

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2021 INTEGRATED	)	CASE NO.
RESOURCE PLAN OF DUKE ENERGY	)	2021-00245
KENTUCKY, INC.	)	

COMMISSION STAFF'S SECOND REQUEST FOR INFORMATION  
TO DUKE ENERGY KENTUCKY, INC.

Duke Energy Kentucky, Inc. (Duke Kentucky), pursuant to 807 KAR 5:001, is to file with the Commission an electronic version of the following information. The information requested is due on December 17, 2021. The Commission directs Duke Kentucky to the Commission's July 22, 2021 Order in Case No. 2020-00085<sup>1</sup> regarding filings with the Commission. Electronic documents shall be in portable document format (PDF), shall be searchable, and shall be appropriately bookmarked.

Each response shall include the question to which the response is made, and shall include the name of the witness responsible for responding to the questions related to the information provided. Each response shall be answered under oath or, for representatives of a public or private corporation or a partnership or association or a governmental agency, be accompanied by a signed certification of the preparer or the person supervising the preparation of the response on behalf of the entity that the

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<sup>1</sup> Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID-19* (Ky. PSC July 22, 2021), Order (in which the Commission ordered that for case filings made on and after March 16, 2020, filers are NOT required to file the original physical copies of the filings required by 807 KAR 5:001, Section 8).

response is true and accurate to the best of that person's knowledge, information, and belief formed after a reasonable inquiry.

Duke Kentucky shall make timely amendment to any prior response if Duke Kentucky obtains information that indicates the response was incorrect when made or, though correct when made, is now incorrect in any material respect. For any request to which Duke Kentucky fails or refuses to furnish all or part of the requested information, Duke Kentucky shall provide a written explanation of the specific grounds for its failure to completely and precisely respond.

Careful attention shall be given to copied material to ensure that it is legible. When the requested information has been previously provided in this proceeding in the requested format, reference may be made to the specific location of that information in responding to this request. When applicable, the requested information shall be separately provided for total company operations and jurisdictional operations. When filing a paper containing personal information, Duke Kentucky shall, in accordance with 807 KAR 5:001, Section 4(10), encrypt or redact the paper so that personal information cannot be read.

1. Refer to Duke Kentucky's response to Commission Staff's First Request for Information (Staff's First Request), Item 3, and to the IRP, Section 1, pages 7–8. Explain whether the declines in load have continued to reverse itself and whether, and if so how, Duke Kentucky is pursuing least-cost options for any additional capacity needs.

2. Refer to Duke Kentucky's response to Staff's First Request, Item 5.b. In regards to future reserve margin requirements as renewable penetration increases, wind is considered to be a complementary resource to solar and batteries are also thought as

being complementary to all renewable resources. Explain whether Duke Kentucky has considered modeling resources as a combination, not individually.

3. Refer to Duke Kentucky's response to Staff's First Request, Item 11.g., and to the IRP, Section 4A, Figure 4.1, page 35.

a. Explain the rationale for modeling a 1,157 MW natural gas combined cycle (CC) unit when the model is allowed to only select a fractional amount of the total capacity.

b. If the low cost renewable scenario with carbon regulation as depicted in the IRP Figure 6.5, page 53, were to be selected and go through the CPCN process, explain how Duke Kentucky would handle the CC unit's excess capacity.

4. Refer to Duke Kentucky's response to Staff's First Request, Item 12.d. Duke Kentucky models wind resources as actual ownership. Explain whether this ownership is exclusive to Duke Kentucky's footprint.

5. Refer to Duke Kentucky's response to Staff's First Request, Item 15, and to the IRP, Section 4B, page 36, Appendix B, Figure B-3a. Since Duke Kentucky appears to be a summer, not winter, peaking utility and PJM utilizes a utility's unforced capacity (UCAP) to satisfy capacity requirements, providing optimized portfolio runs with UCAP as opposed to Installed capacity (ICAP) would seem to present a different reserve margin picture in terms of Duke Kentucky's PJM obligations/requirements.

a. Explain why fossil units are modeled using winter as opposed to summer capacity amounts.

