MPUC Docket No. E-6472/GS-06-668
OAH Docket No. 12-2500-17512-2

BEFORE THE
MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
100 Washington Square, Suite 1700
Minneapolis, Minnesota 55401-2138

FOR THE
MINNESOTA PUBLIC UTILITIES COMMISSION
127 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

In the Matter of a Joint LEPGP Site Permit,
HVTL Route Permit and Pipeline (Partial Exemption)
Route Permit Application for the Mesaba Energy Project

PREPARED DIRECT TESTIMONY AND EXHIBITS OF

EXCELSIOR ENERGY INC., MEP-I LLC, AND MEP-II LLC

ROBERT S. EVANS II

JANUARY 16, 2007

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EXCELSIOR ENERGY, INC.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

PREPARED DIRECT TESTIMONY OF

ROBERT S. EVANS

Q Please state your name, current employment position and business address.

A Robert S. Evans II. I am the Vice President, Environmental Affairs for Excelsior Energy Inc. ("Excelsior"). My business address is Excelsior Energy Inc., Crescent Ridge Corporate Center, 11100 Wayzata Boulevard, Suite 305, Minnetonka, Minnesota 55305.

Q Would you please describe your educational and professional background.

A I have 26 years of experience in environmental and regulatory activities, primarily dealing with electric generation. Most recently, I led the environmental services team of an international independent power production company. In addition, I have managed licensing processes for new and existing generating plants, including a nominal 550 MW (net) dual-fuel fired peaking plant located in Southern Minnesota. I have directed the work of professional environmental staff, consultants, and legal counsel on matters relating to environmental due diligence, permitting, regulatory negotiations, compliance strategies, contractual conditions, and remedial actions. I hold a M.A. in chemistry from Drake University in Des Moines, Iowa and a B.A. in Biology from Luther College in Decorah, Iowa. My resume is appended as Exhibit ___ (RSE-1).

Q On whose behalf are you testifying?

A I am testifying on behalf of MEP-I LLC, MEP-II LLC, and Excelsior Energy Inc. (collectively "Excelsior"), the developers of the Mesaba Energy Project (the "Project").

Scope and Summary

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

A My first purpose is to sponsor and provide an overview of the following documents dated June 16, 2006 which were filed in this docket on June 19, 2006:

- Joint Application to the Minnesota Public Utilities Commission for the Following Pre-Construction Permits: Large Electric Generating Plant Site Permit, High Voltage Transmission Line Route Permit and Natural Gas Pipeline Routing Permit ("Joint Application"); and
- Environmental Supplement ("Environmental Supplement")

The Joint Application includes as appendices copies of the following permit applications filed by Excelsior for construction and operation of Phase I and Phase II of the Project at the preferred West Range Site:

- Application for a New Source Review Construction Authorization Permit, West Range IGCC Power Station, filed with the Minnesota Pollution Control Agency ("MPCA") on June, 28, 20006 ("Air Permit Application");
- Application for an NPDES/State Disposal System Permit: West Range IGCC Power Station, filed with the MPCA on June28, 20006 ("NPDES Permit Application"); and

- Application for a Water Appropriation Permit, West Range IGCC Power Station, filed with the Minnesota Department of Natural Resources ("MDNR") on June, 29, 20006 ("Water Appropriation Permit Application").

These documents were prepared by me or under my direction and supervision. I am sponsoring and am prepared to answer questions regarding the Joint Application and the Environmental Supplement in their entirety. However, as noted below, particular sections of these documents are also being sponsored by various other Excelsior witnesses. When appropriate, I will defer to other Excelsior witnesses to answer questions regarding particular sections that they are sponsoring.

The second purpose of my testimony is to introduce Excelsior's witnesses, which I will do later in this testimony.

<u>Overview of the Project</u>

Q Could you please briefly describe Phase I and Phase II of the Mesaba Energy Project?

