

Kentucky Power Company
KPSC Case No. 2023-00040
Staff Second Set of Data Requests
Dated July 20, 2023
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DATA REQUEST

KPSC 2_1 Refer to Kentucky Power’s response to Commission Staff’s First Request for Information (Staff’s First Request), Item 2. Explain what is meant by “inferior electrically.”

RESPONSE

The phrase 'electrically inferior' indicates that Alternative Solutions 1 and 2 are less reliable, are less resilient, will have lesser capability to support future growth, and offer fewer advantages as described below, when compared to the Proposed Project.

The Proposed Project has the following electrical benefits and advantages over Alternative Solutions 1 and 2:

- Addresses and eliminates the voltage drop baseline criteria violations identified by PJM by introducing a new additional 69 kV source to the New Camp Station, as presented in the PJM planning process and included in the 2020 RTEP cycle, such that the New Camp Station would be served by two electrical sources (Hatfield and Stone Stations), rather than the existing single source or the looped single source associated with the Alternative Solutions 1 and 2 from Hatfield Station. Constructing a new additional 69 kV source to the New Camp Station is superior to Alternative Solutions 1 and 2 because it allows for more capacity, growth opportunity in the area, maintenance and operational flexibility, and reduces outage/reliability risks.
- Addresses all the asset renewal needs identified on the 46 kV system between Stone and Sprigg Stations including at Belfry Station avoiding a near-future project and significant costs.¹

¹ As noted in the Company’s response to KPSC 1_4, the Alternative Solutions 1 and 2 would address the needs of the project, although less comprehensively and at a higher cost. Importantly, Alternative Solutions 1 and 2 would not address Belfry Station asset renewal needs which would ultimately still need to be replaced in order for this area to be served at the higher capacity, modern and standard, 69 kV voltage. Thus, constructing the alternatives would still require additional near-future project(s) to address those Belfry Station asset renewal needs, at an additional cost on top of the costs of the Alternative Solutions presented in this case.

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- Eliminates a portion of the obsolete 46 kV network and avoids using the obsolete 46 kV network² whereas part of the system with Alternative Solution 1 and 2 would still be served at 46 kV. If either Alternative Solution 1 or 2 were instead constructed, it would limit the amount of load that could be added to the area.

By holistically planning the system and taking into account the identified needs in the area, PJM reviewed, selected, and approved the most cost effective and robust baseline solution to fit the area needs. The Company agrees with PJM's selection of the Company's Proposed Project as the most cost-effective and robust solution, which is why the Company chose to move forward with the Proposed Project and present it to this Commission. The Company recommends and proposes in this case to construct the most comprehensive, efficient, beneficial to customers, and least-cost option available—the Proposed Project.

Witness: Nicolas C. Koehler

² 46 kV is considered an obsolete operating voltage as the replacement parts of 46 kV rated equipment are no longer available. Kentucky Power is actively replacing 46 kV facilities when practical in its footprint in order to move to a more modern and standard voltage at 69 kV, which allows for easier asset replacement in case of failure or performing routine maintenance.

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KPSC 2_2 Refer to Kentucky Power’s response to Staff First Request, Item 2(b). Provide support and documentation for the statement that “[a]fter the components of the alternative solutions described in Case No. 2022-00236 were presented to PJ Interconnection LLC (PJM) during Regional Transmission Expansion Plan (RTEP) planning process meetings in December 2020 and January 2021, load requirements in the area increased.”

RESPONSE

At any time, a customer can submit new or modified load requests to the Company for review. The Company has an obligation to serve these new requests and take them through the PJM M-3 process as a customer need. Kentucky Power has had two specific requests to service additional load since the RTEP meetings in December 2020 and January 2021. Please see KPCO_R_KPSC_2_2_Attachment1 and KPCO_R_KPSC_2_2_Attachment2 for the requested information. The first attachment supports a project need that arises out of a Customer Service request for a 20 MW load in this area. It was presented at the PJM Sub-regional RTEP - Western meeting held on June 15, 2022. The second attachment supports a need based on a request to connect an additional 15 MW load in the same area as well. This need was presented to PJM at the Sub-regional RTEP - Western meeting held on February 17, 2023.

