

March 7, 2014

Mr. Jeff Derouen
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602
Via Courier

MAR 0 7 2014
PUBLIC SERVICE
COMMISSION

Re: Case No. 2013-00475, In the Matter of Kentucky Power Company's Integrated Resource Planning Report

Dear Mr. Derouen:

Enclosed are eleven redacted copies of *Beverly May, Alexander Desha, and Sierra Club's Supplemental Requests For Information To Kentucky Power Company* in docket 2013-00475 before the Kentucky Public Service Commission. The unredacted original was filed earlier today via hand delivery.

Sincerely,

**Grant Tolley** 

Earthjustice

1617 John F. Kennedy Boulevard

**Suite 1675** 

Philadelphia, PA 19103

(215) 717-4523

# COMMONWEALTH OF KENTUCKY BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF	)	
KENTUCKY POWER COMPANY'S INTEGRATED	)	CASE NO. 2013-00475
RESOURCE PLANNING REPORT	)	
	)	CASE NO. 2013-004

# BEVERLY MAY, ALEXANDER DESHA, AND SIERRA CLUB'S SUPPLEMENTAL REQUESTS FOR INFORMATION TO KENTUCKY POWER COMPANY

Intervenors Beverly May, Alexander DeSha, and Sierra Club (collectively "Environmental Intervenors") pursuant to the Kentucky Public Service Commission's ("Commission") January 17, 2014 Order ("January 17 Order"), propound the following supplemental requests for information on the Kentucky Power Company's ("KPC") integrated resource planning ("IRP") report filed in the above-captioned proceeding.

KPC shall answer these requests for information in the manner set forth in the January 17 Order and by no later than the March 21, 2014 deadline set forth in the Appendix of the January 17 Order. Please produce the requested documents in electronic format to:

Kristin Henry Sierra Club 85 Second Street, 2nd Floor San Francisco, CA 94105 kristin.henry@sierraclub.org

Shannon Fisk
Earthjustice
1617 John F. Kennedy Blvd., Suite 1675
Philadelphia, PA 19103
sfisk@earthjustice.org

Wherever the response to a 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," "KPC," or "Company" refers to Kentucky Power 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.

"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

"DG" means distributed generation

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

"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.

"IRP" means the Integrated Resource Plan, and all supporting exhibits and appendices, filed by KPC in this proceeding

"Relating to," "concerning," or "regarding" 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.

"RFI" means the Request For Information that was issued on behalf of KPC on October 18, 2013

"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.

#### **REQUESTS FOR INFORMATION**

1.	Refer to the "Confidential Price Forecasts" table starting on page 235 of Volume D of the
	Confidential Supplement to the IRP produced as Confidential Attachment 4 to KPC's
	response to SC 1-2.

a.	Identify the discount and/or inflation rates that were used to generate the figures in this table.
b.	Identify and produce the source(s) of the forecasted identified therein.
c.	State whether any of the price forecasts identified therein factor in a price on carbon emissions during any of the years of the forecast.

- i. If so, identify the carbon price used for each year of the forecast, and the basis for such price.
- 2. Refer to Exhibit 4-4 of Volume D of the Confidential Supplement to the IRP produced as Confidential Attachment 4 to KPC's response to SC 1-2.

a.	With regards to the found on page 1 of Exhibit 4-4,	found on page 1 of Exhibit 4-4,	
	explain why:		

- 3. Refer to Attachment 1 to KPC's response to SC 1-9.
  - a. State whether the Wyandot Solar worksheet was used in developing Figure 9 on page 97 of the IRP.
    - i. If so, explain how.
    - ii. If not, explain what role, if any, the Wyandot Solar worksheet played in KPC's evaluation of solar DG or utility-scale solar in the IRP.
  - b. With regards to the "inputs" tab, identify and produce the basis for the values assigned to each of the following:

