

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)	CASE NO.
TRANSMISSION LINE AND ASSOCIATED)	2019-00251
FACILITIES IN BOONE COUNTY, KENTUCKY)	
(OAKBROOK TO AERO TRANSMISSION LINE)	
PROJECT))	

ORDER

On August 23, 2019, Duke Energy Kentucky, Inc. (Duke Kentucky) filed an application requesting a Certificate of Public Convenience and Necessity (CPCN) to construct a new transmission line and associated transmission facilities in Boone County, Kentucky. Specifically, Duke Kentucky proposes to construct an approximately 1.1 mile 138-kV single-circuit transmission line connecting the existing 69-kV Oakbrook Substation, which Duke Kentucky proposes to expand to include a 138-kV yard, and the new Aero Substation. Duke Kentucky states that the project is needed due to load growth in the Boone County area, particularly the new Amazon Prime Air Hub facility, and for system reliability of the surrounding Duke Kentucky transmission and distribution systems. According to Duke Kentucky, the total estimated capital cost of the transmission project is approximately \$32.3 million. The estimated annual ongoing cost of operation of the project once completed is expected to be approximately \$5,000. Duke Kentucky proposes to finance the construction through continuing operations and debt instruments, as necessary.

On September 11, 2019, the Commission issued an Order establishing a procedural schedule for the processing of this matter. The procedural schedule established deadlines for requests for intervention and two rounds of discovery upon Duke Kentucky's application. There are no intervenors in this matter. Duke Kentucky provided responses to two rounds of discovery requests propounded by Commission Staff. The matter now stands submitted to the Commission for a decision based on the existing evidentiary record.

PROPOSED TRANSMISSION LINE PROJECT

Duke Kentucky states that the purpose of the proposed transmission line project is to provide a 138-kV connection from the existing Oakbrook Substation to the new Aero Substation.¹ The proposed project is needed, according to Duke Kentucky, to serve the new Amazon Prime Air Hub as well as to support future load growth in the area and the reliability of the surrounding Duke Kentucky transmission and distribution systems.² The Amazon Prime Air Hub's load is projected to be 30 MW by the end of 2020 growing ultimately to a projected 90 MW in 2031, when the final planned buildout of the air hub is completed.³ Duke Kentucky states that the Amazon Prime Air Hub will be a new air logistics center supporting Amazon's business model and located at the

¹ Direct Testimony of Yanthi W. Boutwell (Boutwell Testimony) at 3.

² *Id.* See also Direct Testimony of Edward F. Kirschner (Kirschner Testimony) at 5 (describing other commercial developments in the area such as the Al Neyer development, which is planning a \$65 million industrial building with one million square-foot distribution center and 240 apartments just south of the Amazon Prime Air Hub facility; GE Aviation On Wing Support Center will be moving into a 68,000 square-foot facility in Florence; as well as potential facilities from DHL and Aero Term LLC).

³ Duke Kentucky's response to Commission Staff First Request for Information (Staff's First Request), Item 14.

Cincinnati/Northern Kentucky International Airport.⁴ Duke Kentucky further states that construction of the Amazon Prime Air Hub facilities will be done in phases, with the first phase to be operational by the beginning of 2021.⁵ Duke Kentucky states that Amazon has leased more than 1,100 acres from the airport to build the air hub facilities, which will include three million square feet of building space and hangars for cargo planes.⁶

Duke Kentucky states that the new transmission facilities will reinforce the company's 69-kV system, which would improve reliability to its customers by eliminating a low-capacity transmission circuit that is in need of being rebuilt to higher capacity, reconfiguring the transmission system to allow load to be reliably served under various transmission circuit outages, and providing transmission capacity to serve future substations that will be required as load continues to grow in this area.⁷

The path of the proposed transmission line begins at the Oakbrook Substation at the south and crosses over Burlington Pike to the northeast, running east parallel to Aero Parkway for approximately one mile until it reaches the new Aero Substation, which is located south of the airport and north of Aero Parkway.⁸ The majority of the new transmission line will be placed within the footprint of the Amazon Prime Air Hub.⁹ The

⁴ Boutwell Testimony at 7.

⁵ Duke Kentucky's response to Staff's First Request, Item 14.

⁶ Boutwell Testimony at 7.