Witness: Nicolas C. Koehler



AEP Transmission Zone M-3 Process Pike County, KY

Need Number: AEP-2022-AP034

Process Stage: Need Meeting 06/15/2022

Project Driver:

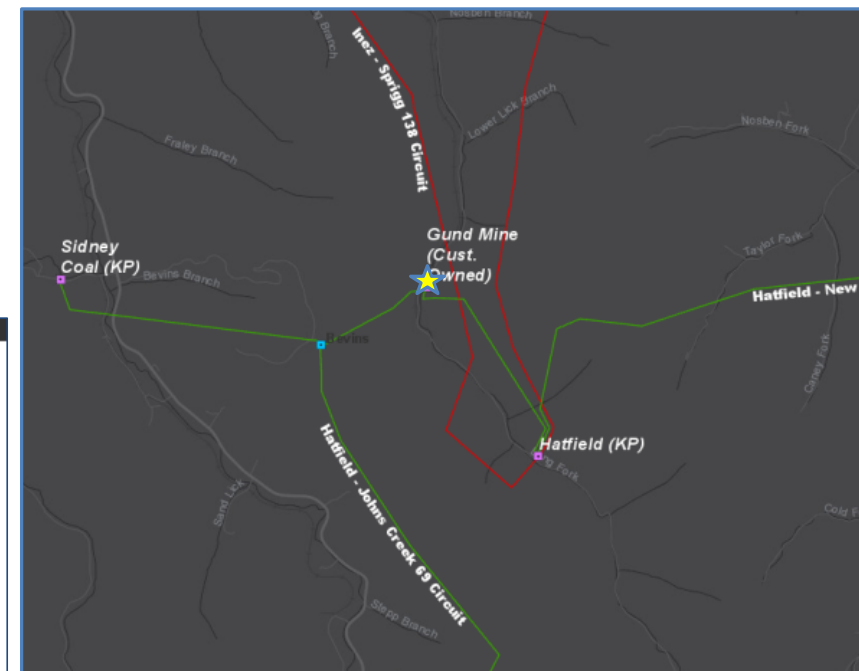
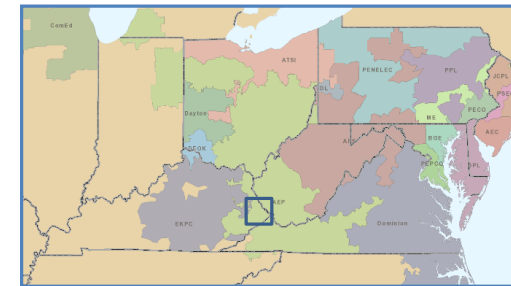
Customer Service Criteria/ Operational Flexibility and Efficiency

Specific Assumption Reference:

AEP Guidelines for Transmission Owner Identified Needs (AEP Assumptions Slide 11,12 and 14)

Problem Statement:

- A customer has requested service for 20 MW peak load out of the Gund metering location in Pike County, KY.
- Gund metering is an existing delivery point served via a Hard tap from Hatfield - Johns Creek 69kV line. Hard Taps have no switching capability and result in longer restoration times for any outage along the line.





AEP Transmission Zone M-3 Process Pike County, KY

Need Number: AEP-2023-AP006

Process Stage: Need Meeting 02/17/2023

Project Driver:

Customer Service

Specific Assumption Reference:

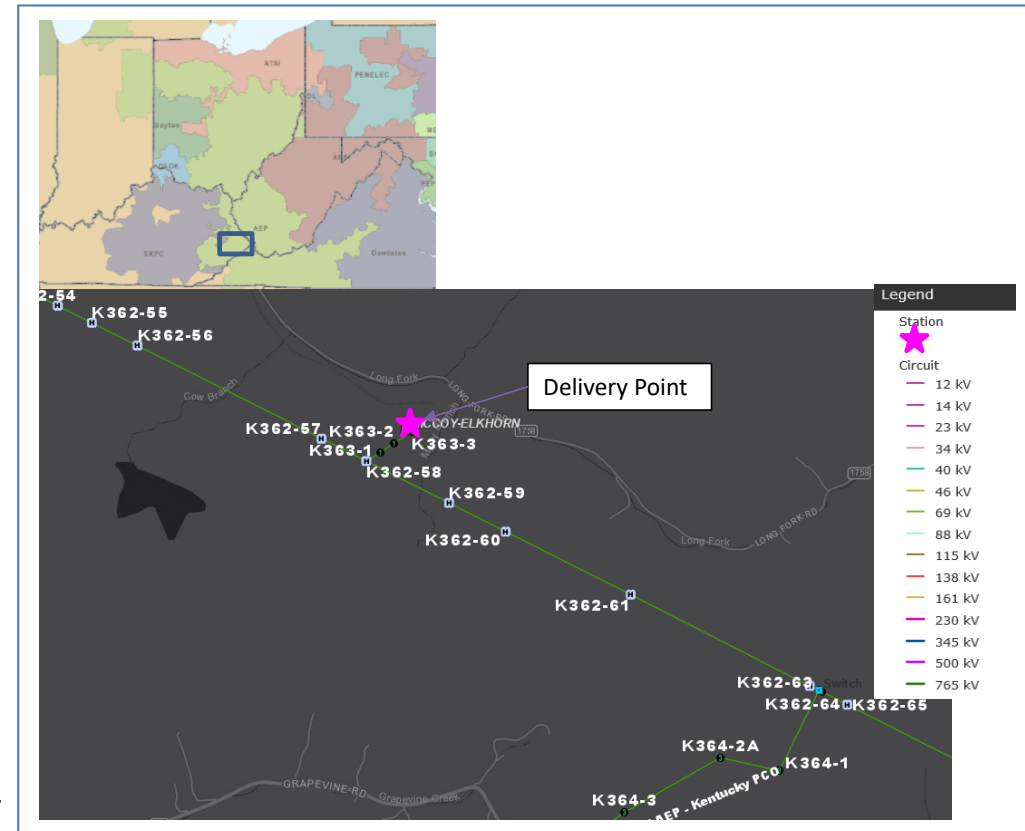
AEP Connection Requirements for the AEP Transmission System
 (AEP Assumptions Slide 12)

