COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC JOINT APPLICATION OF KENTUCKY UTILITIES COMPANY AND LOUISVILLE GAS AND ELECTRIC COMPANY FOR CERTIFICATES OF PUBLIC CONVENIENCE AND NECESSITY AND APPROVAL OF A DEMAND SIDE MANAGEMENT PLAN	)))))	CASE No. 2022-00402

ATTORNEY GENERAL'S INITIAL DATA REQUESTS

The intervenor, the Attorney General of the Commonwealth of Kentucky, through his Office of Rate Intervention ["OAG"], hereby submits the following Initial Data Requests to Kentucky Utilities Co. ["KU"], and Louisville Gas & Electric Co. ["LG&E"][hereinafter jointly referenced as "LG&E-KU" or "the Companies"] to be answered by the date specified in the Commission's Orders of Procedure, and in accord with the following:

(1) In each case where a request seeks data provided in response to a staff request, reference to the appropriate request item will be deemed a satisfactory response.

(2) Identify the witness who will be prepared to answer questions concerning each request.

(3) Repeat the question to which each response is intended to refer. The OAG can provide counsel for LG&E-KU with an electronic version of these questions in native format, upon request.

(4) These requests shall be deemed continuing so as to require further and supplemental responses if the Companies receive or generate additional information within the scope of these requests between the time of the response and the time of any hearing conducted hereon.

(5) Each response shall be answered under oath or, for representatives of a public or private corporation or a partnership or association, be accompanied by a signed certification of the preparer or 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.

(6) If you believe any request appears confusing, request clarification directly from Counsel for OAG.

(7) To the extent that the specific document, workpaper or information as requested does not exist, but a similar document, workpaper or information does exist, provide the similar document, workpaper, or information.

(8) To the extent that any request may be answered by way of a computer printout, identify each variable contained in the printout which would not be self-evident to a person not familiar with the printout.

(9) If the Companies have objections to any request on the grounds that the requested information is proprietary in nature, or for any other reason, notify OAG as soon as possible.

(10) As used herein, the words ''document'' or ''documents'' are to be construed broadly and shall mean the original of the same (and all non-identical copies or drafts thereof) and if the original is not available, the best copy available. These terms shall include all information recorded in any written, graphic or other tangible form and shall include, without limiting the generality of the foregoing, all reports; memoranda; books or notebooks; written or recorded statements, interviews, affidavits and depositions; all letters or correspondence; telegrams, cables and telex messages; contracts, leases, insurance policies or other agreements; warnings and caution/hazard notices or labels; mechanical and electronic recordings and all

information so stored, or transcripts of such recordings; calendars, appointment books, schedules, agendas and diary entries; notes or memoranda of conversations (telephonic or otherwise), meetings or conferences; legal pleadings and transcripts of legal proceedings; maps, models, charts, diagrams, graphs and other demonstrative materials; financial statements, annual reports, balance sheets and other accounting records; quotations or offers; bulletins, newsletters, pamphlets, brochures and all other similar publications; summaries or compilations of data; deeds, titles, or other instruments of ownership; blueprints and specifications; manuals, guidelines, regulations, procedures, policies and instructional materials of any type; photographs or pictures, film, microfilm and microfiche; videotapes; articles; announcements and notices of any type; surveys, studies, evaluations, tests and all research and development (R&D) materials; newspaper clippings and press releases; time cards, employee schedules or rosters, and other payroll records; cancelled checks, invoices, bills and receipts; and writings of any kind and all other tangible things upon which any handwriting, typing, printing, drawings, representations, graphic matter, magnetic or electrical impulses, or other forms of communication are recorded or produced, including audio and video recordings, computer stored information (whether or not in printout form), computer-readable media or other electronically maintained or transmitted information regardless of the media or format in which they are stored, and all other rough drafts, revised drafts (including all handwritten notes or other marks on the same) and copies of documents as hereinbefore defined by whatever means made.

(11) For any document withheld on the basis of privilege, state the following: date; author; addressee; indicated or blind copies; all persons to whom distributed, shown, or explained; and, the nature and legal basis for the privilege asserted.

(12) In the event any document called for has been destroyed or transferred beyond the control of the Companies, state: the identity of the person by whom it was destroyed or transferred, and the person authorizing the destruction or transfer; the time, place, and method of destruction or transfer; and, the reason(s) for its destruction or transfer. If destroyed or disposed of by operation of a retention policy, state the retention policy.

(13) Provide written responses, together with any and all exhibits pertaining thereto, in one or more bound electronic volumes, separately indexed and tabbed by each response, in compliance with Kentucky Public Service Commission Regulations and Orders.

(14) "And" and "or" should be considered to be both conjunctive and disjunctive, unless specifically stated otherwise.

(15) "Each" and "any" should be considered to be both singular and plural, unless specifically stated otherwise.