- i. Net metering rate
- ii. Solar panel annual degradation
- iii. Capacity factor
- iv. Effective capacity
- v. Panel life
- vi. Discounted value of energy
- vii. Discounted value of capacity
- c. State whether the forecasted energy and capacity values used in the analysis reflected in Attachment 1 assumed a price on carbon emissions during any of the years of the forecast.
  - i. If so, identify the carbon price used for each year of the forecast, and the basis for such price
  - ii. If not, explain how the inclusion of a price on carbon would impact the results of the analysis.
- 4. Refer to KPC's response to Sierra Club request no. 10. Regarding KPC's statement that utility-owned (or purchased) solar generation is expected to become economic around 2020:
  - a. Explain how "economic" is defined in the referenced statement, and each cost and benefit that was factored into your assessment.
  - b. Explain the factual basis for this conclusion, and identify any assumptions made in reaching that conclusion.
  - c. Explain how the information in SC 1-9 Attachment 1 was used to reach this conclusion.
- 5. Refer to KPC's response to Sierra Club request no. 11. Describe the hourly information that is necessary to model an expansion of current EE programs.

6.	Refer	to SC 1-14 Confidential Attachment 1. On the :
	a.	Identify what refer to.
	b.	Identify and produce the source of
	c.	State whether the identified
	a	were for a single year or multiple years, and identify such year or years.  Identify what
	d.	Identify what
	e.	State whether KPC contends that the identified
		i. If so, explain the basis for such contention.

- 7. Refer to KPC's response to Sierra Club request no. 19.
  - a. Please state what the data on page 1 of SC 1-19 Attachment 1 represents. For example, does it represent Efficiency Vermont data or Efficiency Vermont data adjusted by the Company to fit the climate of its service territory?
  - b. If the data represents Efficiency Vermont data adjusted by the Company to fit the climate of its service territory, please provide the underlying Efficiency Vermont data.
  - c. If the data represents Efficiency Vermont data, please provide the information presented on page 1 of SC 1-19 Attachment, as adjusted by the Company to fit the climate of its service territory.
  - d. Please provide the source document containing the Efficiency Vermont data presented in SC 1-19 Attachment 1. Please state whether this data is available on Efficiency Vermont's website. If so, please provide the hyperlink.
  - e. With regards to the "calculations" referenced in part b of KPC's response to Sierra Club request 19, produce any workpapers in which such calculations were made in electronic, machine readable format with formulas intact.
- 8. Refer to KPC's response to Sierra Club request no. 20.
  - a. Please explain which data in SC 1-19 Attachment 1 comprise KPC's incremental cost assumptions for energy efficiency
  - b. Please explain how the Company accounted for the difference between the end use categories in SC 1-19 Attachment 1 and those presented in Figure 8 on page 96 of the IRP.
- 9. Refer to KPC's response to Sierra Club request no. 23 and pages 130 to 135 of the IRP.
  - a. Referring to KPC's response to 23.a and page 134 of the IRP, produce the modeling input files and workpapers (in electronic, machine readable format with formulas intact) used for analyzing the "nearer-term" wind resource opportunity
  - b. Produce the modeling input files and workpapers (in electronic, machine readable format with formulas intact) used for analyzing wind resource opportunities for periods beyond 2017
  - c. Referring to Figure 15 on page 135 of the IRP, identify and produce any studies, analyses, or workpapers upon which the utility wind cost assumptions are based
  - d. Referring to KPC's response to 23.b, produce the workpapers, source documents, and underlying data used to generate the figures reflected in "Figure 12: Solar Panel Installed Cost" on page 131 of the IRP.
- 10. Refer to KPC's response to Sierra Club request no. 24.
  - a. KPC's response to 24.b indicates that the Company will decide prior to March 12, 2014, whether to opt in to the RPC capacity auction starting in 2017/2018. Please identify KPC's decision and explain the basis for that decision.

b.	Referring to SC 1-24 Confidential Attachmer	t 2	, explain the basis for,	and provide any
	underlying documents or data to support, the			identified therein.