Problem Statement:

Customer Service:

- A customer has requested transmission service at McCoy – Elkhorn delivery point in Pike County, KY.
- This existing delivery point is served via a Hard Tap on Johns Creek - Second Fork 69kV line.
- The customer has indicated that their initial peak demand will be 15 MW at the site.
- The customer has requested an ISD of 12/15/2023

Model: 2027 RTEP



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KPSC 2_3 Refer to Kentucky Power’s response to Staff’s First Request, Item 2(a). Kentucky Power stated “[b]ecause the alternative solutions in Case No. 2022-00236 were and are insufficient to address the Project's electrical requirements, they cannot be considered alternatives solutions.” Explain this statement by describing the insufficiencies including, but not limited to, expense, capacity and cost.

RESPONSE

The “alternative” included in Case No. 2022-00236 consisted of the installation of a single capacitor bank to address the baseline voltage drop violations (electrical requirements) as presented as part of the PJM RTEP process in December 2020. Additionally, in January 2021 the supplemental asset renewal components of the alternative were also presented. At that time, the new loads requested (as described in response to KPSC 2-2) were not known. Considering the new loads, this “alternative” would not have addressed the baseline needs of the area at the time the Company submitted its application in Case No. 2022-00236, nor when the application was filed in this case. It was therefore not presented to the Commission in either filing.

Irrespective of the timing of the load requests, PJM selected the Proposed Project as the most cost efficient and prudent way to address both the criteria violations (baseline components) and the identified asset renewal needs (supplemental components) on the system. The Proposed Project, as presented in the PJM planning process, was then built into subsequent PJM RTEP cases where these future loads were evaluated. From PJM’s perspective, no additional alternatives were required to be reviewed for the baseline portion of the Proposed Project given that the approved baseline project was already included in the RTEP models.

Further, with the alternative, the Belfry Station would eventually need to be rebuilt or replaced to address asset renewal needs and allow operation at the more modern 69 kV, and the New Camp Station would still be served on a single-sourced radial line, increasing potential outages to customers served from that station. It was for these reasons that this “alternative” was not selected during the PJM review period. The Proposed Project addresses all of these concerns.

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Additionally, as part of this filing, the Company provided an update to the alternative (Alternative Solutions 1 and 2) that could reasonably be expected to meet the same requirements as the Proposed Project (since the “alternative” referenced in the question could not).³ However, both Alternative Solutions 1 and 2, as described in the Company’s responses to KPSC 1_5 and KPSC 2_1, are electrically inferior and are more costly than the Proposed Project.

Witness: Nicolas C. Koehler

³ As part of the present proceeding, the Company modified/updated the alternative mentioned in Case No. 2022-00236 to address the newer load requirements that were presented to PJM stakeholders. The new loads that requested connection to the Company’s transmission system rendered the originally presented Case No. 2022-00236 alternative moot in that it no longer was sufficient to serve the increased load.

