

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC BACK-UP POWER SUPPLY)	CASE NO.
PLAN OF DUKE ENERGY KENTUCKY, INC.)	2021-00086

ORDER

On March 1, 2021, Duke Energy Kentucky (Duke Kentucky) filed an application seeking Commission approval of its back-up power supply plan. Duke Kentucky's proposed back-up power supply plan (2021 Plan) will extend through the next three PJM Interconnection LLC (PJM) delivery years: (1) June 1, 2021 through May 31, 2022; (2) June 1, 2022 through May 31, 2023; and (3) June 1, 2023 through May 31, 2024.

A procedural schedule was issued that provided for one round of discovery. Duke Kentucky responded to one request for information from Commission Staff. This matter now stands submitted for a decision on the written record.

BACKGROUND

Pursuant to the Commission's Order in Case No. 2017-00117, Duke Kentucky's current back-up supply plan (2017 Plan) was authorized through May 31, 2020.¹ On March 31, 2020, Duke Kentucky filed an application to extend the deadline for filing its next back-up power supply plan from March 1, 2020 until March 1, 2021, and for authority to continue its current plan through May 31, 2021.² These requests were approved and

¹ Case No. 2017-00117, *Back-Up Power Supply Plan of Duke Energy Kentucky, Inc.* (Ky. PSC May 31, 2017).

² Case No. 2020-00089, *Electronic Application of Duke Energy Kentucky, Inc. to Extend the Filing Deadline of Its Backup Power Supply Plan* (Ky. PSC Apr. 28, 2020).

thus, Duke Kentucky's current back-up power supply plan was extended through May 31, 2021. The Commission also directed Duke Kentucky to inform the Commission, in writing, of Duke Kentucky's intentions concerning future back-up power supply plans no later than six months prior to the expiration of the current plan. On September 18, 2020, Duke Kentucky informed the Commission that it was evaluating enhancements to its current plan and would file an application no later than March 1, 2021.³

Duke Kentucky currently participates in PJM under the Fixed Resource Requirement (FRR) option for purposes of meeting PJM's Resource Adequacy requirement.⁴ Duke Kentucky, as an FRR entity, does not participate in the PJM capacity market auctions but is required to submit an FRR capacity plan to satisfy the unforced capacity obligation for all loads in Duke Kentucky's FRR Service Area, including all expected load growth in the FRR Service Area.⁵ Duke Kentucky's initial five-year FRR commitment expired in June 2016, and Duke Kentucky now has the ability to exit the FRR option and, if it so chooses, participate in a future PJM base residual auction (BRA) for capacity procurement in a future delivery year.⁶ Duke Kentucky stated that it regularly evaluates the merits of exiting the FRR option, but it has not determined that the transition to the BRA option is in the best interests of its customers.⁷

³ Case No. 2020-00089, *Duke Energy Kentucky, Inc.*, (filed Mar. 31, 2020) Application, paragraph 7.

⁴ Back-Up Power Supply Plan of Duke Kentucky at 2 (filed confidentially).

⁵ *Id.*

⁶ *Id.* at 2–3.

⁷ *Id.* at 3.

Due to the delay of the 2023-2024 and 2024-2025 BRA, Duke Kentucky has not been required to submit its FRR Plan for these delivery years. Although Duke Kentucky's 2022-2023 FRR Plan has been accepted by PJM, Duke Kentucky stated that PJM can still assess penalties to Duke Kentucky under the Capacity Performance (CP) construct if Duke Kentucky's resources fail to comply with PJM's Resource Performance Assessment.⁸

BACK-UP POWER SUPPLY PLAN

According to Duke Kentucky, the 2021 Plan is similar to the 2017 Plan and consists of fixed-priced financial swap contracts to lock in the price of power during scheduled outages and PJM energy market purchases during forced, or unscheduled, outages. Duke Kentucky stated that it used standard forecasting methods to calculate its back-up power supply needs.⁹ Duke Kentucky considered supply options available from the PJM energy markets, and its request for proposals (RFP) was issued on September 9, 2020, for back stand energy, daily call options, and insurance products.¹⁰ Duke Kentucky noted that its primary goal in selecting an appropriate back-up power supply plan was cost balancing and risk mitigation.¹¹

Duke Kentucky's generating portfolio consists of a 600-megawatt (MW) coal-fired base-load unit located at the East Bend Generating Station (East Bend) and six natural gas-fired peaking units with a combined capacity of 492 MWs located at the Woodsdale

⁸ *Id.*

⁹ *Id.* at 5.

¹⁰ *Id.* at 8.

¹¹ *Id.* at 3.