Respectfully submitted,

DANIEL CAMERON
ATTORNEY GENERAL

LAWRENCE W. COOK
J. MICHAEL WEST
ANGELA M. GOAD
JOHN G. HORNE II
ASSISTANT ATTORNEYS GENERAL
1024 CAPITAL CENTER DR., STE. 200
FRANKFORT, KY 40601
(502) 696-5453
FAX: (502) 564-2698
Larry.Cook@ky.gov
Michael.West@ky.gov
Angela.Goad@ky.gov
John.Horne@ky.gov

Certificate of Service

Pursuant to the Commission's Orders in Case No. 2020-00085, and in accord with all other applicable law, Counsel certifies that an electronic copy of the forgoing was served and filed by e-mail to the parties of record.

This 17th day of February, 2023

_____

Assistant Attorney General

1. Reference the Wilson testimony beginning at 4:4. Confirm that compliance with the Environmental Protection Agency's ("EPA") Good Neighbor Plan ("GNP") would require that the Companies install new selective catalytic reduction ("SCR") technology to Mill Creek Unit 2 and Ghent Unit 2, which would require capital investments of $110 million, and $126 million, respectively.

    a. If confirmed, explain the reasoning for the conclusion that the GNP requires the installation of new SCR.

2. Confirm both of the following: (i) the plan to retire Mill Creek Unit 2 and Ghent Unit 2 is driven by the inability of the Companies to cost-effectively comply with the GNP; and (ii) the decision to retire these two units is a financial one, and is not driven by any need to improve reliability.

    a. Provide a brief description of what the GNP requires, how it compares with the existing Cross-State Air Pollution Rule, and all measures the Companies would have to employ to meet compliance with the GNP if they were to keep these two units open, together with cost estimates.
    b. Provide a web link to the most recent iteration of the GNP, and explain if that iteration is the final, permanent version.
    c. Do the Companies anticipate any changes in the GNP?
    d. If there are any such changes, explain whether the Companies anticipate making any changes to the 2022 Resource Assessment.

3. Can the Companies confirm that before they started retiring coal plants due to EPA regulations, that they never had to institute rolling blackouts?

4. List all the dates in which the companies have had to institute blackouts or rolling blackouts, the duration and the reasons for each occurrence.

5. Can the Companies confirm that the closing of coal plants, and shifting fuel source from coal to gas has contributed to all-in rate increases (i.e., both base rates and costs recovered through the Companies' Fuel Adjustment Charge)?

6. Confirm the following regarding the load forecast included within this case:

    a. Load is projected to be 6.5% higher than under the load forecast utilized in the 2021 IRP docket;[1] and
    b. Summer and winter peak demand will be approximately 4% and 6% higher, respectively.

[1] Case No. 2021-00393.

7. Explain how North American Stainless' ("NAS") announced $244 million expansion[2] of its Ghent, Kentucky facility, which will increase its production by 200,000 tons annually, will affect the Companies' load forecast. Explain further whether the added load of additional satellite industries serving one or more of the battery production plants being built within the I-65 corridor in Kentucky will affect the Companies' load forecast, and if so, how.

   a. Include in your response an explanation of whether it would be cost-effective to increase the capacity of one or both of the proposed Class J or H natural gas combined cycle ("NGCC") plants to accommodate these, and potentially other future load expansions.
   b. Explain whether one or both of the NGCC plants would be scalable, such that it might be possible to add additional capacity at a later date, if needed, rather than build an entirely new generating unit.
   c. Explain whether intermittent, inverter-based generation alone will be able to meet one or both of the new loads at: (i) NAS; and (ii) the BlueOval SK Battery Park, and explain why, or why not.

8. Provide LG&E-KU's current reserve margin, both summer and winter.

   a. Provide the projected reserve margin (summer and winter) for each year during the period 2024-2035, assuming the Commission grants the requested CPCNs. Include in your response:
      (i) whether the projected future reserve margins also take into consideration all projected load growth, such as the new NAS and BlueOval loads addressed above; and
      (ii) how much of the reserve margin (summer and winter) will be fully dispatchable;
      (iii) A categorization of the resources comprising the reserve margin (summer and winter) indicating whether they are: (1) fully dispatchable resources, and if so the duration thereof; (2) renewable resources, and if so the duration thereof; and (3) Demand Side Management ("DSM")(including demand response ("DR")), and if so the duration thereof.

9. Rather than retire and demolish Ghent Unit 2 and Mill Creek Unit 2, have the Companies considered "mothballing" (i.e., preserving) one or both of these units? Please include in your response discussions regarding:

   a. the different levels of "mothballing," the engineering standards involved, and cost estimates for each level of mothballing.

[2] *See, e.g.*, https://www.yahoo.com/now/north-american-stainless-announces-244-154500760.html

b. the costs that would be involved in keeping Ghent Unit 2 operating for seven months of the calendar year that exclude the ozone season; include any related studies.

(i) Reference Wilson Exhibit SAW-1, the Resource Assessment, Table 31. Confirm that once SCRs are constructed at Ghent Unit-2, no significant "life-extension" overhauls are scheduled until 2033.

10. Confirm that before the Companies could re-start a coal plant that had been retired, they would have to apply to the EPA for a New Source Review. If so confirmed, describe that process.

11. Describe the local, state and federal permitting process the Companies would have to undergo to restart a retired coal plant.

