

Request for Proposals

Williston Basin Oil and Gas Related Electric Load Growth Forecast

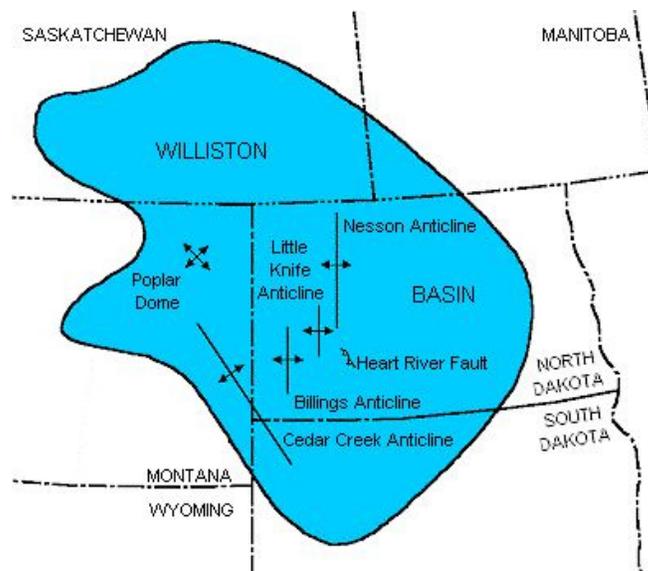
I. Purpose

The North Dakota Transmission Authority seeks to update a prior electric load growth study to determine electric generation and transmission infrastructure needs in light of the growth of oil and gas development in portions of the Williston Basin.¹ The study will be used by the state, as well as utilities and cooperatives providing electricity and transmission services in the Williston Basin to plan for future infrastructure development in western North Dakota.

II. General Information

Electric utilities serving within the Williston Basin have experienced tremendous load growth in recent years. To prepare to meet this demand, it is important to forecast how much new electrical load is expected from the oil and gas activity along with the load from ancillary services that accompany this economic activity such as housing, consumer service businesses, retail, oil and gas service companies, etc. Growth in Williston Basin communities is impacting Montana-Dakota Utilities Co. (MDU) and rural electric cooperatives located in North Dakota, Montana, and South Dakota. The scope of this study will focus on the electric utilities' service areas, encompassing all of the Williston Basin within the United States, as shown in Exhibit 1.

Exhibit 1: Williston Basin Service Area



Source: North Dakota Oil and Gas Division

¹ See, Appendix A - 2007 *Williston Basin Oil Development Power Load Forecast Study* conducted by Pace Global Energy Services.

The Bakken/Three Forks formation has changed the face of oil and gas production in the Upper Midwest. In addition it is anticipated that the Tyler and Spearfish formations have the potential to become additional production areas. In light of the impact of this development on electric demand and on transmission capacity, the State of North Dakota and its industry partners agreed to seek an independent third-party analysis of the factors that will impact future area development and electricity requirements. During the course of this study, the successful consultant will work closely with the director of the North Dakota Transmission Authority (NDTA), as well as Basin Electric Power Cooperative (Basin Electric), and MDU, referred to collectively as the study "Partners."

III. Scope of Work

A. General Requirements:

The consultant shall determine the best possible means to assay the electrical needs of the oil and gas industry along with the ancillary service needs for a twenty-year timeframe. The consultant shall:

- Assist the Partners as a knowledgeable but independent interpreter of the information regarding development plans and activities of major oil and gas producers and developers in the Williston Basin available at the time of the study.
- Critically evaluate development plans within the context of the Williston Basin's economics and risks, and in the context of alternative investment options available to these producers.
- Develop a range of oil and gas development and production forecasts within the Williston Basin. The forecasts shall be on a consistent technical and economic framework, over a limited and explicit set of independent assumptions of success rates, production rates and prevailing oil and gas prices. The forecast analysis shall provide the basis for annual forecasts of electric demand for a 20-year period required to support development within the approximate boundaries of the regions and counties identified in Exhibit 2 (See, Page 5 below).
- Develop a methodology for critically reviewing power supply requests and forecasts, placing the information in the context of the total potential load and aggregating the results (along with any additional loads) by geographic location using consistent economic assumptions. This methodology will be presented to the Partners for approval when it is developed.