- 11. Refer to KPC's response to Sierra Club request no. 25.a. With regards to the SO2 and NOx emission reductions at Rockport or increased acquisition of allowances that were "expected to be required . . . to meet its CSAPR allocation levels":
  - a. Identify the level of reductions of SO2 and NOx that were expected to be needed to meet the CSAPR allocation levels
  - b. Identify and produce any analysis, report, or study regarding what was "expected to be required" for Rockport to achieve compliance with CSAPR.
- 12. Refer to KPC's responses to Sierra Club request nos. 26 and 27. KPC's response to Staff request no. 33 provides an aggregate estimate of environmental compliance costs in 2014, 2015, and 2016. Please provide a detailed breakdown of these cost figures, for each of the units at the Rockport and Mitchell plants, including:
  - a. The estimated costs specifically attributable to compliance with the Coal Combustion Residuals (CCR) Rule; and
  - b. The estimated costs specifically attributable to compliance with the Effluent Limitation Guidelines and Standards (ELGs).
  - c. The estimated costs specifically attributable to compliance with the New Source Review Consent Decree, including the Third Modification, discussed at pages 117 to 119 of the IRP.
- 13. Identify the estimated costs to KPC specifically attributable to compliance with the New Source Review Consent Decree, including the Third Modification, discussed at pages 117 to 119 of the IRP, for each year of 2017 through 2028.
  - a. State whether those costs were incorporated into the modeling carried out as part of this IRP.
    - i. If so, explain how.
    - ii. If not, explain why not.
- 14. Refer to KPC's response to Sierra Club request no. 30.b. Please produce the workpapers, source documents, and underlying data used to generate:
  - a. the 2017 generic cost estimate, and
  - b. the annual discount rates for 2017 and subsequent years.

- 15. Refer to KPC's response to Sierra Club request no. 31.
  - a. Identify and describe in detail the historical relationships that were used to develop each of the correlations shown in Table 21 on page 167 of the IRP.
  - b. Produce any workpaper, source document, or study used in or developed to establish each of the correlations shown in Table 21 on page 167 of the IRP
  - c. Confirm whether KPC assumed any correlation between carbon prices and natural gas prices in any of the modeling used in the IRP.
    - i. If so, identify the correlation, and produce any workpaper, source document, or study upon which such correlation is based.
    - ii. If not, explain why not.
- 16. Refer to KPC's response to Staff request no. 18:
  - a. Please provide a breakdown of the avoided demand/capacity costs the Company modeled, by generation, transmission and distribution.
  - b. Please explain why the Company assumes zero costs for NOx and SO2 emissions during the IRP planning period.
  - c. Please explain why the Company assumes no price on carbon until 2022.
- 17. Refer to KPC's response to Staff request no. 20. Please state whether KPC has considered or evaluated providing an on-bill financing option for customer-distributed solar generation.
- 18. Refer to KPC's response to Staff request no. 22.
  - a. Please state whether KPC has considered or evaluated opportunities to generate revenue for capacity sales.
  - b. Referring to KPC's response to 22.b, state whether and when KPC plans to conduct any research regarding "bidding in" energy efficiency and demand response into PJM markets.
  - c. Referring to KPC's response to 22.d:
    - i. Please define the term "sufficient length" as it is used in this response.
    - ii. Please provide the "quantity of EE resources" that KPC considers to be "large enough to justify the expense associated with measurement and verification."
- 19. Refer to KPC's response to Staff request no. 34.
  - a. Referring to KPC's response to 34.a, state whether KPC has conducted any sensitivity analysis around accelerated cost-effectiveness (i.e., sooner than 2020) for utility scale solar.
    - i. If so, provide the results of that analysis.

