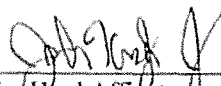


VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON) SS:

The undersigned, John Hurd, Director of Stakeholder Engagement, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data responses and that are true and correct to the best of his knowledge, information and belief.



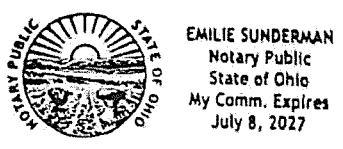
John Hurd Affiant

Subscribed and sworn to before me by John Hurd on this 27th day of April,
2023.



NOTARY PUBLIC

My Commission Expires: July 8, 2027

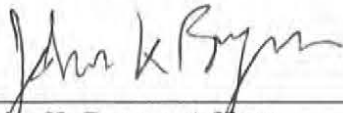


VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON)

SS:

The undersigned, John K. Rogers, Manager Transmission Engineer, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data responses and that are true and correct to the best of his knowledge, information and belief.



John K. Rogers Affiant

Subscribed and sworn to before me by John K. Rogers on this 25 day of April, 2023.



ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2024



NOTARY PUBLIC

My Commission Expires: 1/5/2024

VERIFICATION

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

The undersigned, Jeff Turner, Principal Engineer, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data responses and that are true and correct to the best of his knowledge, information and belief.

Jeff Turner
Jeff Turner Affiant

Subscribed and sworn to before me by Jeff Turner on this 25TH day of APRIL,
2023.



ADELE M. FRISCH
Notary Public, State of Ohio
My Commission Expires 01-05-2024

Adele M. Frisch
NOTARY PUBLIC

My Commission Expires: 1/5/2024

VERIFICATION

STATE OF OHIO)
)
COUNTY OF HAMILTON) SS:

The undersigned, Yanthi W. Boutwell, General Manager Transmission Resource & Project Management, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the data requests and that they are true and correct to the best of her knowledge, information and belief.

Yanthi W. Boutwell
Yanthi W. Boutwell Affiant

Subscribed and sworn to before me by Yanthi W. Boutwell on this 27th day of April, 2023.

Emilie Sunderman
NOTARY PUBLIC

My Commission Expires: July 8, 2027



EMILIE SUNDERMAN
Notary Public
State of Ohio
My Comm. Expires
July 8, 2027

KyPSC Case No. 2022-00364
TABLE OF CONTENTS

<u>DATA REQUEST</u>	<u>WITNESS</u>	<u>TAB NO.</u>
STAFF-DR-02-001	John Hurd	1
STAFF-DR-02-002	John Hurd	2
STAFF-DR-02-003	John Hurd	3
STAFF-DR-02-004	Yanthi Boutwell	4
STAFF-DR-02-005	John Rogers	5
STAFF-DR-02-006	John Rogers	6
STAFF-DR-02-007	Yanthi Boutwell	7
STAFF-DR-02-008	John Rogers	8
STAFF-DR-02-009	John Rogers	9
STAFF-DR-02-010	John Hurd	10
STAFF-DR-02-011	Jeff Turner	11
STAFF-DR-02-012	Yanthi Boutwell	12
STAFF-DR-02-013	John Hurd	13
STAFF-DR-02-014	Jeff Turner	14
STAFF-DR-02-015	Jeff Turner Yanthi Boutwell	15
STAFF-DR-02-016	John Rogers	9
STAFF-DR-02-017	Jeff Turner	10

STAFF-DR-02-018	Yanthi Boutwell	11
STAFF-DR-02-019	Lisa Steinkuhl ,,.....	12

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-001

REQUEST:

Refer to the Application, Exhibit 7, page 17. Provide information regarding the comment and virtual public meetings. Include how the public meeting was advertised, the attendance, and whether any information about the additional projects in the application were presented. Include a summary of each of the landowners' or interested persons' concerns that were raised at the meeting. Also, include any materials that were distributed or a PDF of any presentation materials.

RESPONSE:

On February 14, 2022, a letter was sent to property owners within 500 feet of all route alternatives to invite input at two WebEx meetings that started on March 7. The WebEx meetings were held in lieu of a public open house, factoring the safety concerns around the COVID pandemic. A reminder postcard invite to the meetings was sent on Feb. 21. The WebEx meetings were held from 6-7 p.m., March 7, 2022, and from 7-8 p.m., March 8, 2022. The meetings opened a 30-day public comment period and gained 7 attendees for the WebEx meetings. The project website (www.duke-energy.com/Hebron) included a virtual open house, interactive map and comment form inviting input through the comment period. Please see STAFF-DR-02-001 Attachment which includes the letter and postcard sent inviting property owners to the WebEx meetings and also the materials that were presented during the meetings.

