

Lignite Vision 21 Program – Phase V

**Environmental Permitting & Transmission Plan
Development
of
Lignite Vision 21 Projects**

October 1, 2006 – June 30, 2008

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“Environmental Permitting & Transmission Plan Development of Lignite Vision 21 Projects”

ABSTRACT

The Lignite Vision 21 Program (LV21P) is the culmination of unprecedented commitment and cooperation among government agencies, elected leadership and the lignite industry. It is a vision of a vibrant economy, fueled by environmentally responsible lignite power generation and transmission and lignite coal-to-liquid fuels or chemicals. The goal of the LV21P is to revitalize growth in the lignite industry to meet the energy demands of the 21st century.

This phase of the LV21P will involve the LV21P Team providing continued technical support to the LV21P participants in their endeavors to build new lignite-fueled electrical generation power plants, coal-to-liquids plants, or other lignite energy conversion facilities that will create jobs and grow the state’s lignite economy. The LV21P team’s technical support will include providing legal, marketing, generation, environmental, and transmission services to the LV21P participants, which will also be directly and indirectly of benefit to the existing lignite operations. The LEC LV21P is seeking \$851,000 from the North Dakota Industrial Commission over a period of 21-months (October 1, 2006 – June 30, 2008).

PROJECT SUMMARY

The primary objective of the LV21P is to provide technical assistance to construct one or more new lignite-fired power plants, a coal-to-liquids plant, or other lignite-fueled energy conversion facility that will result in growth of the lignite industry in North Dakota. In order to achieve the LV21P objectives and to coordinate and assist the LV21P participants, it is proposed that the LV21P team, in conjunction with the LV21P participants, continue to develop and implement legal, marketing, generation, environmental, and transmission strategies. Additionally, the LV21P team would manage the LV21P in order to monitor progress, eliminate any potential duplication among the LV21P participants, and maximize value for the State of North Dakota. Activities and tasks that will be required in Phase V are as follows:

- Project Management;
- Legal and Marketing Strategies & Activities;
- Advanced Generation Technology Strategies & Activities;
- Environmental and Technology Strategies & Activities; and
- Transmission Strategies & Activities.

Development and implementation of Phase V strategies and activities will take place over 21 months from October 1, 2006 through June 30, 2008. Total funding for this effort is estimated at \$851,000. Key personnel involved in the management of the Lignite Vision 21 Program are the LEC President and LV21P policy advisor (John Dwyer), the Technical Representative to the Industrial Commission and project manager (Jeff Burgess), and the Manager of Technology (Al Kuntz), along with consultants that have legal, marketing, generation, environmental, and transmission technical expertise.

BACKGROUND

A. State Policy

In 1991, the North Dakota Legislature enacted the lignite research, development and marketing program and declared that:

“...it is an essential governmental function and public purpose to assist with the development and wise use of North Dakota’s vast lignite resources by supporting a lignite research, development, and marketing program that promotes economic, efficient, and clean uses of lignite and products derived from lignite in order to maintain and enhance development of North Dakota lignite and its products; preserve and create jobs involved in the production and utilization of North Dakota lignite; ensure economic stability, growth, and opportunity in the lignite industry; and maintain a stable and competitive tax base for our state’s lignite industry for the general welfare of North Dakota.....” (NDCC 54-17.05-01)

In further support of the North Dakota Lignite Research, Development and Marketing Program (Program), the North Dakota Legislative Assembly appropriated \$1.5 million for the 2005 to 2007 biennium from the lignite research fund for the purpose of contracting for scopes of work that preserve existing jobs and production and also lead to increased development of lignite so that new jobs and economic growth are created. The North Dakota Industrial Commission (Commission), with policy advice and funding recommendations from the Lignite Research Council, administers this program. In providing guidelines for the use of the \$1.5 million, the Legislature stated that:

“...Moneys appropriated pursuant to this section may... be used for the purpose of contracting for nonmatching studies and activities in support of the Lignite Vision 21 Project; for nonmatching externality studies and activities in externality proceedings; or other marketing or environmental activities that assist with marketing of lignite-based electricity and lignite-based byproducts...” (Chapter 42, Section 13, 2005 ND Session Laws)

B. Industry Economic Impact, Challenges, and Opportunities

Lignite production exceeds 30 million tons annually and North Dakota ranks as one of the top twelve coal producing states. In 2006, there were approximately 4,000 North Dakotans directly employed in the lignite industry and over 20,000 indirectly employed providing goods and services. The industry

generates over \$2 billion in annual business activity, as well as, over \$80 million in annual state tax revenues.¹

The market for electricity produced by North Dakota lignite reached a plateau several years ago. After strong growth in the 70s and early 80s, no new lignite based generating unit has come on line since 1986. Additionally, the lignite market faces competitive challenges from other energy sources; environmental challenges from increasingly more stringent regulations;² and transmission constraints due to near total utilization of the North Dakota export capability on the present AC transmission system.

