

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

JOINT APPLICATION OF LOUISVILLE GAS)	
AND ELECTRIC COMPANY AND KENTUCKY)	
UTILITIES COMPANY FOR CERTIFICATES)	
OF PUBLIC CONVENIENCE AND NECESSITY)	CASE NO. 2014-00002
FOR THE CONSTRUCTION OF A COMBINED)	
CYCLE COMBUSTION TURBINE AT THE)	
GREEN RIVER GENERATING STATION AND)	
A SOLAR PHOTOVOLTAIC FACILITY AT THE)	
E.W. BROWN GENERATING STATION)	

**WALLACE MCMULLEN AND SIERRA CLUB’S SUPPLEMENTAL DATA REQUESTS
TO LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY (PUBLIC VERSION)**

Intervenors Wallace McMullen and Sierra Club (collectively “Environmental Intervenors”) pursuant to the Kentucky Public Service Commission’s (“Commission”) February 6, 2014 Order (“February Order”), propound the following supplemental requests for information on Louisville Gas and Electric Company and Kentucky Utilities Company’s (collectively, the “Companies”) in the above captioned proceeding.

The Companies shall answer these requests for information in the manner set forth in the February Order and by no later than the April 24, 2014 deadline set forth in the Appendix of the February Order. Please produce the requested documents in electronic format to:

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Wherever the response to an interrogatory or request consists of a statement that the requested information is already available to the Environmental Intervenors, provide a detailed citation to the document that contains the information. This citation shall include the title of the document, relevant page number(s), and to the extent possible paragraph number(s) and/or chart/table/figure number(s).

In the event that any document referred to in response to any request for information has been destroyed, specify the date and the manner of such destruction, the reason for such destruction, the person authorizing the destruction and the custodian of the document at the time of its destruction.

The Environmental Intervenors reserve the right to serve supplemental, revised, or additional discovery requests as permitted in this proceeding.

DEFINITIONS

Unless otherwise specified in each individual interrogatory or request, “you,” “your,” the “Companies,” or “LG&E/KU,” refers to Louisville Gas and Electric Company and Kentucky Utilities Company, and its affiliates, employees, and authorized agents.

“AG” means the Attorney General of the State of Kentucky.

“And” and “or” shall be construed either conjunctively or disjunctively as required by the context to bring within the scope of these interrogatories and requests for production of documents any information which might be deemed outside their scope by another construction.

“Any” means all or each and every example of the requested information.

“CO₂” means carbon dioxide

“Communication” means any transmission or exchange of information between two or more persons, whether orally or in writing, and includes, without limitation, any conversation or discussion by means of letter, telephone, note, memorandum, telegraph, telex, telecopy, cable, email, or any other electronic or other medium.

“Document” refers to written matter of any kind, regardless of its form, and to information recorded on any storage medium, whether in electrical, optical or electromagnetic form, and capable of reduction to writing by the use of computer hardware and software, and includes all copies, drafts, proofs, both originals and copies either (1) in the possession, custody or control of the Companies regardless of where located, or (2) produced or generated by, known to or seen by the Companies, but now in their possession, custody or control, regardless of where located whether or still in existence.

Such “documents” shall include, but are not limited to, applications, permits, monitoring reports, computer printouts, contracts, leases, agreements, papers, photographs, tape recordings, transcripts, letters or other forms of correspondence, folders or similar containers, programs, telex, TWX and other teletype communications, memoranda, reports, studies, summaries, minutes, minute books, circulars, notes (whether typewritten, handwritten or otherwise), agenda, bulletins, notices, announcements, instructions, charts, tables, manuals, brochures, magazines, pamphlets, lists, logs, telegrams, drawings, sketches, plans, specifications, diagrams, drafts, books and records, formal records, notebooks, diaries, registers, analyses, projections, email correspondence or communications and other data compilations from which information can be obtained (including matter used in data processing) or translated, and any other printed, written, recorded, stenographic, computer-generated, computer-stored, or electronically stored matter, however and by whomever produced, prepared, reproduced, disseminated or made.

Without limitation, the term “control” as used in the preceding paragraphs means that a document is deemed to be in your control if you have the right to secure the document or a copy thereof from another person or public or private entity having actual possession thereof. If a document is responsive to a request, but is not in your possession or custody, identify the person with possession or custody. If any document was in your possession or subject to your control, and is no longer, state what disposition was made of it, by whom, the date on which such disposition was made, and why such disposition was made.