PERSON RESPONSIBLE: John K. Hurd



February 14, 2022

... .

You're invited to learn about a Duke Energy transmission reliability project planned for Boone County.

Dear Neighbor,

Duke Energy's electrical system is essential to powering the energy needs of our communities, and that's a responsibility that we take very seriously. Boone County is experiencing rapid growth and increased energy use – it's the fastest-growing county in our Kentucky service area.

Duke Energy is planning to build a new 69-kilovolt (kV) transmission line to help meet the growing energy needs of the region. The new line will start at the Hebron Substation at 2139 Graves Road, in Hebron, Ky., to Route 237.

We invite you to attend a virtual public meeting to learn more about this project. **Please visit the project website at duke-energy.com/Hebron to register.**

Monday, March 7, 2022, from 6 to 7 p.m.

Tuesday, March 8, 2022, from 7 to 8 p.m.

At these events, you can hear from the transmission project team and ask your questions. The website will be available throughout the construction of the project.

We invite your input on potential routes under consideration for the proposed transmission line (please see map enclosure). You are receiving this letter because you are a property owner within 500 feet of the centerline of one of the proposed routes under consideration. Our goal is to minimize impacts to personal property, homes, businesses, the environment and cultural resources.

This virtual public meeting will:

- Provide information about how a routing study is conducted
- Provide a review and discussion about the potential routes under consideration
- Allow your input to become part of the official data collection record

You can also join the webinar by phone (in listen mode only) by calling 415.655.0003 and entering access code 2342 820 1581 on **March 7** or access code 2339 436 4313 on **March 8**.

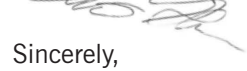
If you're unable to join us or if you have additional questions about the project, please contact us at the toll-free number or email address below. We can mail you the packet of information that will be shared at the virtual open house.

Website: duke-energy.com/Hebron

Email: MWOhoTransmission.com

Call: 888.827.5116

We're committed to communicating with you throughout this process. We hope you'll join us during one of the live sessions or visit our website.

