COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A 138-KV TRANSMISSION LINE AND ASSOCIATED FACILITIES IN BOONE COUNTY	))))))	CASE NO. 2024-00158

O R D E R

On June 27, 2024, Duke Energy Kentucky, Inc. (Duke Kentucky) filed an application,[1] pursuant to KRS 278.020(2), 807 KAR 5:120, and 807 KAR 5:001, Section 15, for a Certificate of Public Convenience and Necessity (CPCN) authorizing the construction of approximately 2.1 miles of 138-kV transmission line and the rebuild of approximately 1.5 miles of existing 69-kV transmission line to upgrade to 138-kV transmission line in Boone County, Kentucky.

By Order issued July 25, 2024, the Commission established a procedural schedule for the orderly processing of this matter and extended the deadline for issuing a decision to 120 days after filing pursuant to KRS 278.020(9), up to and including October 25, 2024. One request for intervention was filed and the Commission issued an Order denying the request on July 29, 2024.[2] Duke Kentucky responded to two requests for information

[1] The application was deemed filed on the date it was tendered by Duke Kentucky.

[2] George Casteel filed to intervene in this matter on June 17, 2024, prior to the application being filed. The Commission denied the request for failure to meet either prong set out in 807 KAR 5:001 Section 4(11).

from Commission Staff.[3] On September 27, 2024, Duke Kentucky requested that the matter be submitted for decision based upon the existing evidentiary record.

LEGAL STANDARD

No utility may construct or acquire any facility to be used in providing utility service to the public until it has obtained a CPCN from this Commission.[4] To obtain a CPCN, the utility must demonstrate a need for such facilities and an absence of wasteful duplication.[5] "Need" requires:

> [A] showing of a substantial inadequacy of existing service, involving a consumer market sufficiently large to make it economically feasible for the new system or facility to be constructed or operated.
>
> [T]he inadequacy must be due either to a substantial deficiency of service facilities, beyond what could be supplied by normal improvements in the ordinary course of business; or to indifference, poor management or disregard of the rights of consumers, persisting over such a period of time as to establish an inability or unwillingness to render adequate service.[6]

"Wasteful duplication" is defined as "an excess of capacity over need" and "an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties."[7] To demonstrate that a proposed facility does not result in wasteful duplication, the Commission has held that the applicant must

[3] Duke Kentucky's Response to Commission Staff's First Requests for Information (Staff's First Requests) (filed Aug. 23, 2024); Duke Kentucky's Response to Commission Staff's Second Requests for Information (Staff's Second Requests) (filed Sept. 26, 2024).

[4] KRS 278.020(1). Although the statute exempts certain types of projects from the requirement to obtain a CPCN, the exemptions are not applicable.

[5] *Kentucky Utilities Co. v. Pub. Serv. Comm 'n*, 252 S.W.2d 885 (Ky. 1952).

[6] *Kentucky Utilities Co.*, 252 S.W.2d at 890.

[7] *Kentucky Utilities Co.*, 252 S.W.2d at 890.

demonstrate that a thorough review of all reasonable alternatives has been performed.[8] The fundamental principle of reasonable, least-cost alternative is embedded in such an analysis. Although cost is a factor, selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication.[9] All relevant factors must be balanced.[10]

BACKGROUND

In the present case, the proposed project is described as follows:

> Duke Energy Kentucky seeks authority to construct and operate its proposed Hebron to Oakbrook Transmission Line Project consisting of a new single circuit 138 kilovolt (kV) transmission line, circuit #15264. The construction parameters have not changed from those presented in Case No. 2023-00239. The new circuit will utilize a portion of the existing #15268 69 kV transmission line circuit, a portion of the existing #6763 69 kV transmission line circuit, and approximately 2.1 linear miles of a proposed new transmission line portion. To accommodate the new circuit, reconfigurations to the existing #6763 circuit and the existing #15268 circuit will occur to minimize the new infrastructure required to create this new circuit. The #15268 circuit that is currently a three-terminal circuit between the Hebron, Constance, and Limaburg substations will be split so that after the project is complete, #15268 will only connect the Hebron and Constance Substation while a portion of the existing Tap to Limaburg will be incorporated in the proposed Hebron to Oakbrook circuit #15264. The #6763 circuit will be reconfigured so that a portion of the circuit between Limaburg and Oakbrook substation will be rebuilt and incorporated into the new Hebron to Oakbrook circuit #15264. Another portion

[8] Case No. 2005-00142, *Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Construction of Transmission Facilities in Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky* (Ky. PSC Sept. 8, 2005), Order at 11.