For purposes of the production of “documents,” the term shall include copies of all documents being produced, to the extent the copies are not identical to the original, thus requiring the production of copies that contain any markings, additions or deletions that make them different in any way from the original

“DSM” means demand-side management programs including demand-response, interruptible load, and energy efficiency programs.

“EPA” means the United States Environmental Protection Agency

“Identify” means:

- (a) With respect to a person, to state the person’s name, address and business relationship (e.g., “employee”) to Big Rivers;
- (b) With respect to a document, to state the nature of the document in sufficient detail for identification in a request for production, its date, its author, and to identify its custodian. If the information or document identified is recorded in electrical, optical or electromagnetic form, identification includes a description of the computer hardware or software required to reduce it to readable form.

“NOx” means nitrogen oxides

“NPV” means Net Present Value

“Relating to” or “concerning” means and includes pertaining to, referring to, or having as a subject matter, directly or indirectly, expressly or implied, the subject matter of the specific request.

“RFP” means Request for Proposal

“SO₂” means sulfur dioxide

“Workpapers” are defined as original, electronic, machine-readable, unlocked, Excel format (where possible) with formulas intact.

PRIVILEGE

If you claim a privilege including, but not limited to, the attorney-client privilege or the work product doctrine, as grounds for not fully and completely responding to any interrogatory or request for production, describe the basis for your claim of privilege in sufficient detail so as to permit the Environmental Intervenors or the Commission to evaluate the validity of the claim. With respect to documents for which a privilege is claimed, produce a “privilege log” that identifies the author, recipient, date and subject matter of the documents or interrogatory answers for which you are asserting a claim of privilege and any other information pertinent to the claim that would enable the Environmental Intervenors or the Commission to evaluate the validity of such claims.

TIME

Unless otherwise provided, the applicable time period for each of these requests for information is January 1, 2009 to the present.

DATA REQUESTS

2.1.

- 2.2. Please refer to the response to Sierra Club's initial information request 7. Please provide the data for all twelve scenarios (in electronic, machine-readable format).
- 2.3. Please refer to the response to Sierra Club's initial information request 1.18(b) and the direct testimony of David Sinclair.
- a. Please explain the apparent discrepancy between the 2014 LF in the Excel sheets and the totals provided in Table 4 of Mr. Sinclair's testimony.
 - b. Please provide the data and analyses used to calculate the "2014 LOW Scenario" referenced on page 14, Fig. 1-2013 LF.
 - c. Please provide the data and analyses used to calculate the "2014 LOW Scenario" referenced on page 15, Fig. 2 – 2013 LF.
 - d. Please provide Figure 1 on page 14 and Figure 2 on page 15 with the "2014 LOW Scenario" plotted in the graph.
 - e. Have the Companies evaluated distributed solar as a demand side resource?
 - i. If so, please provide all relevant studies and analyses, including all assumptions used in the studies and analyses.
 - ii. If not, please explain why not.
- 2.4. Please refer to the response to Sierra Club's initial information request 19.
- a. Did the Companies review short-term market energy purchases as an option in their analysis?
 - i. If so, please provide any analyses and workpapers used to evaluate short-term energy purchases.
 - ii. If not, why not?
 - b. Did the Companies review short-term market capacity purchases as an option in their analysis?
 - i. If so, please provide any analyses and workpapers used to evaluate short-term capacity purchases.
 - ii. If not, why not?
 - c. Are the Companies able to purchase capacity from the PJM capacity auction?
 - i. If so, have the Companies evaluated PJM capacity market purchases as a future option?
 1. If so, please provide any analyses and workpapers used to evaluate

PJM capacity market purchases.

2. If not, explain why not.
- ii. Please provide historical PJM capacity market sales and purchases made by the Companies (from 2004 to present).
- d. Are the Companies able to purchase capacity from the MISO capacity auction?
 - i. If so, have the Companies evaluated MISO capacity market purchases as a future option?
 1. If so, please provide any analyses and workpapers used to evaluate PJM energy market purchases.
 2. If not, explain why not.
 - ii. Please provide historical MISO capacity market sales and purchases made by the Companies (from 2004 to present).
- e. Have the Companies developed or reviewed capacity market price forecasts for PJM or MISO?
 - i. If so, please provide those forecasts with supporting analyses and workpapers.
 - ii. If not, explain why not.
- f. Did the Companies evaluate pairing the proposed self-build NGCC with a combination of DSM and/or [REDACTED]
 - i. If yes, please provide all supporting analyses and documents.
 - ii. If no, explain why not.
- g. Did the Companies evaluate pairing a smaller NGCC with a combination of DSM and/or [REDACTED]
 - i. If yes, please provide all supporting analyses and documents.
 - ii. If no, explain why not.
- h. Did the companies evaluate any DSM and/or renewable options for deferring the proposed NGCC other than the [REDACTED] option listed in Tables 29-33 of Exhibit DSS-1?
 - i. If yes, please provide all supporting analyses and documents.
 - ii. If no, explain why not.

