

Q. Are the commodity price projections that were used in the model representative of today's current market and projected prices?

A. The commodity price used in the base scenario was at $5.05 per dk for the, at that time, current price of natural gas. Since that time the commodity price of natural gas has decreased and the Energy Information Administration, Bentek Energy and NYMEX futures project the Henry Hub price for calendar year 2012 will be in the range of $4.25 to $4.50 per dk.

Q. Does this conclude your direct testimony?

A. Yes, it does.