[9] *See Kentucky Utilities Co. v. Pub. Serv. Comm'n*, 390 S.W.2d 168, 175 (Ky. 1965). *See also* Case No. 2005-00089, *Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for the Construction of a 138 kV Electric Transmission Line in Rowan County, Kentucky* (Ky. PSC Aug. 19, 2005), final Order.

[10] Case No. 2005-00089, Aug. 19, 2005 final Order at 6.

> of the #6763 circuit between the Oakbrook Substation and near interstate 71/75 will be retired, and the remaining portion of the circuit on the east side of the interstate will remain operational as it currently is built. Therefore, this proposed new circuit would start at the Hebron Substation and begin with a proposed new 2.1-mile section, connect to an existing portion of the #15268 circuit south of I-275 to the existing Limaburg Substation, and then utilize an approximately 1.5 mile section of the #6763 circuit which will be rebuilt in place to 138 kV capacity. The new circuit will be energized to 69 kV initially with future plans to energize to 138 kV.[11]

Duke Kentucky previously proposed this construction project in its CPCN applications in Cases No. 2022-00364[12] and 2023-00239,[13] and all filings from that case were incorporated into the record in the present case by Order issued July 25, 2024. The first application was denied without prejudice by Order dated June 16, 2023, due to Duke Kentucky's failure to comply with 807 KAR 5:120 Section 2(2)-(3). The Commission found that Duke Kentucky had not provided notice to all landowners owning property within the proposed right-of-way (ROW) of the transmission lines.[14] In the present case, Duke Kentucky has complied with 807 KAR 5:120 Section 2(2)-(3).[15]

The second application was denied because Duke Kentucky failed to meet its burden to establish lack of wasteful duplication. However, the Commission noted that Duke Kentucky had established need as follows:

[11] Application at 4–5.

[12] Case No. 2022-00364, *Electronic Application of Duke Energy Kentucky, Inc. for a Certificate of Public Convenience and Necessity to Construct a 138-kV Transmission Line and Associated Facilities in Boone County, Kentucky* (filed Apr. 6, 2023), Application.

[13] Case No. 2023-00239, *Electronic Application of Duke Energy Kentucky, Inc. for a Certificate of Public Convenience and Necessity to Construct a 138-KV Transmission Line and Associated Facilities in Boone County (Hebron to Oakbrook Transmission Line Project)* (filed Sept. 13, 2023), Application.

[14] Case 2022-00364, June 16, 2023 Order at 8.

[15] Application, Exhibits 12–14.

> The load growth forecast was based on gathering extensive information regarding new and planned projects in the area. Duke Kentucky's analysis of the different scenarios laid out in Confidential Exhibit 17 adequately demonstrates the risk of overload if the transmission system in this area is not expanded upon. This project is necessary for the future reliability of the transmission system in the described area.[16]

Duke Kentucky's Application included, as Exhibit 8, a "Hebron to Oakbrook Reliability Project 138 kV Transmission Line Route Selection Study Report" (Route Selection Study) generated by Stantec Consulting Services, Inc. (Stantec), which addressed the route selection process. This is the same study that was provided in Case No. 2023-00239.[17]

The Route Selection Study outlined Duke Kentucky's methodology for selecting the optimal route from different combinations of 27 different line segments capable of connecting the Hebron substation to the transmission line to be rebuilt. Stantec reviewed 43 potential route combinations, which were reduced to 29 after it determined that four segments would conflict with transmission lines proposed to be built by East Kentucky Power Cooperative, Inc.[18] Stantec then evaluated several quantitative and qualitative factors.

Stantec compiled scores for three quantitative factors: Ecological, Land Use, and Engineering, with lower scores being more desirable.[19] These scores were based on

[16] Case No. 2023-00239, Jan. 11, 2024 Order at 9.

[17] Case No. 2023-00239, Application, Exhibit 7.

[18] Route Selection Study at 5.

