

**STATE OF NEBRASKA
NEBRASKA POWER REVIEW BOARD**

IN THE MATTER OF THE APPLICATIONS OF)	PRB-4021-G
THE OMAHA PUBLIC POWER DISTRICT,)	PRB-4022-G
HEADQUARTERED IN OMAHA, NEBRASKA,)	(consolidated)
REQUESTING AUTHORITY TO CONSTRUCT)	
A 675 MEGAWATT NATURAL GAS AND FUEL)	
OIL GENERATION FACILITY IN CASS COUNTY,)	
NEBRASKA, AND A 225 MEGAWATT NATURAL)	ORDER
GAS AND FUEL OIL GENERATION FACILITY IN)	
SARPY COUNTY, NEBRASKA.)	

References in this Order to testimony are designated by a “T” followed by the transcript page, then the lines upon which the testimony appears, while references to exhibits are designated by “Exh.” Some exhibits are marked with more than one page number. The applicable page numbers added by the court reporter for purposes of this proceeding appear in the lower right corner on each page of the exhibits.

ON THE 15th day of March, 2024, the above-captioned matter came on for consideration before the Nebraska Power Review Board (the Board). The Board, being fully advised in the premises, and upon reviewing said application and the evidence presented to the Board at said hearing, HEREBY FINDS AS FOLLOWS:

FINDINGS OF FACT

1. That on February 16, 2024, the Omaha Public Power District (OPPD), headquartered in Omaha, Nebraska, filed an application with the Board requesting authority to construct a 675 megawatt (MW) natural gas and fuel oil simple-cycle

combustion turbine electric generation facility and related facilities to be located in Cass County, Nebraska. (Exh. 1). The project would consist of three simple-cycle combustion turbines. (Exh. 22, page 7). The application was designated “PRB-4021-G”.

2. Also on February 16, 2024, OPPD filed an application with the Board requesting authority to construct a 225 MW natural gas and fuel oil simple-cycle combustion turbine electric generation facility and related facilities to be located in Sarpy County, Nebraska. (Exh. 3). The project would consist of one simple-cycle combustion turbine. (Exh. 22, page 7). That application was designated “PRB-4022-G.”

3. In its applications, OPPD requests the ability to increase or decrease the capacity of either or both generation facilities by approximately fifty (50) megawatts. This will allow OPPD to optimize the economics, reliability and feasibility of the integrated package of generators. If the final capacity of either or both facilities were to be changed, the total combined capacity of the two facilities will not exceed nine hundred (900) megawatts. (T121:23 to 127:21; Exh. 1, page 3; Exh. 3, page 3)

4. OPPD considers both applications to be “inextricably intertwined” as an “integrated portfolio” to address the District’s generation needs. (Exh. 1, page 3; Exh. 3, page 3). The related facilities in both applications include breakers, switching, and other devices to facilitate the interconnection of the new facilities. (Exh. 1, pages 2-3; Exh. 3, pages 2-3). Following issuance of the required notices, the hearing officer consolidated both applications for purposes of procedural matters and hearings.

5. The estimated total cost for PRB-4021-G is \$914,500,000. The estimated cost for the generation facilities is \$891,500,000. The estimated cost of related interconnection facilities is \$23,000,000. (T130:5-18; Exh. 1, page 2; Exh. 22, page 44).

6. The estimated total cost for PRB-4022-G is \$325,500,000. The estimated cost for the generation facilities is \$322,000,000. The estimated cost of related interconnection facilities is \$3,500,000. (T130:5-18; Exh. 3, pages 2-3; Exh. 22, page 44).

7. That the proposed location for the generation facility in PRB-4021-G is adjacent to the existing site of OPPD's Cass County Station at 3520 Mill Road, in Cass County, Nebraska. (Exh. 1, pages 5-7).

8. That the proposed location for the generation facility in PRB-4022-G is adjacent to the existing site of OPPD's Turtle Creek Station near the intersection of South 168th Street and Fairview Road, Sarpy County, Nebraska. (Exh. 1, pages 5-7).