B. Load Forecast Model and Inputs:

The consultant shall perform an assessment of Williston Basin oil and gas activity and develop an econometric model for the development of the oil plays within the service area. The independent input assumptions to this model shall include, but not be limited to, the following:

1. **Required Infrastructure**. The consultant shall evaluate the demand and energy needs of current and expected temporary and permanent housing, small industrial and commercial businesses required to service

the oil and gas activity, and retail and lodging impacts. Consultant shall develop a correlation between well count and required infrastructure.

2. Drilling Activity. The consultant shall evaluate, assess and forecast the number of new oil wells to be drilled and completed in all of the formations in the Williston Basin for the twenty year period. The consultant shall determine the completion date and energy requirements of new wells in the Bakken/Three Forks, Tyler, and Spearfish formations. The consultant shall also determine well spacing and energy requirements per drill site to fully develop the oil play.

3. Power Requirements. The consultant shall develop qualitative oil and gas production curves and identify the pumping loads for a generic well in each of the identified formations. In addition, they will determine the total oil and gas production for the entire service area, including the number of salt water disposal injection wells needed to fully develop the oil and gas play and the associated power needs over the lifecycle.

4. Well Life-Cycle. The consultant shall identify the characteristic life-cycle operating well profile for each formation and recovery technique (primary, secondary, tertiary), as well as the amount of energy and demand required for each stage of the life-cycle, the number of wells (as a percentage) that are currently using secondary and tertiary recovery methods, and the length of time such methods can be used.

5. Oil Price Forecasts. The consultant shall provide an independent high, medium and low regional oil price forecast for the 20-year forecast period, along with a break even oil price range by formation for continued development.

6. Pipeline and Refinery Capacity. The consultant shall determine the ability for the existing infrastructure to adequately move oil and gas to regional refineries and processing centers and other export market hubs, including obtaining information on new projects and identifying their potential power load requirements.

7. Environmental. The consultant shall identify major environmental concerns or threats to the future of oil and gas development in the Williston Basin.

8. Miscellaneous. The consultant shall identify other potential oil development issues that could affect future power load.

9. **Opinions.** The consultant shall include opinions regarding:
- The future of hydraulic fracturing, water availability, air quality impacts, flaring restrictions, and salt water disposal well needs as it could impact oil development; and
 - Limiting factors, including availability of drilling rigs, equipment, materials, labor, housing and service companies.

C. Scenario Development and Forecast Model Input Assumptions:

1. **Total Load.** The consultant shall develop three scenarios; low, most likely (base), and high case annual load forecast projections using all relevant information and inputs to determine total oil and gas development-related electrical load forecasts (energy and demand) by year without transmission and distribution losses for twenty years. The first ten years shall reflect the implementation and a limited extension of the current development plans of Williston Basin operators and a projection of oil and gas production from existing wells, including the impact of any planned secondary and tertiary enhanced oil recovery. The second ten years shall extrapolate this ten-year outlook in a more qualitative manner. The service area forecast shall consider and include all electrical power requirements, regardless of supplier of such loads. The consultant shall state an opinion on the probability of the load magnitude.
2. **Timing and Forecast of New Power Supplies.** The timing for Partners to deliver power to specific regions is critical and must be considered in relation to the timing of the demand for such power in these regions. The Consultant shall determine the ultimate electric load under the assumption there is no constraints of the distribution system and bulk transmission system to deliver power. In addition, the Consultant shall also consider and evaluate future distribution line build outs as well as transmission line plans in determining future loads. The Consultant shall analyze the complete current and anticipated electrical infrastructure to determine the electric load for each of the three regions.