[19] A Cultural category was also included but none of the segments affected any applicable Cultural criteria.

numerous weighted criteria and sub-criteria.[20] For Ecological, acreage of wetlands or forest within the ROW added to the score, as did number of streams and linear feet of floodplain crossed by the centerline.[21] For Land Use, the total number of properties crossed by the ROW increased the score, as well as type of land use in proximity to the ROW, with residential properties weighted greater than commercial, industrial, institutional, or agricultural properties.[22] For Engineering, criteria included route length, highway or rail crossings, slope, angles, span length, and location of other utility infrastructure.[23]

During the process of compiling this data, Stantec determined that three segments could not be utilized because new medical office buildings were going to be constructed in the area of those segments with uncertain plans for additional construction.[24] This reduced the feasible number of routes to ten. The scores for these ten routes were as follows:[25]

Route	Ecological	Land Use	Engineering	Total Score
G	6.7	9.2	8.2	24.1
M	6.7	11.3	15.0	33.0
AN	7.5	14.0	15.4	36.9
AI	0.0	12.5	25.7	38.2
AC	0.4	12.6	26.3	39.3
R	14.2	15.9	11.1	41.2
L	14.2	15.8	11.6	41.6
W	14.7	15.3	12.3	42.3

[20] Route Selection Study at 36–37.

[21] Route Selection Study at 36.

[22] Route Selection Study at 36.

[23] Route Selection Study at 37.

[24] Route Selection Study at 5.

[25] Route Selection Study at 43.

A	10.5	15.9	17.1	43.5
AH	8.0	17.2	22.2	47.4

These scores represented the level of impact the routes would have on surrounding areas, with a lower score being less impactful and therefore preferrable.

Stantec also assessed qualitative factors, noted below, and selected Route L as the proposed route.[26] The qualitative factors that eliminated segments from alternative routes included crossing over East Kentucky Power Company's (EKPC) existing transmission line with pole heights close to the maximum height allowed by the Federal Aviation Administration (FAA) near the airport. Another such factor was the elimination of a segment that crossed the congested North Bend Road and would impact local businesses. Routes using one segment were favored because it would allow Duke Kentucky to relocate an existing transmission line within the Transportation Cabinet's ROW and construct the new line without any new structures within that ROW. Other segments were favored to utilize the existing transmission corridor through an industrial park and reduce impacts to commercial buildings and existing infrastructure along Worldwide Boulevard.

In Case No. 2023-00239, Commission Staff sought additional information about the elimination of Route G from consideration, as it had the best score in the quantitative analysis. Duke Kentucky responded that despite Route G having the best quantitative score, it was not chosen because:

> After incorporating the qualitative considerations of segment 12, 25, and 26, compared to other route alternatives it was determined that those segments had significant technical challenges and limitations that would likely increase the

[26] Route Selection Study at 5–6.

> potential costs of the project, increase the potential adverse impacts to surrounding land uses such as businesses, as well as potentially increase the time needed to complete the project if above ground structures or underground utility conflicts could not be avoided.
> . . . .
>
> Route G was eliminated due to the additional qualitative considerations identified during the route selection study. These qualitative reasons included anticipated space constraints by existing infrastructure, additional impacts to nearby businesses, existing retaining walls, conflicts with underground utilities, the need to cross over the proposed EKPC transmission line at Highway 237, required FAA lighting, and crossing the I-275 cloverleaf.[27]

Commission Staff also asked if crossing the cloverleaf was prohibitive. Duke Kentucky responded that it was not prohibitive unless the Transportation Cabinet refused to allow use of its ROW.[28] Duke Kentucky did not identify any other reasons that any Route G segments would have been prohibitive in the Route Selection Study or its data request responses. Duke Kentucky stated Route G was eliminated for a combination of the qualitative factors above. Duke Kentucky instead selected Route L, as it does in its present application.

The estimated cost of construction for Route L and the upgrade of the existing transmission line according to the present application is approximately $36,000,000, with an estimated annual operations and maintenance cost of $10,000.[29] In Case No. 2023-00239, Duke Kentucky did not provide cost information for all evaluated routes, which prevented the Commission from being able to properly assess lack of wasteful

[27] Case No. 2023-00239, (filed Dec. 20, 2023), Duke Kentucky's Response to Commission Staff's Third Request for Information (Staff's Third Request), Item 1(a)-(b).

[28] Case No. 2023-00239, Duke Kentucky's Response to Staff's Third Request, Item 1(c).