A Phase I and Phase II of the Mesaba Energy Project (hereafter "Mesaba One" and "Mesaba Two," respectively) constitute two 606-megawatt$_{(net)}$ electric power generating plants to be located at one site on the Mesabi Iron Range. Mesaba One and Mesaba Two will utilize integrated gasification combined cycle ("IGCC") technology to reduce the rate of criteria pollutant and mercury emissions below those of any other existing coal-fueled power plant in Minnesota and to provide a basis upon which future carbon capture and sequestration might be accomplished. The two IGCC Power Stations are intended to be constructed under an optimized schedule where construction

of the two Stations would overlap somewhat with one another. In addition to Mesaba One and Mesaba Two, Excelsior proposes to construct the following:

- High voltage transmission lines ("HVTL") and their associated facilities required to interconnect the IGCC Power Stations with the regional high voltage electric grid system; and
- Natural gas pipeline to interconnect the West Range IGCC Power Station with the 36 inch diameter pipeline owned by Great Lakes Gas Transmission Company at a location near the unincorporated village of Blackberry.

Although a natural gas pipeline would be required to interconnect the East Range IGCC Power Station with a pipeline owned by Northern Natural Gas Company ("NNG"), NNG (or a subsidiary company) would be the entity that would license, construct, own and operate the pipeline.

Q What is IGCC technology?

A IGCC technology is an efficient and inherently low-polluting process for making electricity out of coal. In an IGCC power plant, coal is converted into a low-BTU gas, known as "syngas," in an enclosed, high-temperature, high-pressure gasifier. The syngas is cooled, cleaned of contaminants and burned in a combustion turbine to generate electricity. The hot exhaust from the combustion turbine is used to produce steam, which in turn produces electricity by using a conventional steam turbine. Thus, IGCC integrates two processes — the gasification process and the combined-cycle electric generation process — into a new electricity-generating technology.

Q What is the timing for the construction and the beginning of operation for each phase?

A Construction is scheduled to begin in the first quarter of 2008, with service to begin in the fourth quarter of 2011 for Mesaba One, and an in-service date of 2014 for Mesaba Two.

Q Could you please briefly describe the two alternative locations for the IGCC Power Station?

A The preferred site is located mostly within the City of Taconite in Itasca County in the region of the Mesabi Iron Range locally known as the "West Range." The alternate site is located mostly within the City of Hoyt Lakes in St. Louis County in a region of the Mesabi Iron Range locally known as the "East Range." As a result of their geographical locations on the Mesabi Iron Range, the preferred and alternate site locations encompassing the IGCC Power Station footprint, buffer land, associated facilities, and the land needed to connect such facilities to Station are broadly referred to as "West Range Site" and the "East Range Site," respectively. Both the West Range and East Range Sites are located in the Taconite Tax Relief Area of northeastern Minnesota.

Q What impacts will Mesaba One and Mesaba Two have on ambient air quality?

A Air pollutants released from Mesaba One and Mesaba Two under the worst-case, combined operation of the two IGCC Power Stations will be in compliance with all federal and state ambient air quality standards set to protect public health and welfare. Excelsior has conducted an air emission risk analysis ("AERA") in accordance with MPCA guidelines showing that the combined impacts of Mesaba One and Mesaba Two will have impacts below thresholds of concern set for toxic and hazardous air pollutant emissions. Finally, Excelsior has investigated impacts

associated with mercury emissions from Mesaba One and Mesaba Two via fish consumption pathways and found their contribution to be a very small fraction of the mercury present as a result of background mercury levels.

The above results stem from the superior emissions profile characteristic of IGCC technology. In fact, Mesaba One and Mesaba Two are expected to be superior to every other coal-fueled power plant in the nation that uses traditional electric generating technologies. Compared to recently permitted, large, coal-fueled electric power generating plants using such technologies and sized to be of equal output capacity, the permitted limits for Mesaba One and Mesaba Two would result in up to two-thirds fewer criteria pollutant emissions.

Mesaba One and Mesaba Two will be capable of achieving superior reductions of mercury relative to coal-fueled units using traditional technologies. Excelsior expects mercury removal to be equal to or greater than 90% of the mercury entering the gasifier.