2.5. Please refer to the response to Sierra Club's initial information request 19(e).

- a. Have the Companies compared their electricity price forecast under CO2 price scenarios to similar electricity price forecasts from any agencies, forecasting firms, or other utilities?
- b. If so, please provide any analyses and/or documents relating to this comparison.

2.6. Please refer to the response to Sierra Club's initial information request 28(d). Please explain why the proposed self-build solar project has a higher contingency rate (15%) than the proposed self-build NGCC project (10%).

2.7. Please refer to the response to Sierra Club’s initial information request 35.

- a. Is it the Companies’ position that the costs of the RFP bids do not reflect their respective capital and O&M environmental compliance costs, with the exception of CO2 costs and the cost per ton of NOx and SO2 emissions?

- b. [REDACTED]
- c. [REDACTED]

2.8. Please refer to the response to Sierra Club’s initial information request 43. Please provide all of the inputs used to calculate the PVRR for the proposed self-build solar project. If the information requested has already been provided, please refer to the relevant document.

2.9. Please refer to the response to Sierra Club’s initial information request 44.

- a. Are the Companies stating that the variable cost to operate environmental controls, from past capital investments, is reflected in the economic analysis in this case?
- b. Are the Companies stating that the variable cost to operate environmental controls, as a result of future capital investments necessary to comply with environmental regulations, is not reflected in the economic analysis in this case?
 - i. If no, please explain how the economic analysis in this case accounts for the effect of anticipated environmental compliance spending on variable operating costs.
- c. Regarding the environmental regulations listed in the question, please provide the “impacts associated with these regulations to variable operating costs and operating characteristics” annually by unit and specific regulation.

2.10. Please refer to the response to the AG’s initial information request 15.

- a. Please explain what the Companies mean by “pure costs,” stated in “actual, definitive, quantifiable dollars.”
- b. Please explain what is included and excluded from “extrapolation of dollar value of other factors.”

2.11. Please refer to the response to the AG’s initial information request 137, E.W. Brown 10 MW PV Solar Siting Study, Appendices E and F. Please provide the data tables in these appendices in Excel format.

2.12. Please refer to the response to the AG’s initial information request 161.

- a. Please list the economic, operating, financial, and economic benefits and costs considered in the Companies’ analysis of the proposed self-build solar project.

- b. Please list the economic, operating, financial, and economic benefits and costs quantified in the Companies' calculation of the PVRR of the proposed self-build solar project.
 - i. Please provide the value for each cost and benefit used in the PVRR calculation.
- 2.13. Please refer to the response to the AG's initial information request 168. Please list and detail the estimated or assumed value of all avoided carbon or other emissions and other environmental impacts associated with and/or attributable to the proposed self-build solar facility.
- 2.14. Please refer to the response to the AG's initial information request 177. Please provide the Life Cycle Cost Analysis for the Solar Facility.
- 2.15. Please refer to the response to the AG's initial information request 187. Have the Companies conducted any evaluation of wholesale price impacts resulting from the Solar Facility over the life of the plant?
- a. If so, please provide all analyses conducted.
 - b. If not, please explain why not.

2.16. [REDACTED]

2.17. [REDACTED]

- 2.18. Please refer to page 9 of the attachment submitted in response to KIUC's initial information request 2.
- a. Please elaborate on and explain the statement that "it is likely that more of Kentucky's regulatory paradigm and LKE's traditional regulated utility business model would be accommodated in MISO versus PJM."
 - i. Please provide any documents that support this statement
 - b. Please elaborate on and explain the statement that "membership in PJM would almost certainly pit LKE interests against those of the traditional PPL companies on matters of significance to all concerned."
 - i. Please provide any documents that support this reference to conflicts

between LKE and PPL interests in PJM.