12. Can the companies confirm that many of their large industrial customers compete on an international basis with businesses located in China and Europe? If so confirmed, can the Companies also confirm: (i) that China is expanding its coal fleet; (ii) whether China has rolling blackouts; and (iii) several European nations are bringing coal plants back online.

13. Provide a detailed, thorough and comprehensive explanation regarding the causes of the rolling blackouts the Companies instituted during Winter Storm Elliott ("the Storm"), from Dec. 23-25, 2022. Include in your discussion, at a minimum, the following issues set forth below. For each issue identified below, and for any additional issues the Companies identify, explain also, where applicable, the potential future impact as to both of the proposed NGCC plants:

a. The performance of each one of the Companies' generating units, including the capacity factor of all of the Companies' existing solar units;
b. Whether the Companies had secured adequate fuel, and whether the Companies, and/or their pipeline suppliers, may need to obtain additional storage for both the LG&E LDC operations and the Companies' joint electric generation operations. Include in your response whether the Companies can identify any infrastructure needs that would help increase the reliability of their gas supply;
c. Whether pipelines that provide gas to the Companies' generating units were affected in any manner by the Storm, and if so, how;
d. Whether the Brown Station combustion turbines ("CTs") were operated off of the Texas Eastern or Tennessee Gas pipelines, or perhaps both;
e. Identify the pipeline and the supplier that provide gas to the Trimble Station CTs;

f. Explain whether any of the issues that may have affected the Brown CTs also affected the Trimble CTs. If so, provide a discussion on whether a redundant gas supply to Trimble should be investigated;
g. Whether any of the gas suppliers and/or owners of any such affected pipelines declared a force majeure as a result of the Storm, and if so, the impact this had on the Companies, in terms of cost and otherwise;
h. Whether the Companies maintain any hedging or insurance products designed to reduce the risk of gas and/or other fuel shortages;
i. If the supplier the Companies use was unable to supply gas, explain whether any other suppliers are allowed to supply gas on the Texas Gas pipeline, and if so, explain whether the Companies either currently have a back-up supply contract with any other supplier, or if not, whether they will consider doing so in the future;
j. Explain whether any of the Companies' CTs have dual-fuel capability, and if so, whether the Companies have investigated installing on-site tanks to store a second fuel supply, such as Duke Energy, Kentucky and East Kentucky Power Cooperative ("EKPC") have;
k. Whether the Companies were able to make any off-system purchases to help mitigate the rolling outages;
l. Provide all studies / internal analyses, evaluations or reports the Companies performed regarding the performance of their generation and transmission facilities during the Storm, including any "lessons learned" studies. Include in your response whether the Companies plan to retain any external consultants to perform any such studies or analyses, and if so, provide timelines for the completion of such studies;
m. Explain whether in light of the Storm, the Companies believe that their generation reserve margin should be re-evaluated;
n. The Storm's impact on the Fuel Adjustment Charge (i.e., will there be any significant increases or decreases), and whether there will be any significant impact on base rates;
o. Provide the total time duration during which rolling blackouts were instituted, the total number of ratepayers affected, and the average length of time the blackouts lasted.
p. In the aftermath of the Storm, do the Companies believe it is more important to preserve their remaining coal fleet?
q. Explain whether the Companies believe they did an adequate job of communicating with their customers regarding the rolling blackouts. Explain also whether the Companies could provide more enhanced communications, including via a phone or computer app.

14. Explain whether the Companies conducted any off-system purchases from MISO during the Storm.
    a. Include in your response a discussion of:

(i) MISO's current capacity issues and whether proliferation of renewable resources in their footprint has impacted reliability considerations;
(ii) how competitive an off-system purchase from MISO is compared with the cost of the Companies' own generation resources; and
(iii) whether any such off-system purchase would include transmission costs to cover the expense of wheeling power to the LG&E-KU transmission system.

b. If the Companies purchased off-system power from MISO during the Storm, explain whether the Companies will necessarily be able to rely on off-system purchases from MISO during the next storm.

15. Confirm that the 2022 CPCN Load Forecast is premised on normal weather.[3] Explain whether in light of the Storm's events, the Companies believe any changes to that Load Forecast should be made, or whether it should be re-evaluated.

16. Confirm that the temperatures prevailing during the Storm were not the coldest ever experienced in Kentucky.

17. Confirm that Mill Creek Station is currently served by a gas pipeline owned by Texas Gas Transmission. Explain whether the Companies have investigated the cost of providing a second gas supply source to Mill Creek Station, just as Brown Station is served by two separate gas supply lines, and if so, provide copies of any internal studies / analyses regarding such.

a. Explain whether in light of the Storm outages, any of the proposed natural gas transmission / piping work (including compressors) that would have to be performed or added at Mill Creek Station and/or at Brown Station would have to utilize more stringent cold-weather protection standards, such as are more commonly associated with plants located in northern states. If so, will the Companies include these more stringent standards in its engineering design specifications?
b. Reference the Bellar testimony beginning at 17:6. Explain whether the new gas compression that would have to be installed at Brown Station would be just one set of compression equipment that could apply to gas supplied by either the Texas Eastern pipe or the Tennessee Gas pipe, or whether a second set of equipment would have to be installed for both pipes. Include in your response the same information requested in subpart a. of this question, regarding cold-weather protection standards.

