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June 14, 2013

Dr. Burl Haar
Executive Secretary
Minnesota Public Utilities Commission
121 East Seventh Place, Suite 350
St. Paul, MN 55101

Re: **Environmental Supplement of Calpine Corporation**

In the Matter of Petition of Northern States Power Company to Initiate a Competitive Resources Acquisition Process, Docket No. E-002/CN-12-1240.

Dear Dr. Haar:

Pursuant to the Minnesota Public Utilities Commission's ("Commission") June 10, 2013 Notice of Filing Deadline, Calpine Corporation ("Calpine") respectfully submits (1) information responsive to the requirements of Minnesota Rule 7849.0310; and (2) a checklist indicating where each content requirement can be found within Calpine's April 15, 2013 Expansion Proposal or this supplemental filing.

Minnesota Rule 7849.0310 requires each alternative generation proposal to include environmental information responsive to Minnesota Rule 7849.0250, item C and Parts 7849.0320 to 7849.0340. In addition to Minnesota Rule 7849.0250, item C, only Part 7849.0320 is relevant to Calpine's Expansion Proposal.

In particular, Minnesota Rule 7849.0330 relates to large high voltage transmission lines ("LHVTL"). A new LHVTL is not part of Calpine's Expansion proposal. As the Commission is aware, the Mankato Expansion optimizes the use of infrastructure currently installed at the existing plant, including the existing generator lead line interconnecting the Mankato Facility with the Wilmarth Substation. The Mankato Facility was designed and permitted – including a Commission-approved Certificate of Need and Site Permit – to be constructed in two phases as a

Dr. Burl Haar
June 14, 2013
Page 2

full 720-megawatt power plant.¹ Calpine's April 15, 2013 Expansion Proposal represents the second phase. Finally, Minnesota Rule 7849.0340 relates to "no facility" alternative information, which Calpine understands is not required of alternatives proposed by bidders.

As noted in Appendix A to this filing, the majority of the information responsive to Minnesota Rule 7849.0310 is included in Calpine's April 15, 2013 Expansion Proposal. Where necessary, Calpine has supplemented this information within Appendix A. Should the Commission or the Department require additional information, Calpine remains ready to supply such information. In the interim, feel free to contact me with any questions or concerns.

Very truly yours,

/s/ Brian M. Meloy

Brian M. Meloy

BMM/cmw

cc: See Attached Service List

¹ See Order Granting Certificate of Need issued September 22, 2004 in Docket No. IP-6345/CN-03-1884, and Site Permit issued September 16, 2004 in MEQB Docket No. 04-76-PPS-CALPINE. The original Environmental Assessment prepared for the entire Facility can be found at: <http://www.eqb.state.mn.us/pdf/FileRegister/Calpine-Mankato/1111CalpineJune30.pdf>

**Attachment A to Calpine's June 14, 2013 Compliance Filing in
Docket No. E-002/CN-12-1240**

Minn. Rule	Requested Information	Location of Content
7849.250 C	Proposed Facility and Alternatives	<p>All of the pricing and economic information requested in C 1 through C 9 has been provided to the Department in the trade secret portions of Calpine's April 15th bid submission ("Appendix B") and in the related Strategist Template.</p> <p>The service life of the facility is estimated at 35 years.</p> <p>The impact of Calpine's proposal on system wide rates will be analyzed in this proceeding as a part of the evaluation of competing bids.</p>
C 1	Capacity costs in \$/kWh	
C 2	Service life	
C 3	Estimated annual availability	
C 4	Fuel costs in \$/kWh	
C 5	Variable O&M in \$/kWh	
C 6	Total costs in \$/kWh	
C 7	Effective of system wide rates	
C 8	Efficiency, heat rate	
C 9	Major assumptions, including projected escalation rates for fuel costs and operating and maintenance costs, as well as projected capacity factors	
7849.320	Generating Facilities	
A	Estimated land requirements, including assumptions on land for water storage, cooling systems and solid waste storage	No additional land is required. As set forth in Calpine's April 15 th bid submission, the Mankato Expansion will be developed entirely within the footprint of the Mankato Energy Center's existing 25-acre site.
B	Traffic (vehicles, rail, barge)	The existing roadway network and site access road are adequate to serve the proposed Expansion. No transportation improvements will be required for construction or operation. Major equipment will be delivered via a combination of truck, rail and/or barge.
C 1	Regional fuel source	Fuel is currently provided to the Mankato Energy Center via a 20-inch gas pipeline lateral that interconnects with Northern Natural Gas ("NNG") interstate pipeline facilities. This existing pipeline lateral is sufficiently sized to accommodate the fuel requirements of the proposed Expansion.
C 2	Fuel requirements during operation at rated capacity and annual fuel requirement at expected capacity factor	Annual fuel requirements and actual capacity factor will depend upon market conditions and the dispatch characteristics required by Xcel. The 345-mw Expansion (combined-cycle operation plus duct burners) will be capable of burning approximately