Excelsior believes impacts on air quality related values (including visibility) in nearby Class I areas (the Boundary Waters Canoe Area and Voyagers' National Park) will be very low and the Company is currently undertaking discussions with the Federal Land Managers charged with protecting such values.

Q How does Excelsior's proposed IGCC Power Station compare to a conventional coal plant when it comes to carbon dioxide emissions?

A Mesaba One and Mesaba Two will generally be more efficient than a conventional coal-fueled power plant using traditional technologies, a similar coal feedstock, and air pollution control systems capable of performing at state-of-the-art

removal efficiencies. Such improved efficiency translates to lower emissions of carbon dioxide. Furthermore, the plant will be able to more efficiently and economically capture carbon dioxide than a conventional coal plant. This is because IGCC converts coal to a synthetic gas (the volume and mass of which are far less in IGCC plants than conventional coal-fueled power plants) that can be cleaned up prior to combustion.

Excelsior has developed a plan for carbon capture and sequestration that allows Mesaba One and Mesaba Two to be adapted to capture and geologically sequester carbon dioxide emissions in order to address global warming issues and comply with potential future legislation requiring cuts in carbon dioxide emissions. Excelsior is working with the Energy and Environmental Research Center to identify specific options to accomplish such carbon capture and sequestration. Under Excelsior's initial plan, the captured carbon dioxide would be transported via pipeline to a location in North Dakota or Southwestern Manitoba where it would be used for enhanced oil recovery and in the process sequestered. Under conditions where carbon is managed across all sectors of the economy to accomplish significant reductions relative to historic levels, other sequestration options become feasible.

Q How will the project impact water resources?

A Excelsior has proposed that Mesaba One and Mesaba Two be connected to the closest existing municipal wastewater treatment system independent of the decision to locate at the West Range or East Range Site.

Water used in the coal gasification process will be treated through use of a zero liquid discharge ("ZLD") system, thereby eliminating any discharge of water having been used to scrub pollutants from the syngas or which would otherwise come into

contact with materials entering or exiting the gasifier. Both the West and East Range IGCC Power Stations will employ a ZLD system performing in this manner.

The West Range IGCC Power Station will discharge cooling tower blowdown to the Canisteo Mine Pit ("CMP") and Holman Lake. The chemical constituents that appear in this discharge stream are essentially the same chemical constituents normally present in the source water, but at a higher concentration. Importantly, no mercury or phosphorus-containing chemicals will be added to cooling tower blowdown. The discharges into the CMP and Holman Lake will meet applicable water quality criteria for all individual chemical constituents. A variance may be required for levels of hardness and total dissolved solids discharged to Holman Lake; however, neither of these parameters constitutes a direct concern to human health or welfare.

At the East Range Site, due to stringent standards applicable to the Lake Superior Basin, all cooling tower blowdown will be treated in an expanded ZLD system, meaning that no discharge of cooling tower blowdown or any other wastewater stream will be discharged to surface waters.

Q What will be the impacts of the Project on wetlands?

A To the extent practicable, Excelsior attempted to avoid and minimize wetland impacts at both sites. Unavoidable permanent impacts at the West Range Site are estimated to be 172 acres, and unavoidable permanent impacts at the East Range Site are estimated to be 133 acres. All such wetland impacts will be mitigated in accordance with federal and state standards.

Q Why does Excelsior prefer the West Range Site over the East Range Site?

