

**MEETING MINUTES**  
**LIGNITE RESEARCH COUNCIL**  
**February 18, 1998**  
**Doublewood Inn, Bismarck, ND**

**MEMBERS (or their authorized alternates) PRESENT:**

|                   |   |
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| Steven Benson     | Energy & Environmental Research Center      |
| Curtis Blohm      | Knife River Corporation                     |
| John Bluemle      | North Dakota Geological Survey              |
| Warren Candy      | Minnesota Power                             |
| Kevin Cramer      | North Dakota Economic Development & Finance |
| John Dwyer        | Lignite Energy Council                      |
| Randel Christmann | North Dakota State Senator                  |
| Rich Fockler      | Basin Electric Power Cooperative            |
| Bruce Hagen       | North Dakota Public Service Commission      |
| Kent Janssen      | Dakota Gasification Company                 |
| Douglas C. Kane   | MDU Resources Group Inc.                    |
| Harvey Ness       | Department of Energy/FETC                   |
| Dean Peterson     | The North American Coal Corporation         |
| Chuck Reichert    | BNI Coal, Ltd.                              |
| Martin Schock     | North Dakota Department of Health           |
| David Sogard      | Minnkota Power Cooperative                  |
| Valdon Swanson    | North Dakota Farm Bureau                    |
| John Weeda        | Cooperative Power                           |
| Gordon Westerlind | United Power Association                    |

**OTHERS PRESENT:**

|                    |  |
|--------------------|--|
| Jim Deutsch        | North Dakota Public Service Commission |
| Karlene Fine       | Industrial Commission of North Dakota  |
| Vicki Gilmore      | Lignite Energy Council                 |
| Alan M. Hurlbut    | BNI Coal, Ltd.                         |
| John Hurley, Ph.D. | Energy & Environmental Research Center |
| William Peterson   | BNI Coal, Ltd.                         |
| Clifford R. Porter | Lignite Research Council               |
| Lyle Witham        | Assistant Attorney General             |

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Lignite Research Council (LRC) chairman John Dwyer called the LRC meeting to order on February 18, 1998, at Doublewood Inn, Bismarck, North Dakota. He asked everyone to introduce themselves. Newly appointed LRC members in attendance were Kevin Cramer, Senator Randel Christmann and Dean Peterson, who has replaced August Keller on the LRC. For the benefit of the new LRC members, Dwyer presented an overview of the North Dakota Lignite Research, Development and Marketing Program.

**Financial Summary**

Clifford R. Porter presented the financial summary for the 1997-1999 North Dakota Lignite Research, Development and Marketing Program. The total program budget for the 1997-1999 biennium is \$14,123,560, which breaks down as follows: \$400,000 for administration of the program, \$400,000 for market feasibility studies, \$1,740,102 for small research projects and \$11,583,458 for demonstration projects. Dwyer said the total includes carryover funds from the 1995-1997 biennium.

### **Approval of Minutes; Old Business**

Dwyer asked for a motion for approval of the minutes of the December 4, 1997 LRC meeting. Bruce Hagen so moved; seconded by Rich Fockler. Motion carried.

Chuck Reichert asked if a positive marketing study report had been submitted yet for the Grand Round XXVIII proposal titled "Evaluation of Market Potential for North Dakota Flue Gas Desulfurization Gypsum". At the December 4, 1997 LRC meeting, Reichert had made a motion that the word "positive" be added in Porter's funding recommendation contingency for Cooperative Power Association's proposal LRC-XXIX-A titled "Construction of a Forced Oxidation Plant for Gypsum Production". The contingency would then read: Completion of the positive marketing study for FY98-XXVIII-77. John Weeda said the marketing study report is approaching completion.

### **New Business**

Dwyer asked Lyle Witham to summarize the Montana constitutional challenge to the North Dakota coal sales tax law. A complaint was filed in Burleigh County District Court against the North Dakota State Tax Commissioner on December 22, 1997 by Kennecott Energy Company (KEC) and Spring Creek Coal Company (SCCC) to challenge the North Dakota coal sales tax law. The law imposes a use tax on sales of coal that are not subject to North Dakota severance tax and that are used at North Dakota power plants. SCCC is a subsidiary of KEC and a producer of subbituminous coal in Montana. The law is part of House Bill 1467 that was introduced in the 1997 North Dakota legislative session. The law applies to coal used in North Dakota generation facilities that is not subject to severance tax. HB 1467 amended the North Dakota Century Code. North Dakota severance tax (which is used for the state general fund, coal trust fund, counties, cities and schools) is in lieu of sales tax.

Witham said assistant attorneys general are handling the lawsuit for the state of North Dakota, and Charles Miller of the Fleck Law Firm, Bismarck, will be doing so for the North Dakota political subdivisions. Witham said Kathryn Alfson is the North Dakota assistant attorney general handling the case. Doug Kane asked what the timeframe will be for the case. Witham estimated 18 months to two years.