9. That those power suppliers, other than the Applicant, that the Board deemed to be potentially affected by or interested in application PRB-4021-G were the City of Lincoln (doing business as the Lincoln Electric System), the Municipal Energy Agency of Nebraska, the Nebraska Public Power District, the City of Auburn (doing business as the Auburn Board of Public Works), the City of Fremont (doing business as Fremont Department of Utilities), the City of Nebraska City (doing business as Nebraska City Utilities), the City of Tecumseh, and the City of Wahoo. (Exh. 2, pages 5-6).

Written notice of the filing of the application and the hearing date, and the opportunity to

file a Petition for Intervention or a Protest, was provided to these potentially interested power suppliers and the Applicant via certified U.S. mail. (Exh. 2).

10. That those power suppliers, other than the Applicant, that the Board deemed to be potentially affected by or interested in application PRB-4022-G were the City of Lincoln (doing business as the Lincoln Electric System), the Municipal Energy Agency of Nebraska, the Nebraska Public Power District, the City of Auburn (doing business as the Auburn Board of Public Works), the City of Fremont (doing business as Fremont Department of Utilities), the City of Nebraska City (doing business as Nebraska City Utilities), the City of Tecumseh, and the City of Wahoo. (Exh. 4, pages 5-6).

Written notice of the filing of the application and the hearing date, and the opportunity to file a Petition for Intervention or a Protest, was provided to these potentially interested power suppliers and the Applicant via certified U.S. mail. (Exh. 4). No power supplier filed a Petition for Intervention or Protest regarding either application.

11. Notice of the filing of both applications and the hearing date, and the opportunity to file a Petition for Intervention, was provided to the general public by publication in the *Omaha World-Herald* newspaper on Tuesday, February 27, 2024. (Exh. 5). Notice of the filing of both applications and the hearing date, and the opportunity to file a Petition for Intervention, was also provided to the general public by publication in the *Sarpy County Times* newspaper on Wednesday, February 28, 2024. (Exh. 6). No person or entity filed a Petition for Intervention regarding either application.

12. A certified copy of Consent and Waiver forms were offered and accepted into evidence at the hearing, as provided by law and the Board's Rules of Practice and Procedure, whereby the Nebraska Public Power District, the Lincoln Electric System, and the Municipal Energy Agency of Nebraska consented to the approval of applications PRB-4021-G and PRB-4022-G and waived a hearing in the matters. (Exhs. 9, 10, 11, 12, 13 and 14). No power suppliers that received notice of either application filed a Protest or Petition for Intervention.

13. That pursuant to the requirement set out in Neb. Rev. Stat. § 37-807(3), the Board consulted with the Nebraska Game and Parks Commission (the Commission) to ensure that the Board utilizes its authority in furtherance of the purposes of the Nebraska Nongame and Endangered Species Act, and to ensure that approval of the proposed generation facilities would not jeopardize the continued existence of any endangered or threatened species or result in the destruction or modification of habitat of such species which is determined by the Commission to be critical. The Commission provided a letter to the Board, dated March 12, 2024, addressing PRB-4021-G and PRB-4022-G.

14. In the letter, the Commission stated that the project areas are within the range of the threatened Northern Long-Eared Bat and the Western Prairie Fringed Orchid. Due to the highly disturbed nature of the project areas, suitable habitat does not exist for the Western Prairie Fringed Orchid. The Commission determined that there does appear to be suitable habitat for Northern Long-Eared Bats within one thousand feet of the Cass County project area (PRB-4021-G). OPPD agreed that any tree removal or trimming needed at the Cass County site would occur outside the bats' active season

(April 1 to October 31). OPPD also agreed to use downward-facing, full cut-off lens lights for new or replacement lighting along the section of the Cass County facility that is facing Fourmile Creek. With OPPD's agreement to follow these mitigation measures the Commission determined that applications PRB-4021-G and PRB-4022-G "May Affect, but is [sic] Not Likely to Adversely Affect" Northern Long-Eared Bats or any other State-listed threatened or endangered species, and the Commission did not object to the Board's approval of the projects. (Exh. 15).

15. That on March 15, 2024, the Board convened the formal evidentiary hearing to address applications PRB-4021-G and PRB-4022-G.

16. The proposed turbines use a mature, proven and reliable technology that has been used in the generation of electricity for a long period of time. (T44:21 to 45:4).