A Both sites are viable alternatives for construction of Mesaba One and Mesaba Two. However, the West Range Site has certain advantages that make it Excelsior's preferred location. In brief summary, some of the key advantages include the following:

- The West Range Site is located outside the Lake Superior Basin. In contrast to the East Range Site, it will be unnecessary to build an extended zero liquid discharge system to eliminate discharges of cooling tower blowdown.
- The West Range Site is located further from the BWCA, resulting in fewer modeled visibility impacts.
- The water resources in the vicinity of the West Range Site are of higher quality and higher individual volume and recharge, and building the Project on the West Range Site will help to eliminate a local flooding threat and maintain historical mining infrastructure above water.
- The West Range Site is located closer to the points of interconnection for high voltage transmission lines ("HVTL") and natural gas pipe lines, meaning that fewer additional miles of HVTL and rights of way will be required.
- Fewer residents will be in the vicinity of the electrical and natural gas lines for the West Range Site than the East Range Site.
- Two independent rail line service providers are available for transporting coal to the West Range Site, as opposed to only one rail line service

provider for the East Range Site. This offers flexibility, as well as the potential for consumer cost savings through competition between carriers.

- Building the Project on the West Range Site will deliver 1,206 megawatts of net capacity to the electric transmission grid, compared to 1,197 megawatts of net capacity from the East Range Site. This is because the West Range Site is closer to the point of interconnection with the grid and does not require the use of additional station power for a zero liquid discharge system and cooling tower blowdown.
- Overall, due to the lower capital costs and reduced operating costs, the overall cost savings of the West Range Site was estimated to have a net present value of $260 million relative to the East Range Site (excluding the cost of network reinforcements for both sites). The estimated cost for the West Range network reinforcements for Mesaba One have not been finalized at this time but are believed to be in the $50 – 75 million range for the HVTL. The net present value will be updated as network reinforcement costs are finalized.

<u>Summary of Excelsior's Request for an Order by the Commission</u>

Q Please summarize Excelsior's request to the Commission in this proceeding.

A Excelsior seeks an Order for the issuance of three permits as follows:

- A site permit for the construction of Mesaba One and Mesaba Two at Excelsior's preferred West Range Site in Taconite, Minnesota;
- A route permit for the HVTL serving the West Range Site, following Excelsior's preferred route; and

- A route permit for a natural gas pipeline serving the West Range Site, following Excelsior's proposed route.

Presentation of Excelsior's Witnesses

Q Please review the witnesses Excelsior is sponsoring in this proceeding:

A The following is a list of the witnesses that are submitting prefiled direct testimony on behalf of Excelsior, the general subjects of their testimony, and the sections of the Joint Application and Environmental Supplement that they are sponsoring:

Witness	Organization	Subject	Sponsored Sections
William Becktel	Fluor Enterprises, Inc.	Plant layout, overall design, construction	JPA: 3.1.2-3, 3.1.5-8, 3.2-3, ES: 1.6.2-3, 1.6.5-8, 1.7, 1.9.2, 1.10, 3.15, Air: 2.1-2, 2.4-6
Jeffery Davis	Short Elliot Henderson Inc.	Water levels, water appropriation, aesthetics, soils & geotech, surveys, groundwater impacts, cumulative impacts of water	JPA: 3.6, 7.2, 7.5, 7.6.1-3, 7.6.5, 8.2, 8.5, 8.6.1-2, ES: 1.12.4, 1.12.6-7, 2.1, 2.4-6, 3.3, 3.4.1-2, 3.4.5-9, 3.5, App. 3, NPDES: 3.2.1.1-2, Water: 2-3, 4.1, 4.3-4, App. C-I, Attachment B
Robert Evans, II	Excelsior Energy Inc.	Excelsior's overview of each section's findings with respect to environmental matters	JPA: 1.1-6, 1.9-10, 2-2.6, 3.6.3-4, 6.2.1-3, 7.3, 7.6.4, 7.11.3, 8.3, 8.6.3-4, 8.6.6, 8.11.3, App. 8, ES: 1.2.6, 1.5, 1.11, 1.12.1.9, 1.12.5-7, 1.13-14, 2.2, 2.6, 2.14, 3.1, 3.4.3-4, 3.10.9.3, 3.14.1, 3.15, 3.13.6.5, 3.16.1-5, 3.17-18, App. 2, Air: 1.1-6.1, 3, 4.3, 5.4, 6.1, NPDES: 1.1-4, 5.2.3.2, Water: 1, 6, App. A, Attachment D
Thomas Henning	Short Elliot Henderson Inc.	AERA	JPA: 7.4.5-6, 8.4.2, ES: 3.2.5, Air: 3.10, App. E

