

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2018 INTEGRATED RESOURCE ) CASE NO.  
PLAN OF DUKE ENERGY KENTUCKY, INC. ) 2018-00195

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 original and an electronic version of its responses to the following information, with a copy to all parties of record. The information requested herein is due on or before April 16, 2019. Responses to requests for information shall be appropriately bound, tabbed, and indexed. Electronic documents shall be in portable document format (PDF), shall be searchable and shall be appropriately bookmarked. Each response shall include the name of the individual responsible for responding to 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 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 it obtains information which indicates that 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, it 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 the 2017 Integrated Resource Plan (IRP), page 11, subsection B.
  - a. Describe the industries in which new and existing customers are expressing a desire for greener renewable energy alternatives including the current load represented by these customers by customer class.
  - b. Describe the significant investments and expansions these customers are making in Duke Kentucky's system, including the potential new load these customers (by customer class) will add to the system.
  - c. Explain if Duke Ohio and Duke Indiana are experiencing the same phenomenon.
  - d. Duke Kentucky states that it is looking for opportunities to add more renewable resources to its generation fleet. Explain whether its customers are expressing

a preference for a particular type of renewable energy or some combination of wind, solar, storage, and hydro that is the most cost effective and meets the customers' specific needs.

e. Explain whether these customers are expressing a distinct preference for the method of generation by which Duke Kentucky provides that energy.

f. Explain whether these customers would accept Duke Kentucky purchasing the green energy solely on their behalf as opposed to Duke Kentucky building and owning the green energy source.

2. Refer to the IRP, page 11, subsection B and page 17.

a. From an economic development or load growth perspective, explain whether Duke Kentucky has any commercial/industrial customers purchasing only green energy or wanting to purchase more.

b. Explain how Duke Kentucky is currently providing green energy to the commercial/industrial rate customers.

c. Explain whether any of these customers are willing to solely bear the cost of dedicated green energy that is provided on their behalf.

d. Explain whether Duke Kentucky intends to socialize the cost of the planned 10 MW solar and 2 MW storage installations across all of its customer classes. If not, explain how the costs will be apportioned across the rate groups.

3. Refer to the IRP page 11 and 17, subsection B. From an economic development and green energy perspective:

a. Explain if Duke Kentucky lost any potential large customers to neighboring contiguous states. If yes, explain if the potential customers are located in an affiliate sister company's service territory.

b. If Duke Kentucky has lost potential customers to Duke Ohio or Duke Indiana, explain the factors that played against Duke Kentucky and of these factors, provide which were beyond Duke Kentucky's ability to influence.

c. Explain how Duke Kentucky competes with Duke Ohio and Duke Indiana for a large load customer who is looking to locate regionally and who is looking at potential sites located in all three service territories.

d. Explain whether Duke Kentucky has lost any customers because it could not furnish acceptable green energy, whether self-generated or purchased. If yes, explain the customer's reasons for choosing another service company over Duke Kentucky.

4. Refer to the IRP, pages 11–12.

a. Explain whether there are any PJM requirements that would limit Duke Kentucky's options for providing increased amounts of green energy to potential or existing customers.

b. Explain whether there are policies, regulatory conditions or other requirements that limit Duke Kentucky's ability to successfully attract new larger load customers.

5. Refer to the IRP, pages 12 and 13, and Appendix C. Identify and explain any violations of any federal, state, or local environmental laws and regulations since Duke Kentucky's last IRP.