17. The turbines are a fast-starting, flexible source of generation. The units can achieve full output in approximately twenty minutes. For comparison, coal generation units that are "cold" (not running) can take eighteen hours to achieve full output. (T46:2 to 4).

18. The proposed projects are needed to deal with the significant electric load growth in OPPD's service area. In previous years OPPD's load increased by approximately four megawatts per year. OPPD is currently experiencing load growth of 100 to 150 megawatts per year. (T46:18 to 23; T48:19 to 24; Exh. 22, pages 11-12). OPPD's peak growth averaged 1.3 percent over the past 20 years. Peak demand is forecast to increase 5.14 percent annually from 2023 to 2030. (T97:10-22; Exh. 22, page 33). Load growth of commercial and residential customers is projected to grow at a

steady pace at least through 2033. However, growth of industrial customers is expected to grow the fastest. In 2022 industrial customers comprised 36 percent of OPPD's load. By 2032 OPPD projects that industrial customers will comprise 57 percent of the utility's load. (T50:8 to 51:7; T98:8 to 13; Exh. 22, page 12).

19. Recent storm events have demonstrated a need for OPPD to further diversify its generation fleet to avoid overreliance on any one resource. In 2022, during winter storm Elliott, low water levels in the Missouri River disrupted OPPD's ability to operate its generation stations that rely on water from the river for their cooling needs. Then in 2023, during winter storm Gerri, low water levels and freezing instrumentation suspended generation for OPPD's generating stations dependent on the Missouri River. Having additional generation resources not reliant on the Missouri River will provide OPPD with more geographic diversity of its generation facilities, and also with more flexibility and potential availability of resources even when water levels interfere with operation of facilities dependent on the Missouri River. This will decrease OPPD's vulnerability to any one issue that can prevent the operation of significant generating resources. (T54:17 to 55:14).

20. The Southwest Power Pool (SPP) has a planning reserve margin (PRM), which requires that each member utility has sufficient generation capacity to meet its peak demand, plus a set reserve margin to offset deficiencies by other SPP member utilities that might occur at any given time, particularly during emergencies. Failure to have sufficient generation capacity to meet the PRM subjects a utility to financial penalties. (T69:4-19; T98:17 to 25; Exh. 20; Exh. 22, pages 18-19). Penalties for not meeting the

SPP PRM and federal reliability standards can subject a utility to penalties up to one million dollars per day of violation. (T64:15-21; T72:12-21; Exh. 22, page 21).

21. Excess electric generating capacity in the SPP region has declined in recent years, which is straining the system. The SPP is currently reevaluating the PRM requirement, and is expected to increase the reserve requirements, especially during the winter season. This means a utility will need to have greater available generation resources to serve the same amount of customer load. Both these factors will increase the need for OPPD to have additional generation resources available. (T51:21 to 52:3; Exh. 22, pages 13 and 35). The current PRM is 15 percent for both the summer and winter seasons. (Exh. 21, page 2). OPPD expects the SPP will increase the PRM to 16 percent for summer. Current proposals for the winter PRM range between 27 to 46 percent. OPPD expects the SPP will eventually set the winter PRM at somewhere near 35 percent. (T99:2 to 20; Exh. 22, page 34). The facilities in PRB-4021-G and PRB-4022-G will fill much of the generation capacity shortfall that OPPD will face for the increased SPP PRM, although some additional generation resources will still be needed. (T104:6 to 105:2; Exh. 22, page 35).

22. The high-voltage transmission lines in the Omaha area and those to the north and south are facing increasing loading constraints. In 2021 the SPP projected that the transmission corridor south of Omaha would soon be at full capacity. One method to address the issue is a new transmission line that is planned to be built connecting the Cass County power station substation to a substation in southwest Sarpy County. This new line will also increase transmission capacity to accommodate new generator

interconnections in that area, which would include those proposed in the current application. The new generators being placed near Omaha will also help balance OPPD's transmission system by relieving congestion in the Omaha area and on the lines bringing electricity to Omaha. (T79:2 to 82:11; Exh. 22, pages 24-26).