Witness	Organization	Subject	Sponsored Sections
Kelly Henry	Short Elliot Henderson Inc.	Wetlands, rare & unique species, mitigation	JPA: 7.6.6, 7.7, 8.6.5, 8.7, ES: 2.7, 3.6, App. 4
Bret Johnson	Short Elliot Henderson Inc.	Traffic, public safety	JPA: 3.5.1, 7.4.9, 7.9.6, 7.10.1-2, 8.4.5, 8.9.6, 8.10.1, ES: 1.12.3.2, 2.12, 3.2.9, 3.10.3, 3.10.8, 3.10.9.4, 3.12
Clarence Kadrmas	Short Elliot Henderson Inc.	Pipeline route	JPA: 5, ES: 1.12.2
K. Anne Ketz	The 106 Group Ltd.	Historical & archaeological	JPA: 7.11.2, 8.11.2, ES: 2.13, 3.13, App. 6
Brad Kovach	Short Elliot Henderson Inc.	Threatened/endangered species, wildlife and fisheries	JPA: 7.8, 8.8, ES: 2.10, 3.9
John Lee	Barr Engineering Company	NPDES, WR water intake, thermal impacts, water balance OSBL	JPA: 3.4.2, 3.6.2.2, 7.6.4.4, App. 7, ES: 1.8.2.2, 1.12.4.2, 1.12.5, NPDES: 2, 3.2.2, 4.3, 5, App. A-B, App. D-F
Thomas Lynch	ConocoPhillips Company	HAP emissions, Wabash experience	JPA: 3.1.4, ES: 1.6.4, Air: 2.3, 4.1-3
David McKenzie	Short Elliot Henderson Inc.	Railroad alignment	JPA: 3.5.2, 7.10.3, 8.10.2, ES: 1.12.3.1, 2.12.1.1.3
Robert Mantey	Alliance Acoustical Consultants, Inc.	Construction and Operational Noise Levels	JPA: 7.9.4-5, 7.9.7, 8.9.4-5, 8.9.7, ES: 3.10.4-7, 3.10.1-2, 3.10.9.2, App. 5
George McVehil	McVehil-Monnett Associates, Inc.	Cumulative impacts of air pollution, ambient air impacts, AERA modeling, visibility	JPA: 7.4.2-5, 7.4.7-8, 7.4.10, 8.4.1, 8.4.3-4, 8.4.6, ES: 2.3, 3.2.1-4, 3.2.6-8, 3.2.10, Air: 6.2-3, 7-8, App. C-D
Charles Michael	Short Elliot Henderson Inc.	Overall, recreation, public services, land use, site selection, cost comparison, regional planning	JPA: 2.7-8, 7.1, 7.9.1-3, 7.11.1, 7.11.3, 8.1, 8.9.1-3, 8.9.5.1, 8.11.1, 8.11.3, ES: 2.8, 2.11, 2.15, 3.7, 3.10.1-2, 3.10.4-8, 3.10.9.1, 3.14.5-7, 3.16.1-4
Todd Royer	URS Corporation	BACT analysis	JPA: 7.4.1, Air: 3.1-9, 5.1-2, 5.5-13

Witness	Organization	Subject	Sponsored Sections
John Ruud	Fluor Enterprises, Inc.	Noise, water balance ISBL, criteria air pollutants, HAP emissions	JPA: 3.4, ES: 1.8, 2.9, 3.8, 3.15, Air: 4.1-2, 10, App. A-B, NPDES: 3.1, 4.1-2, App. C
Stephen Sherner	Sherner Power Consulting, LLC	Transmission line planning	JPA: 4.1-3, ES: 1.12.1.1-7
James Skurla	University of Minnesota-Duluth	Economics	JPA: 6.1, ES: 3.14.2-4, App 1
Richard Stone	Excelsior Energy Inc.	Cost comparison, carbon capture, site development	JPA: 1.8, 2.7-8, 3.1.1, 3.7, ES: 1.3-4, 1.6.1, 1.9.1, 1.9.3-4, 1.10.1.2, Air: 1.6.2-5, 1.7, 5.3, NPDES: 1.5, 3.2.1.3, Water: 4.2, 5, Attachment A
Paul Young	Laramore, Douglass & Popham	Transmission line design and cost	JPA: 4.1-7, 6.2.4-6, ES: 1.12.1.1-4, 1.12.1.6-8, 3.11