⁷ Duke Kentucky's response to Staff's First Request, Item 1. *See also* Kirschner Testimony at 7 (testifying that the existing substations in the vicinity do not have sufficient capacity to serve the projected near-term and ultimate demands of the Amazon Prime Air Hub and other surrounding load).

⁸ Boutwell Testimony at 4.

⁹ Boutwell Testimony at 7.

cost to construct the proposed transmission line is estimated to be approximately \$2.1 million, including right-of-way acquisition.¹⁰

The Oakbrook Substation is located at 1601 Burlington Pike in Boone County, Kentucky.¹¹ The Oakbrook Substation will be expanded on Duke Kentucky-owned property to install a 138-kV yard.¹² In addition to the current 69-kV assets, the Oakbrook Substation will be modified with a 138/69-kV, 150-MVA autotransformer and two 138-kV circuit breakers to connect both sides of the autotransformer.¹³ The projected cost of the Oakbrook Substation expansion is approximately \$7.2 million.¹⁴

The new Aero 138-kV Substation will be located in an airport-owned easement within Boone County, Kentucky, north of Aero Parkway and south of the airport.¹⁵ The site will be approximately 3.75 acres and will provide termination and switching facilities for the 138-kV lines that will supply the substation.¹⁶ The Aero Substation will include four 138/13.09-kV, 22.4-MVA distribution supply transformers to supply distribution feeders to the Amazon Prime Air Hub facilities and to the surrounding areas, and 12.47-

¹⁰ Duke Kentucky's response to Staff's First Request, Item 4.

¹¹ Boutwell Testimony at 5.

¹² *Id.*

¹³ Boutwell Testimony at 5–6.

¹⁴ Duke Kentucky's response to Staff's First Request, Item 4.

¹⁵ Boutwell Testimony at 4.

¹⁶ *Id.*

kV switching facilities for the 12.47-kV feeders.¹⁷ The estimated cost to construct the new Aero Substation is approximately \$23.0 million.¹⁸

Construction at the Oakbrook and Aero Substations is expected to begin in February 2020.¹⁹ Construction of the proposed transmission line is expected to begin in June 2020.²⁰ Duke Kentucky anticipates that the new transmission line will be energized by the end of 2020 and that restoration being completed by spring 2021.²¹

Duke Kentucky developed a siting study to evaluate and determine the preferred route for the proposed transmission line that minimizes the impact to the natural and built environments while also best meeting Duke Kentucky's business needs.²² Duke Kentucky's siting team consisted of employees who had experience in transmission line siting, planning, engineering, construction, permitting, public engagement, project management, real estate, and agency and public outreach.²³ Duke Kentucky also retained Stantec Consulting Services, Inc. to assist in the siting process.²⁴

Duke Kentucky described the siting study methodology as containing the following five steps: 1) establish a study area and siting guidelines; 2) compile data and map constraints; 3) identify route alternatives; 4) analyze data; and 5) select a preferred

¹⁷ *Id.*

¹⁸ Duke Kentucky's response to Staff's First Request, Item 4.

¹⁹ Boutwell Testimony at 9.

²⁰ *Id.*

²¹ *Id.*

²² Direct Testimony of John K. Hurd (Hurd Testimony) at 3.

²³ Hurd Testimony at 4–5.

²⁴ *Id.*

route.²⁵ Duke Kentucky states that the study area encompassed a 1.3 square mile area between the existing Oakbrook Substation and the new Aero Substation.²⁶ The selected study area contained transportation corridors and other linear infrastructure, including Burlington Pike and Aero Parkway, that offered opportunities for parallel location of the transmission line between the existing Oakbrook Substation and the proposed Aero Substation.²⁷ Duke Kentucky states that according to the Stantec LRE, the study area is characterized by mixed residential and commercial development, interspersed with hay fields, fallow fields, and woodlots.²⁸ Existing development includes an airport, a golf course, suburban housing development, warehouse facilities, car dealerships, storage facilities, restaurants, and other retail buildings.²⁹ Duke Kentucky also notes that the study area was developed to provide opportunity to identify unique route alternatives.³⁰

The Duke Kentucky siting team developed the following siting guidelines, which were applied throughout the siting process:

- Minimize or remove the substantial interference with the use of existing residences;
- Minimize the removal of existing barns, garages, commercial buildings, and other non-residential structures;
- Minimize the interference with the use and operation of existing schools, recognized places of worship, cemeteries, and facilities used for cultural, historical, and recreational purposes;

²⁵ Hurd Testimony at 6–7.