IV. Project Management and Deliverables

A. Project Management:

The consultant will provide project management internally and coordinate communications with the Partners.

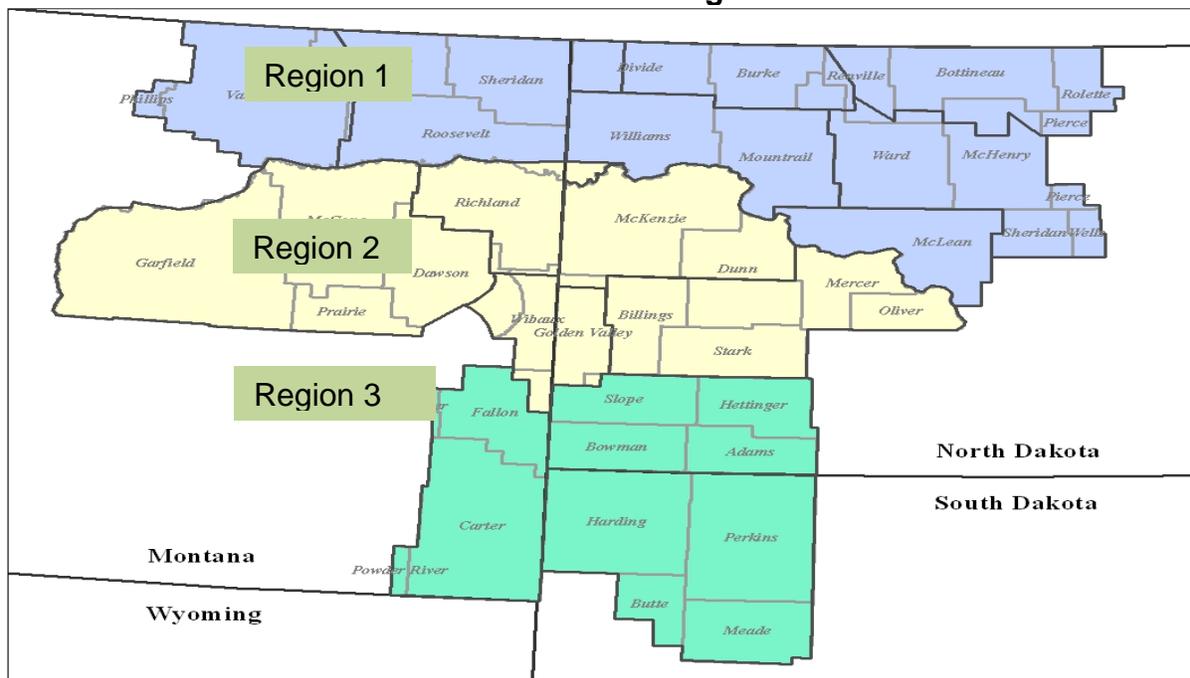
B. Deliverables:

The information sought by each of the Partners may differ. The NDTA will require the results of the study to contain a summary for the three regions identified in Exhibit 2 (See, Page 5 below). Basin Electric and MDU will require a county-by-county summary of the collected data.

The consultant will prepare reports, along with PowerPoint presentations, documenting the assumptions and discussing the qualitative drivers supporting the load forecast to the Partners both at the county level and for the regional approach. The consultant must also consider that deliverables identified in this RFP may be subject to North Dakota regulations regarding open records and to the NDTA statutes related to confidential information. The Consultant will provide Partners with draft reports and PowerPoint presentations prior to the development of final documents/presentations. In addition the consultant will provide the following:

- 1. Narrative Explanation and Clarification.** A written report shall be prepared for the Partners that includes an Executive Summary detailing the procedures and assumptions used in models and spreadsheets and identifying and explaining key findings by region.