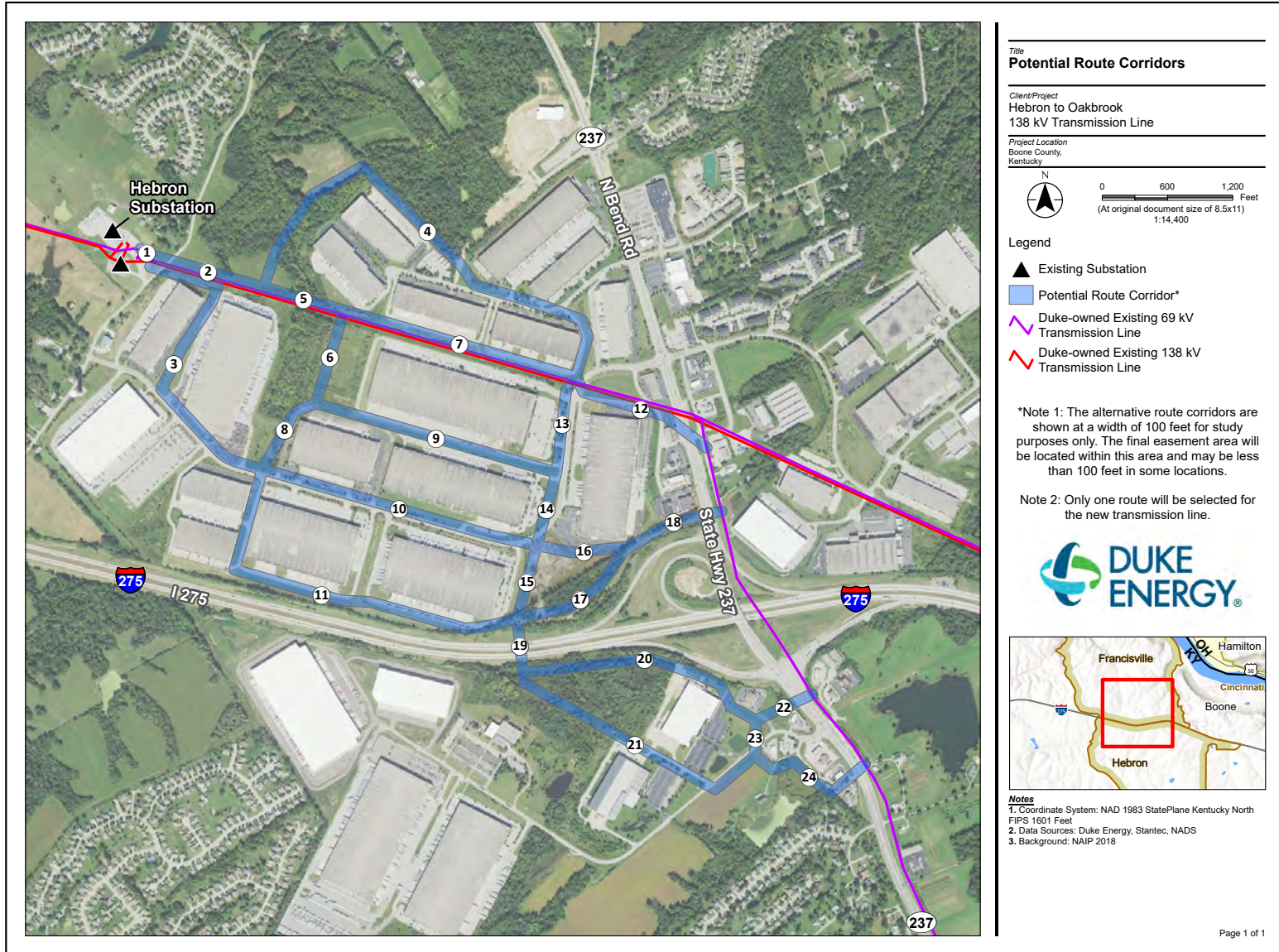


Sincerely,

Chris Gruber

Senior Project Manager for Duke Energy

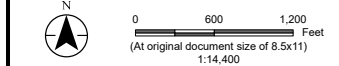
Enclosure



Title
Potential Route Corridors

Client/Project
 Hebron to Oakbrook
 138 kV Transmission Line

Project Location
 Boone County,
 Kentucky



- Legend**
- ▲ Existing Substation
 - Potential Route Corridor*
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line

*Note 1: The alternative route corridors are shown at a width of 100 feet for study purposes only. The final easement area will be located within this area and may be less than 100 feet in some locations.

Note 2: Only one route will be selected for the new transmission line.



Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
2. Data Sources: Duke Energy, Stantec, NADS
3. Background: NAIP 2018



Transmission - Public Engagement
EX552 | 315 Main Street
Cincinnati, OH 45202



Join us!

Monday, March 7, 2022
6-7 p.m.

Tuesday, March 8, 2022
7-8 p.m.

Pre-register:
duke-energy.com/Hebron

You're Invited: Hebron to Oakbrook Reliability Project Virtual Public Meeting

Impacted counties: Boone County, Ky.

FIRST-CLASS
PRESORT
U.S. POSTAGE
PAID
CITY, STATE
PERMIT NO. 00

<<First Name>> <<Last Name>>
<<Street Address>>
<City>>, <<State>> <<ZipCode>>



Join us!

Monday, March 7, 2022
6-7 p.m.

Tuesday, March 8, 2022
7-8 p.m.

Pre-register:
duke-energy.com/Hebron

Please join us to learn more about Duke Energy's Hebron Electric Reliability Project.

Duke Energy invites you to a virtual public information meeting to get your input on potential routes under consideration for a new transmission line Boone County. The 1.1 to 2.5-mile Hebron to Oakbrook Reliability Project will upgrade the electric system by building a new 69-kilovolt (kV) transmission line between the company's Hebron and Oakbrook substations in Boone County.

You are receiving this invitation because you are a property owner within 500 feet of the centerline of one of the proposed routes under consideration. Our goal is to minimize impacts to personal property, homes, businesses, the environment and cultural resources.

Please visit the project website at duke-energy.com/Hebron to register for the virtual meeting.

You can also join the webinar by phone (in listen mode only) by calling **415.655.0003** and entering access code **2342 820 1581** on March 7 or access code **2339 436 4313** on March 8.

If you're unable to join us or if you have additional questions about the project, please contact us at the toll-free number or email address below. We can mail you the packet of information that will be shared at the virtual meeting.

Questions? Call Duke Energy at **888.827.5116** weekdays between 8 a.m. and 5 p.m.
or email MWOHioTransmission@duke-energy.com.

We appreciate the opportunity to continue to meet the growing energy needs of your community.