23. Another benefit of the location of the two proposed generation facilities is the proximity to the Omaha load center. In the event of an extreme weather event that could constrain transmission or take a line out of service, having a generation source close to the electric load center will help OPPD ensure that the Omaha area has sufficient electricity available. OPPD has experienced numerous examples of such severe weather events, including in tornado in 2017, flooding in 2019, and winter polar vortexes in 2021, 2022 and 2024. (T76:3 to 18; T82:12 to 16; Exh. 22, pages 23 and 26).

24. The proposed generation facilities will provide voltage support for OPPD's transmission and distribution system in the Omaha area. Voltage support is most effective by locating voltage support sources in close proximity to electric load centers. OPPD has experienced reduced voltage margins in its transmission system due to load increases. The proposed generation facilities located near the Omaha metropolitan load center will help alleviate the voltage issues. (T82:7 to 84:21; Exh. 22, pages 27 and 28).

25. The proposed generation facilities will also provide OPPD with additional grid reliability services, specifically to address load balancing and grid frequency needs. Dual fuel combustion turbines are particularly well-suited to assist with load balancing functions. They are quick-start, and thus able to rapidly achieve full output in a very short time period. Conversely, they can reduce output in mere minutes when needed.

These qualities are very useful to a utility for load balancing, frequency and inertia functions. The rapid response ability of the type of generators proposed in PRB-4021-G and PRB-4022-G can therefore be used to reduce volatility in OPPD's grid. (T87:12 to 91:1; Exh. 22, page 29).

26. OPPD conducted a study to determine what type of resources are best suited to meet OPPD's increasing generation needs. OPPD evaluated combustion turbines, combined cycle, small modular nuclear reactors, solar, wind, battery storage, addition of dual fuel conversion to the existing Cass County generation facility, and even demand response as options. In addition to new facilities, OPPD also studied upgrades to other existing generation resources. (T107:25 to 110:9; Exh. 22, pages 36 and 37). In summary, the factors considered are the accreditation value for each resource type, the initial capital cost, the ongoing fixed operations and maintenance costs (O&M) and the ongoing variable O&M costs. For capacity accreditation, the percentages ranged from 14 percent for wind to 100 percent for nuclear and demand response. Combustion turbines are accredited at 95 percent. For capital cost, the numbers for physical facilities (excluding demand response) ranged from \$279 per kilowatt (\$279/kw) for conversion of the Cass County facility to include fuel oil to \$9,102/kw for small modular nuclear. Combustion turbines are at \$993/kw. For Fixed O&M costs, the numbers ranged from \$9/kw for battery storage to \$132/kw for small modular nuclear. Combustion turbines are at \$24/kw. For variable O&M costs, the numbers ranged from \$0/kw for solar, wind and replacement batteries at an existing facility to \$540/kw for demand response. Combustion turbines are at \$44/kw. (Exh. 22, page 37). Another factor to take into

account is that combustion turbines such as those in the present two applications require a less time to construct than other thermal generation options. (Exh. 22, page 42). This would allow OPPD to put the units into commercial operation sooner than other sources in order to meet OPPD's growing load.

27. OPPD also engaged in loss of load modeling, which is an electric industry practice used to ensure that a utility has the correct mix of generation resources to meet its customers' demand needs during a wide variety of outage conditions. The modeling indicated that OPPD needs additional dispatchable thermal generation. The modeling also indicated that OPPD could reduce its overall operating costs with additional renewable generation resources. The third finding the modeling indicated was that in certain circumstances within its service area, energy storage resources could help provide an economical solution to voltage and load support needs. (T111:23 to 114:3; Exh. 22, pages 38 and 39).

28. In order to pay for the two new proposed generation facilities, OPPD plans to use both debt and cash. OPPD will use approximately \$1.2 billion in cash through its revenue, and plans to issue debt in the form of \$1.9 billion in tax-exempt bonds. The bonds will fund not only the two proposed generation facilities, but also other OPPD capital expenditures from 2024 through 2028. (T134:18 to 135:16; Exh. 22, page 46). OPPD will be able to issue the debt with comparatively low bond rates due to the utility's Aa2 rating with Moody's credit rating agency and AA rating with Standard & Poor's credit rating agency. Both ratings are the second-highest ratings possible from the respective rating agencies. (T:132:12 to 133:14; Exh. 22, page 45). OPPD projects that

due to its new large generation assets, which include the units in applications PRB-4021-G and PRB-4022-G as well as other new generation that total two and a half gigawatts (2,500 megawatts), the costs will necessitate a ten to eleven percent increase in its rates. OPPD points out that its current rates are about 26 percent lower than the national average, so its rates will continue to be competitive even with the needed increase. Also, the utility's revenues will increase due to the growth in its electric load. (T136:5 to 137:19; T138:7 to 139:5; T144:1-11; Exh. 22, page 48).

