

**MONTANA-DAKOTA UTILITIES CO.
SOUTH DAKOTA PUBLIC UTILITIES COMMISSION
SECOND DATA REQUEST ISSUED MARCH 24, 2020
DOCKET NO. EL20-009**

- 2-6. Refer to MDU's response to DR 1-4, part b. Noting that the assumed capacity factors for the original Thunder Spirit Wind and the expansion are 45.2 percent and 44.5 percent, respectively, explain why the expansion only realized a capacity factor of 36.5 percent in 2019 when the original Thunder Spirit Wind had a capacity factor of 41.9 percent in 2019.**

Response:

The variance in generation output levels between the original Thunder Spirit Wind (TSW 1) and the expansion phase (TSW 2) was mostly related to turbine/balance of plant (BOP) faults and scheduled type 1 maintenance. Type 1 maintenance is an extensive process completed after the first 500 hours of operation. One turbine was offline for a month due to blade damage. Two turbines experienced pad mount transformer failures. One turbine was offline for a month due to a coolant leak into the power converter that shorted out various electrical components. TSW 2 also experienced slightly less generation than TSW 1 because of lower winds.