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DATA REQUEST

- KPSC 2_4** Refer to Kentucky Power’s response to Staff’s First Request, Item 2(a) and Item 2(b). Kentucky Power stated “[t]he ‘alternative solutions in Case No. 2022-00236, and the associated high-level estimated costs as of 2020, were not presented as part of the application in that case. They were only produced directly in response to Commission Staff’s first set of data requests, Item 28, and were never intended to represent an alternative solution to the Proposed Project because they no longer addressed the requirements in the project area by the time the application in Case No. 2022-00236 was filed.”
- a. Confirm that Kentucky Power has not considered any electrically comparable alternatives to the proposed project to address the well-documented need expressed in the applications filed in Case No. 2022-00236 and the present proceeding.
 - b. Confirm that, had the Commission not inquired as to alternatives in Case No. 2022-00236 and in this case, Kentucky Power would have developed no alternatives.
 - c. Explain how Kentucky Power determined that the proposed project is the most effective, least cost option to address system deficiencies.
 - d. Explain why the first set of alternatives referenced in Item 2(b) no longer address the requirements in the project area. Include any updated studies or analysis to support the conclusion.

RESPONSE

- a. The statement in the question is not correct. The Company considers alternatives when it is developing options to address needs on its transmission system. The development of a solution to a specific need or issue is an iterative process that looks at numerous potential solutions and through a process of elimination identifies the most prudent solution from an engineering, cost, and electrical standpoint. The process relies on the professional judgment of AEP’s Planning and Engineering team. Based on their expertise, some options will immediately be eliminated early from further study while others may be viable but not optimal solutions based on need and cost. Once viable, plausibly constructible options are identified, they are presented in PJM's SRRTEP meetings and the best option is selected with input from the applicant utility, PJM, and process stakeholders.

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The following is a summary of the alternative analysis conducted for the Proposed Project:

- The Company and PJM planners identified transmission system needs through load modeling, forecasting, and asset renewal analysis. See the Company's application for the Project need summary which includes baseline and supplemental components.
- The Company planners developed the Proposed Project and an alternative solution. The "alternative" (presented in Case No. 2022-00236) separately addressed the baseline (electrical requirements) and supplemental (asset renewal) components. This alternative is described in the discovery response KPSC_1_28 in Case No. 2022-00236. No other viable cost-effective alternatives are available based on the Company's engineers' and planners' professional judgement and no other alternatives were offered by stakeholders at the time of the solution presentation. Additionally, the alternative was "electrically inferior" and more costly.
- In 2020, the Company submitted the Proposed Project and the alternative to PJM for review.
- In the PJM meetings held in December 2020 and 2021, PJM presented the Proposed Project and the alternative to stakeholders as part of the 2020 RTEP process. Both addressed the baseline electrical requirements and the supplemental asset renewal needs.
- PJM then selected the Proposed Project as the best solution to address all identified needs. The Proposed Project was a more holistic and cost-effective solution to address all identified needs in the area.
- As part of the present proceeding (Case No. 2023-00040), the Company modified the original alternative (presented Case No. 2022-00236) presented by PJM to address the newer load requirements ("Alternative Solutions 1 and 2") that were presented to PJM stakeholders in June 2022 and February 2023 and developed conceptual costs for comparison. The new loads that requested connection to the Company's transmission system rendered the originally presented alternative moot in that it no longer was sufficient to serve the increased load. However, no additional alternative presentation was required at PJM because the approved baseline project was already included in the RTEP load flow cases. The more electrically robust Proposed Project did not need modified to address the new loads.

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- Although Alternative Solutions 1 and 2 would *meet* the electrical needs of the area, they would not do so as comprehensively as the Proposed Project *and* they would cost substantially more to construct. Thus, the Company maintains that the Proposed Project is the best solution and should be constructed.
- All potential alternatives have been described in this Case No. 2023-00040.

b. The statement in the question is not correct. In Case No. 2022-00236 the Company described the alternative that had been presented in the PJM Stakeholder process at that time. The Company did not develop any other new alternatives in Case No. 2022-00236; rather, it further described the rejected alternative solution at Staff's request. The alternative solution presented in the Company's response to KPSC_1_28 in Case No. 2022-00236 had been presented in the PJM meetings in December 2020 and January 2021. At that point this alternative was rejected for the reasons described in the Company's response to KPSC_2_3. The Alternative Solutions 1 and 2 presented in this current Case No. 2023-00040 were developed to address new customer loads since the original Case No. 2022-00236 alternative could not.

c. Kentucky Power determined that the Proposed Project is the most effective, least cost option to address system deficiencies by investigating upgrades to the system that would address the needs identified by PJM and AEP. As described in the application and testimony of witness Koehler, for the purpose of this application the Company conducted a high-level review of the alternative solutions. When potential alternatives are determined to be electrically inferior or to not meet project needs in other ways, more detailed analysis, including detailed cost analysis, is not performed. Please also see the Company's response to KPSC_2_4(a) and KPSC_1_3.

d. As described in the Company's response to KPSC_2_3, while the Case No. 2022-00236 alternative would have met the immediate needs reflective at the time of study in the area, it would not have addressed the new load growth in the area, allowed for an increase of operational capacity to 69 kV from 46 kV, and would not address the vulnerability of customers that are supported from the radially served New Camp Station. Therefore, the Case No. 2022-00236 alternative was discarded from further study because the Proposed Project would address all of these concerns and at a lower cost both at the time of the original SRRTEP meetings and in the present proceedings with the updated Alternative Solutions 1 and 2. Please also see the Company's response to KPSC_2_4(a).