18. Provide the capacity factor for all of the Companies' existing generation fleet, broken down by coal, gas, hydro and solar, for the following periods:

[3] Wilson Direct Testimony, 9:19-20.

a. December, 2021 through and including March, 2022; and
b. December, 2020 through and including March, 2021.

19. Explain the following regarding the Rhudes Creek solar facility:

a. Whether the developer has started construction, and if not, whether the Companies expect the developer to abandon the project.
b. The date that the project was projected to start providing power to the Companies' combined grid;
c. The projected capacity factor for each month, if available, once the project becomes commercially operable.

20. Can the Companies confirm that given the current electrification movement in American society (i.e., increased usage of electric vehicles, and increasing electric space and water heating to replace gas space and water heating), it will become increasingly difficult to maintain reliability for all hours of a day, all days of a week and every week in a calendar year? Include in your response: (i) a discussion of how weather events such as Winter Storm Elliott could complicate efforts to maintain reliability; (ii) whether in the mid-to-long-term future, it will remain important to diversify generation fuel sources, and to maintain dispatchable resources; and (iii) whether rolling blackouts will become more likely.

21. Provide an update on the environmental permits the Companies are required to file for and obtain prior to constructing the proposed NGCC and solar facilities, including the Marion County build-to-transfer solar facility.

a. Explain whether any of the solar facilities identified in the application require local zoning / permitting approval. If so, provide the status.

22. Reference the Bellar testimony at 11:19-23. Explain whether the OEM-provided technology that will enable the burning of hydrogen gas at NGCCs will add costs to the proposed NGCC units, in the event it becomes economically viable or mandated.

a. Confirm that the transporting of hydrogen raises its own safety risks, given that hydrogen is one of the smallest (if not the smallest) molecules known.
b. Explain whether there are any safety standards regarding the transporting and mixing of hydrogen with natural gas.
c. Confirm that the BTU rating of hydrogen is significantly less than natural gas.
d. Explain the safety measures that utilities such as LG&E-KU which in the future may burn hydrogen in a NGCC, either separately or mixed with natural gas, would have to take. Include in your response whether any

national standards regarding the transportation and burning of hydrogen have been developed in either draft or final form, and if so identify such.

23. Refer to EKPC's current IRP filing, Docket No. 2022-00098, in particular that company's post-hearing comments, accessible in the footnote below,[4] at pp. 1-2, which discusses, *inter alia*, the impact on the EKPC system of the retirement of Brown Unit-3.

    a. Provide a discussion of how Brown Unit-3's retirement will affect EKPC's system. Include in your discussion an explanation of whether the construction of the proposed battery energy storage system ("BESS") at Brown station could have an impact on EKPC's system, and if so, how.
    b. Given the highly interconnected nature of the LG&E-KU and EKPC transmission systems, explain whether LG&E-KU will have to make any transmission improvements / upgrades in order to maintain the current level of interconnectedness, and voltage flows between the two systems.

24. Reference the Bellar testimony beginning at 19:4. Explain whether utilizing bifacial panels and a tracker rack system at the Mercer solar facility will be cost-effective. Provide all cost-benefit analyses the Companies conducted for utilizing these two features.

    a. Confirm that the Brown solar facility does not utilize a tracker system.
    b. Explain whether any of the Companies' existing solar facilities utilize either bifacial panels, a tracker rack system, or both. Explain also why, or why not.
    c. Explain whether the Marion solar facility will utilize either bifacial panels, a tracker rack system, or both. Explain also why, or why not.
    d. Explain whether any of the facilities with which the Companies intend to enter into solar photovoltaic purchase power agreements ("PPAs") will utilize either bifacial panels, a tracker rack system, or both. Explain also why, or why not.

25. Regarding the proposed solar facilities, explain whether the Mercer and Marion facilities, and the four facilities from which the Companies propose to enter a PPA, will be physically located within the KU service territory. If so confirmed:

    a. Provide the approximate length of the power line that will connect each facility to the Companies' nearest transmission facility, if any such lines will be over one mile in length.

[4] https://psc.ky.gov/pscecf/2022-00098/jessica.fitch-snedegar%40ekpc.coop/02032023010551/IRP_Draft_Post_Hearing_Comments_-_02032023_Final.pdf

b. Explain whether any transmission facility or substations will need upgrades prior to receiving power from one or more of the solar facilities.
c. If any of the proposed solar facilities are physically located outside of the KU service territory, explain whether the project developer will have to go through either the PJM or MISO interconnection queue process.

26. Regarding the proposed new solar facilities, explain whether the Companies have determined they may be eligible for financial incentives under the Inflation Reduction Act ("IRA") or any other federal laws, for any portion of the costs associated with the Mercer and Marion facilities, and/or for the power they will obtain under the proposed PPAs with the four non-owned facilities. If so: (i) provide the benefit amount, and (ii) state whether those incentives will inure to ratepayers' benefit.

