

Report of the Natural Gas task group January 2023

On the second page is the response we received from CWL's Christian Johanningmeier regarding Natural Gas use for generating electricity.

Two things are pertinent.

1. Columbia's electric utility's (CWL) use of Natural Gas is significant.
2. CWL has been changing how MISO calls upon it so that the combustion turbines are used more and the furnace is used for a shorter period.

CWL electric generating equipment makes up more than half of CWL's required capacity of about 330 MW.

CEC:4 combustion turbines at the Columbia Energy Center	144	MW
D8: a furnace based steam generator	32	MW
D6: combustion turbine at the Power Plant	16.5	MW

The equipment is only used when called upon by MISO and MISO insists on running all capacity some during the year to make sure they can operate. The peak demand period is a few hours a day and the combustion turbines reflect just meeting peak demand. The furnace based system takes hours to turn on slowly to avoid breaking the furnace by heating it slowly. It appears to be used to cover peak period on just two days. This avoids additional use during non peak hours by operating it just one night. I anticipate that combustion turbines will be substantially used, and producing GHG, to meet peak demand coverage nationally, and in Columbia, until battery prices are greatly reduced while coal will be almost eliminated nationally.

Dick Parker

Our natural gas is supplied from the natural gas market through TEA, who acts as our natural gas agent. Ameren only provides natural gas transportation services from the Panhandle Eastern city gate to the Municipal Power Plant and the Columbia Energy Center. CWL is a major user of the local Ameren natural gas system.

See below for the data you requested by fiscal year.

Fiscal Year	Natural Gas (Mcf)			Production (MWh)		
	D6	D8	CEC	D6	D8	CEC
2020	5.939	291.265	203.105	327	24.698	16.392
2021	13.343	283.320	200.246	762	23.436	15.897
2022	13.856	19.264	636.321	818	1.509	53.841

Since all units are used to meet our capacity obligations within MISO, all units must be offered to the MISO market daily. These units cover about 64% of our capacity obligations in the current MISO planning year. The MISO market works on a day-ahead basis. Daily offers for generation and load for the next day are due to MISO by 9:00 EST. We receive our Day-Ahead generation awards by about 1:30pm EST and load awards by about 4:00pm EST.

There is a Real Time market as well. The awards for Real Time generation are based upon our generation offer. As the MISO market is a competitive market, I am only going to give you general data. For the combustion turbines - D6 and the CEC units - they can generally be started and be at full load in about 30 minutes. Our generation offer reflects this time and an hour or two notification time for calling in staff, prepping the unit for start, etc. For the steam turbine - D8 - it takes 6 to 10 hours to prep and start the unit and ramp to full load depending upon conditions.

CWL provides forecasted load data to MISO forward 7 days.

Generally, all units are operated when dispatched by MISO. There are occasions when we self dispatch units, usually for testing. There are other occasions when we self dispatch D6 due to load on the Power Plant substation or to carry load at the Power Plant substation during times of maintenance. In the past, we used D8 on a "Must-Run" basis to keep the Municipal Power Plant from freezing, as it had no other heat. Over the past couple of years, we have installed electric heat in the Power Plant to reduce or eliminate any must-runs for heat.

With respect to Crystal Lake, CWL is not the market participant for that project, Nextera the owner is. In addition, the project delivers energy at its MISO node in Iowa. Therefore, we do not consider that resource in our daily planning. TEA is not involved with Crystal Lake.

Below is operating data related to operating hours, starts, and hours per start for CWL units:

Fisc Year	Operating Hours			Starts			Hours per Start		
	D6	D8	CEC	D6	D8	CEC	D6	D8	CEC
2020	30,8	1.728,0	473,6	10	6	108	3,1	288,0	4,4
2021	70,0	1.657,8	466,0	14	15	113	5,0	110,5	4,1
2022	72,2	91,8	1.548,4	19	3	236	3,8	30,6	6,6

Regarding the data above, D8 was on an extensive outage in FY 2022 due to lengthy lead time supply chain issues on auxiliary equipment requiring repair.

Production from the above referenced CWL units is not considered in our annual renewable report. The report compares our system load against our production and procurement of renewable energy. Production from our Landfill Gas plant is considered in the report.

Please let me know if you have any additional questions.