Generating Station (Woodsdale).¹² Duke Kentucky stated that it needs to consider back-up power supply options for East Bend because East Bend is a relatively low-cost base-load unit, and Duke Kentucky relies upon it as a primary hedge against customer load energy purchases.¹³ Duke Kentucky also stated that back-up power supply options are not needed for Woodsdale because those units have lower capacity factors, and a back-up supply option would not be cost-effective for Woodsdale.¹⁴

Duke Kentucky received 234 bid alternatives from four different bidders in response to the RFP it issued on September 9, 2020.¹⁵ As mentioned, the RFP sought bids for the following types of supply options: (1) back stand energy call options; (2) daily call options; and (3) insurance products. Back stand energy call options and insurance products are tied to unplanned outages at East Bend; daily call options are independent of any outages at East Bend and are directly compared to the market.¹⁶ Duke Kentucky's analysis indicated that none of the back stand option proposals or the daily call option proposals compared favorably to the market case.¹⁷ Duke Kentucky's analysis also found that insurance products only provide an effective hedge during certain outage scenarios.¹⁸

¹² *Id.* at 4. See also Duke Kentucky's Response to Commission Staff's First Request for Information (Staff's First Request) (filed Apr. 30, 2021), Item 2. Woodsdale has dual fuel capabilities with the addition of fuel oil retrofits that enable it to comply with PJM's requirements for a CP resource.

¹³ Back-Up Power Supply Plan of Duke Kentucky at 5 (filed confidentially).

¹⁴ *Id.*

¹⁵ *Id.* at 9.

¹⁶ *Id.* at 8.

¹⁷ *Id.* at 14.

¹⁸ *Id.* at 17.

Duke Kentucky, as in the past, also considered additional back-up power supply alternatives not contained in the response to the RFP. Alternative A consists of energy purchases through the PJM energy markets for back-up power needs for all outages, including planned and forced outages.¹⁹ Alternative B contains fixed-priced financial swap contracts through the Intercontinental Exchange or the over-the-counter broker market and locks in the price of power during scheduled outages and PJM energy market purchases for forced outages.²⁰

Duke Kentucky indicated that Alternative A has the potential of exposure to possible price spikes during scheduled outage periods; for forced-outage situations, Duke Kentucky determined that it would not be feasible to make fixed forward price purchases during such an outage because it would not be known in advance when such an outage would occur.²¹ Duke Kentucky stated that, given the liquid nature of the Intercontinental Exchange or the over-the-counter broker markets, Alternative B provides the flexibility to optimize the actual outage schedule under conditions when power markets' unit availability is changing, because it can enter into forward contracts a few months in advance of the scheduled outages without paying a premium to lock in the prices for a three-year time period.²²

Duke Kentucky stated that Alternative B provides the flexibility to make the forward contract purchases for long-term periods if prices appear to be increasing or, conversely,

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.* at 19.

to postpone these purchases if prices are flat or falling.²³ Furthermore, Alternative B provides Duke Kentucky the flexibility to modify forward contract positions if scheduled outage dates are modified by using the Intercontinental Exchange market or over-the-counter markets to unwind existing contracts and purchase new contracts to match new scheduled outage dates.²⁴

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that Duke Kentucky's Alternative B back-up supply plan achieves its goal to strike a balance between risk and cost but only approves the alternative through May 2022. The Commission acknowledges that, at the time of the analysis, Alternative A relies solely on the PJM energy markets for all outage scenarios and, therefore, exposes Duke Kentucky to possible market volatility whereas Alternative B provides a hedge against the risk of price spikes during scheduled outages because the price for back-up power would be fixed. Further, based upon Duke Kentucky's analysis, responses to call bids did not provide economic benefits as compared to the expected market price of energy. The Commission notes that, to date, Alternative B has resulted in net gains; however, in the last three PJM calendar years there have been net losses.²⁵ Therefore, although over the long term, the strategy has been cost effective, if the trend continues, other strategies or combinations including insurance and RFP bids may become more cost effective.

²³ *Id.*

²⁴ *Id.*

²⁵ Duke Kentucky's Response to Staff's First Request for Information, Item 3.

Lastly, the Commission notes that at the time the back-up planning requirement was made upon Duke Kentucky,²⁶ regional transmission organizations such as PJM had not been created, and the energy market was vastly different than it is today. Therefore, in its next filing, Duke Kentucky should evaluate whether there is real risk and a need for a back-up power supply plan and provide support whether a back-up power supply plan is necessary. Duke Kentucky should also provide a long-term cost effectiveness analysis of its back-up power supply plans.

IT IS THEREFORE ORDERED that:

1. Duke Kentucky's back-up power supply plan (Alternative B), as described in its application, is approved as described herein for PJM delivery years of June 1, 2021 through May 31, 2022;
2. Duke Kentucky's back-up power supply plan, as described in its application, is denied for the PJM delivery years of June 1, 2022 through May 31, 2023; and June 1, 2023 through May 31, 2024.
3. Duke Kentucky shall submit any future back-up supply plans for review and approval no later than 90 days prior to the intended effective date of the new plan as well as support as to why a back-up power supply plan is necessary or, in the alternative, submit supporting documentation as to why a back-up power supply plan is no longer necessary.
4. This case is closed and removed from the Commission's docket.

²⁶ The initial requirement to submit a back-up power supply plan dates back to Case No 2003-00252, *Application of the Union Light, Heat and Power Company for a Certificate of Public Convenience and Necessity to Acquire Certain Generation Resources and Related Property; For Approval of Certain Purchase Power Agreements; For Approval of Certain Accounting Treatment; and For Approval of Deviation From Requirements of KRS 278.2207 and 278.2213(6)* (Ky. PSC Feb. 12, 2007).

By the Commission



ATTEST:


Executive Director

Case No. 2021-00086

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