- 2.19. Please refer to the response to Staff's initial information request 19.
 - a. Please explain why contingency costs increase from 10% to 15% between the September 2013 and December 2013 cost estimates. Please provide all supporting analyses and documents
 - b. Please explain the basis for the increase in site development costs between the September 2013 and December 2013 cost estimates. Please provide all supporting analyses and documents.

- 2.20. Please refer to the response to Staff's initial information requests 28 and 35.
 - a. Have the Companies compared solar facility output to hourly marginal energy prices?
 - i. If yes, please provide all supporting analyses, including the data and assumptions used.
 - ii. If not, please explain why not.
 - b. Have the Companies developed a solar heat rate calculation or equivalent analysis of performance against fleet operating performance?
 - i. If yes, please provide all supporting analyses, including the data and assumptions used.
 - ii. If not, please explain why not.
 - c. Have the Companies developed an Equivalent Load Carrying Capability analysis or similar assessment of capacity value for the solar facility?
 - i. If yes, please provide all supporting analyses, including the data and assumptions used.
 - ii. If not, please explain why not.

- 2.21. Please refer to the response to Staff's initial information request 6. Did the Companies allow for interactions between the team developing self-build proposals (Business Development and Project Engineering) and the Generation Planning Department?
 - a. If so, please explain the extent of those interactions and what steps were taken by the Companies to avoid conflicts of interest between the two groups.

- 2.22. Please refer to the response to Staff's initial information request 11. Please provide any documents and analysis supporting the Companies' claim that "the achievable energy efficiency potential will be limited after 2018 based on current energy efficiency technologies."

- 2.23. Please refer to the response to Staff's initial information request 16.
 - a. Please describe how the Companies would treat the excess capacity in 2018,

2019, 2020, and any other years with a projected capacity surplus (as shown in the table).

- b. Have the Companies evaluated the potential to offer this surplus capacity on the PJM or MISO capacity markets?
 - i. If so, please provide supporting analyses and workpapers, including (not limited to) projected capacity price assumptions.
 - ii. If not, do the Companies project not receiving capacity revenue from this surplus?

2.24. Please refer to the response to Staff’s initial information request 22 and Exhibit DSS-1, page 21.

- a. Please provide the date each RFP response was submitted.
- b. Please provide the dates of contact between the Companies and bidder for each RFP response.
- c. Have the Companies solicited updates to any of the RFP responses?
 - i. If so, please provide those correspondences and the changes to the original bids.
 - ii. If not, why not?
- d. With regards to the Companies having “met with the RFP respondents that submitted the most economic short- and long-term alternatives,” state whether the Companies had meetings and/or discussions with each of the following respondents after the initial bids were submitted:

[REDACTED]

- e. For each of the above listed respondents that the Companies met with, please explain:
 - i. When all such meetings and/or discussions occurred;
 - ii. The substance of the meetings and/or discussions; and
 - iii. The results of such meeting(s) and/or discussions and how the bids were updated.
- f. For each of the above listed respondents that the Companies did not meet with, explain why the Companies did not meet with them.

2.25. Please refer to the response to Staff’s initial information request 22,

- a. Did the Companies include the bidder in the group of RFP respondents the Companies met with in the beginning of the Phase 2 analysis?
 - i. If not, why not?
- b. Are any of the three projects included in this proposal not deliverable to

Companies' system?

- i. If so, please provide any supporting analyses performed by or for the Companies.
 - c. Did the Companies' include the revenue from Renewable Energy Credits (REC's) generated by each project in any phase of economic analysis?
 - i. If so, please provide supporting analyses and workpapers for REC revenue assumptions.
 - ii. If not, why not?
 - d. Confirm or deny that the Companies would retain the REC's generated by each of the projects.
 - e. Have the Companies altered the costs provided in the proposal for the three projects in any phase of analysis?
 - i. If so, please provide those costs along with supporting analyses and workpapers.
- 2.26. Please refer to the response to Staff's initial information request 22, 20130110 2013 RFP Natural Gas Price Forecasts. Have the Companies conducted (or had conducted) a natural gas price forecast subsequent to the data in this file ([REDACTED])?
 - a. If so, please provide this forecast with supporting analyses and workpapers.
 - b. If not, why not?
- 2.27. Please refer to the response to Staff's initial information request 34a, page 1 and Exhibit DSS-1, page 19.
 - a. Please provide the annual generation for each unit in the Companies' fleet in each scenario (in electronic, machine-readable format).
 - b. Please explain why the new NGCC operates at greater than 90% capacity factor for every year after 2019 in eight of the twelve scenarios, including supporting analyses and workpapers.
 - c. Are the Companies aware of any NGCC that has run at greater than 90% capacity factor for more than five consecutive years?
 - i. If so, please list such plants and provide supporting analyses and workpapers.
 - d. Please explain why the capacity factors do not comport with the ranges used in the Phase 1 Screening Analysis.
 - e. Please provide supporting analyses and workpapers used in developing the Phase 1 Screening Analysis Operating Scenarios.
- 2.28. Please refer to the Joint Application. Please explain why there is no change in the level of curtailable demand over the planning period.
- 2.29. Please refer to the direct testimony of Paul Thompson.