Hebron to Oakbrook Reliability Project
Virtual Public Information Sessions, March 7 and 8, 2022





Dawn Fuller,
Senior Public Engagement
Manager



Cara Brooks,
Community Relations
Manager



Chris Gruber,
Project Manager



John Hurd,
Project Siting

Hebron to Oakbrook Reliability Project
www.duke-energy.com/Hebron





Dawn Fuller,
Engagement



Sally Thelen,
Corp. Communications



Cara Brooks,
Community Relations



Chris Gruber,
Project Manager



John Hurd,
Siting



Kim Craven,
Safety



Mark Sendelbach,
Real Estate



Sean Bill,
Asset Protection



Jacob Banfill,
Vegetation



Jeff Turner,
Planning



Dane Vandewater,
Permitting



John Rogers,
Engineering



Ken Quitter,
Construction

Q&A Session with Subject Matter Experts



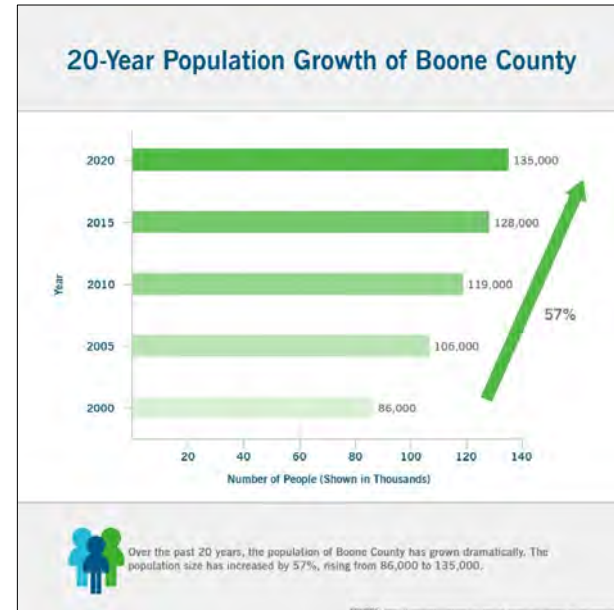
Duke Energy Kentucky Operations

- Serving Kentucky for nearly 170 years
- Throughout Kentucky and Ohio, we employ approximately 2,200 people
- Provide electric service to almost 145,000 customers in Boone, Campbell, Grant, Kenton and Pendleton counties
- More than 3,200 miles of transmission and distribution lines in Kentucky



Hebron to Oakbrook Reliability Project

- Boone County is the fastest growing county in the Commonwealth of Kentucky. This rapid growth will likely continue.
- Duke Energy must expand the local energy system to ensure continued reliability and capacity.
- A new 69-kilovolt (kV) transmission line is needed between the company's Hebron and Oakbrook substations.
- The new transmission line is part of a larger reliability project that will include rebuilding an existing 69-kV transmission line and its associated equipment from Limaburg Substation along Limaburg Road in Hebron to Burlington Pike in Burlington.



Benefits to the Community

This project will bring many benefits to the community such as:

- **Providing additional capacity**
- **Enhancing Duke Energy's ability to provide safe and reliable energy**
- **Allowing more flexibility for providing critical energy**
- **Improving the company's ability to reroute power**
- **Maintaining a robust system**



Transmission Line Details

- The new line will be approximately 1-2.25 miles in length
- Runs between Hebron Substation and State Highway 237
- The new line will carry 69-kV but the poles and equipment will be designed to carry 138-kV (flexibility to respond to future growth in the region)
- 3-phase transmission wires, some areas may have distribution underbuild
- Pole height typically ranges from 80 to 100 feet
- Easement widths are 70 feet roadside and 100 feet cross country



*Example of steel transmission poles – final design to be determined

Benefits of Steel Poles

- Galvanized steel poles last longer than wood utility poles
- Require less maintenance and inspections, as they're not prone to rot or insect or animal damage
- Improved design for lightning protection and can withstand higher wind speeds than traditional wood poles. Both attributes benefit the energy grid during inclement weather



*Example of steel transmission pole – final design to be determined

Factors Considered When Siting Transmission Lines



Community/Public Input

Open houses, surveys, informational meetings, toll-free lines, email comments/suggestions and customer letters



Cultural Resources

Archaeological resources, historic resources, historic districts and cemeteries



Water Resources

Wetlands, streams and flood plains



Land Use

Residential, commercial, industrial, major developments, schools, conservation lands and parks, existing linear facilities, airports and managed lands



Natural Resources

State and federal rare, threatened and endangered species



Occupied Buildings

Number of single-family residences in proximity of a purposed route



Land Cover

Forest woodland, mixed forest, grassland/pasture, freshwater urban development and urban residential