While there are many challenges, opportunities to market additional lignite generated electricity have also developed. The Midwest Reliability Organization, which replaced the Mid-Continent Area Power Pool (MAPP) in January 2005, is forecasting that it will be below reserve capacity obligation during 2011-2014.³ This includes an additional 2122 MW of new generation for the period 2005-2014. CapX 2020, a consortium of eight utilities, has estimated it will need 8000 MW of new generation to serve 6300 MW load forecasted through 2020. The geographical area represented by this forecasted load growth includes eastern North Dakota, eastern South Dakota, Minnesota, northern Iowa, and western Wisconsin. In order to take advantage of these energy demand opportunities, the Industrial Commission and the lignite industry have developed the Lignite Vision 21 Program, a state/industry partnership, which is designed to meet the generation, marketing, environmental, transmission, and economic challenges, and position the state and industry well into the 21st century. By developing low cost, clean energy for our region's consumers, increased jobs, business growth and tax revenue, the state of North Dakota will benefit.

C. Lignite Vision 21 Program (LV21P) Progress to Date

In its effort to carry out the legislative public policy of growing the lignite economy for the benefit of our state, the Industrial Commission on May 24, 1999, approved initial overview studies to encourage LV21P Project(s). These overview studies involved a review of extraction technologies, generation technologies, environmental issues, transmission issues, and initial marketing strategies (Phase I). In view of the favorable results from the overview studies, the Industrial Commission on March 8, 2000, approved funding for development and marketing strategies involving the identification of potential wholesale customers and equity owners; engineering and technical support for the marketing activities; and development of marketing incentives to encourage investment by potential LV21P Project applicants

¹ Leistriz, F. Larry, and Randal C. Coon, "North Dakota Lignite Energy Industry's Contribution to the State Economy for 2005 and Projected for 2006," AAE 06002. Dept. of Agribusiness and Applied Economics, North Dakota State University, Fargo. March 2006.

²RDI, Consulting, "Environmental Enhancements from the Increased Use of North Dakota Lignite", June 30, 2000.

³ ftp://www.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2005.pdf, *NERC 2005 Long-Term Reliability Assessment*.

(Phase II). As a result of providing state assistance from coal severance tax dollars, in addition to marketing, environmental, transmission, and technology studies, three grant applicants were approved to receive matching funds by the Industrial Commission:

- 1) Great River Energy (GRE) – April 19, 2001;
- 2) MDU/Westmoreland (MDU/W) – May 2, 2001; and
- 3) Great Northern Power Development (GNPD) – September 7, 2001.

The LV21P Phase III proposal was unanimously recommended by the Lignite Research Council Executive Committee at its meeting on September 7, 2001. During Phase III (September 1, 2001 – December 31, 2003) of the LV21P, the three LV21P participants have conducted individual and joint feasibility studies involving: business development, marketing, generation technologies, environmental impacts (screening level), transmission, coal quality, water quality and availability, and socioeconomic impacts. Most of these preliminary feasibility studies have been completed.

On December 31, 2002, the NDIC was notified that GRE, having completed its feasibility studies, had made a decision to withdraw from the LV21P. At that time, GRE indicated that its management team had re-evaluated GRE's more immediate needs; and whereas originally GRE thought that its needs were primarily base load, GRE believed, based upon load projections, it had higher priority needs for intermediate/mid-range and peaking power energy sources. Additionally, GRE cited the cost and the regulatory uncertainty of transmission as one of the reasons in their decision. In accordance with its contract with the NDIC, GRE returned \$500,000 to the NDIC. Since that time, GRE has again begun giving North Dakota lignite a renewed "look" as a potential source of base load power.

On January 13, 2004 funding for the LV21P Phase IV application was recommended by the Lignite Research Council Executive Committee and approved by the NDIC. Phase IV is scheduled to be complete on September 30, 2006.

Based on feasibility studies conducted to date, GNPD received approval from the NDIC to receive funding for the third phase of its project, which is for \$2,620,886 (\$1,310,443 NDIC funds) and covers the period October 1, 2005 – December 31, 2006. GNPD intends to submit a Phase IV application to the Lignite Research Council by the October 1, 2006 grant round deadline.

MDU/W received a permit-to-construct a 175 MW plant near Gascoyne, ND in June of 2005.

Westmoreland has since taken the initiative, on its own, to file a permit application (June 13, 2006) for a 500 MW plant at the same location. MDU is not participating in the permitting of that project. MDU and Westmoreland are currently in the process of restructuring their individual responsibilities under their

LV21 contract with the NDIC. Westmoreland intends to proceed with the LV21P with the 500 MW project. The restructuring agreement between MDU/W should be final this summer (2006). The Westmoreland project would involve more detailed engineering work, preparing necessary regulatory permit applications, additional technology evaluation, additional marketing, and development of transmission solutions.

