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September 21, 2005

Reply to Fergus Falls office
Direct: 218-998-7108

David H. Meyer
Acting Deputy Director
Office of Electricity Delivery and Energy Reliability, TD-1
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: Energy Policy Act of 2005, Section 1234 Economic Dispatch Study

Dear Mr. Meyer:

This letter is in response to your September 1, 2005 letter to Mr. James Torgerson, President, Midwest Independent Transmission System Operator, Inc. (Midwest ISO or MISO) regarding the Department of Energy's (DOE) responsibility to conduct a study on the benefits of economic dispatch in the electric industry as identified in Section 1234 of the Energy Policy Act of 2005.

Otter Tail Corporation, d/b/a Otter Tail Power Company (Otter Tail), is a FERC-jurisdictional, transmission and generation owning utility. Otter Tail is a member-Transmission Owner of the Midwest ISO and operates as a NERC-Certified Control Area Operator for a control area that spans over 50,000 square miles covering portions of Minnesota, North Dakota, and South Dakota.

Otter Tail's responses to the DOE's six survey questions are based on its experience as a Market Participant and Balancing Authority operating in the Midwest ISO under the Midwest ISO's Open Access Transmission and Energy Markets Tariff with respect to the Midwest ISO's Economic Dispatch of an Energy Market effective on April 1, 2005.

Otter Tail appreciates this opportunity to provide input in the DOE's survey. If you have additional questions, please contact JoAnn Thompson, Tariff Engineer, System Operations at 218-739-8594 or jthompson@otpco.com.

Sincerely,

Bruce Gerhardson
Associate General Counsel
BG/dm

Enclosure

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Response of Otter Tail Corporation d/b/a Otter Tail Power Company to questions posed by the U. S. Department of Energy pursuant to Section 1234 of the Energy Policy Act of 2005 regarding economic dispatch:

1) What are the procedures now used in your region for economic dispatch? Who is performing the dispatch (a utility, an ISO or RTO, or other) and over how large an area (geographic scope, MW load, MW generation resources, number of retail customers within the dispatch area)?

The Midwest ISO performs the economic dispatch for the region that Otter Tail Power Company operates. The Midwest ISO's economic dispatch procedures are specifically detailed in Module C of the Midwest ISO's Open Access Transmission and Energy Markets Tariff (TEMT) and its related business practice manuals. Otter Tail does not have the specific operational and demographic details regarding the Midwest ISO's economic dispatch region and thus, anticipates that the Midwest ISO will submit comments specifically addressing the economic dispatch function that it performs, its geographic scope, MW load, MW generation resources and retail customers served within its area.

2) Is the Act's definition of economic dispatch (see above) appropriate? Over what geographic scale or area should economic dispatch be practiced? Besides cost and reliability, are there any other factors or considerations that should be considered in economic dispatch, and why?

The definition of economic dispatch outlined above is consistent with Otter Tail's understanding of economic dispatch. A larger footprint (such as that of the Midwest ISO) is advantageous when performing economic dispatch because a larger region enables maximizing the diversity of load patterns and available generation. Otter Tail Power Company considers economics and reliability to be the two primary objectives of economic dispatch.

3) How do economic dispatch procedures differ for different classes of generation, including utility-owned versus non-utility generation? Do actual operational practices differ from the formal procedures required under tariff or federal or state rules, or from the economic dispatch definition above? If there is a difference, please indicate what the difference is, how often this occurs, and its impacts upon non-utility generation and upon retail electricity users. If you have specific analyses or studies that document your position, please provide them.

Different generating resources have different physical characteristics and limitations that impact economic dispatch. For instance, coal and natural gas-fired generation can offer into the Midwest ISO market and be dispatched according to economic and physical parameters. However, wind generation cannot follow a dispatch signal and therefore

wind generation becomes a must-take resource in the market. This is an example of generation resources being treated differently by the market due to the physical limitations of the differing resources. Therefore, it is important to note that any economic dispatch mechanism must truly be designed such that the economic dispatch algorithm functions in an independent manner so as to commit units based solely upon the offers submitted and physical characteristics and limitations. That is to say that "forced dispatch" (committing units on a discriminatory basis due to certain mandates or sector interests) defeats the core function of "economic" dispatch. In order to achieve the desired economic and reliability benefits of economic dispatch that afford the benefits of efficient use of the grid to provide low cost energy to the end-users, the economic dispatch truly must be based on the market signals rather than imposed "forced dispatch" of certain resources receiving different or preferential treatment from other resources.

While Otter Tail Power Company only operates utility-owned generation; to the best of its knowledge it believes that the Midwest ISO treats non-utility generation consistently and comparably.

Otter Tail is not aware of any operational practices that differ from the tariff, federal, or state rules.

4) What changes in economic dispatch procedures would lead to more non-utility generator dispatch? If you think that changes are needed to current economic dispatch procedures in your area to better enable economic dispatch participation by nonutility generators, please explain the changes you recommend.

Otter Tail Power Company is not familiar with any problems experienced by non-utility generation. Therefore, Otter Tail is not in a position to knowledgably comment on this question.