Visual Resources

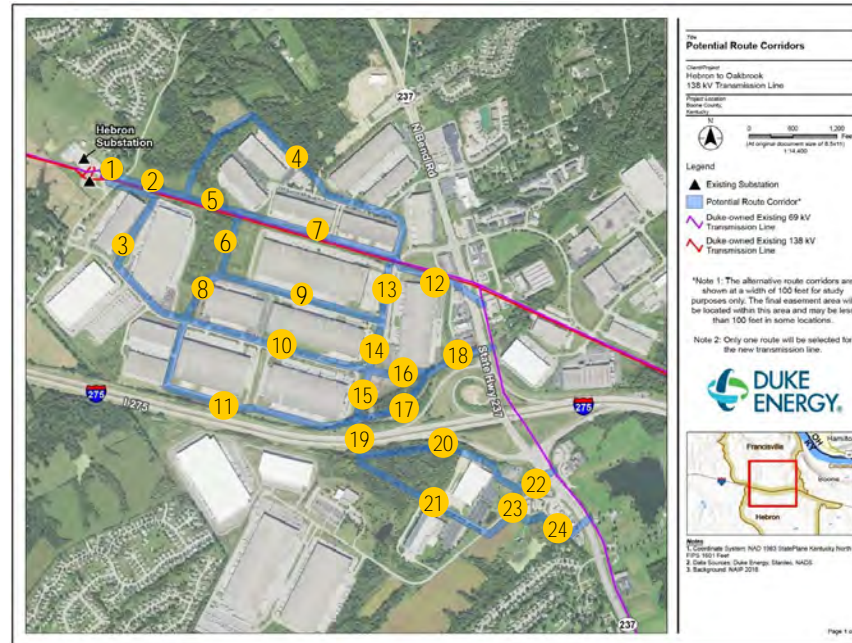
View shed analysis



Safety/Reliability/Cost

Protection from undue risks, compliance with regulations and established design criteria, ensuring uninterrupted availability of power

Route Alternatives Currently Being Considered



The preferred route will be announced later this summer.

What happens after a route is selected?

1. Public notification
2. Land surveys to identify other utilities
3. Environmental surveys
4. Geotechnical (soil borings)
5. Pole location staking
6. Easement acquisition



Easements

Duke Energy's electric transmission lines are located in both urban and rural areas. In most cases, the company does not own the land on which the facilities are located and has easement rights that allow Duke Energy **to use another person's property to construct, operate, maintain, repair, and replace electrical facilities**. The landowner may continue to use the easement area so long as the use is not inconsistent with the easement.



Typical Construction Process

1. Easement staking
2. Vegetation removal
3. Removal of other encroachments
4. Utility mark outs, pre-construction work
5. Equipment staging and pole delivery
6. Active construction
7. Temporary restoration
8. Final restoration (weather dependent)



Vegetation Management

Duke Energy uses an Integrated Vegetation Management (IVM) strategy. This strategy helps to provide safe and reliable service to our customers by eliminating the possibility of contact by vegetation which has grown toward or could fall into the overhead power lines.



Installing Structures and Stringing Lines



Installing transmission structures and lines can be similar to a typical construction site, with numerous crews, trucks and other equipment. Generally, property owners can anticipate skilled contractors and trade workers, who are subject to specific requirements, to work during daylight hours. We typically do not work during nighttime hours. A Duke Energy employee is assigned to each project as an inspector.



Heavy Trucks and Equipment – Large trucks with drilling equipment will be seen on site to construct pole foundations, structures arrive in sections and will be assembled onsite.



Stringing lines – Linemen will be on site attaching wires to the structures.

Residential and commercial outages are not anticipated during construction.



Restoration

- Our land agents will work with individual property owners to discuss restoration of private property.
- Initial restoration includes removing construction materials, leveling disturbed areas, and restoring with grass seed and straw after work is completed.
- Sometimes final restoration will have to wait for warmer weather.
- Restoration will be monitored for successful growth.



Tentative Project Schedule

Virtual Open
Houses
March 2022



Public Input
Window
April 7, 2022



Preferred Route
Announcement
June 2022



CPCN Filing
August/September 2022



Surveying and
Easement Acquisition
Through December
2022



Project Design
2023



Construction
2024

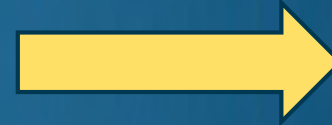


Restoration
2025



These dates are subject to change.

We are standing by to answer your questions. Please type them into the chat box on the right side of your screen.



Thank you for joining us to learn more about the Hebron to Oakbrook Reliability Project.



Dawn Fuller,
Engagement



Sally Thelen,
Corp. Communications



Cara Brooks,
Community Relations



Chris Gruber,
Project Manager



John Hurd,
Siting



Kim Craven,
Safety



Mark Sendelbach,
Real Estate



Sean Bill,
Asset Protection



Jacob Banfill,
Vegetation



Jeff Turner,
Planning



Dane Vandewater,
Permitting



John Rogers,
Engineering



Ken Quitter,
Construction

Q&A Session with Subject Matter Experts



30-Day Public Comment Period

March 7 through April 7, 2022

Please submit your questions and comments using any of the methods below.

Comment Form on Interactive Map



www.duke-energy.com/Hebron

Email



MWOhoTransmission@duke-energy.com

Phone



888.827.5116

We are committed to evaluating all input received during this comment period as part of our route selection process.