²⁶ Hurd Testimony at 7. *See also* Application, Exhibit 6, Oakbrook to Aero Transmission Line Project, Line Route Evaluation Report for Detailed Project No. M180077006 by Stantec (Stantec LRE) at 3 of 60.

²⁷ Duke Kentucky's response to Staff's First Request, Item 18.

²⁸ Stantec LRE at 3 of 60.

²⁹ *Id.*

³⁰ Hurd Testimony at 7.

- Minimize interference with economic activities, including agricultural activities;
- Minimize the crossing of environmentally and culturally sensitive lands, such as recreation lands, designated battlefields and other designated historic sites, national and state forests and parks, nature preserves, conservation lands and easements, large lakes and large wetland complexes, critical habitat, and other unique or distinct natural resources;
- Where crossings of sensitive lands are unavoidable, maximize the use of existing crossings;
- Minimize substantial visual impact on residential areas and public resources; and
- Minimize route length, circuitry, cost, and special design requirements.³¹

The data collection process consisted of reviewing the constraint maps and collecting data in the field.³² Certain members of the siting team would conduct reconnaissance of the study area on multiple occasions from public vantage points.³³ The field reconnaissance verified information on the locations of certain sensitive sites, such as schools, residences, and churches, and photographs were taken to document existing site conditions.³⁴ Duke Kentucky also met with representatives of Amazon Prime Air Hub and the airport to discuss siting the transmission on their properties.³⁵ Duke Kentucky states that Amazon was amenable to accommodating the required transmission line right-of-way.³⁶ The Kenton County Airport Board is the only other property owner whose property the transmission line right-of-way is proposed to cross and Duke Kentucky anticipates obtaining the final easements for the transmission line by January 31, 2020.³⁷

³¹ Stantec LRE at 4 of 60.

³² Hurd Testimony at 8.

³³ *Id.*

³⁴ Stantec LRE at 12 of 60.

³⁵ Stantec LRE at 7 of 60.