- ii. If not, please explain why no such analysis was performed.
- b. Referring to KPC's response to 34.b, please confirm that the "PJM market price" consists of the price of energy and generating capacity in the PJM market.
- c. Referring to KPC's response to 34.b, state whether KPC has conducted any sensitivity analysis around cost-effectiveness and market uptake of distributed solar generation.
  - i. If so, provide the results of that analysis.
  - ii. If not, please explain why no such analysis was performed.
- 20. Refer to KPC's response to Staff request no. 46. With regards to valuing solar, please explain in detail the manner by which "[a]dditional value that might accrue from the transmission and distribution system was discounted due to the winter peaking nature of the T&D systems." Please quantify the discount.
- 21. Explain how the Plexos® Linear Program evaluates solar resources. In providing this explanation, please include:
  - a. the unit incremental size considered and why that unit size was considered;
  - b. all inflation adjustments and their cause; and any and all assumptions about costs (including overnight capital costs, variable and fixed operating costs, and other costs and credits), unit expected life, and other cost-related and performance factors, for the longer of each year of the IRP or the expected life of solar resources.
- 22. Describe how the IRP and the Plexos® Linear Program account for locational differences in value, changes in installation cost, changes in capacity factors and capacity value (such as Effective Load Carrying Capability), and changes in other site-specific values associated with increased numbers of solar installations.
- 23. Refer to "Table 2: Peak Internal Demand and Energy Requirements Including Approved EE" on page 8, and to the discussion on pages 37-38 of the IRP (Volume A).
  - a. Explain what factors result in an expected summer peak internal demand growth rate that is three times greater than overall internal demand growth rate.
  - b. Describe in detail the factors and relative weights used in determining the "Xcool" variable.
- 24. Refer to "Table 4: Kentucky Power Existing DSM Programs" on page 12 of the IRP (Volume A).
  - a. State whether KPC has ever evaluated distributed solar electric generation for inclusion as a demand side management resource.

- i. If so, please describe what the process of evaluation was, and provide the results of that evaluation.
- ii. If not, please explain why KPC has never done such an evaluation.
- 25. Refer to "Table 7: Financial Effects" on page 17 of the IRP (Volume A).
  - a. List and explain all factors included in developing this table.
  - b. Identify any factors that were considered, but excluded, when developing this table.
  - c. Referring to the note to Table 7, please explain in detail what "transmission and distribution-related" and "base generation-related" cost increases were not considered in the IRP.
  - d. State whether the rates reflected in Table 7 include the impact of the requirement in the New Source Review Consent Decree to install Selective Catalytic Reduction controls on Rockport Units 1 and 2 by December 31, 2017 and December 31, 2019, respectively, as discussed on page 118 of the IRP.
    - i. If so, identify the impact of the SCR installations on rates starting in 2018 and 2020, respectively.
    - ii. If not, explain why not.
  - e. State whether the rates reflected in Table 7 include the impact of the requirement in the Third Modification of the New Source Review Consent Decree to install "high efficiency scrubbers" on Rockport Units 1 and 2 by December 31, 2025 and December 31, 2028, respectively.
    - i. If so, identify the impact of the scrubber installations on such rates
    - ii. If not, explain why not.
- 26. Refer to section 2.3.3.7.b on page 41 of the IRP (Volume A). Please detail the components of "lost and unaccounted for energy" and relative weights and respective drivers of those components for all years in the IRP.
- 27. Refer to Exhibit 2-5 on page 59 of the IRP (Volume A). Please provide a detailed breakout of the total losses by components of total loss, by assignment to customer class, and by winter and summer.
- 28. Refer to Section 3.5.1.5 on page 93 of the IRP (Volume A).
  - a. Please explain how distributed generation technologies "result in a reduction to load and additional incremental costs to the utility to accommodate." (emphasis in original). Please quantify the "reduction to load" and "additional incremental costs."
  - b. Regarding the factors evaluated in assessing the "resource value" of distributed solar:
    - i. Please identify which factors were evaluated.
    - ii. Please explain how these factors were evaluated.