Hotline: 888.827.5116

Email: MWOhioTransmission@duke-energy.com

Website: [duke-energy.com/Hebron](https://www.duke-energy.com/Hebron)

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-002

REQUEST:

Provide a written copy of any landowner comments or concerns with any portion of the proposed projects in the application. If not written, provide a summary of any verbal conversations with landowners.

RESPONSE:

Three public comments were provided to Duke Energy – one from St Elizabeth Healthcare and two from Fives Group. The St. Elizabeth representative provided valuable information about proposed development on one of the routes under consideration. The Fives Group, a machining systems company, was concerned about route segments affecting any of that company’s potential planning for future site expansion as well as property values. This company was not supportive of segments 20 and 21.

We had a question through the toll-free engagement hotline from a representative from Tolson Enterprises, which has an existing tower line easement on a portion of their parking lot. The inquiry was whether we could build the line in the existing easement. We explained that the new line project would require new easement outside the existing tower line easement.

PERSON RESPONSIBLE: John K. Hurd

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-003

REQUEST:

Refer to Application, Exhibit 7, Section 3.5, pages 3.16-3.18. Explain, in greater detail, why Route R was not chosen as the preferred route considering the overall score appears to be the same as the chosen Route L.

RESPONSE:

The preferred route, Route L, utilizes segments 1, 2, 5, 7, 13, 14, 15, 19, 21, and 24 whereas Route R utilizes segments 1, 2, 5, 6, 9, 14, 15, 19, 21, and 24. The difference between the two Routes is the use of segments 7 and 13 versus 6 and 9. Route L utilizes Segment 7 runs which runs along the existing transmission corridor all the way to Worldwide Boulevard where it connects to Segment 13 which runs along Worldwide Boulevard and connects to Segment 14 and the rest of the route. Conversely, Route R utilizes Segment 6 which exits the existing transmission corridor just east of Sand Run, traverses south for approximately 0.15 mile along a private drive before meeting Segment 9 and continuing east along the private drive between existing industrial buildings towards Worldwide Boulevard where it then connects to Segment 14 and the remainder of the route. While Route R and Route L scored very similarly, Route L was chosen because it utilized more of the existing transmission corridor which reduces the amount of new easement required, reduces impacts to existing businesses, and reduces impacts to greenfield areas.

PERSON RESPONSIBLE: John K. Hurd

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-004

REQUEST:

Provide information about how many structure or cross-arm failures there have been on the current 69 kV transmission line in the last five years.

RESPONSE:

There are two circuits affected by the proposed upgrade and reconfiguration, 6763 and 15268. Since April 2018, Circuit 6763 had (1) in-service outage attributed to a transmission line equipment failure in the section of line that has been identified to be retired. In 2019, in anticipation of a large commercial customer with significant load growth, the line was assessed and (7) wood structures failed the inspection. Of which, (4) poles and (3) crossarms were replaced. Since April 2018, Circuit 15268 has experienced (4) in-service outages attributed to crossarm failures. There have been (0) outages attributed to structural failures.

PERSON RESPONSIBLE: Yanthi W. Boutwell

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

STAFF-DR-02-005

REQUEST:

Provide the known number of buildings or other structures currently encroaching on the existing 69 kV transmission line.

RESPONSE:

The number of encroachments for this project is unknown at this point. This engineering review will be done as part of detail engineering which has not been done.

PERSON RESPONSIBLE: John K. Rogers

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-006

REQUEST:

Explain whether a structure encroaching in a transmission line right-of-way (ROW) is a violation of North American Electric Reliability Corporation (NERC) reliability standards.

RESPONSE:

A structure encroaching in a transmission line ROW could be an NERC violation, in specific circumstances if it results in exceeding minimum clearances. NERC standards are related to reliability. Vegetation encroachments that affect reliability are a violation per the NERC standards and Transmission Owners are responsible for taking immediate action when these vegetation imminent threats occur. There are multiple issues with structures encroaching on easement areas that cause constraints to us operating and maintaining our assets. NERC requirements come into play if structures are so close to lines as to cause us to de-rate the line due to safety requirements for the general public. Such a determination requires engineering analysis of the specific segment to determine whether encroachments cause such a circumstance.

PERSON RESPONSIBLE: John K. Rogers

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

STAFF-DR-02-007

REQUEST:

Explain whether Duke Kentucky plans to file any additional Certificate of Public Convenience and Necessity (CPCN) applications for future transmission projects in the next 12 months. If yes, include whether the applications will be related to this project.

RESPONSE:

There is no plan to file any additional Certificate of Public Convenience and Necessity (CPCN) applications for future electric transmission projects at this time.