5) If economic dispatch causes greater dispatch and use of non-utility generation, what effects might this have - on the grid, on the mix of energy and capacity available to retail customers, to energy prices and costs, to environmental emissions, or other impacts? How would this affect retail customers in particular states or nationwide? If you have specific analyses to support your position, please provide them to us.

The effect on economic dispatch that the addition of non-utility generating resources would have on the energy markets is a positive benefit. Adding generation will aid the energy markets provided that all resources are treated equally. Adding capability to the system will promote economic dispatch efficiencies in terms of reliability and economics. In general, Otter Tail assumes that added capacity will ultimately lower the cost of energy for retail customers. This response assumes that economic dispatch continues to follow "economics." See our response to question no. 3.

6) Could there be any implications for grid reliability - positive or negative – from greater use of economic dispatch? If so, how should economic dispatch be modified or enhanced to protect reliability?

While it is the objective that economic dispatch will enhance grid reliability, based upon Otter Tail's direct experience as a Midwest ISO Balancing Authority in the Midwest ISO, we have four concerns with the Midwest ISO's economic dispatch that require modifications and/or enhancements for the benefit of grid reliability.

(1) The use of incorrect unit data such as ramp rates and limits can negatively impact reliability because units' outputs may be under or over the desired points. The use of incorrect data is a result of the marketers submitting inaccuracies in their bids compounded by the Balancing Authority operators' inability to correct them. The resolution for grid reliability is to authorize and enable the Balancing Authority operators to correct inaccurate ramp rates and limits that they identify as potentially compromising the integrity of a reliably operated grid.

(2) The Midwest ISO has recently negatively impacted reliability by dispatching units regulating reserves. The Midwest ISO performed this unauthorized action by lowering the load forecast originally submitted by the Balancing Authority. This action taken by the Midwest ISO (and not coordinated with the Balancing Authorities) created insufficient regulating reserves for the Balancing Authorities and thus insufficient capability to perform regulation service. The Midwest ISO has now proposed plans to dip into a units' contingency spinning reserves. This can leave Balancing Authorities with inadequate reserves if there is a major loss of energy resources. One solution that is applicable in addressing this (for the Midwest ISO) is correcting how the Midwest ISO handles Dynamic Schedules. Presently, the Midwest ISO is including Dynamic Schedules that are coming into the MISO footprint from non-MISO generation in its ramp equation. MISO needs to exclude these schedules from the calculation. For instance, if the MISO change in net import is 1,000 MW and 200 MW of this is coming from external Dynamic Schedules, MISO should only be ramping for 800 MW rather than 1,000 MW. Under the Midwest ISO's present method of including all Dynamic Schedules in its ramp calculation, it falsely causes the Midwest ISO to appear short on generation and thus, requires MISO to dip into the Balancing Authorities reserves to correct this inaccuracy.

(3) Otter Tail's third concern is regarding the Midwest ISO's security constrained economic dispatch (SCED) and its application toward mitigating reliability problems. The Midwest ISO's SCED has two weaknesses (i) it cannot directly model stability concerns and (ii) inaccuracies in the model can result in dispatch errors. While the modeling inaccuracies are, for the most part due to reporting inaccuracies, any inaccuracy represents the potential for an inaccurate solution and thus poses a reliability vulnerability. Therefore, increased emphasis on utilizing only one model for all purposes will minimize the degrees of error and

increasing emphasis and accountability on the reported data that goes into the model will directly benefit modeling accuracies. Furthermore, a mechanism to incorporate stability analysis with the SCED should be considered to further enhance the ability to comprehensively and reliably operate the system.

(4) A fourth consideration in the Midwest ISO's economic dispatch is its Outage Coordination Policy in reference to the coordination of generation outages. The Midwest ISO's Business Practices Manual for Outage Operations (BPM 008) specifies the rules for generation and transmission outages. However, there are distinct differences in the requirements for generator outages versus transmission outages with the primary difference in the authority given to the Midwest ISO to approve/deny an outage. Otter Tail Power Company realizes the complexity and volatility of outage scheduling in relation to generation units; however, implementing outage coordination policy rules should be as consistent as practical for both generation and transmission. The BPM states in Section 4.3, "Midwest ISO coordinates and assesses the impact of all generator outage schedules . . .." whereas Section 5 indicates that the Midwest ISO has the authority and charge to coordinate, assess, and approve transmission outages. This disconnect of authority between generation and transmission outages may effect the Midwest ISO's ability to effectively conduct a true SCED because the Midwest ISO is not authorized to deny a generation outage request that adversely impacts the reliability of the grid. This lack of authority causes the Midwest ISO to implement other actions such as special operating guides or re-dispatch of other generating stations out of economic merit order, which can adversely impact the Economic Dispatch solution and produce higher LMPs.

While all four of the above noted concerns are valid for all Balancing Authorities operating within the Midwest ISO economic dispatch footprint, these inaccuracies have the potential to be magnified due to the larger size of the Midwest ISO's market footprint. However, from a reliability perspective, the Midwest ISO is looking at a larger picture (i.e., one beyond that of the market footprint), which is beneficial.