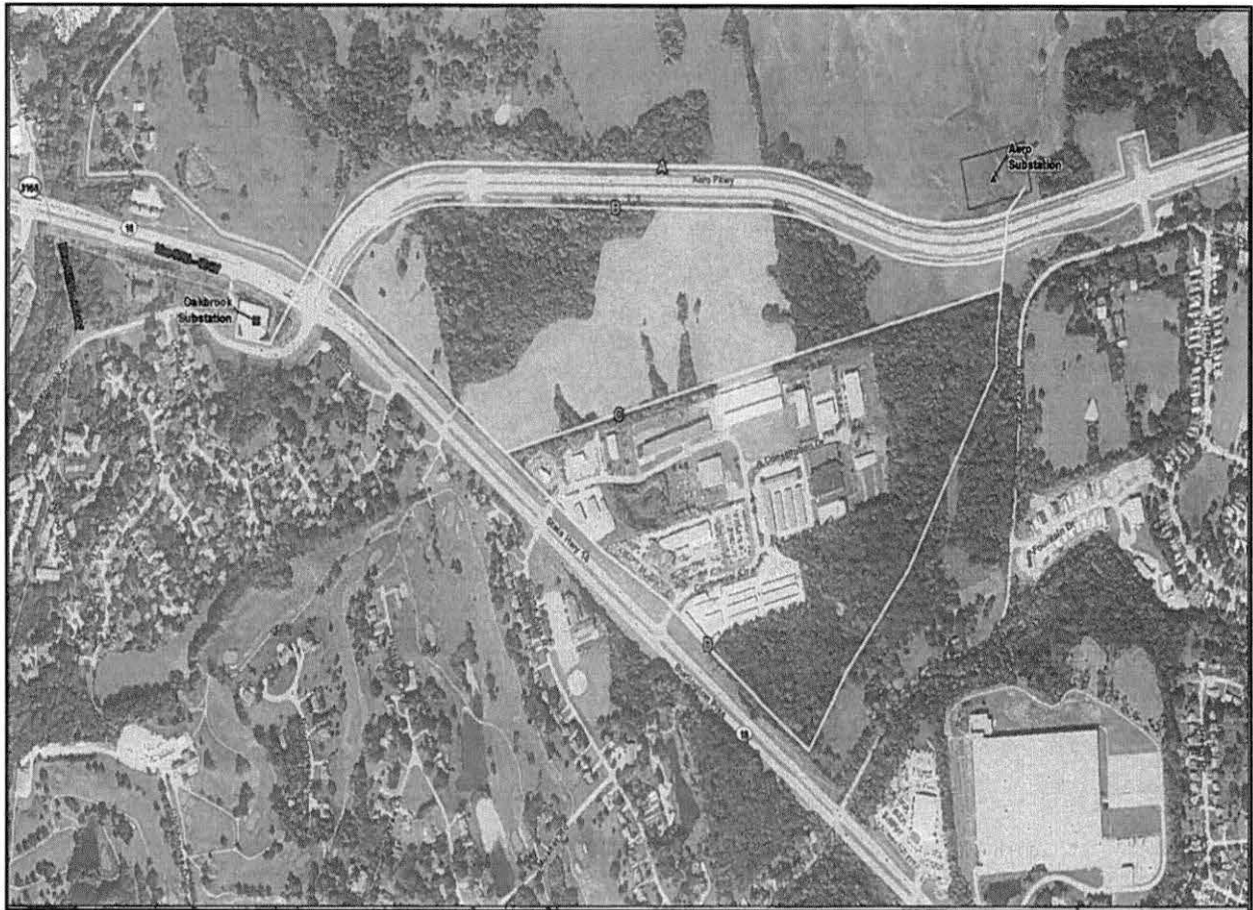
³⁶ *Id.*

With respect to the development of the route alternatives, Duke Kentucky created the following four alternative routes to take advantage of opportunities for siting the transmission lines and avoiding constraints.³⁸

1. Route A is the preferred route and described above.
2. Route B begins at the existing Oakbrook Substation and continues northeast over Burlington Pike and then immediately heads southeast across Aero Parkway. Route B then heads east approximately one mile on the south side of Aero Parkway, before crossing Aero Parkway to the north and entering the new Aero Substation.
3. Route C begins at the existing Oakbrook Substation and continues northeast over Burlington Pike and then immediately heads southeast across Aero Parkway for approximately 0.27 miles on the north side of Burlington Pike before heading east along a property line for 0.67 miles. Route C then turns north, crosses Aero Parkway, and enters the new Aero Substation.
4. Route D begins at the existing Oakbrook Substation and continues northeast over Burlington Pike and then immediately heads southeast across Aero Parkway for approximately 0.77 miles on the north side of Burlington Pike before heading northeast for 0.42 miles, following for the most part along an existing electrical distribution line right-of-way. Route D then turns north for 0.60 miles, crosses Aero Parkway, and enters the new Aero Substation.

³⁷ Duke Kentucky's response to Staff's First Request, Items 6 and 15.

³⁸ Hurd Testimony at 8, 11–12. *See also* Application, Exhibit 8.



Duke Kentucky describes the fourth step in the siting methodology – analysis – as categorizing the data by criteria group, criteria, and sub-criteria, with each of these categories being weighted based on sensitivity to electrical transmission line siting.³⁹ The criteria group was made up the following four constraints: ecology, land use, cultural, and engineering.⁴⁰ The criteria and sub-criteria consisted of further discrete opportunities or constraints data reflective of the criteria group.⁴¹ For example, the land use criteria group was broken down into the following criteria: residences, properties, institutional uses,

³⁹ Hurd Testimony at 9.

⁴⁰ Stantec LRE at 4 of 60.

⁴¹ Stantec LRE at 13–18 of 60.

sensitive lands, agricultural and industrial uses, new easement required, and paralleling linear infrastructure.⁴² Each of the criteria were then further broken down to develop the sub-criteria factors, i.e., residences was made up of sub-criteria consisting of number of residences within the right-of-way, number of residences within 200 feet of the right-of-way, and number of residences between 200-500 feet of the right-of-way.⁴³ The sub-criterion scores for each route were then added together to arrive at an overall score for that route.⁴⁴

The routes were ranked based on the overall score, with the lowest score being the top ranked route.⁴⁵ Duke Kentucky states that the scores were not considered a definitive comparison of the routes, but that they provided a useful index of the relative overall impact associated with each route alternative.⁴⁶ The overall scores of each of the four route alternatives from best to worst are as follows.