- a. Please explain the standard used to determine the “relatively minor” impact described on page 5, line 18.
 - b. Please explain the standard used to determine contributions that “diversify” the Companies’ fuel supply sources and reduce future greenhouse gas emissions, as described on page 5, line 20.
 - c. Please detail how load and change in load have deviated from forecasts over the past 20 years.
- 2.30. Please refer to Exhibit DSS-1. Please explain and provide documentation and analysis relevant to the assertion that the proposed solar facility is “a prudent hedge against both GHG regulations and natural gas price risk.”
- 2.31. Please refer to Confidential Exhibit DSS-1, page 21.
- a. Please explain why the Companies based the second iteration of the Phase 2 analysis on the timing of the earliest possible construction of a new NGCC.
 - b. Please provide correspondence, documentation and analyses used in determining that the [REDACTED] proposal would not be considered.
 - c. Please provide what the Companies used as replacement resources during the 30-year analysis for each instance that a bid did not cover the entire analysis period.
 - i. Please provide analyses and workpapers supporting the choice of replacement resources.
 - d. Did the Companies include end-effects in the PVRR calculations?
 - i. If so, please provide the workpapers with calculations of end effects for all scenarios and bids.
- 2.32. Refer to Confidential Exhibit DSS-1, page 23. With regards to the [REDACTED]:
- a. Provide the terms of the proposed PPA.
 - b. State whether the Companies have entered into a PPA with the [REDACTED].
 - i. If not, describe the status of any discussions with [REDACTED], and identify any deadline by which the PPA offer would expire.
- 2.33. Please refer to Confidential Exhibit DSS-1, page 24.
- a. Please explain why a PVRR difference in capital and firm gas transportation costs of [REDACTED] for the [REDACTED] NGCC proposal relative to the Companies’ self-build NGCC was sufficient to dismiss the [REDACTED] proposal from further analysis.
 - i. Please confirm that this represents a [REDACTED] difference in PVRR of capital costs.
 - b. Please explain why production cost modeling was not warranted given the small difference in PVRR for capital and firm gas costs between the two projects.

- 2.34. Please refer to the Confidential Exhibit DSS-1, page 32 which states, “The capital cost of solar alternatives in Iteration 1 (alternative C28H and C28I) is [REDACTED] /kW. At this price level, justification for solar projects is difficult”:
- a. Please confirm or deny that the Companies’ self-build solar project represented the [REDACTED] of this range during Iteration 1.
 - b. Did the Companies contact [REDACTED] which represented the [REDACTED] of the range above at any point after Iteration 1?
 - i. If so, please provide any correspondence between the Companies and the bidder.
 - ii. If not, why not?
 - c. Does the subsequent price reduction in the Companies’ solar build project apply to the [REDACTED]?
 - i. If so, please explain with supporting analyses and workpapers.
 - ii. If not, why not?

- 2.35. Please refer to the Confidential Exhibit DSS-1, Table 25 on page 32. Please confirm or deny that [REDACTED] is included in the Companies’ proposed least-cost plan going forward.
- a. If denied, please provide analyses and workpapers supporting the decision to exclude this program.

2.36. Please refer to the Confidential Exhibit DSS-1, Table 26 on page 33.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.37. Please refer to the Confidential Exhibit DSS-1, page 41.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.38. Please provide the Companies' current revenue sharing provision for off-system sales revenue.

CERTIFICATE OF SERVICE

This is to certify that the foregoing copy of WALLACE MCMULLEN AND SIERRA CLUB'S SUPPLEMENTAL INFORMATION REQUESTS TO LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY is a true and accurate copy of the document being filed in paper medium; that the electronic filing was transmitted to the Commission on April 10, 2014; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that a copy of the filing in paper medium is being hand delivered to the Commission on April 10, 2014.

/s/ Joe F. Childers