

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

In the Matter of:

**JOINT INTEGRATED RESOURCE PLAN OF)
LOUISVILLE GAS AND ELECTRIC COMPANY)
AND KENTUCKY UTILITIES COMPANY)** **CASE NO. 2014-00131**

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

Pursuant to the Kentucky Public Service Commission’s (“Commission”) October 1, 2014 Order (“October Order”), Intervenor Wallace McMullen and Sierra Club (collectively “Environmental Intervenor”) propound the following requests for information on Louisville Gas and Electric Company and Kentucky Utilities Company (collectively, the “Companies”) in the above captioned proceeding.

The Companies shall answer these requests for information in the manner set forth in the October Order and by no later than the December 23, 2014 deadline set forth in the Appendix to the October 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.

“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, 2010 to the present.

DATA REQUESTS

- 2.1. Please refer to the response to Sierra Club DR 1-6. Please produce the Companies’ 2014 Business Plan that is referenced in the response.
- 2.2. Please refer to the response to Sierra Club DR 1-7 and to page 39 of the Resource Assessment in Volume III of the IRP. With regards to the Strategist modeling that the Companies performed as part of this IRP process:
 - a. State whether the simulation of “system dispatch and operation” assumed a projected price of energy against which the model evaluated whether to dispatch the Companies’ generating resources
 - i. If not, explain how Strategist determined whether to dispatch the Companies’ generating units, and produce any documentation of the price against which the Companies’ generating units were dispatched against in the Strategist modeling.
 - ii. If so:
 1. Identify the projected price of energy (in hourly, on-peak and off-peak, and/or annual terms) used in the Strategist modeling
 2. Identify the source or basis for such projected energy prices, and produce any analyses, studies, or other documents upon which that

projection is based.

3. State whether the Companies ran any modeling scenarios in which a lower or higher energy price projection was used.

a. If so, identify each such lower or higher energy price projection and produce any analyses, studies, or other documents upon which that projection is based.

b. If not, explain why not.

b. State whether the Strategist modeling evaluated the dispatch of the Companies' generating units on an hourly, monthly, or annual basis.

c. State whether in any of the Strategist modeling runs performed as part of this IRP, the model was allowed to select early retirement of any of the Companies' generating units.

i. If so, identify in which runs such options were allowed to be selected.

ii. If not, explain why not.

d. State whether in any of the Strategist modeling runs performed as part of this IRP, the model was allowed to select additional demand side management resources beyond those input into the model.

i. If so, identify in which runs such options were allowed to be selected.

ii. If not, explain why not.

2.3. Please refer to the response to Sierra Club DR 1-15 and 1-16.

a. State whether capital and fixed O&M costs for existing generating units were factored into the calculation of the revenue requirements for any of the scenarios modeled as part of this IRP.

i. If so, explain how such capital and fixed O&M costs for existing units were factored in.

ii. If not, explain why not.

b. State whether capital and fixed O&M costs for existing generating units were factored in to assessing whether to retire one or more of the existing such units should be assumed.

i. If so, explain how such capital and fixed O&M costs for existing generating units were factored in.

ii. If not, explain why not.

- 2.4. Please refer to the response to Sierra Club DR 1-7 and 1-8. State whether capacity prices played any role in the IRP.
- a. If so:
 - i. Explain what role capacity prices played in the IRP.
 - ii. Identify the projected annual capacity price assumed in the IRP for each year of the analysis.
 - iii. Identify the source and/or bases for such capacity price projection, and produce any analyses, studies, or other documents supporting such projection.
 - b. If not:
 - i. Explain why not.
 - ii. Explain whether the Companies' existing generating units were assumed to have any capacity value and, if so, please identify such value.
- 2.5. Please refer to the response to Sierra Club DR 1-11, stating that Brown unit 3 was designated as must-run in the modeling performed for the IRP.
- a. In the Strategist modeling conducted for the 2014 IRP, for what periods of time was Brown unit 3 designated as must-run? Please respond with the days, weeks, and/or months of each year in which Brown unit 3 was designated as must-run.
 - b. In the Strategist modeling conducted for the 2014 IRP, when Brown unit 3 was designated as must-run, what was input as the minimum segment or minimum capacity at which Brown unit 3 must run?
 - c. In the Strategist modeling conducted for the 2014 IRP, when Brown unit 3 was designated as must-run, was Brown unit 3 available to be dispatched on an economic basis above its minimum load?
 - d. Did the company perform any modeling runs in which Brown Unit 3 was not designated must run?
 - i. If so, produce the results of such modeling, if not already provided.
- 2.6. Please refer to the Companies' response to Sierra Club DR 1-14.
- a. Please provide any comments submitted by LG&E and/or KU on or about December 1, 2014 to EPA on the proposed Clean Power Plan for existing EGUs.
 - b. Please provide any comments submitted by PPL on or about December 1, 2014 to EPA on the proposed Clean Power Plan for existing EGUs.