1. Route B had an overall score of 16.02.
2. Route A had an overall score of 18.86.
3. Route C had an overall score of 30.04.
4. Route D had an overall score of 61.63.

Although Route B had a slightly lower overall score, Duke Kentucky selected Route A as the preferred route because it scored the best in ecology and engineering, and tied

⁴² Stantec LRE 13–14 of 60.

⁴³ Stantec LRE at 13 of 60.

⁴⁴ Stantec LRE at 14–15 of 60.

⁴⁵ Stantec LRE at 19 of 60.

⁴⁶ *Id.*

for the best score in cultural.⁴⁷ While it had the third best score in the land use criteria group, this was strongly impacted by its location on airport property, which normally would be an impediment to siting a new transmission line.⁴⁸ Duke Kentucky noted, however, that the affected property owners were amenable to providing easements for Route A.⁴⁹ Duke Kentucky pointed out that although Route B had the best overall score and was also a viable route, siting Route B would affect owners on properties that are planned for future development.⁵⁰ Duke Kentucky asserts that Route A enables it to integrate with existing development plans and work with the property owners to establish a mutually beneficial solution.⁵¹

DISCUSSION

To establish that the public convenience and necessity require the construction of a new facility, an applicant must demonstrate the need for the proposed facilities and that the proposed construction will not result in the wasteful duplication of facilities.⁵²

“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

⁴⁷ Stantec LRE at 20–21 of 60.

⁴⁸ Hurd at 12.

⁴⁹ *Id.*

⁵⁰ *Id.* See also, Duke Kentucky’s response to Staff’s First Request, Item 21 (indicating that mixed-use development for AI Neyer LLC is currently being constructed on property along Route B).

⁵¹ Stantec LRE at 21 of 60.

⁵² *Kentucky Utilities Company v. Public Service Commission*, 252 S.W.2d 885 (Ky. 1952).

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.⁵³

“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.”⁵⁴ To demonstrate that a proposed facility does not result in wasteful duplication, we have held that the applicant must demonstrate that a thorough review of all reasonable alternatives has been performed.⁵⁵ Selection of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication.⁵⁶ All relevant factors must be balanced.⁵⁷ The statutory touchstone for ratemaking in Kentucky is the requirement that rates set by the Commission must be fair, just and reasonable.⁵⁸

Having reviewed the record and being otherwise sufficiently advised, the Commission finds that Duke Kentucky has established sufficient evidence to demonstrate that the proposed transmission line project is needed to provide service to anticipated

⁵³ *Id.* at 890.

⁵⁴ *Id.*

⁵⁵ 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).

⁵⁶ 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.

⁵⁷ Case No. 2005-00089, *East Kentucky Power Cooperative, Inc.* (Ky. PSC Aug. 19, 2005), Final Order at 6.

⁵⁸ KRS 278.190(3).

load growth in the local area, including the location of the new Amazon Prime Air Hub. The Commission further finds that construction of the proposed 138-kV transmission line, the expansion of the existing Oakbrook Substation, and the construction of the new Aero Substation are reasonable and will not result in the wasteful duplication of facilities. The evidence also supports Duke Kentucky's selection of the preferred route. Although Routes A and B were very similar, the Commission is persuaded by the expert judgment of Duke Kentucky in selecting Route A as the preferred route based largely on the fact that Route A would not have negatively impact a mixed-use development that is currently under construction.

IT IS THEREFORE ORDERED that:

1. Duke Kentucky is granted a CPCN to construct and operate the proposed transmission line facilities as set forth in its application.
2. Duke Kentucky shall file a survey of the final location of the line after any modifications are finalized as authorized herein and before construction begins.
3. Duke Kentucky shall file "as-built" drawings or maps within 60 days of the completion of the construction authorized by this Order.
4. Duke Kentucky's request for authority to move the electric transmission line and associated right-of-way only within the corridor of the preferred route is granted.
5. Duke Kentucky shall immediately notify the Commission upon knowledge of any material changes to the scope of the transmission line project, including, but not limited to, increase in cost, any significant delays in the construction of the transmission line, or any changes in the route of the transmission line.


6. Any documents filed pursuant to ordering paragraph Nos. 2, 3, and 5 of this Order shall reference the case number of this matter and shall be retained in the utility's general correspondence files.

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By the Commission

ENTERED
DEC 18 2019
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:


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Folowen R. P. Mason

Case No. 2019-00251

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