Witham said the LRC might want to consider having the Industrial Commission file an amicus brief.

Dwyer asked Witham for an update on the externalities case that will be heard before the Minnesota Court of Appeals on Feb. 24, 1998. Both North Dakota Attorney General Heidi Heitkamp and Witham will be there, with a motion before the Court of Appeals to give 15 minutes for oral arguments instead of four minutes. Heitkamp will argue the case.

Dwyer said that Carmen Miller is the assistant attorney general replacing Witham for LRC matters, but Witham will stay involved in the externalities matters. Witham has been assigned as an assistant attorney general for the North Dakota Health Department. On behalf of the LRC Dwyer thanked Witham for his diligent work, expertise and extra time devoted to the externalities case.

### **Deadlines for Proposal Applications; Future LRC Meetings**

Porter said that May 1 and September 1 are the remaining 1998 deadlines for submitting proposals for consideration in Grant Rounds XXXI and XXXII, respectively. Future LRC meeting dates for 1998 are July 22 and November 5.

### **New Executive Order for LRC Membership**

On February 2, 1998, Governor Edward T. Schafer issued Executive Order 1998-01, which restructures the LRC to include 25 members. Instead of two representatives from the U.S. Department of Energy, there is now one (Harvey Ness, Federal Energy Technology Center). North Dakota Senator Randel Christmann replaced Senator William Goetz and Dean Peterson of The North American Coal Corporation replaced August Keller. Kevin Cramer, Economic Development and Finance, was added to the LRC membership as one of four representatives from state agencies.

Gerald Bauman, a Mercer County commissioner and chairman of the Coal Conversion Counties Association, was added to the LRC as the political subdivision representative.

### **Lignite Research, Development and Marketing Program Updates**

Porter said one Lignite Marketing Feasibility Study (LMFS-96-25 – “Intermediates and Derivatives from Phenol) for \$30,000 was started in the 1995-1997 biennium and is still open. Seventeen research program activities (small projects) have \$1,979,936 in Lignite Research Funds committed to them as of January 1, 1998. Four demonstration projects in this biennium total \$7,474,500.

Target funding for the lignite marketing feasibility study priority areas is \$400,000 for the 1997-1999 biennium. (The breakdown is \$100,000 for market assessment, \$75,000 for Regional Lignite Energy Marketing Plan implementation, \$100,000 for byproduct marketing studies, \$100,000 for environmental studies, and \$25,000 for contingencies. No lignite marketing feasibility studies have been initiated for the 1997-1999 biennium.)

Priority areas and estimated amounts for the recommended target funding for 1997-1999 for the research program activities (small projects) totals \$861,633, which breaks down as follows: environmental issues (\$258,490), mining and reclamation (\$215,408), combustion (\$172,327), byproducts (\$129,245), and beneficiation (\$86,163).

Obligated funding for demonstration projects includes a commitment for \$6,000,000 in LRF funding (\$4,000,000 investment and \$2,000,000 grant) for the Dakota Gasification Company's carbon dioxide pipeline project. It was approved for funding under grant round XXVIII from 1997-1999 biennium funding. The three other demonstration projects were approved at the last LRC meeting on December 4, 1997. They are 1) a forced oxidation gypsum plant to be constructed at Coal Creek Station (LRF funding not to exceed \$926,500); 2) demonstration of the rear-dumping dragline bucket (LRF funding not to exceed \$250,000); and 3) demonstration of lignite combustion byproduct in the Riverdale haulroad (LRF funding not to exceed \$298,000). There is \$1,718,834 available in demonstration project funds for the 1997-1999 biennium.

### **Grant Round XXX Grant Applications**

Porter summarized technical peer reviewers comments. As technical advisor to the LRC, he also gave his recommendations for the Grant Round XXX project applications as follows:

**LRC-XXX-A: “Matching Coal Quality and Boiler Operation”; submitted by BNI Coal, Ltd., Minnkota Power Cooperative, and Microbeam Technologies, Inc.; Co-principal investigators: Steven Benson, Ph.D. (for MTI), Richard Schwalbe (for MPC) and William Peterson (for BNI); Request for \$260,050.49; Total Project Costs: \$1,227,415; Project Duration: 18 months.**

Porter said the principal objective of this small research project is to improve boiler operation at the Milton R. Young Station. The primary goal is to reduce oil consumption in the cyclone-fired boilers, and the secondary goal is to evaluate the effects of coal quality and boiler operating parameters on NO<sub>x</sub> and SO<sub>x</sub>, furnace slagging and fouling, and electrostatic precipitator performance. LRC-XXX-A is the third study in this area. The other two are “Coal Quality Management System” (FY95-XIX-60) and “Coal Sampling System” (FY97-XXV-71). All three independent technical peer reviewers in their reviews indicated that LRC-XXX-A should be funded, as did Porter. The technical peer reviewers gave the project an average weighted score of 217 out of 250 points. Porter said the project is a logical next step in the study series and is one of the highest rated proposals ever submitted. Potential conflict of interest parties are Minnkota Power Cooperative, BNI Coal, Minnesota Power and the Energy and Environmental Research Center.