Excelsior reserves the right to call additional witnesses, if necessary.

Supplements and Clarifications

Q Are there any parts of the Joint Application and the Environmental Supplement that you would like to supplement or clarify at this time?

A Not at this time.

Conclusion

Q Does this conclude your testimony?

A Yes.

EXHIBITS

EXHIBIT ___ (RSE-1)

Robert S. Evans II

Career History

Excelsior Energy Inc., (May 2004 – Present)
Wayzata, MN

Vice President, Environmental Affairs, Responsible for licensing, permitting and environmental compliance activities/strategies associated with projects under development and extending through financial close.

NRG Energy, Inc.,
Worldwide Operations (May 1992 – May 2004)
Minneapolis, MN

Corporate Director Environmental Services, Created environmental department, mission and vision for major international independent power company. Designed and principal author of corporate environmental policies and procedures instituted to achieve said mission/vision. Responsible for Worldwide Operations' environmental compliance programs. Created and implemented Environmental Performance Assessment System and implemented it on NRG intranet site. Directed efforts to establish and implement Key Performance Indicator metric providing assessment of NRG's domestic operations. Created & implemented Environmental Information Management System as stand-alone and then web-based system for tracking compliance activities. Instituted effective auditing program to verify domestic and European facilities' multimedia compliance. Responsible for assuring worldwide power plant acquisitions based on sound environmental decision-making. Directed activities of seven professional staff and responsible for oversight of 21 professional staff worldwide.

North Star Steel Company (March 1989 April 1992)
Minnetonka, MN

Environmental Affairs Manager, Developed, instituted, and implemented organizational plan to achieve and manage environmental compliance at 14 corporate facilities located in eight states (MN, MI, IA, OH, KY, TX, PA, & LA). Reported to president of company and supervised three regional managers.

Northern States Power Company
Environmental & Regulatory Affairs Department (January 1980 – March 1989)
Minneapolis, MN

Supervisor Air Programs, Provided technical assistance within Environmental & Regulatory Affairs Department and to operating facilities. Analyzed on routine basis implications/impacts of regulatory/legislative proposals on corporate assets. Participated in all facets of regulatory process at state and federal level: legislative, rulemaking, administrative hearings and legal intervention. Specified, implemented and successfully operated air/stack monitoring programs/studies for both criteria and non-criteria pollutants. Prepared QA/QC Manual guiding all aspects of ambient air quality monitoring program. Testified on environmental impacts of major, Midwestern coal-fired power plant during licensing/permitting processes and on atmospheric transport, transformation and deposition during acid rain hearings.

Gulf Oil
Biochemical Technology Section (October 1978 - September 1979)
Merriam, Ks

Research Technician, Analyzed potential feedstocks for cellulose, lignin and plastic content as part of research project to demonstrate commercial enzymatic conversion of cellulose to ethanol. Independently developed internal testing methodology for determining total thermoplastic content of municipal solid waste.

Natural Dynamics (September 1975 – July 1978)
Des Moines, IA

Research Assistant, Set up series of lab-scale anaerobic digestion systems to demonstrate fast methane production. Modified commercial equipment to suit research demands. Successfully operated systems over extended time period and characterized them through the conduct of comprehensive analytical tests.

Education

Luther College, Decorah, Iowa (1968 – 1972)

Bachelor of Arts, Biology (1972)

Drake University, Des Moines, Iowa (1973 – 1975)

Master of Arts, Chemistry (1975)