27. Explain the closure procedures and expected costs for the solar facilities owned by the Companies or contracted with other companies. Explain also:

a. what will happen to the solar panels once a facility is decommissioned, including whether the panels will be recycled, or placed into landfills. If the latter, explain if the landfills will be located in Kentucky; and
b. how the Companies will factor and compute terminal net salvage into costs for solar generation facilities, and whether such costs were included in the Companies' cost estimates utilized in this docket.

28. Reference the Bellar testimony beginning at 22:8, regarding the proposed Brown BESS.

a. Provide the estimated annual MWh dispatch for the BESS.
b. Explain whether under appropriate circumstances, energy stored in the BESS could be sold off-system.
c. Explain whether any off-system sales ("OSS") from the BESS would inure to the benefit of LG&E customers, KU customers, or both. If the OSS is accomplished via dispatch of the BESS, explain whether for purposes of revenue allocation the benefit is assigned to the BESS, or the general LG&E-KU grid used to charge the BESS.
d. In the event an opportunity for an OSS arises after the BESS is installed, explain what sort of order of dispatch would arise as to the OSS (i.e., would there be any preference for the sale to come directly from the LG&E-KU grid, or would any preference be given to dispatching the BESS?)
e. Provide all rationale, analyses and studies justifying the assignment of 100% of the BESS costs to LG&E ratepayers, with 0% to KU ratepayers. Explain

also how this is justified in light of the fact that the Companies' fleet is jointly dispatched.

f. Given the Companies' proposal to charge 100% of the BESS costs to LG&E ratepayers, explain whether LG&E ratepayers will also be charged with 100% of the costs collected in the Fuel Adjustment Charge ("FAC") for powering the BESS, despite the fact that the Companies' generating units are jointly dispatched.

g. Confirm that in Case No. 2021-00393,[5] the Companies' May 5, 2022 Responsive Comments at p. 22 noted that when batteries are charged, there is a15% energy loss (i.e., for every MWh charged in a battery, 0.85 MWh can be discharged).
   (i) Explain how this 15% energy loss will be accounted for, and whether LG&E ratepayers would be exclusively responsible for it.
   (ii) Provide all justification for charging ratepayers for the 15% energy loss when the energy will not be available to ratepayers.

h. Reference the Wilson testimony, Exhibit SAW-1, p. 43. Provide a complete explanation for the following sentence: "The Brown BESS is assigned 100% to LG&E to better balance the Companies' summer reserve margins."
   (i) Explain whether there are any other means of "balanc[ing] the Companies' summer reserve margins."
   (ii) Explain to what extent the Companies analyzed purchasing one or more CTs to be used for the LG&E system and if so, whether that option would prove more cost-effective than a BESS; confirm also that in Exhibit SAW-1, p. 17, it is acknowledged that a BESS is not as cost-effective as a CT. Include in your response the estimated lifespan(s) of a CT, and of the BESS.
   (iii) Confirm that LG&E is projected as experiencing more future winter peaks, and eventually becoming a winter-peaking utility. If so confirmed, explain whether the BESS is best situated to meet the needs of a winter-peaking utility, and whether the change to winter peaking obviates any need to balance summer reserve margins.
   (iv) Reference Exhibit SAW-1, p. 5, the following sentence: "It further demonstrates that including the proposed Brown battery energy storage system. . . in the optimal portfolio adds reliability and notes that Brown BESS could offer quantifiable operational benefits, including possible reductions in required spinning reserves and reduced wear on fast-ramping units." Assuming the Commission approves assignment of 100% of BESS costs to LG&E ratepayers, does the Company agree that LG&E

[5] *In Re:* Electronic Joint Integrated Resource Plan of Louisville Gas & Electric Co. and Kentucky Utilities Co.

ratepayers should likewise be credited with 100% of any quantifiable operational benefits as described in this sentence? If not, why not? If the Companies do not agree, then explain why KU ratepayers should not be assigned a portion of the BESS costs.

(v) Reference Exhibit SAW-1, p. 38, the statement: "Adding Brown BESS further enhances reliability, but its primary value is in providing operational experience for integrating future renewable generation." (1) Provide the projected estimates for how much the BESS will enhance reliability; and (2) If the primary value is in integrating future renewable generation, explain why the Companies do not postpone seeking the BESS CPCN until such time as they install the referenced additional future renewable generation.

(vi) Please confirm whether the Companies remain committed to seeking the least-cost means of enhancing reliability, when needed.

i. Reference the Bellar testimony at 24, wherein he states that the BESS project will be eligible for up to a 50% investment tax credit. Explain whether this credit would inure to the credit of shareholders, or to ratepayers (specifically, LG&E ratepayers).

(i) Explain further whether the credit would be amortized over the lifespan of the BESS, or whether it would accrue in its entirety once the BESS is commercially operable.

(ii) Provide the total monetary impact of the credit, assuming the full 50% credit is obtained.

