

OTTER TAIL POWER COMPANY  
Docket No. EL13-016

Response to: South Dakota Public Utilities Commission  
Analyst: SDPUC Staff  
Date Received: 7/10/2013  
Date Due: 8/2/2013  
Date of Response: 07/25/2013  
Responding Witness: Kim Pederson, Manager Market Planning - (218) 739-8303

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Information Request No: SD-PUC-01-06

Please demonstrate how the proposed VFD incentives of \$45 and \$95 per horse power are reasonable.

**RESPONSE:**

In developing the VFD incentives of \$45 per horsepower for seasonal motor loads and \$95 per horsepower for non-seasonal loads, Otter Tail staff researched project costs and program cost effectiveness from past Minnesota projects and 2012 VFD installations in South Dakota.

In the South Dakota program, average VFD costs including installation were approximately \$133 per horsepower. These VFDs were relatively large and the average installed costs reflect a lower cost than would be incurred with smaller horsepower installations. The current prescriptive rebate in Minnesota has encouraged smaller VFD installations with inherently higher costs per horsepower. In addition, the 2013 R.S. Means Electrical Cost Data supports that smaller VFD installation will be higher.

A review of the benefit/cost ratios for the Driver Power program indicates the participant test of 1.63 and a utility test of 8.35 suggest the proposed higher incentive is not unreasonable.

The incentive of \$95/horsepower is an aggressive, but cost-effective strategy for encouraging adoption of this highly efficient, motor control strategy for drivepower systems. Otter Tail proposes incentive caps of 75% of installed costs for all projects completed through the proposed VFD program to manage overall program cost effectiveness.

Otter Tail proposes a lower incentive for seasonal VFD installations to account for a trend of most seasonal VFD installations taking place on HVAC system pumps and fans. In a non-seasonal VFD installation, the VFD is typically programmed to reduce electrical demand and energy consumption throughout all hours of the year. Alternatively, in a

typical HVAC installation, the HVAC pumps and/or fans will continue to operate under peak demand conditions on the hottest days of the summer and on the coldest days of the winter, resulting in energy savings but often zero or insignificant demand savings.

In theory, project costs for VFD installations in seasonal and non-seasonal applications should vary by an insignificant amount. However, Otter Tail receives greater value (avoided costs) from VFD installations that reduce annual energy use and seasonal peak demand and consequently has awarded non-seasonal VFD installations with a higher incentive.