On May 22, 2006, Great River Energy, Headwaters Inc., The Falkirk Mining Company, and North American Coal Corporation received approval from the NDIC to receive up to \$10 million in LV21 funding to conduct a front end engineering and feed study as the first step in determining whether to proceed in developing a 10,000 – 50,000 barrel per day coal-to-liquid fuels plant.

It is conceivable that there may be other requests for Lignite Vision 21 funding from the industry given all of the future base load needs and resource planning occurring. The prospective partners (Minnkota Power Cooperative, Basin Electric Power Cooperative, MDU, and Minnesota Power) of the proposed third unit at the Milton R. Young Station have indicated they may consider the LV21P. As mentioned above, GRE is also considering new base load capacity in North Dakota. The FutureGen power plant may become a LV21P project should the FutureGen Alliance and U.S. DOE select North Dakota as the host site. The NDIC submitted a proposal for North Dakota to host the FutureGen project on May 4, 2006.

PROJECT DESCRIPTION

A. Overall Objectives

The primary objective of the LV21P is to construct one or more new lignite-fired power plants or coal-to-liquids plants in North Dakota. In order to achieve the LV21P objective and to coordinate and assist the LV21P participants, it is proposed that the Lignite Energy Council (LEC), in conjunction with the LV21P participants, continue to develop and implement legal, marketing, generation, environmental, and transmission strategies and manage the LV21P in order to monitor progress, eliminate any potential duplication, and maximize value for the State of ND. Activities and tasks that will be required in Phase V are as follows:

- Project Management;
- Legal and Marketing Strategies & Activities;
- Advanced Generation Technology Strategies & Activities;
- Environmental and Technology Strategies & Activities; and
- Transmission Strategies & Activities.

Key personnel involved in the management of the Lignite Vision 21 Program are the LEC President (John Dwyer), who will serve as a policy advisor to the LV21P, the Technical Representative to the Industrial Commission and project manager (Jeff Burgess), and the Manager of Technology (Al Kuntz), along with consultants that have legal, marketing, generation, environmental, and transmission technical expertise. A detailed description of the management organization and qualifications of key personnel are outlined on pages 17 and 18. Also see organizational chart in Appendix 1.

B. Statement of Work

The LV21P team has overall program management responsibility for the LV21P. Key personnel identified above will be responsible for completing Phase V Tasks and achieving program objectives. The Phase V timeframe is estimated at 21 months (October 1, 2006 to June 30, 2008). Costs for completing Phase V are estimated at \$851,000. Tasks and timeframes for the initial Phase V activities are summarized in this section.

QUALIFICATIONS

A. Capabilities and Experience

The Lignite Energy Council is a trade organization whose members include major producers of lignite, who produce a total of 30 million tons annually, the nation's largest commercial gasification project, and investor-owned utilities and rural electric cooperatives from a multi-state area who generate electricity from lignite serving two million people in the Upper Midwest region. For over 14 years, the Lignite Energy Council has had a formal partnership with the North Dakota Industrial Commission to assist with administration of the Lignite Research, Development and Marketing Program and provide technical assistance to the Industrial Commission.

Besides partnering with the Industrial Commission on the development and implementation of the state's R&D program, the Lignite Energy Council manages a regional marketing program for lignite-based electricity and an education program for regional teachers that receive academic credit from the University of North Dakota. Because of the important impact that governmental policies have on the competitive position of lignite and the ability to develop new lignite projects, the Lignite Energy Council is also involved in various governmental relations activities such as legislative, Congressional, and public official forums and briefings.

The Lignite Energy Council has effectively managed the Lignite Vision 21 Program contracts with the Industrial Commission through the first four phases of the project dating back to May 1999. Based on this experience and the above-described capabilities, the Lignite Energy Council is capable of administering Phase V of the Lignite Vision 21 Program.

B. Key Personnel

LV21P Policy Advisor

John Dwyer has over 25 years experience in the energy industry having served in various federal and state capacities. He has also served as President of the Lignite Energy Council since 1981. Members of the Lignite Energy Council mine nearly 30 millions tons of low-rank coal, 80 percent of which is used to power 4,000 megawatts of electricity for over two million people in the Upper Midwest. The other 20 percent of the low-rank coal is used to supply the largest commercial gasification plant in the United States, which produces synthetic natural gas and anhydrous ammonia.