CONCLUSIONS OF LAW

29. Pursuant to Neb. Rev. Stat. §§ 70-1012, 70-1013, and 70-1014, the Board has jurisdiction to conduct a hearing and either approve or deny an application for authority to construct generation facilities located in the State of Nebraska or owned by a power supplier headquartered in the State of Nebraska. Such approval is required prior to commencement of construction of facilities such as those described in applications PRB-4021-G and PRB-4022-G.

30. The Board has complied with the requirements under Neb. Rev. Stat. § 37-807(3) to consult with and request the assistance of the Nebraska Game and Parks Commission in order to utilize the Board's authority in furtherance of the purposes of the Nebraska Nongame and Endangered Species Act, and to ensure that approval of the proposed generation facilities would not jeopardize the continued existence of any endangered or threatened species or result in the destruction or modification of habitat of such species which is determined by the Commission to be critical. If the Applicant implements the mitigation measures set out in the Commission's letter to the Board dated

March 12, 2024 (Exh. 15) and described in paragraph 14 of this Order, specifically those involving the project at the Cass County facility designated as PRB-4021-G, the Board will have taken steps necessary to ensure that approval of the proposed generation facilities would not jeopardize the continued existence of any endangered or threatened species or result in the destruction or modification of the critical habitat of such species.

31. There are several reasons demonstrating OPPD's need for additional generation capacity. OPPD has an obligation to provide service to customers within its service area to the best of the District's ability. OPPD's significant load growth requires additional resources to meet its customers' needs. (See paragraph 18). OPPD is also required to maintain adequate generation reserve margins above its peak load to meet SPP market participant minimums. (See paragraph 20). The recent load growth, when coupled with SPP reserve margin increases and expected further increases, places OPPD at risk of financial penalties if the District does not take action to increase its available energy resources.

32. It is prudent for OPPD to place the proposed new generation resources near to the largest concentration of customers in the District's service area, and in fact, the largest load center in the state. By doing so, OPPD reduces its dependence on transmission resources that could be constrained or rendered inoperable during an emergency situation. (See paragraphs 22 and 23). It is also prudent for OPPD to have generation resources in a variety of geographic locations. Having additional generation resources not reliant on the Missouri River will help avoid generation shortfalls should problems again arise with water levels or freezing issues with the river. This will

decrease OPPD's vulnerability to any one resource, such as cooling water from the Missouri River. (See paragraph 19).

33. Fast-responding generation assets such as proposed in PRB-4021-G and PRB-4022-G can provide reactive support in an area to maintain proper system voltages and load balancing functions. Obviously, such support provides a significant benefit to OPPD's customers, particularly during periods where the system may experience rapid fluctuations in energy availability due to factors such as weather conditions or sudden loss of energy from other generation sources. (See paragraphs 17, 24 and 25).

34. The need for additional generation resources, the benefits of locating such resources in close proximity to the District's largest load center, the benefits such generators can provide for voltage support of the transmission system, and the fact that the proposed type of generation can be constructed and placed into service more expeditiously than other dispatchable resources, the ability of the proposed generation units to ramp up or down quickly to meet the District's power needs on a real-time basis, all demonstrate that OPPD requires additional dispatchable resources and that the characteristics of the natural gas units in PRB-4021-G and PRB-4022-G are well-suited to meet those needs. These factors demonstrate that the proposed facilities will serve the public convenience and necessity and do not create unnecessary duplication of facilities or operations.