PERSON RESPONSIBLE: Yanthi W. Boutwell

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-008

REQUEST:

Provide the ROW widths for 138 kV and 69 kV transmission lines and explain whether the existing ROW is sufficient for collocating the 138 kV line with the rebuilt 69 kV line. Provide a citation to any safety regulation or industry-accepted best practice that supports the response.

RESPONSE:

ROW widths vary due to variables such as existing encumbrances, land use, adjacent properties, project requirements, location specific considerations, etc. The Company has established criteria for maintaining operational and safety standards of its transmission facilities. The current standard ROW widths for 138kv and 69kv at Duke Energy Kentucky is 100 feet when cross-country and 70 feet when parallel to a road. For the preferred route in yellow as shown on Exhibit 1, where we parallel an existing 138kv/69kv tower line. For this section we would utilize the existing easement and acquire additional easement as needed. For the section of preferred route not parallel to the tower line we would utilize our Duke Energy Kentucky standard easement widths. For the rebuild section, the structures would be designed for 138kv but initially energized to 69kv until a later time. They would not be co-located. ROW needs on the rebuilt section would be acquired on an as needed basis during detailed design.

PERSON RESPONSIBLE: John K. Rogers

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-009

REQUEST:

Refer to Direct Testimony of Yanthi Boutwell (Boutwell Direct Testimony), page 7. Provide supporting documentation for the following conclusion, “[t]he Company feels that it would be wasteful of resources and more impactful to the public to build the new facilities capable of operation at only 69 kV and then return in five or ten years and have to essentially completely rebuild the same facilities to upgrade to operation at 138 kV.”

RESPONSE:

If we design the line to 138kv it requires larger insulators and slightly taller structures but everything else is the same. Same amount of labor, same type of wire, same access and construction needs. When we uprate the line to 138kv this section of line will not need to be redone in any way. If we design to 69kv we will need to come back and replace all the structures and insulators and can only reuse the conductor. This requires disturbing all the property again for construction and replacing all the structures.

PERSON RESPONSIBLE: John K. Rogers

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

STAFF-DR-02-010

REQUEST:

Refer to Boutwell Direct Testimony, page 10. Provide supporting documentation supporting the conclusion that the ROW needs to be only 70 feet in certain circumstances.

RESPONSE:

The proposed new ROW is typically 100 ft. in width. The ROW can be reduced to 70 ft. wide when the proposed ROW is parallel and adjacent to an existing road ROW. The road ROW provides two main benefits to allowing a smaller ROW. First, the road ROW provides some protection because new above ground development such as buildings is limited or prohibited. Second, the road ROW also provides the ability to access the ROW for construction and operations and maintenance activities.

PERSON RESPONSIBLE: John K. Hurd

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

**PUBLIC STAFF-DR-02-011
(As to Attachments only)**

REQUEST:

Refer to Boutwell Direct Testimony, page 16. Duke Kentucky states that supplemental PJM projects are expansions of the system that do not address reliability criteria, but other needs. This need includes items like equipment condition, performance and risk, operational flexibility and efficiency, infrastructure resilience, and customer service. Duke Kentucky stated that this project is centered around customer service and meeting internal criteria.

- a. Explain whether Duke Kentucky needs the project to address any of the other needs listed above besides customer service.
- b. Explain whether Duke Kentucky could still provide reliable service to its territory currently, without the approval of this CPCN, and provide any supporting documentation including load forecasts.
- c. Explain in further detail how this project is labeled as a supplemental PJM project but is justified by Duke Kentucky's internal criteria and does not require PJM's review to determine if this project is needed

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachments only)

- a. This project is an amendment to the Aero/Woodspoint project, supplemental project s1782. The driver for the Aero/Woodspoint project was customer

service. A Duke Energy reliability criteria violation was found by Duke Energy Kentucky during load sensitivity analysis, subsequent to the addition of the Aero/Woodspoint project. Consulting with PJM, they found the load addition that causes the violation is associated to the incremental load increases from the Aero/Woodspoint project. Following PJM guidance on the M-3 process, the scope and cost for this project was amended to the Aero/Woodspoint project as supplemental project s1782.1.

b. Duke Energy Kentucky does not believe that it will be possible to continue to provide reliable service to this portion of the Duke Energy Kentucky service territory without the installation of the facilities for which the CPCN was requested. Boone County, Kentucky is one of the fastest if not the fastest growing counties in Kentucky. With the existing system, there is 112 MVA of connected transformer capacity that is totally dependent on a section of 69 kV line (the section to be retired as a part of the proposed project with a capacity of only 459 Amperes) for a single-contingency outage. This conductor will allow delivery of a maximum of approximately 50 MW at typical delivery voltage and accounting for losses. Additional transformer capacity dependent on this line section is planned for installation by 2025, raising the total to 134.4 MVA. When the peak load supplied by the transformers exceeds approximately 50 MW, the system will have to be sectionalized in normal operation to prevent overload for the contingency. This will result in interruption of load for the contingency, and it will not be possible to restore all load via switching. Load will remain unserved until the cause of the interruption is identified and repaired.