(iii) Explain whether the impact of the tax credit was taken into consideration in performing the cost-benefit analyses for the BESS.

j. Describe the projected ramp-up time necessary for dispatch of the BESS, and how that ramp rate might differ from other generation resources.

k. Explain whether the Companies, which are not RTO members, would be eligible to sell power from the BESS into PJM or MISO as an ancillary service, including ramping. If so, explain how the revenue proceeds of such a sale to an RTO would be allocated as between LG&E and KU.

l. Explain whether installation of the BESS will require any transmission improvements / upgrades. If so:

(i) explain whether such improvements / upgrades will also benefit KU customers; and

(ii) explain whether any such transmission costs have been assigned to KU customers.

m. Explain whether there could be any benefits from charging the BESS solely from one of the Companies' renewable resources (solar or hydro), if doing so is possible.

n. Explain for how long the battery will remain charged before the charge begins to diminish. Provide also the projected rate at which the charge will diminish over time.
o. Explain whether cold weather affects a BESS in any manner, including whether cold air can erode the stored charge faster than under normal temperature conditions. If so:
    (i) Given the diminished capacity factor of renewable resources during winter, confirm that during winter, a BESS would almost certainly be charged by dispatchable resources.
    (ii) discuss how the BESS' diminished winter capacity factor would be useful to a winter peaking utility, such as LG&E is projected to become.

29. Provide the projected capacity factor of the Brown BESS for the periods:
    (i) December through and including March; and
    (ii) April through and including November. Explain whether cold weather will impact the December – March capacity factor.

30. Using the same calendar time frames provided in the subpart immediately above, provide projected operating costs for the BESS (including the cost of power to charge the BESS) for both timeframes.

31. Explain whether the Companies have determined they may be eligible for any financial incentives under the IRA or any other federal laws in addition to the investment tax credit for any portion of the BESS costs, and if so: (i) provide the benefit amount, and (ii) state whether those incentives will inure to ratepayers' benefit.

32. Explain what financial incentives are available to the Companies to keep their remaining coal-fired generation facilities open and operable.

33. Provide the projected winter-time capacity figure for all of the proposed solar facilities, including Mercer, Marion, and the four proposed independently-owned sites with which the Companies will enter into PPAs.

34. Provide the winter-time capacity factor of each of the Company's existing coal-fired plants for the last ten (10) years. For Cane Run Unit 7, provide the winter-time capacity factor since the date it became commercially operable.

35. Explain whether the primary purpose of the solar generation facilities is to add capacity. If not, provide the primary purpose.

36. Explain whether the Companies' analyses in the instant docket examined the true levelized costs of solar photovoltaic energy, apart from all available subsidies.

    a. If the Companies' analyses included such subsidies, discuss what will happen to the Companies' rates if and when subsidies should become no longer available.
    b. Explain whether the Companies' revenue streams are dependent upon government subsidies for renewable generation.

37. Provide the net book value as of the end of 2022 of the following generating units:

    a. Ghent Unit 2;
    b. Mill Creek Units 1 and 2;
    c. Brown Unit 3.

38. Regarding the units identified in the immediately preceding question, provide the projected net book value as of the most recent projected retirement dates, as provided in this docket.

39. Provide the current annual depreciation expense for Ghent Unit 2, Mill Creek Units 1 and 2, and Brown Unit 3.

    a. Explain whether the Companies will be providing a depreciation study for these four units at any time prior to their projected retirement dates. If not, please identify the most recent depreciation study in which these units were assessed.

40. Please provide the average annual cost of capital additions over the last three years for Ghent Unit 2, Mill Creek Units 1 and 2, and Brown Unit 3.

41. Provide the amount of stranded cost that will arise, if any, upon the planned retirement dates for each of Ghent Unit 2, Mill Creek Units 1 and 2, and Brown Unit 3.

42. If, hypothetically speaking, the following two events should occur / arise: (i) the BlueOval SK Battery Park is for some reason not completed and the Companies experience little or no major new load for this facility; and (ii) all four coal-fired units still retire at their currently projected dates, explain whether:

    a. both of the proposed NGCC facilities would still be required; and
    b. compliance with the GNP would become more expensive than anticipated.

43. Confirm that that in order to operate a NGCC at Mill Creek Station, additional gas compression would have to be added on-site. If confirmed:

    a. Explain whether based on lessons learned during the Storm, the gas pipeline and compression facilities to be added at Mill Creek Station would need any type or sort of upgrades to allow for cold weather protections.
    b. Please explain whether Brown Station would require any such new facilities and/or winter hardening.

44. Provide copies of all presentations regarding the plans for the proposed CPCN projects and DSM programs made to credit ratings agencies.

45. Provide copies of all credit ratings adjustments / updates issued that reflect the proposed CPCN projects and DSM offerings.

46. In the event that interest rates should fall over the next several years, discuss what commitment the Companies are willing to take to refinance at lower interest rates, where and when applicable, and when possible.

47. Confirm that the Companies intent is that for the foreseeable future, they will continue to utilize the same capital structure that was established in their 2020 rate cases.