6. Refer to the IRP, pages 13, 16–17 and 28.
  - a. Explain how many of Duke Kentucky’s natural gas customers have the option to install electric heat.
  - b. Of the natural gas customers having access to Duke Kentucky electric service, provide the proportion that utilizes electric heat rather than natural gas.
  - c. When a new customer is building in the territory served by natural gas, explain whether both electric and gas heating is offered. On average, provide which is more economical for the customer for the various customer rate groups.
  - d. Explain the approximate impact on winter peak if all of the customers with Duke Kentucky electric heat residing in Duke Kentucky’s natural gas service territory switched to dual fuel heat pumps as opposed to other efficient heat pumps.
7. Refer to the IRP, pages 17 and 23.
  - a. Explain whether Duke Kentucky is aware of institutional investors or pension funds urging electric generation utilities to be carbon-free by 2050.
  - b. Explain whether Duke Kentucky corporately set a goal to reduce its carbon emissions by 40 percent from 2005 levels. If yes, explain how Duke Kentucky’s East Bend unit is affected by this goal.
8. Refer to the IRP, page 18, Figure 2.4.
  - a. Explain whether the Energy Mix Figure portrays how much of the energy is supplied by Duke Kentucky East Bend coal Unit 2, Woodsdale CT units, and the PJM market.
  - b. Explain whether the Energy Mix Figure also means that the East Bend Unit 2’s cost is such that PJM selects it to run to the point that it provides 87 percent

of the energy consumed by Duke Kentucky's customers. If not, explain the energy mix based upon how often the units in Duke Kentucky's generation fleet are selected to run by PJM.

9. Refer to the IRP, pages 22 and 71. Provide the Moody's Analytics reports upon which Duke Kentucky relied as the basis for its load forecasts.

10. Refer to the IRP, page 24. Provide the Annual Energy Outlook (AEO) forecast factors and the additional third-party capital cost projections and explain how they were combined.

11. Refer to the IRP, pages 25 and 33; subsection E.

a. Explain whether landfill gas as a supply-side generation option is not available or not feasible. If not feasible, explain why.

b. Explain why a nuclear station is considered a viable option to include as an option for supply-side consideration given the associated cost, licensing and regulatory approval timelines and siting difficulties.

c. Explain the reasonable possible sites in Duke Kentucky's territory where a nuclear facility could be located.

d. Explain how close to commercial viability small modular nuclear reactors are.

e. Explain whether Duke Kentucky considers the siting and construction of a new coal unit, regardless of combustion technology, could be economically viable.

f. Table 4.1 lists supply-side resource options that meet technical and commercial availability criteria. Explain which resource options, if any, have been screened for economic viability and list any that would be eliminated based upon cost.

12. Refer to the IRP, page 27. Explain the drivers in Duke Kentucky's service territory of the strengthening economic output, especially in manufacturing; include a discussion of whether this is a result of Duke Kentucky's economic development efforts or part of a general regional and national strengthening of the economy.

13. Refer to the IRP, page 29. Provide the U.S. Energy Information Administration AEO report for 2018.

14. Refer to the IRP, pages 29–30 and 34 in which it discusses the weak coal demand.

a. Explain whether the expected reduction in capacity will strengthen East Bend's economic viability over the planning horizon.

b. Explain whether PJM will be capacity constrained as a result of the potential retirements. And if not, explain why not.

c. Compare and explain how often the East Bend unit is required to run by PJM for system support and how often the unit is selected to run due to its cost.

d. Discuss the modeled changes in the regional transmission organization generation fleet.

15. Refer to the IRP, page 29. For Table 5.1, explain which gas price, coal price, and load assumptions are "most likely".

16 Refer to the IRP, page 37.

a. Explain whether the statement “A steady increase in the amount of solar PV (10 MW per year) and battery storage (2 MW per year) on the Duke Kentucky system would not significantly change the operation of East Bend 2 or Woodsdale over the planning horizon in a business as usual future” means that the additions will occur annually through 2032.

b. Explain whether this is in direct response to customers expressing a desire for green energy.

17. Refer to the IRP, page 47, the paragraph titled Cost of Renewables.

a. Explain if it is reasonable to expect that as demand on the grid increases and more coal units retire while there is a greater role for battery storage to play, that at best, battery storage will be an incremental player in terms of grid support.

b. Explain if Duke Kentucky expects that the gas generation units carry the majority of grid support as coal units retire.