[29] Application at 11.

duplication. Duke Kentucky stated in that case that it had not determined costs for unchosen routes, and that the quantitative scores generally served as proxies for cost.[30] Commission Staff used this statement and the scores to approximate that Route L was 72 percent more expensive than Route G.[31] The Commission found that this differential was unreasonable,[32] and questioned whether quantitative scores were actually proxies for cost, since Duke Kentucky's filings appeared to indicate additional costs were also associated with qualitative analyses.[33]

In the present case, Duke Kentucky provided estimated costs for all alternate routes evaluated. These estimates were not directly associated with quantitative scores as Duke Kentucky represented in Case No 2023-00239. Duke Kentucky referred to these estimated costs as "Class 5" cost estimates, meaning the accuracy ranged from overestimating by up to 30 percent to underestimating up to 50 percent.[34] This range of error is based on assumptions made at this stage of planning regarding typical span lengths, structure types, structure heights, and environmental or geotechnical conditions.[35]

[30] Case No. 2023-00239, Duke Kentucky's Response to Commission Staff's First Request for Information, Item 2(a).

[31] Case No. 2023-00239, Jan. 11, 2024 Order at 12.

[32] Case No. 2023-00239, Jan. 11, 2024 Order at 12.

[33] Case No. 2023-00239, Jan. 11, 2024 Order at 10.

[34] Duke Kentucky's Response to Staff's First Request, Item 6(a). Duke Kentucky referenced standards included in the *AACE International Recommended Practice 56R-08 Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Building and General Construction Industries*. The Application indicates a range of -50 to + 100 percent error range. *See* Direct Testimony of Betsy Ewoldt (Ewoldt Testimony) at 19.

[35] Duke Kentucky's Response to Staff's First Request, Item 6(b).

Duke Kentucky provided estimated route costs as follows:[36]

Table 1. Cost analysis results for the top 10 feasible routes identified during the Route Selection Study for the Hebron to Oakbrook Transmission Line Project

Route	Segments	Transmission Estimate	Transmission Real Estate Estimate	Distribution Estimate	Total Estimate	Quantitative Score	Preferred Route?
R	1, 2, 5, 6, 9, 14, 15, 19, 21, 24	$10,273,481	$2,653,967	$44,389	$12,971,837	41.22	no
L	**1, 2, 5, 7, 13, 14, 15, 19, 21, 24**	$11,049,556	$2,503,465	$44,389	$13,597,410	**41.64**	**yes**
W	1, 2, 5, 6, 8, 10, 15, 19, 21, 24	$11,107,088	$2,787,380	$44,389	$13,938,857	42.4	no
AN	1, 3, 10, 15, 19, 21, 24	$11,057,482	$2,939,977	$44,388	$14,041,847	36.92	no
G	1, 2, 5, 7, 12, 25, 26, 27	$10,471,132	$4,221,857	$423,111	$15,116,100	24.05	no
AH	1, 3, 8, 9, 14, 15, 19, 21, 24	$12,675,652	$3,301,567	$44,388	$16,021,607	47.42	no
M	1, 2, 5, 6, 9, 13, 12, 25, 26, 27	$11,223,975	$4,851,141	$423,111	$16,498,227	33.01	no
A	1, 2, 4, 12, 25, 26, 27	$13,542,119	$4,424,624	$423,111	$18,389,854	43.56	no
AI	1, 3, 10, 14, 13, 12, 25, 26, 27	$13,190,108	$5,515,657	$423,111	$19,128,876	38.13	no
AC	1, 3, 8, 9, 13, 12, 25, 26, 27	$13,254,704	$5,466,445	$423,111	$19,144,260	39.38	no

Route R was the cheapest option at $12,971,837. Route L, the preferred route, was the second cheapest option estimated at $13,597,410, or approximately 4.8 percent more than Route R.

Duke Kentucky differentiated the two routes as follows:

> While Route R and Route L scored very similarly, Route L was chosen because it is collocated with an existing transmission corridor for a greater distance which reduces the amount of new easement required, reduces impacts to existing businesses, and reduces impacts to greenfield areas. Route R has greater impacts to customers/businesses than Route L by creating a longer greenfield transmission line corridor by not being collocated a greater distance with the existing transmission line corridor. Additionally, with Route R, some of the impacted businesses would have a transmission line on 3 sides of the building instead of just 2, which could further limit their future operations or development expansion possibilities. Additionally, Route R would also require an

[36] Application, Exhibit BE-1 at 2.