b. Explain why renewables are modeled using nameplate capacity when PJM does not give full credit to renewable nameplate capacity toward capacity obligations.

c. Provide updates to the tables provided in Item 15, including reserve margins using the summer UCAP capacity values, i.e., the capacity values that are pertinent to satisfying PJM capacity requirements, including transmission losses and any other factor that is pertinent to the satisfaction of PJM capacity and reserve margin requirements. For the transmission losses and any other pertinent factors, include these separately as appropriate for identification purposes.

d. Based on the tables as presented, explain why Duke Kentucky models portfolios that produce reserve margins that go as high as 182 percent and the rationale as to why that is reasonable and who would be expected to cover such excessive costs.

6. Refer to Duke Kentucky's response to Staff's First Request, Item 16, to the IRP, Section 4A, Figure 4.1, page 35, and to the IRP, Section 6, Figures 6.1–6.5. Explain whether the list of available resources in Figure 4.1 is the portfolio of resources made available to the model, optimized under different assumptions, and the results of which are presented in Figures 6.1–6.5.

7. Refer to Duke Kentucky's response to Staff's First Request, Item 19.a. For the first set and second of optimizations titled Ref.w/o CO<sub>2</sub>, explain how the model is treating the first three scenarios that say CO<sub>2</sub> is included when the premise is that CO<sub>2</sub> is not included.

8. Refer to Duke Kentucky's response to Staff's First Request, Item 34, and to the IRP, Figure 5.2, page 41. The EE and DR forecasts do not match between the two figures. Reconcile the apparent differences between the updated Figure B-4a and Figure 5.2.

9. Refer to Duke Kentucky's response to Staff's First Request, Item 36 Attachment, and to the IRP, Appendix B, Figure B-5. The updated attachment amounts in the "Volume" column do not match the amounts in Figure B-5. Reconcile the differences.

10. Refer to Duke Kentucky's response to Staff's First Request, Item 41. Explain why Duke Kentucky used 2018 scalars brought forward to 2021 rather than using the more recent updated Moody's forecasts and why it is reasonable to assume that assumptions made in 2018 regarding more or less optimistic outlooks are applicable in 2021.

11. Refer to the IRP, Section 2C2, page 12, and Section 2C5, pages 16–17.

a. Explain the presumptions of Duke Kentucky that onshore wind energy is a viable resource within Kentucky and the Duke Kentucky service territory. Further explain whether Duke Kentucky referred to any wind-speed studies or maps that show the resource to be economically viable.

b. Explain the presumptions of Duke Kentucky that solar energy is a viable resource within Kentucky and the Duke Kentucky service territory. Further explain whether Duke Kentucky referred to any solar irradiance studies or maps that show the resource to be economically viable.

12. Refer to the IRP, Section 7, pages 64–67, and the IRP generally. Under updated assumptions and taking into account the most recent data available on natural gas prices, PJM market prices, capital costs, etc., state whether Duke Kentucky contends that its 2021 IRP portfolio remains optimally relevant, and explain each basis for Duke Kentucky’s response.

13. Refer to the IRP, Appendix D, pages 141–142.

a. Provide more details of and explain how Duke Kentucky anticipated the project cost of the SCR performance upgrade for East Bend 2 in the early-2020s timeframe for the purposes of the modeling.

b. Provide more details of and explain how Duke Kentucky anticipated the ELG placeholder project cost for East Bend in the early-2030s timeframe for the purposes of the modeling.

c. Explain whether these projects might be expected to incur any additional, post-completion O&M costs, and whether they were included in the modeling.

d. Explain how the placeholder project costs factored into the simulation of the portfolios.

e. Confirm that entities within the PJM region would incur similar project costs to those assumed in this IRP, and explain whether, and if so how, those costs are captured within the simulation of PJM market power prices.

14. State whether increased investment in cost effective energy efficiency and demand response is a way to offset some of the increased costs of producing a MW, and explain each basis for Duke Kentucky’s response.

15. State whether Duke Kentucky is working with large industrials to lower energy usage or “shift” energy usage from peak to off peak usage, and if so, describe those efforts in detail. If not, explain why Duke Kentucky is not engaging in such efforts.



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cc: Parties of Record

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