Dwyer explained what conflict of interest means as it pertains to the LRC. The internal operating procedures adhered to by the LRC include disclosing conflict of interest. This was set up intentionally

by the North Dakota legislature. Conflict of interest is not a problem; it is a given that all projects will have conflict of interest parties.

Christmann asked how technical peer reviewers are chosen. Porter explained he seeks input from those in the industry, research and academic communities who have expertise pertaining to each project. The independent reviewers are never from the applicant parties. The identity of reviewers is known only by Karlene Fine and Porter.

Steven Benson, one of the co-principal investigators for LRC-XXX-A, explained the project team and schedule. He said that Microbeam Technologies is a spin-off from EERC. The project will improve the cyclone boiler operation and also match coal quality to the cyclone operation. In response to a question by Dean Peterson, Benson said the project results will have benefits for other boiler-type operations in North Dakota. Dwyer said this is a preservation-type project to make the power plant more efficient. David Sogard said Minnkota Power Cooperative is in support of this project.

**LRC-XXX-B: "Lignite Testing in the High-Temperature Advanced Furnace"; submitted by Energy and Environmental Research Center; Principal Investigator: Greg Weber; Project Manager: John Hurley, Ph.D.; Request for \$262,510 (Optional \$53,252= \$315,762 request); Total Project Costs: \$35,000,000 for 5 ½-years; Project Duration: 4 months**

Porter said the objective of this project is to demonstrate the use of North Dakota lignite fuel in the High-Performance Power System (HIPPS). HIPPS is a part of the DOE-funded Combustion 2000 project. The proposed HIPPS system being developed by the UND EERC and United Technologies Research Center is a high-temperature advanced furnace (HITAF) that uses heat exchanges to produce clean air at 2600E F and 250 psi to turn an aeroderivate turbine.

The average weighted score of the independent technical peer reviewers was 191 out of 250 points. One reviewer recommended the project be funded and two recommended that funding be considered. As technical advisor, Porter recommended the \$262,510 request be funded but not the optional \$53,252 request for analysis of trace elements. He said if lignite is to remain a viable candidate for future power generation systems, it must be evaluated and demonstrated during development of advanced systems. His two concerns about the proposal are that industrial matching is not clearly defined, and that DOE has excluded lignite from the Combustion 2000 project. He said it is important that lignite be included in the Combustion 2000 testing. The conflict of interest party is EERC.

John Hurley from EERC discussed goals of the Combustion 2000 high-performance power system. One goal is to reduce the cost of electricity by 10%. EERC is a subcontractor of UTRC in the development of the HIPPS system. Hurley said that lignite will be tested in the HIPPS only if proposal LRC-XXX-B is funded. He believes that lignite testing should be thought of in the context of development of the whole HIPPS system.

Kent Janssen asked about the timetable for commercialization of the technology. Hurley said Congress is in a cost-cutting phase right now, so the technology would probably not be ready for commercialization until approximately 2002.

**LRC-XXX-C: "Evaluating Short-Term Climate Variability in the Late Holocene of the Northern Great Plains"; submitted by Energy and Environmental Research Center; Project Manager: Joseph H. Hartman, Ph.D.; Request for \$200,000; Total Project Costs: \$600,000.**

Benson said EERC requests that the proposal be withdrawn at this time.

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**Confidential Balloting for Grant Round XXX Proposals**

Dwyer explained that state law requires LRC ballots to be confidential. It is not required that individual LRC members disclose their recommendations for Industrial Commission approval or disapproval of funding. Only one vote is allowed per entity.

The LRC cast confidential ballots to either recommend or deny funding of the Grant Round XXX proposals. Balloting results will be presented to the Industrial Commission for consideration when it reviews these proposals on March 4, 1998. The LRC votes were as follows:

LRC-XXX-A - 19 Fund; 0 Do Not Fund. LRF funding to be provided: \$260,050.

LRC-XXX-B - 16 Fund; 3 Do Not Fund. LRF funding to be provided: \$262,510.

**Other Business**

Dwyer said the LRC will vote to elect new officers at one of the next two LRC meetings. Members interested in being nominated are asked to contact Fine or Dwyer.

The next LRC meeting will be held on July 22, 1998.

**Adjournment**

There being no further business, the meeting was adjourned.

Vicki Gilmore, Recording Secretary

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