Minn. Rule	Requested Information	Location of Content
		60,000 MMBtu/day of natural gas during peak operating conditions.
C 3	Heat rate	<i>See Appendix B to Calpine's proposal at p. 8.</i>
C 4	Range of heat value of fuel and average	Greater than or equal to 950 Btu/Cubic Foot (per NNG's Tariff). <i>See also</i> , response to C 5 below.
C 5	Ranges of sulfur, ash, and moisture content of fuel	<p>The Mankato Expansion will be fueled by pipeline quality natural gas. Typical pipeline tariff specifications are as follows:</p> <p>a) The gas shall be commercially free from objectionable odors, solid matter, dust, gums and gum-forming constituents, or any other substance which might interfere with the merchantability of the gas, or cause injury to or interference with proper operation of the lines, meters, regulators, or other appliances through which it flows.</p> <p>b) Oxygen - less than or equal to 0.2% by volume.</p> <p>c) Hydrogen sulfide - less than or equal to 1/4 grain/Ccf.</p> <p>d) Total Sulfur - less than or equal to 20 grains/Ccf.</p> <p>e) Carbon Dioxide - less than or equal to 2.0% by volume.</p> <p>f) Water - less than or equal to 6 pounds/MMcf.</p> <p>g) Heating Value - greater than or equal to 950 Btu/Cubic Foot.</p> <p>h) The temperature shall be less than or equal to 120 degrees Fahrenheit.</p>
D 1	Range of trace elements and maximum emissions of sulfur dioxide, nitrogen oxides, and particulates in pounds per hour during operation and rated capacity	<p>Calpine expects that emissions related to the Expansion will closely approximate current emissions. Maximum emissions (based on current permit and regulatory limitations for the existing Mankato combustion turbine) at 2040 MMBtu/hr are as follows:</p> <p>SO₂ - 1.2 lb/hr/combustion turbine NO_x - 26.25 lb/hr/combustion turbine</p>

Minn. Rule	Requested Information	Location of Content
		<p>PM/PM10 - 22 lb/hr/combustion turbine</p> <p>Also <i>See</i> Appendix B to Calpine's proposal at p. 6 for anticipated emissions.</p>
D 2	Range of contributions to 24-hour average ground level concentrations	<p>Modeling that Calpine performed to support its March 2004 application to the Minnesota Environmental Quality Board confirmed compliance with the ambient air quality standards over all appropriate averaging periods. The Facility's contribution to predicted concentrations (inclusive of operation of the 2nd combustion turbine) were as follows:</p> <p>SO2 (24-hour) -- 33.36 ug/m3 NO2 (Annual)* -- 3.79 ug/m3 PM10 (24-hour) -- 22.27ug/m3.</p> <p>The modeled total concentrations (inclusive of operation of the 2nd combustion turbine) were:</p> <p>SO2 (24-hour) -- 93.36ug/m3 NO2 (Annual)* -- 26.79 ug/m3 PM10 (24-hour) -- 64.27ug/m3</p> <p>*NO2 was not modeled on 24-hour basis</p>
E 1	Maximum water use	Approximately 6.2 million gallons/day for the total facility. Also <i>See</i> Appendix B to Calpine's proposal at p. 5.
E 2	Groundwater appropriation	NA. As is the case with existing operations, for makeup water the Expansion will utilize treated wastewater supplied under an existing arrangement with the City of Mankato. Also <i>See</i> Appendix B to Calpine's proposal at p. 5.
E 3	Annual consumption in acre-feet	NA
F	Water discharges	Industrial wastewater will be discharged to the City of Mankato via a City Wastewater Discharge Permit. Domestic wastewater will be discharged directly to the City of Mankato sanitary sewer system through the plant's existing lateral service line connection.
G 1	Nuclear releases	NA
G 2	Range of radioactivity released in curies per year	NA

Minn. Rule	Requested Information	Location of Content
H	Solid wastes in tons per year	The Expansion will operate as a conditionally exempt small quantity generator (<1.32 TPY). Non hazardous wastes will include used oil, universal waste, and common rubbish.
I	Noise	There will be little if any incremental noise impact compared with existing facility operations. The existing plant was designed to operate within the State of Minnesota Noise Standards. The City of Mankato does not have a noise ordinance but relies on the State's noise level restrictions for local control of noise problems. The noise area classification ("NAC") for the area is category 3 (industrial and agricultural). The largest potential noise impacts will likely be generated during the construction of the Facility. Construction noise will be temporary and will be mitigated via appropriate scheduling and coordination of major activities.
J	Work force for construction and operation	The Expansion will require approximately 250 construction workers during peak construction activity. Calpine does not anticipate any significant increase in operations personnel compared with existing operations.
I	Transmission outlet	The Expansion will use the plant's existing transmission outlet. The existing plant switchyard and adjacent substation are appropriately sized for the proposed Expansion. <i>See</i> Appendix B to Calpine's proposal at p. 3-4, and 12.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

*In the Matter of the Petition of
Northern States Power Company to
Initiate a Competitive Resource
Acquisition Process*

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MPUC Docket No. E002/CN-12-1240

CERTIFICATE OF SERVICE

Catherine M. Wood, certifies that on June 14, 2013 she served true and correct copies of the **Environmental Supplement of Calpine Corporation** upon the following parties via e-filing and/or U.S. Mail:

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/s/ Catherine M. Wood

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