- iii. Please describe the assumptions that were used in, and the results of, these evaluations.
- 29. Refer to Section 3.5.1.6 on page 93 of the IRP (Volume A). Please confirm that of the distributed generation ("DG") technologies, only solar DG was evaluated as a resource. If this not confirmed, please state what DG alternatives were evaluated, describe any such evaluation and quantify any cost estimates derived.
- 30. Refer to page 99 of the IRP (Volume A). Explain how KPC reconciled costs borne by distributed solar generation customers operating net metering generation in comparing the value of these resources to PJM resources.
- 31. Refer to "Table 12: EE Resource Costs" on page 108 of the IRP (Volume A).
  - a. Please identify what resources are included within the "All Other" category in Table 12.
  - b. Please describe the relative contribution of each of the resources included in the "All Other" category.
- 32. Refer to "Table 13: DSM Program Costs Estimate" on page 108 of the IRP (Volume A).
  - a. Please describe KPC's assumptions about the value to KPC and its ratepayers of distributed solar.
  - b. Please describe the net cost calculation for distributed solar used by KPC.
  - c. Please describe which impacts KPC considered from distributed solar generation beyond the impact of the net metering credit on revenue requirements.
  - d. Please describe what components of the revenue impact of the net metering credit are avoided by KPC and/or its ratepayers as a result of customer-owned distributed solar generation.
- 33. Refer to Section 4.3.5.2 on page 138 of the IRP (Volume A). Regarding the optimization of other demand-side resources, including solar generation, please describe what benefits or value to KPC or its ratepayers were modeled.
- 34. Refer to page 139 of the IRP (Volume A). Describe how avoided transmission costs, including capital, operating, maintenance, and outage costs, were incorporated into the evaluation of distributed solar generation. Please describe the results of that evaluation.

- 35. Refer to page 148 of the IRP (Volume A). Describe how avoided fuel costs and fuel adequacy and procurement costs were incorporated into the evaluation of distributed solar generation. Please describe the results of that evaluation.
- 36. Refer to page 161 of the IRP (Volume A).
  - a. Please confirm that PJM avoided cost is the maximum value assigned to distributed solar resources.
  - b. Please describe in detail how the PJM avoided cost is calculated for use in the IRP, and the expected values over the life of a solar plant or the IRP, whichever is longer.
- 37. Refer to page 162 of the IRP (Volume A). Provide data and analysis to support the statement that "[t]here is limited utility evidence to support that claim [that distributed solar generation offsets other grid investments]."
- 38. Refer to "Figure 23: Solar Production vs. Demand of Kentucky Power" on page 163 of the IRP (Volume A). Please provide the Company's analysis of effective load carrying capability for solar production in the KPC service territory.
- 39. Refer to "Figure 24: Preferred Portfolio Distributed Solar Adoption Assumption" on page 164 of the IRP (Volume A). Please produce any workpapers, source documents, and, in machine readable format with formulas intact, input and output files, used in or developed as part of the analysis reflected in this Figure.
- 40. Refer to page 164 of the IRP (Volume A).
  - a. State whether data from Vermont was used in development of the IRP with respect to solar resources.
  - b. If so:
    - i. Explain how such data was used
    - ii. Produce this Vermont data that was used.
    - iii. Explain why KPC decided to use this Vermont data.
- 41. Refer to Section 4.8, starting on page 166, of the IRP (Volume A).
  - a. Please state whether KPC evaluated distributed solar resource options as part of the IRP's risk analysis.
    - i. If so, please describe how solar resource options were evaluated, and provide the results of that evaluation.
    - ii. If not, please explain why KPC did not perform such an evaluation.

## Respectfully submitted,

Joe Childers, Esq.

Joe F. Childers & Associates 300 Lexington Building 201 West Short Street Lexington, Kentucky 40507

Mr & Cliles

859-253-9824

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#### Of counsel:

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Dated: March 7, 2014

#### **CERTIFICATE OF SERVICE**

I certify that I had filed with the Commission and served via U.S. Mail the foregoing Supplemental Requests for Information to Kentucky Power Company on March 7, 2014 to the following:

Mark R. Overstreet Attorney at Law Stites & Harbison 421 West Main Street P. O. Box 634 Frankfort, KY 40602-0634

Ranie Wohnhas Regulatory Services Kentucky Power Company 101 A Enterprise Drive Frankfort, KY 40601

Michael L. Kurtz Kurt J. Boehm Jody Kyler Cohn Boehm, Kurtz & Lowry 36 East Seventh Street, Suite 1510 Cincinnati, OH 45202

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