

MONTANA-DAKOTA UTILITIES CO.

Before the South Dakota Public Utilities Commission

Docket No. EL23-____

Testimony

Of

Joseph E. Geiger

1 **Q. Please state your name and business address.**

2 A. My name is Joseph E. Geiger and my business address is 400
3 North Fourth Street, Bismarck, North Dakota 58501.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the Director of Generation in the power production department
6 of Montana-Dakota Utilities Co. ("Montana-Dakota").

7 **Q. Please describe your duties and responsibilities with Montana-**
8 **Dakota.**

9 A. I have overall responsibility for the day-to-day operation of
10 Montana-Dakota's electric generation facilities, represent Montana-
11 Dakota's interests in joint owned generation facilities operated by other
12 companies, and I am also responsible for new generation development.

13 **Q. Please outline your educational and professional background.**

14 A. I hold a Bachelor's Degree in Electrical Engineering from the
15 University of North Dakota. My work experience includes six years of
16 experience as a plant engineer, nine years of experience in varying roles
17 of plant supervision/management, and four years of generation

1 development and operational responsibilities in my current position which
2 includes coal-fired, gas-fired, and renewable generation.

3 **Q. Have you testified in other proceedings before regulatory bodies?**

4 A. Yes, I have testified before the Montana and North Dakota Public
5 Service Commissions.

6 **Q. What is the purpose of your testimony in this proceeding?**

7 A. The purpose of my testimony is to describe the Heskett IV
8 combustion turbine project ("Heskett IV Project") and to provide an update
9 on the Heskett IV Project construction activities, schedule, and cost
10 estimate.

11 **Q. Please describe Montana-Dakota's Heskett IV Project.**

12 A. The Project includes a natural gas-fired, 88 MW, simple cycle
13 combustion turbine ("SCCT") and the facilities to interconnect with
14 Montana-Dakota's existing electric system ("Interconnect"). The Heskett
15 IV Project is located near Mandan, North Dakota adjacent to Montana-
16 Dakota's R.M. Heskett Station III. Natural gas fuel will be supplied
17 through an existing 10-inch pipeline ("NG Pipeline"), approximately 24
18 miles in length, interconnecting with the Northern Border Pipeline
19 Company near St. Anthony, North Dakota, which also provides natural gas
20 fuel to R.M. Heskett Station III. Operating and fire suppression water
21 needs will be supplied through a 12-inch pipeline, approximately 2,684-
22 feet in length, interconnecting with the City of Mandan water supply. A
23 new administration building is under construction in conjunction with the

1 Heskett IV Project. The Heskett IV Project will be operated and
2 maintained by a staff of six employees.

3 **Q. What is a simple cycle combustion turbine?**

4 A. SCCTs are generally built to start up quickly to serve peak capacity
5 needs. They usually supply a limited amount of energy because they are
6 fueled by natural gas or liquid fuels which results in a higher fuel cost than
7 coal base load generation facilities. In the SCCT, air is drawn in at the
8 front of the unit and is compressed using rows of rotating blades. The
9 compressed air is then sent to a combustion chamber where it is mixed
10 with fuel and the mixture is ignited. The hot combustion gas is then
11 expanded through rotating turbine blades delivering power through a shaft
12 connected to the generator where electricity is produced.

13 **Q. Please describe the major equipment chosen for Montana-Dakota's**
14 **Heskett IV Project.**

15 A. The equipment includes a General Electric 7E.03 ("7EA") heavy
16 duty ("Frame") combustion turbine which is natural gas-fired, has a dry low
17 NOx combustion system, evaporative inlet air cooling for power
18 augmentation, a totally enclosed water-to-air cooled ("TEWAC") generator,
19 and a closed cooling water system for cooling the generator heat
20 exchangers, turbine supports, flame detectors, and lubrication oil. Other
21 auxiliary equipment includes natural gas heating and filtration, fire
22 detection and suppression, turbine control system, starting means,
23 exhaust system, a continuous emissions monitoring system, an

1 emergency backup generator, a high-voltage substation, transformers,
2 power load center and distribution equipment. The Heskett IV Project will
3 also share use of R.M. Heskett Station III's turbine water wash system,
4 balance of plant control system, instrument air system, and service
5 building. The Frame Combustion Turbine was selected due to it being an
6 ideal size to replace the Heskett coal units under MISO's generator
7 interconnection replacement process as well as its lower capital cost,
8 lower operation and maintenance cost, better emissions control, ability to
9 perform on-site maintenance, lower natural gas inlet pressure
10 requirement, less susceptibility to cold weather operational issues, and
11 Montana-Dakota's operating experience associated with the Frame
12 SCCTs as compared to other technologies.

13 **Q. Please describe the schedule for the Combustion Turbine**
14 **construction.**

15 A. The general works construction ("GWC") contract was awarded on
16 March 28, 2022 and site activities commenced on May 9, 2022. The
17 civil/structural portion of the GWC activities include site preparation,
18 foundations, concrete flatwork, and aboveground structures. The
19 mechanical portion of the GWC activities include heavy haul and setting
20 the turbine and generator, receiving and handling all other equipment and
21 materials, and erection of mechanical equipment and piping (including tie-
22 ins to existing R.M. Heskett Station III systems). The electrical portion of
23 the GWC activities include the installation of electrical equipment,

1 enclosures, fixtures, and panels; as well as grounding, duct bank, cable
2 tray, conduit, cabling, and wiring of all equipment. GWC substantial
3 completion is expected in Quarter 3 2023. Commissioning and start-up
4 activities will follow GWC substantial completion and are expected to take
5 approximately three months.

6 **Q. Please provide the current breakdown of the Heskett IV Project**
7 **capital cost estimates.**

8 A. The current Heskett IV Project capital cost allocated to South
9 Dakota is \$2,761,317 as shown on Rule 20:10:13:56, Statement D,
10 Schedule D-2, page 3.

11 **Q. What is the anticipated schedule for commercial operation of the**
12 **Heskett IV Project?**

13 A. The Heskett IV Project is anticipated to be ready for commercial
14 operation late third Quarter or early fourth Quarter 2023.

15 **Q. Does this conclude your direct testimony?**

16 A. Yes, it does.