> additional 2.88 acres of right-of-way since it cannot take advantage of the overlapping rights-of-way that Route L utilizes. An additional 2.88 acres of ROW further restricts future operations or development expansion possibilities of impacted customers.[37]

DISCUSSION AND FINDINGS

As the Commission noted in the previous case, Duke Kentucky has met its burden to establish the need for a new and upgraded transmission line in this region, as indicated in the final Order in Case No. 2023-00239.[38] The load growth forecast was based on gathering extensive information regarding new and planned projects in the area. Duke Kentucky's analysis of the different scenarios laid out in Case No. 2023-00239 adequately demonstrated the risk of overload if the transmission system in this area is not expanded upon. This project is necessary for the future reliability of the transmission system in the described area.

Regarding lack of wasteful duplication, the Commission stated in a recent transmission line CPCN case that:

> The Commission notes that it must balance costs against the level of impact on nearby residents, businesses, and natural features. Therefore, the Commission finds that, although EKPC noted no medium- or high-impact conditions, selecting routes that were 24 percent more expensive compared to the least-cost feasible alternative for the Metts Drive Tap and 12.5 percent more expensive for the Marion County Industrial Tap were reasonable based on the difference in impact on nearby residents, businesses, and natural features between the routes . . . The Commission finds that EKPC's selection of Route 5 meets the burden for establishing lack of wasteful duplication for the Metts Drive Tap, considering Route 5 was

[37] Ewoldt Testimony at 21.

[38] Case No. 2023-00239, Jan. 11, 2024 Order at 9.

> the least impactful on the surrounding area without adding an unacceptable level of cost.[39]

Since Route L is only 4.8 percent, or $625,573 more costly than Route R, the Commission may find that this minimal cost differential is warranted if Route L is established to be less impactful on the surrounding area than Route L or other reasons are established by Duke Kentucky.

The Commission finds that Duke Kentucky has established lack of wasteful duplication because Duke Kentucky has provided sufficient evidence that qualitative factors identified by Duke Kentucky indicate benefits to Route L that outweigh the minor estimated cost differential between Routes R and L. However, the Commission notes that the qualitative factors expressed by Duke Kentucky as reasons for the selection of Route L over Route R in the present case and Route L over Route G in Case No. 2023-00239 seem to be factors that should be included in the quantitative analysis. The Commission questions the depth, and therefore the utility, of the Site Selection Study's quantitative analysis, since the study ultimately determined that Route L was less impactful on surrounding areas than Route R or Route G despite having a higher quantitative score than both of those alternate routes. The Commission also notes the importance of providing estimated costs in any CPCN application. The Commission cannot reasonably resolve a CPCN application without the ability to compare the estimated cost of alternatives.

[39] Case No. 2024-00108, *Electronic Application of East Kentucky Power Cooperative, Inc. for Certificates of Public Convenience and Necessity for Construction Projects in Marion County, Kentucky and Other General Relief* (Ky. PSC Sept. 10, 2024), Order at 14-15.

The Commission finds that a CPCN should be granted for the proposed transmission line project described in Duke Kentucky's application.

IT IS THEREFORE ORDERED that:

1. Duke Kentucky's application for a CPCN for the proposed construction project is granted.

2. Duke Kentucky shall immediately notify the Commission upon knowledge of any material changes to the project, including, but not limited to, a material increase in costs, and any significant delays in construction.

3. Any material deviation from the construction approved by this Order shall be undertaken only with the prior approval of the Commission.

4. Duke Kentucky shall file with the Commission documentation of the total costs of the projects, including the cost of construction and all other capitalized costs, (e.g. engineering, legal, administrative, etc.) within 60 days of the date that construction authorized under this CPCN is substantially completed. Construction costs shall be classified into appropriate plant accounts in accordance with the Uniform System of Accounts for electric utilities as prescribed by the Commission.

5. Duke Kentucky shall file a copy of the "as-built" drawings, if any, and a certified statement that the construction has been satisfactorily completed in accordance with the plans and specifications within 60 days of the substantial completion of the construction certificated herein.

6. Any documents filed in the future pursuant to ordering paragraph 2 through 5 shall reference this case number and shall be retained in the post-case correspondence file for this proceeding.

7. The Executive Director is delegated authority to grant reasonable extensions of time for filing any documents required by this Order upon Duke Kentucky's showing of good cause for such extension.

8. This case is closed and is removed from the Commission's docket.

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PUBLIC SERVICE COMMISSION

Chairman

Commissioner

Commissioner

ENTERED

OCT 25 2024

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KENTUCKY PUBLIC SERVICE COMMISSION

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