- 2.7. Please refer to the Companies' response to Sierra Club DR 1-15.
 - a. Please provide the 2015 Business Plan referenced in the response to DR 1-15.
 - b. Please explain the purpose of the 2015 Business Plan.
 - c. Please identify the individual(s) who prepared the 2015 Business Plan.
- 2.8. Please refer to Attachment 1-15(1), which the Companies provided in response to Sierra Club's discovery request 1-15.
 - a. For the purposes of calculating the capital costs in the attachment, which option is EPA assumed to select in the final CCR Rule? Please provide all supporting analyses and documents.
 - b. For the purposes of calculating the capital costs in the attachment, which option is EPA assumed to select in the final ELG Rule? Please provide all supporting analyses and documents.
 - c. For the purposes of calculating the capital costs in the attachment, which technologies and equipment are assumed to be installed on each unit and/or at each plant to comply with the final CCR rule? Please provide all supporting analyses and documents.
 - d. For the purposes of calculating the capital costs in the attachment, which technologies and equipment are assumed to be installed on each unit and/or at each plant to comply with the final ELG rule? Please provide all supporting analyses and documents.
 - e. For the purposes of calculating the capital costs in the attachment, which technologies and equipment are assumed to be installed on each unit and/or at each plant to comply with the final 316(b) rule? Please provide all supporting analyses and documents.
- 2.9. Please refer to Attachment 1-15(1), which the Companies provided in response to Sierra Club DR 1-15.
 - a. Please confirm that the Companies assume that they will incur \$200 million in capital costs between 2017 and 2021 to bring the Brown plant into compliance with the final ELG rule.
 - b. Please provide a break-down of the \$200 million in capital spending by item, listing the various pollution control technologies that in the aggregate cost \$200 million.
 - c. Please indicate when the Companies expect to file a case with the Commission seeking approval for any spending necessary to comply with the ELG rule.
- 2.10. Please refer to Attachment 1-15(1), which the Companies provided in response to Sierra Club DR 1-15.

- a. Please produce all documents and analyses used by the Companies to determine the technologies they expect to use to comply with the CCR rule at each of their units and/or plants.
 - b. Please produce all documents and analyses used by the Companies to determine the technologies they expect to use to comply with the ELG rule at each of their units and/or plants.
 - c. Please produce all documents and analyses used by the Companies to determine the technologies they expect to use to comply with the 316(b) rule at each of their units and/or plants.
- 2.11. Please refer to Attachment 1-15(1), which the Companies provided in response to Sierra Club DR 1-15.
- a. Please confirm that, at all of their plants, the Companies intend to spend \$2.5 million and \$3.6 million on capital costs to comply with the ELG and CCR rules, respectively, in 2015.
 - b. Please provide a break-down, by item, of the \$2.5 million and \$3.6 million in capital spending.
 - c. Have the Companies secured Commission approval for the \$2.5 million in capital spending for the ELG rule and/or the \$3.6 million in capital spending for the CCR rule in 2015?
- 2.12. Please confirm that the fixed O&M costs in Attachment 1-15(2) and capital costs calculated in Attachment 1-15(1) were calculated based on the same assumptions regarding the contents of the final rules and the technologies installed to satisfy the final rules. If that is not correct, please refer to Attachment 1-15(2), which the Companies provided in response to Sierra Club's discovery request 1-15.
- a. For the purposes of calculating the fixed O&M costs in the attachment, what option is EPA assumed to select in the final CCR Rule?
 - b. For the purposes of calculating the fixed O&M costs in the attachment, what option is EPA assumed to select in the final ELG Rule?
 - c. For the purposes of calculating the fixed O&M costs in the attachment, what technologies and equipment are assumed to be installed to comply with the CCR rule?
 - d. For the purposes of calculating the fixed O&M costs in the attachment, what technologies and equipment are assumed to be installed to comply with the ELG rule?

- e. For the purposes of calculating the fixed O&M costs in the attachment, what technologies and equipment are assumed to be installed to comply with the 316(b) rule?
- 2.13. Please refer to the Companies' response to Sierra Club DR 1-25, which indicates that from 2005-2013, actual total electric sales (weather normalized or not) were lower than budgeted sales in 7 of 9 years, and actual sales were on average 1.4% lower than budgeted sales and actual weather-normalized sales were on average 2.1% lower than budgeted sales.*
- a. Have the Companies conducted any analysis of whether any aspect(s) of their load forecasting methodology are causing the Companies to consistently overestimate total electric sales?
 - i. If yes, please explain, and provide all such analyses.
 - ii. If not, why not?
 - b. Have the Companies taken any steps to adjust their load forecasting methodology to correct for the fact that in 7 of the last 9 years, actual electric sales have been below budgeted sales?
 - i. If yes, please explain the steps taken.
 - ii. If not, why not?