48. Provide all justification for the Companies' plan to utilize a return on equity ("ROE") of 9.925%. Explain further why the ROE should not be set in accordance with the Commission's policy of setting the ROE to be used with regard to the Companies' ECR rate at 9.35%.

    a. Confirm that if the Commission set the ROE at 9.35% for the new DSM portfolio, the Companies would still be earning a profit significantly higher than most companies are earning during the current difficult economy.

49. Given the Companies' intent to add over 1,000 MW of intermittent solar generation, explain whether the need for load-following dispatchable generation will also increase over current needs. Include in your response a discussion of whether the ability of a J or H class NGCC to conduct load-following is more enhanced and efficient than the type of NGCC currently operating at Cane Run Unit 7.

    a. Explain whether any potential upgrades could be made at Cane Run Unit 7 to make it more cost-effective to operate, in which O&M savings would exceed costs of such an upgrade. If any such potential upgrade could also extend the operating life of Cane Run Unit 7, please explain.

50. Provide a discussion and an update on the progress the developers of the four PPA sites in Ballard, Hardin and Hopkins Counties are making in: (i) obtaining their financing; (ii) site construction and preparation; and (iii) procuring the necessary solar panels and other equipment necessary to conduct operations.

    a. In the event one or more of the developers of these sites are unable to complete their projects, discuss the Companies' alternative plans.

51. In light of the Companies' intent to procure significant renewable resources, explain whether the Companies envision their remaining dispatchable generation assets performing at higher levels, such that they could incur higher O&M costs than previously anticipated. If so, provide cost projections for the higher O&M costs, and any related studies.

52. Explain how the potential early retirement risk for the OVEC generating units would or might affect the Companies' reliability. Include in your response whether the OVEC board of directors is discussing the potential for early retirement of one or more units, and if so, whether the board has directed any relevant studies to be conducted.

53. If money was of no concern, could the Companies meet all the energy needs of its customers with only renewable generation?

54. Explain whether the technology exists today for the Companies to meet all the energy needs of their customers with only renewable generation.

55. What do the companies believe is an appropriate mix of renewable energy generation and dispatchable thermal generation to ensure adequate reliability and resiliency of its electrical service grid?

56. Explain whether customers who participate in the Green Tariff Option #3 ("Renewable Power Agreement") are served with power generated exclusively by renewable resources, or whether that renewable power resource procured under this option is socialized with all other generation, including fossil fuel, that comes onto the Companies' joint grid.

57. Explain why the Companies do not believe nuclear is a viable option at this time. Discuss whether the Companies believe nuclear should be considered as a vital option in the future, and if so, at what point in the future.

58. Reference the Jones testimony, Exhibit TAJ-2. Explain whether the Companies have developed any load reduction projections arising from the proposed Peak Time Rebate ("PTR") DSM program.

59. Reference the Bevington Testimony at p. 4, wherein it is stated that through October 2022, cumulative load reductions of the Companies' current DSM programs have provided, *inter alia*, 750,000 Mcf in gas savings. Explain through which DSM program(s) these savings accrued.

    a. Regarding projected gas savings arising from future programs, explain through which DSM programs these savings will accrue.

60. Regarding the Companies' current DSM programs: provide the cost per MW to achieve the 7-year cumulative energy efficiency of 112 MW under the existing programs, and the cost per MW to achieve the 7-year cumulative DR of 86 MW under the existing programs.

61. Regarding the Companies' proposed new DSM programs: Provide the projected cost per MW to achieve the 7-year cumulative energy efficiency of 170 MW, and the projected cost per MW to achieve the 7-year cumulative DR of 207 MW.

62. Reference the Bevington testimony at p. 14:1-7, regarding the increase to the Market Research budget for the purpose of studying the cost-effectiveness of a rooftop solar DSM program. Provide the amount of this budget increase. Provide also any studies the Companies may have obtained via research of the cost effectiveness of any such programs.

63. Reference the Bevington testimony at p. 14. Regarding the PAYS financing model as a potential DSM program, explain whether the Companies are aware of whether the federal government has promulgated any additional rules or regulations under the IRA pertaining to a PAYS- type of financing model.

64. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, p. 10. The italicized "Step 2" states, in pertinent part:

> "The Companies worked with Cadmus to design a customized scoring rubric using 12 key objective criteria (outlined in Appendix C) such as the program's ability to generate energy savings and demand reduction, be cost-effective, and benefit disadvantaged communities. Each criterion was weighted according to its importance to the Companies. The Companies then assigned six

individuals to score each potential program by its ability to meet each criterion, which resulted in total scores ranging from zero to 100."]. [underlined emphasis added]

a. Provide a discussion regarding how and why the Companies found each of the 12 criteria to be important, and how and why the weighting of some criteria differed in any manner from other criteria.
b. Identify the six individuals who performed the above-referenced scoring. Identify also whether these individuals are company employees, officers or directors, and if so, provide the title of each such position.

65. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, pp. 10-11. The italicized "Step 5" states, in pertinent part: The Companies estimated participation (number of installations) for measures in the DSM/EE Program Plan using historical participation data (for measures currently offered), past potential studies, and secondary sources. . . ."

a. Explain whether the Companies have, in prior DSM plans, relied upon historical participation data and past potential studies. If so:
   (i) explain further whether the then-estimated participation rates were ever compared against later actual participation rates using experience-based data; and if so,
   (ii) the degree of correlation between estimated vs. actual participation rates.
   (iii) Explain also whether the Companies have ever conducted any independent evaluation, measurement and verification ("EM&V") studies regarding their DSM programs' cost effectiveness.

66. Regarding the "Connected Solutions" program under the Companies' proposed new DR Programs, explain whether under either the subcomponent "Residential & Small Nonresidential Demand Conservation," and/or under the "Smart Thermostats, Room Air Conditioners, Water Heaters" measure, the Companies envision that they will obtain the ability to remotely adjust thermostats, electric water heaters and/or room air conditioners.

67. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, pp. 14-16, Table 1-1. Explain whether the proposed cost increases to the existing DSM programs are calculated into the total DSM costs as set forth in the application, or whether they are in addition thereto.

a. For each existing DSM program, provide the estimated cost increase for each bulleted item under the "Changes/Details" column.

b. For each existing DSM program which the Companies propose to retain but which will undergo modifications, explain whether the Companies performed the same Benefit-Cost calculations and analyses identified on pp. 17-19 of Ex. JB-1.

68. Regarding the proposed PTR program in general, and in particular referencing: (i) the PTR tab in the Excel document, "LGE KU Program Measure Inputs FINAL – Public," filed with the Application; and (ii) Tables A-7 ("Peak Time Rebates Impacts and Costs by Year") and A-8 ("Nonresidential Demand Response Program Impacts and Costs by Year").

a. Confirm that no expense for the following items was included in the Companies' analysis: (i) customer service expenses; (ii) marketing expenses; (iii) program manager expenses; and (iv) EM&V expense.
b. Explain whether the only cost included in the benefit-cost analysis was the amount of the rebate. If not, identify all costs the Companies considered, and provide an itemized breakdown of all costs included in Tables A-7 and A-8.
c. Confirm that the Companies believe the PTR program will be cost effective with a 10% participation rate.
d. Reference Table 1-9.
   (i) Explain the nature of the proposed capital expenses for years 1-2; and
   (ii) explain why for years 3-7, there is no capital budget.
e. Reference Table 1-8. Explain the increase in the PTR Program's annual budget for years 2 through 6.

69. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, pp. 21-22. Explain how much of the Program Development and Administration budget will be devoted toward expense for: (i) "Membership in associated trade organizations;" and (ii) "subscriptions to educational and trade publications."

a. Provide a list of all trade organizations to which the Companies pay dues, which would or could be included within this expense item.
b. Explain whether any portion of these expenses are recovered in base rates.

70. Regarding programs with thermostats (whether company-supplied or bring-your-own) explain:

a. will participating customers be required to continue in the program for any minimum period of time?
b. will customers who wish to exit the program be charged any type or sort of fee?
c. will customers who wish to exit the program be required to return thermostats and any related equipment, or to reimburse the companies for any equipment installed on customer property?
d. will company-provided thermostats have remote access features that would allow customers to adjust thermostats via wi-fi device while they are away from the premises?
e. provide details regarding:
    (i) how frequently the Companies envision remotely adjusting thermostats of participating customers ("an intervention");
    (ii) how many degrees of temperature adjustment they would make for each such intervention;
    (iii) the time duration each intervention would be expected to last;
    (iv) whether participating customers would be able to manually override any intervention;
    (v) whether the extent of any customer-initiated manual override would be limited in any manner; and
    (vi) how customers could execute a customer-initiated override.
f. Would customers initiating a manual override be penalized in any manner?

71. In the event the Companies' proposed DR programs are approved, explain whether the Companies (which currently are not members of an RTO), would be able to dispatch / sell the DR savings into either PJM or MISO, once their Automated Metering Infrastructure ("AMI") roll-out, the CPCN for which was approved in Case Nos. 2020-00349 and 2020-00350, is completed in both service territories. If so, would proceeds of such a sale be treated in the same manner as an off-system sale?

72. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, p. 41. In the event that a given customer qualifies for more than one DR program, explain whether the specialized software discussed on this page would also be capable of optimizing the best, and most cost-efficient, DR for that customer to choose.

73. Reference the Bevington testimony, Exhibit JB-1, the LG&E-KU 2024-2030 DSM and EE Program plan, Appendix D, "Potential Study Projection." Confirm the following statement from Cadmus to Mr. Bevington: "Compared to the potential

identified in the Companies' studies performed in 2016 and 2017, the 2022 potential study projection shows that cumulative electric energy-savings technical potential has declined by approximately 12% over the 20-year study horizon in the five years since the previous studies were completed."

74. Reference the Isaacson testimony generally. Confirm that: (i) the Cross-Sector DSM Potential Study Projection indicates that the potential for energy efficiency has declined; and (ii) even the identified economic potential would fail to meet the Companies' capacity shortfall resulting from the projected retirement of Ghent Unit 2, Mill Creek Units 1 and 2, and Brown Unit 3.