

OTTER TAIL POWER COMPANY

Docket No: EL20-016

Response to: South Dakota Public Utilities Commission

Analyst: Staff

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Date of Response: June 01, 2020

Responding Witness: Jason A. Grenier, Manager Market Planning - (218) 739-8639

Data Request:

Explain why Geothermal Heat Pumps (R) had limited participation in 2018. What is OTP doing to increase participation in 2020?

Attachments: 0

Response:

Otter Tail appreciates the concern from South Dakota Public Utilities Commission staff regarding participation in the Geothermal Heat Pumps program. From Otter Tail's experience in both South Dakota and other jurisdictions, meeting goals for geothermal heat pumps is often challenging due to several potential factors:

1. High capital requirement

Ground source heat pumps are the most efficient heating system in operation today providing residential customers with years of extremely affordable home heating and cooling with proper system design and installation. However, geothermal heat pumps require a relatively large investment up front for required ground loop fields. Homeowners are often faced with limited capital budgets for home construction and improvements. Cash available for upgrades to geothermal heating and cooling systems is often in direct competition for other more visible upgrades outside the basement mechanical room including expensive cabinets, stone countertop materials, flooring, and other expensive finishes.

2. Air Source Heat Pump performance

Advancements in air source heat pumps that operate at lower temperatures, some down to 0° F, provides residential customers with a very efficient heating system that is competitive with ground source heat pump options. This combined with the lower cost of air source heating cooling systems is likely leading a segment of customers to opt for cold climate air source heat pumps that deliver very efficient heating and cooling with a lower capital investment than geothermal systems.

3. Magnitude of participation

With nine proposed participants in the Geothermal Heat Pumps residential program, it takes similarly small deviations from actual participants to yield significant percentage deviations.

4. Ground Loop Field Requirements

Another potential barrier that has been noted by customers on the residential side is the drilling or buried ground loop field that is required for a geothermal system. If a customer does not have the land area required or has other items located that would make installation difficult, they often turn to other systems.

5. Rebate Amounts

Otter Tail has been offering identical rebates between cold climate air source and geothermal heat pump programs in the South Dakota service area. This is likely affecting participation in the geothermal heat pump program and is something that is being continuously monitored and programs rebate amounts being reevaluated to continue to provide high incentives for energy efficiency.

Otter Tail continues to remain active in the geothermal heat pump industry. The Company provides free and reduced training in proper geothermal loop field design for midwestern architectural and mechanical design firms. The Company constantly evaluates higher incentives for geothermal heat pumps and continues to leverage other sources of funding whenever possible, including federal tax credits for residential efficiency improvements. The Company is also evaluating a comprehensive program strategy in another jurisdiction that would attempt to provide residential customers with an audit to identify efficiency opportunities in the home, bonus incentives for committing to project completion by established deadlines, and financing for packaged upgrades, including geothermal heat pumps, air source heat pumps, appliances, envelope upgrades, and financing. Pending results of this possible program model, Otter Tail looks forward to discussions with the South Dakota PUC and staff regarding a similar approach in South Dakota.