

LMFS-99-32
ENVIRONMENTAL ENHANCEMENTS TO INCREASED USE
OF NORTH DAKOTA LIGNITE

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CONTRACT AMOUNT: \$50,000

Project Schedule – 8 Months

Contract Date – 8/31/99
Start Date – 9/1/99
Completion Date – 11/21/00

Project Deliverables

First Quarterly Report – 10/15/99✓
Second Quarterly Report – 12/30/99✓
Final Draft – 12/13/99✓
Final Report – 6/30/00✓
Brochure – 11/21/00✓

OBJECTIVE / STATEMENT OF WORK

The purpose of this project is to identify relevant air quality regulations and initiatives that affect the use of North Dakota lignite (specifically excepting the Kyoto Protocol), to benchmark air quality in North Dakota and the state's compliance with applicable existing and future regulations, and to identify technologies, strategies and options that would allow expanded use of North Dakota lignite.

A non-technical brochure will be developed to provide information for the general public, legislators, public officials and the media. The brochure will summarize the success of North Dakota's coal-fired power plants in meeting environmental regulations. In addition potential impact of proposed legislation and regulations will be discussed.

STATUS

North Dakota enjoys some of the best air quality in the country. All North Dakota lignite power plants, comprising approximately 3,400 megawatts of capacity, are in compliance with their respective air quality requirements. A number of pending environmental actions could place additional pressure on the existing and future North Dakota lignite power plants.

Near-term environmental actions are:

- Nitrogen oxide (NO_x) requirements promulgated by EPA on September 16, 1998. Existing lignite facilities are meeting these revised standards. However, new facilities will be required to meet an output-based standard of 1.6 lb of NO_x/MWh that requires selective catalytic reduction (SCR) or similar post-combustion technologies.
- EPA's New Source Review (NSR) enforcement actions have the potential to impact all existing lignite-fired power plants. If it is determined that "routine maintenance" has subjected all existing facilities to NSR, then Best Available Control Technology (BACT) may be forced on existing facilities.
- Prevention of Significant Deterioration (PSD) requirements in North Dakota presents a challenge for existing and new lignite power plants. The PSD increment standards have the potential of limiting the development of new units and restricting operational changes at existing plants. A PSD increment establishes the maximum allowable increase in the ambient concentration of a particular pollutant. Given certain modeling constraints, the 3-hour and 24-hour increment standards for SO₂ have been reached in certain Class I areas of North Dakota and surrounding states.

RDI identified options for resolving the near-term environmental restraints such as:

- Geographic location of a new facility to resolve PSD modeling restraints, and
- Offset obtained from existing facilities modifying emissions to permit emission at a new facility.

RDI identified regional haze (RH) and mercury (Hg) regulations as potential long-term environmental restraints. EPA issued a RH rule in April 1999 for improving visibility in national parks and wilderness areas. North Dakota joined the Western Regional Air Partnership (WRAP), a regional body to study and implement regional programs to control RH.

A number of legislative proposals have been submitted for control of Hg. EPA was expected to issue proposed regulations for control of Hg by the end of 2000. At the time of the study, Hg emissions and control technologies for North Dakota lignite power plants were not known.

Near-term and long-term environmental regulations present challenges for existing and new lignite power plants. RDI identified options for addressing these challenges so that air quality regulations should not stall development of a new lignite-fired power plant.