* Please note that this is not the mean absolute error. Also, the average excludes the 2006 weather-normalized deviation, as this number was not provided in the responses to 1-25.

- 2.14. Please refer to the Companies' response to Sierra Club DR 1-26, which states that if a unit had a capacity factor less than 10% for three consecutive years, the unit was assumed to retire in the first of the consecutive years in which its capacity factor was less than 10%.
- a. Please confirm that in several scenarios with no carbon price or carbon emissions cap, Brown unit 1 has a capacity factor less than 10% for three consecutive years.
 - i. In particular, please confirm that in the Appendix to Sections 8 & 9, Scenario Data, on page 5, that Table 8.(3)(b)12(a)-1 shows that Brown unit 1 has capacity factors less than 10% in the MG, BL, 0C scenario for the years 2018-2022.
 - ii. Please confirm that in the Appendix to Sections 8 & 9, Scenario Data, on page 12, that Table 8.(3)(b)12(a)-1 shows that Brown unit 1 has capacity factors less than 10% in the LG, BL, 0C scenario for the years 2014-2028.
 - b. Please explain why the Companies did not assume that Brown unit 1 retires in the zero carbon scenarios referenced above, given the Companies' assumption that a unit is retired if it has three or more consecutive years in which its capacity factor is less than 10%.
 - i. In particular, please explain why Table 6 on page 7 of the original Resource Assessment does not show Brown unit 1 retiring in the MG-BL-0C and LG-

- BL-0C scenarios, given that Brown unit 1 has three or more consecutive years of capacity factors below 10% in each of these scenarios.
- ii. In particular, please explain why Table 7 on page 11 of the Resource Assessment Addendum does not show Brown unit 1 retiring in the MG-BL-0C, MG-LL-0C, LG-BL-0C, and LG-LL-0C scenarios, given that Brown unit 1 has three or more consecutive years of capacity factors below 10% in each of these scenarios.
- c. Please confirm that in several scenarios with no carbon price or carbon emissions cap, Brown unit 2 has a capacity factor less than 10% for three consecutive years.
- i. In particular, please confirm that in the Appendix to Sections 8 & 9, Scenario Data, on page 12, that Table 8.(3)(b)12(a)-1 shows that Brown unit 2 has capacity factors less than 10% in the LG, BL, 0C scenario for the years 2014-2028.
- d. Please explain why the Companies did not assume that Brown unit 2 retires in those zero carbon scenarios, given the Companies' assumption that a unit is retired if it has three or more consecutive years in which its capacity factor is less than 10%.
- i. In particular, please explain why Table 6 on page 7 of the original Resource Assessment does not show Brown unit 2 retiring in the LG-BL-0C scenario, given that Brown unit 2 has three or more consecutive years of capacity factors below 10% in this scenario.
 - ii. In particular, please explain why Table 7 on page 11 of the Resource Assessment Addendum does not show Brown unit 2 retiring in the MG-LL-0C, LG-BL-0C, and LG-LL-0C scenarios, given that Brown unit 2 has three or more consecutive years of capacity factors below 10% in each of these scenarios.
- 2.15. Please refer to the attachment provided in response to Sierra Club DR 1-27(d), entitled "Brown 1-2 Baghouse Retrofit Analysis." Have the Companies prepared or caused to be prepared a comparable analysis comparing the economics of using chemical additives at Brown 1-2 to comply with the MATS rule versus retiring the 2 units?
- a. If so, please produce such analyses.
 - b. If not, why not?
- 2.16. Please refer to the attachment provided in response to Sierra Club DR 1-27(d), which states on page 4 that, "However, a decision to retire Brown 1-2 has not been reached, as the Companies are currently testing chemical additives for Brown 1-2 that may enable the units to comply with EPA regulations at a much lower capital cost."
- a. Please provide all documents containing or summarizing the results of the testing of chemical additives at Brown 1-2 referenced in the above statement.

- b. Please identify any estimated or projected capital, fixed O&M, and variable O&M costs of using chemical additives at Brown 1-2 to comply with the MATS rule, and provide all analyses, studies, or other documentation of such cost projections.
- c. Please identify the specific chemical additives, and the equipment, the Companies intend to use at Brown 1-2 to comply with the MATS rule.
- d. State whether the Companies currently sell to third parties or beneficially reuse any of the coal ash from Brown units 1 and/or 2.
 - a. If so:
 - i. Identify the annual revenue from such sales or beneficial reuse in each of the years 2011 to the present.
 - ii. Identify the projected annual revenue from such sales or beneficial reuse in each of the years of the IRP analysis.
 - iii. State whether the Companies anticipate that the chemical additives used to comply with the MATS rule will negatively affect the ability to sell and/or beneficially reuse the coal ash?
 - 1. If so, provide all analyses the Companies have conducted on this issue.
 - 2. If not, explain why not.

Respectfully submitted,



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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 December 9, 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 mailed to the Commission on December 9, 2014.

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