Exhibit 2: Three Regions



Source: Basin Electric Power Cooperative

2. Data Files. Preliminary and final forecasts shall be delivered to the Partners in MSExcel spreadsheet and MSWord formats. The spreadsheets shall contain documentation (with formulas and values) to follow the assumptions and procedures used in arriving at the load forecast, including full discussion of all model inputs as described in the “Load Forecast Model and Inputs” section above. The consultant shall provide the Partners with all of the preliminary modeling (including formulas and values) computations for the procedures used to develop the conclusions. The forecast files shall clearly indicate where actual data end and projections begin for all data presented.

3. PowerPoint Presentations. Once the written report is final, the consultant shall prepare a PowerPoint presentation in MSPower Point format that may be presented to management and boards of directors of the Partners. The consultant shall be prepared to discuss and defend any and all assumptions and considerations in the forecast. The consultant shall also prepare a high-level summary PowerPoint presentation to be used in presentations to public entities and other third parties such as oil and gas producers, pipeline companies, etc.

C. Timing:

1. Reports. Unless otherwise extended by the Partners, the consultant shall present the following reports in the format and detail as discussed in Section IIV.B on the following dates:

- Draft methodology – April 15, 2012
- Preliminary Reports – July 15, 2012
- Final Report – August 15, 2012

The bidder may propose an alternate schedule in their proposal.

2. Presentations.

- Presentation to the North Dakota Industrial Commission – September 2012
- Other presentations will occur during September and October 2012 as agreed upon by the parties.

In addition, the consultant may be requested to prepare and deliver presentations to selected government officials or other parties at the direction of the Partners. The costs for these presentations should be excluded from this Scope of Service/Request for Proposal.

V. Bidder Capabilities

The bidder shall:

- Provide an outline of experience pertaining to engineering, research, development and marketing related to the Scope of Work. Bidder should describe information/concepts regarding how they expect to approach each general requirement and each load forecast model and inputs criteria specified in Section III, Scope of Work.
- Demonstrate knowledge of oil and gas reservoir analysis and geology, petroleum chain logistics, horizontal well technology, hydraulic fracturing, oilfield service industries, oil and gas price economics, local and regional demographics along with an understanding of the electric power needs for upstream and downstream oil and gas systems.
- Address in the proposal the extent to which the consultant may need to gather proprietary information and how such information will be handled.
- Provide the names, professional backgrounds and specific experiences of the persons assigned as key personnel and their availability to perform work for the project, as evidenced by other projects and activities.
- Bidder should describe how they would anticipate working with the oil and gas industry to obtain meaningful and supportable data.

VI. Proposal Guidelines

The proposal must not exceed 25 pages in length, exclusive of the sections on Key Personnel and Bidder Capabilities. The bulk of the text should be on 8 1/2" x 11" sheets. Arial 12 point type font is preferred and no more than 6 lines per inch except as legends on reduced drawings.

The first page of the proposal should be a project summary page containing the following information:

- Name and address of the bidder;
- Name, title, and contact information of the key contact representing the bidder;
- A summary of the estimated total cost of the study; and
- Signature of an authorized company representative.

Three hard copies of the proposal and an electronic version in Adobe PDF or Microsoft Word format must be submitted. Bidder capabilities support documents should be provided in electronic form.

North Dakota Transmission Authority
Request For Proposal
February 2012

Proposals shall be sent to:

Sandi Tabor
Director
North Dakota Transmission Authority
P.O. Box 2277
1016 East Owens Avenue
Bismarck, ND 58502-2277
Phone: (701) 258-7117
Email: sanditabor@lignite.com

Technical questions concerning the RFP should be directed to Ms. Tabor.

VII. Proposal Review and Award Schedule

The anticipated review and award schedule for this study is:

- Proposal Due to Partners – February 24, 2012;
- Interviews (if deemed necessary by Partners) – Week of March 12th
- Recommendation of Successful Bidder – March 16, 2012
- Contract Award by North Dakota Industrial Commission – March 19, 2012

Cost will be a consideration in the evaluation of the proposal, but the major criteria for selecting a consultant for this effort will be the consultant's experience and expertise in market analysis of the subject matter. The Partners anticipate awarding one contract.