18. Refer to the IRP, page 48. Discuss the changes in requirements for PJM participation, including Capacity Performance, that Duke Kentucky is monitoring and how those changes are affecting Duke Kentucky.

19. Refer to pages 55–56, paragraph titled Peak Load, page 61, paragraph titled Peak Weather Data and page 93, the paragraph beginning “Regarding Weather Normalization.”

a. On page 93, in the Response to Recommendation, normal weather is defined as a 30-year average. Regarding the sensitivity analysis, explain if Duke considered using a shorter, more recent average.



b. Explain if there are any Duke Kentucky studies showing the sensitivity of forecast results using a shorter timeframe to construct the average. And if so, explain how these studies affect the forecasted outcomes.

c. Explain if the Moody's reports were used as a basis for economic modeling discuss normal weather.

d. Explain if Duke Kentucky is aware of any National Oceanic Atmospheric Administration studies discussing the efficacy of defining normal weather using a standard different from the 30-year standard.

e. Describe the weather normalization calculations and process.

20. Refer to the IRP, pages 57–58.

a. Explain what is driving the rise in forecasted natural gas prices.

b. Explain how the costs of production, gas exports, and pipeline capacity are changing.

21. Refer to the IRP, pages 57 and 93.

a. Explain how effective Duke Kentucky's inverted block rate structure is in tempering residential energy consumption.

b. In theory, the time-of-day rates and the inverted block rate structure provide incentives to conserve energy. Explain if the effectiveness of these rate structures been analyzed. If so, provide the reports or other analysis describing the effectiveness of each rate structure.

c. Explain if there is a demonstrable difference in the price elasticity of energy over the range of the inverted block rate structure.

d. Refer to page 93, in the first paragraph and explain if the price increases in the inverted block are equal to or greater than the 12 percent price increase necessary to reduce usage by 1 percent.

e. Explain whether Duke Kentucky promotes dual fuel heat pumps and whether this technology would help abate winter electric peaks if widely utilized.

22. Refer to the IRP, page 61.

a. Provide Itron's report describing appliance efficiencies and saturations.

b. Provide and describe the Itron SAE Models.

23. Refer to the IRP, Page 63. Market Research.

a. Describe the nature of Duke Kentucky's competition and the potential loss of load to these competitors. If applicable, describe the competition both in terms of customer class and technology used to generate energy delivered to these customers.

b. Explain whether the competitive threat is related to those customers expressing a desire for greener energy as noted on page 11.

c. Explain whether any of Duke Kentucky's industrial/manufacturing or large commercial customers have explored generating their own energy in a desire for greener energy. Explain whether any of those customers have taken steps toward self-generated energy.

d. From the perspective of Duke Kentucky's electric business, explain whether Duke Kentucky's natural gas business is considered a competitive threat.

e. Explain whether potentially losing economic development projects (load) to neighboring states or other service territories in Kentucky is considered a competitive threat.

24. Refer to the IRP, page 63; subsection 4. Supplement all of the discussions of Planning and Forecasting models with the model equations and a more robust technical discussion to explain how each of the variables and models is constructed and function.


25. Refer to the IRP, page 79.

a. Explain the expected life of the new landfill at East Bend Station.

b. Explain whether the potential environmental costs discussed in this section are included in the forecasts.

26. Refer to Duke Kentucky's response to the Attorney General's First Request for Information (Attorney General's First Request), Item 2. Discuss in detail the "candidate technologies" under the proposed Affordable Clean Energy (ACE) rule and how Duke Kentucky plans to comply with the ACE rule.

27. Refer to Duke Kentucky's response to the Attorney General's First Request, Item 11. Further, define and explain the federal restrictions related to affiliate transactions and how they would impact partnering with other Duke Energy Corporation affiliates in procuring supply-side and storage resources.



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DATED MAR 27 2019  
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