John Dwyer also serves as an advisor for coal-related activities at the federal and state levels. At the federal level, Mr. Dwyer is a member of The National Coal Council, which serves as an advisor to the United States Secretary of Energy on coal-related matters. At the state level, he serves as Chairman of the North Dakota Lignite Research Council, which serves as the advisory council for the Lignite Research, Development and Marketing Program.

Expertise of the Technical Representative and Project Manager

Jeff Burgess has over 24 years of environmental regulatory experience with the North Dakota Department of Health. Prior to coming to the Lignite Energy Council, Jeff served in a number of management positions with the Department of Health, including the Director of the Division of Air Quality and Radiation. Since September of 2001, Jeff has been working with the LV21P, most recently serving as the Director. Since January of 2006, Jeff has been serving as the Director of Research and Development for the Lignite Energy Council and Technical Advisor to the North Dakota Industrial Commission for the North Dakota Lignite Research, Development and Marketing Program. Jeff received Master of Science degrees in both environmental engineering and public administration and a B.S. degree in civil engineering. Jeff is a registered professional engineer in North Dakota.

Expertise of the Manager of Technology

Al Kuntz has over 15 years of industry engineering experience. Prior to coming to the Lignite Energy Council, Al worked for the Dakota Gasification Company as a process engineer at the Great Plains Synfuels Plant for five years. Previously Al worked for PEMCO International, Niro Inc., and Babcock & Wilcox performing a variety of engineering services. Al received B.S. degrees in both chemical engineering and petroleum engineering.

Resumes of LV21P Consultants are available upon request.

VALUE TO NORTH DAKOTA

The primary objective of the LV21P is to provide technical assistance to construct one or more new lignite-fired power plants, a coal-to-liquids plant, or other lignite-fueled energy conversion facility that will result in growth of the lignite industry in North Dakota. Construction of a new 500 MW lignite-fired power plant would mean approximately 3 million more tons of lignite mined each year; 1300 more direct and indirect jobs; \$140 million more in business volume; and \$6 million more in state tax revenue each year. A coal-to-liquids plant would mean 3 million to 15 million more tons of lignite mined each year and between 350 and 1000 jobs direct jobs and 6000 indirect jobs. The LV21P projects being proposed would provide a significant favorable economic impact to the rural areas which would host the projects.

MANAGEMENT

See description of project management under “Project Description, C. Phase V Task Summaries.” Also see Organizational Chart in Appendix 1 on page 21.

TIMETABLE

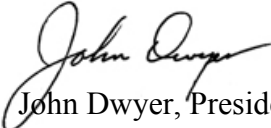
Phase V of the LV21P will begin on October 1, 2006 and end on or about June 30, 2008 (a period of 21-months). Quarterly project reports will be submitted to the NDIC as mentioned in the “Project Description” section.

MATCHING FUNDS

The LV21P Phase V project would use nonmatching funds from the lignite research fund consistent with the intent of the North Dakota Lignite Research, Development and Marketing Program as described in the “Background, A. State Policy” section. The previous four phases of the LV21P were approved to use nonmatching funds from the lignite research fund. The total nonmatching funds requested are \$851,000.

TAX LIABILITY

I, John Dwyer, certify that the Lignite Energy Council is not delinquent on any tax liability owed to the State of North Dakota.


John Dwyer, President
Lignite Energy Council

CONFIDENTIAL INFORMATION

The applicant requests confidentiality pursuant to Section 54-17.5-06 of the North Dakota Century Code except for page 1, pages 3 through 8, and pages 17 and 18. The work performed under this plan is requested to be confidential and not a public record because it is proprietary in nature and will include legal, marketing, generation, environmental, and transmission strategies for the LV21P. If confidentiality of the strategies and materials is not maintained, then other industry competitors could use these strategies to prevent development of LV21P projects or further their own out of state project that would jeopardize market share being developed for the LV21P. The key personnel identified in this document are bound to confidentiality with respect to the work performed under this plan.

The general identification of potential customers and investors, along with their respective marketing strategies is also proprietary information. An out of state/industry competitor could very easily take advantage of this information to attract potential investors and power supply purchasers to other states. It is also important that the specific names of customers and investors remain confidential through the contract commitment deadlines as shown in the project schedule. Specific name publication could open doors that competitors did not know existed.

The engineering study work, if made public, could also serve to undermine the project's success because it identifies areas of concern and priority that could save potential competitors significant time and expense. Our effort in maintaining the confidentiality of our information is to ensure the Lignite Vision 21 Participants under contract with the NDIC are not disadvantaged by records maintained by the Lignite Energy Council Lignite Vision 21 Program Team.

STANDARDS OF SUCCESS

The project proposal has included work task objectives (see above). The LV21P team will be submitting periodic progress reports, as it has in previous Phases of the LV21P, addressing progress under each of the tasks. Documented accomplishments and progress in each of the task areas will provide a standard of success.