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Xcel Energy

Docket No.: E002, ET2/CN-06-1115

Response To: Susan L. Peirce Information Request No. 59
 MN Department of Commerce

Date Received: March 6, 2008
 March 15, 2008

Question:

With respect to planned biogas or biomass facilities, please provide a capacity factor for those facilities along with an explanation of how the capacity factor was determined.

Response:

Utility	Capacity Factor and Explanation																								
Central Minnesota Municipal Power Agency (“CMMPA”)	CMMPA currently estimates that the Landfill Gas station at Glencoe will average 90% capacity factor. This is based on the continuous nature of the engineered system as well as the existence of a full backup generation power plant should any of the installed units fail.																								
Dairyland Power Cooperative	<p>Dairyland Power Cooperative currently does not have any planned biogas or biomass facilities under contract. For potential future biogas or biomass facilities, Dairyland Power Cooperative relies on initial engineering estimates of capacity factor.</p> <p>For existing biogas or biomass facilities, the capacity factor is based on actual generation.</p> <table border="1" data-bbox="711 1654 1360 1881"> <thead> <tr> <th>Project</th> <th>Technology</th> <th>MW</th> <th>MWh</th> <th>Hours</th> <th>Capacity Factor</th> </tr> </thead> <tbody> <tr> <td>Seven Mile Creek</td> <td>Landfill</td> <td>3.0</td> <td>14,447</td> <td>8,760</td> <td>55%</td> </tr> <tr> <td>Wild Rose</td> <td>Digester</td> <td>0.8</td> <td>1,989</td> <td>8,760</td> <td>29%</td> </tr> <tr> <td>Five Star</td> <td>Digester</td> <td>0.8</td> <td>4,913</td> <td>8,760</td> <td>72%</td> </tr> </tbody> </table>	Project	Technology	MW	MWh	Hours	Capacity Factor	Seven Mile Creek	Landfill	3.0	14,447	8,760	55%	Wild Rose	Digester	0.8	1,989	8,760	29%	Five Star	Digester	0.8	4,913	8,760	72%
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Utility	Capacity Factor and Explanation						
	Norswiss	Digester	0.8	3,841	8,760	52%	
	Timberline Trail	Landfill	3.2	26,005	8,760	93%	
	Central Disposal	Landfill	4.8	39,927	8,760	95%	
Great River Energy	<p>The 2007 capacity factor for the Elk River Municipal (Landfill gas) is 92.1%, based on generation of 25,818 MWh and capacity of 3.2 MW. The 2007 capacity factor of the Elk River Station (refuse-derived fuel) is 49.9% based on generation of 160,970 MWh and accredited capacity of 36.8 MW.</p> <p>Great River Energy has no planned biomass or biogas generation projects at this time.</p>						
Minnesota Power	<p>Minnesota Power does not own or have under contract any existing or planned biogas facilities. With respect to new biomass facilities, the capacity factor is approximately 75% and for existing biogas facilities, the capacity factor is lower, approximately 65%, due to equipment and maintenance needs of older systems. Minnesota Power determines these capacity factors on a case by case basis applying general utility industry practices.</p>						
Otter Tail Power Company	<p>Otter Tail Power is currently working with two entities that may result in PPAs. One of these facilities is a wood waste biomass facility that previously operated at an annual capacity factor typically in the 60-75% range. If the unit is restarted, the capacity factor experienced will be dependent upon (1) the amount of fuel available for the facility and (2) the operating parameters of the facility such as maintenance, forced outage rate, etc. The second entity is considering the installation of biogas. At this point Otter Tail Power does not know what the capacity factor will be, but the developer has indicated the expectation that it will be high.</p>						
Rochester Public Utilities	<p>Rochester Public Utilities (“RPU”) purchases “behind the meter” generation for the Olmsted</p>						

Utility	Capacity Factor and Explanation
	<p>County Waste to Energy Facility (“OWEF”) when RPU system demand exceeds 216 MW. The current OWEF capacity is 2.66 MW. The OWEF is planning an additional 5 MW unit to be in-service in 2009. When RPU demand is below 216 MW, the OWEF generation is purchased by Southern Minnesota Municipal Power Agency (“SMMPA”). The capacity factor of the OWEF biomass facility is forecasted to vary between 40% to 55% depending on the year. This estimate was provided to RPU from SMMPA based on estimates of steam versus electrical loading on an annual basis.</p>
SMMPA	<p>The capacity factor of the OWEF biomass facility is forecasted to vary between 40% to 55% depending on the year. This estimate was provided to SMMPA from Olmsted County based on their estimates of steam versus electrical loading on an annual basis. The capacity factor of the SMMPA Methane Energy Facility is estimated to be 90% based on experience from similar landfill gas generating facilities. All SMMPA biodiesel fired generating units use an estimated capacity factor of approximately 5% (or 500 operating hours per year) based on several years of operating history.</p>
Wisconsin Public Power Inc.	<p>Wisconsin Public Power Inc. has one biogas facility purchased that started in February 2007. Wisconsin Public Power Inc. used a capacity factor of 98% for this facility based on the developers’ estimated capacity factor for the facility.</p>

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