Witness: Nicolas C. Koehler

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DATA REQUEST

KPSC 2_5 Provide documentation of any load growth in the area since the Commission denied the application in Case No. 2022-00236.

RESPONSE

Please see KPCO_R_KPSC_2_2_Attachment2 for a need exhibit presented to PJM in February 2023 that documents an incremental 15 MW load request. This request was submitted to PJM after the denial in the Commission order dated January 6, 2023, in Case No. 2022-00236. In addition, the Company has received a customer request for a new 7 MW load that has not yet been presented to PJM because the Company is still in the contract approval process.

Witness: Nicolas C. Koehler

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DATA REQUEST

- KPSC 2_6** Refer to Kentucky Power’s response to Staff’s First Request, Item 3.
- a. Explain why the Belfry substation has not been replaced or repaired, given that the substation is in such condition now that it is not repairable.
 - b. Provide the cost for repairing and upgrading the Belfry substation in comparison to the plan presented in this case.

RESPONSE

- a. The statement in the question that “the substation is in such a condition now that is it not repairable” is not correct. The Belfry Station is maintained in accordance with AEP standards and guidelines and is currently operational. The Company will continue annual maintenance inspections and any work necessary to keep it in operation.

However, as the asset renewal needs have been identified at Belfry Station as described in the Company’s response to KPSC 1-3, it is not reasonable to continue maintaining this aging station. Therefore, a project to replace Belfry Station would be expected to move forward if the Proposed Project is not approved. Rebuilding the Belfry Station at its present location is impractical because of the small area of the station and the fact it is hemmed in by surrounding residential land use and hilly terrain. There is not enough land to allow rebuilding the substation on site and keeping it energized, thus making retirement and replacement with a new station the best option. Importantly, the Proposed Project does address these asset renewal needs at Belfry by retiring the Belfry Station and constructing the new Oronoco Station.

- b. The Company has not determined a cost of rebuilding the Belfry Station on the existing site because it is not practical or advisable for the reasons stated above. The cost of building the Orinoco Station is approximately \$5.4 million (See page 2 of KPCO_R_KPSC_1_5_Attachment1 for this amount). Because the Proposed Project includes replacement of the 46kV Belfry Station by the 69kV Orinoco Station, the cost of the Orinoco Station serves as a reasonable proxy for the cost of upgrading the Belfry Station to 69 kV.

If helpful, the Company offers to meet Staff in the field to review the Belfry Station constraints, review the existing system, and describe the rejected alternatives.

Witness: Nicolas C. Koehler

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DATA REQUEST

KPSC 2_7 Refer to Kentucky Power’s response to Staff’s First Request, Item 9. The response states “. . . the current Application the Company describes, for illustrative purposes, two alternative solutions. . .” Explain how Kentucky Power demonstrates it considered alternative solutions if the alternatives are for illustration only.

RESPONSE

The Company compared Alternative Solutions 1 and 2 to the Proposed Project and determined that the Proposed Project is superior both electrically and from a cost perspective. The Company’s use of the phrase “for illustrative purposes” was not intended to convey that the Company does not consider alternative solutions. In the development of the application in the current case, the Company provided the Commission with Alternative Solutions 1 and 2 to provide examples of plausibly constructable options that, while meeting the electrical and asset health related needs in the area, were more costly and less optimal than the Proposed Project. These two alternative solutions expanded upon the original alternative presented by PJM in the December 2020 and January 2021 SRRTEP meetings to provide similar benefits as the Proposed Project. The original alternative was no longer complete in that it would not have allowed for the addition of new customer loads in the area.

Witness: Nicolas C. Koehler



Koehler Verification Form.doc

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E-Signature 1: Nicolas C. Koehler (NCK)

July 31, 2023 06:32:20 -8:00 [C26652DC3BDF][74.133.77.124]
 nckoehler@aep.com (Principal) (Personally Known)

E-Signature Notary: Marilyn Michelle Caldwell (MMC)

July 31, 2023 06:32:20 -8:00 [D2E5B0303538] [167.239.221.101]
 mmcafdwe.l@aep.com

I, Marilyn Michelle Caldwell, did witness the participants named above electronically sign this document.



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