35. Given OPPD's needs, the proposed generators are the most economical and feasible method of meeting those needs. The District needs significant dispatchable capacity to meet its load growth and reserve margin obligations. The proposed

generators can provide both the required capacity and the accreditation values that OPPD needs. Also, the proposed turbines are a proven and reliable technology. (T44:21 to 45:4). They can provide the dependable, dispatchable characteristics that the District needs. Wind and solar resources do not have high accreditation values and are intermittent. Nuclear has the highest capacity factor and accreditation, but is by far the most expensive option. Combined cycle natural gas units have equal accreditation characteristics to the proposed units, but have a higher capital cost and cannot be ramped up and down as rapidly as simple cycle units. (Exhibit 22, page 37). Simple cycle units can also be constructed in less time than most, if not all, other dispatchable resources. This is important due to the short time frame in which OPPD requires additional generation resources. Storage resources have high accreditation value, but require generation resources to charge them. Also storage facilities can only discharge for a limited time, after which they must recharge and essentially become a load instead of a power resource. Demand side management programs also have high accreditation value, but reduce load instead of generating electricity. It is also unrealistic to expect that demand side management programs could offset the significant and ongoing load growth OPPD is experiencing.

36. The Board finds that the proposed generation facilities will serve the public convenience and necessity.

37. The Board finds that the evidence demonstrates that OPPD can most economically and feasibly supply the electric service resulting from the proposed projects.

38. The Board finds that the evidence demonstrates the proposed project will not unnecessarily duplicate other facilities or operations.

39. That based on the foregoing findings, the Applicant is entitled to an Order approving the construction of the generation facilities described in applications PRB-4021-G and PRB-4022-G.

ORDER

That during that part of its public meeting on March 15, 2024, held subsequent to the hearing on applications PRB-4021-G and PRB-4022-G, a majority of the members of the Power Review Board (5 yes, 0 no) voted in favor of a motion to approve applications PRB-4021-G and PRB-4022-G.

IT IS THEREFORE ORDERED by the Nebraska Power Review Board, pursuant to the Board's action taken during its public meeting held March 15, 2024, that the application designated PRB-4021-G, for authorization to construct a 675 megawatt natural gas and fuel oil simple-cycle combustion turbine electric generation facility and related facilities to be located in Cass County, Nebraska, and hereby is, APPROVED.

IT IS FURTHER ORDERED by the Nebraska Power Review Board, pursuant to the Board's action taken during its public meeting held March 15, 2024, that the application designated PRB-4022-G, for authorization to construct a 225 megawatt natural gas and fuel oil simple-cycle combustion turbine electric generation facility and related facilities to be located in Sarpy County, Nebraska, and hereby is, APPROVED.

IT IS FURTHER ORDERED that the Omaha Public Power District may increase or decrease the capacity for either or both of the facilities, but the total combined capacity for both facilities may not exceed nine hundred (900) megawatts.

IT IS FURTHER ORDERED that, pursuant to the requirements in Neb. Rev. Stat. § 37-807(3), the Omaha Public Power District shall comply with the mitigation measures set out by the Nebraska Game and Parks Commission in its coordination letter to the Power Review Board dated March 12, 2024 (Exh. 15), and restated in paragraph 14 of this Order, concerning application PRB-4021-G in Cass County, Nebraska. OPPD will continue to coordinate with the Nebraska Game and Parks Commission to the extent needed prior to and during construction of the generation facility in Cass County to ensure that construction activities related to the PRB-4021-G project does not cause preventable harm to threatened Northern Long-Eared Bats.

Hutchison (Chair), Gottschalk (Vice Chair), Austin, Liegl and Moen, participating.

Dated this 13th day of May, 2024.

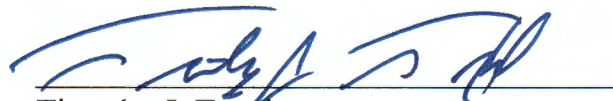


Chuck Hutchison
Chairman

CERTIFICATE OF SERVICE

I, Timothy J. Texel, Executive Director and General Counsel for the Nebraska Power Review Board, hereby certify that a copy of the foregoing **Order** in PRB-4021-G and PRB-4022-G (consolidated) has been served upon the following parties by mailing a copy of the same to the following persons at the addresses listed below, via certified United States mail, on this 21st day of May, 2024.

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Timothy J. Texel
Executive Director and General Counsel