There is no load forecast per se that attempts to predict exactly when the load conditions necessitating the upgrade to prevent overload will occur. Transmission upgrade

projects are not necessarily planned to exactly coincide with some projected load. Duke Energy Kentucky believes it is prudent to have facilities planned and installed based on reasonable expectations of load rather than waiting for load to appear and then be caught short. STAFF-DR-02-011(b) Confidential Attachments 1 and 2, prepared by Duke Energy Kentucky Customer Delivery engineers, demonstrate the high growth potential for this area. Duke Energy Kentucky Customer Delivery has recently caused or will cause by 2025 the installation of 156.8 MVA of distribution transformer capacity on the path from Aero Substation to Hebron Substation, consisting of 89.6 MVA at Aero, 22.4 MVA at Oakbrook, and 44.8 MVA at Litton. The expectation is that the above-described overload conditions are likely to occur by 2025.

The proposed project will also configure the system to provide reliable supply in the future. Upon completion of the planned Litton Substation project, there will be 76.3 MVA of Duke Energy Kentucky-owned transformer capacity and 28.5 MVA of customer-owned transformer capacity that will be reliant on another section of 69 kV line (the section between Oakbrook and Limaburg proposed for upgrade which also has a capacity of only 459 Amperes) for single-contingency outages. As above, when the load on these transformers exceeds approximately 50 MW, it will not be possible to supply all load during single contingencies. The proposed project also addresses this expected limitation and will allow the load growth expected in this area to be reliably supplied from the Duke Energy Kentucky transmission system for several years.

To provide for the longer term, the new facilities are being designed to allow operation at 138 kV, which will effectively allow capacity to be doubled should load conditions eventually exceed the capacity of supply at 69 kV. The extra cost to build the

facilities for future operation at 138 kV is small (see reply to Question 9) compared to the cost to build for 69 kV and then completely rebuild for 138 kV at a time when the original facilities would still have many decades of useful life remaining. Since the ultimate possible need for upgrade to 138 kV was foreseen, Duke Energy Kentucky felt it to be prudent to build the facilities for future operation at 138 kV but energize at 69 kV, rather than build the currently planned facilities for 69 kV operation only, which would not have required a CPCN due to the operating voltage. This plan enables portions of the 69 kV system to remain in service (the line section from Limaburg north to the future Litton Substation) and will allow continued utilization of other 69 kV facilities until such time as they cannot meet the capacity needs. As an alternative Duke Energy Kentucky could have proposed going to 138 kV supply at this time, which would have resulted in increased costs due to the need to rebuild the Limaburg to Litton line section, rebuild Limaburg Substation to allow 138 kV operation, and installation of 138 kV termination equipment at Hebron and Oakbrook. Duke Energy Kentucky felt that the most prudent plan was to meet the needs of the area in stages by starting with the upgrade of the 69 kV system as proposed. This meets the system needs for near term needs as well as providing a path for upgrade to meet future needs.

c. Please see response to (a) above. PJM's review concurred with Duke Energy Kentucky's finding that this project is needed.

PERSON RESPONSIBLE: Steve Steinkuhl – a., c.
Jeff O. Turner – b.

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-02-011(b)
CONFIDENTIAL ATTACHMENTS 1 & 2**

FILED UNDER SEAL

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

STAFF-DR-02-012

REQUEST:

Refer to Boutwell Direct Testimony, page 11. Confirm that the expense of a land acquisition vendor is included in the budget for the project. If not, explain why not.

RESPONSE:

The land acquisition vendor was incorrectly omitted in the budget of the project. Please see STAFF-DR-02-012 Attachment. Correction has been made to include the cost of land acquisition vendor per Exhibit 6.

PERSON RESPONSIBLE: Yanthi W. Boutwell

Detail Project: M21037401 Limaburg-Oakbrook RLE				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 59,134.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 600.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 485.00	354	Towers and Fixtures	\$ -
Indirects	\$ 16,177.00	350	Land and Land Rights	\$ 200,766.00
Contingency	\$ 33,461.00	357	Underground Conduit	\$ -
Grants and Easements	\$ 90,909.00	358	Underground Conductors and Devices	\$ -
Total	\$ 200,766.00	Total		\$ 200,766.00

Detail Project: M21037402 Hebron-Route 237 RLE				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 191,241.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 172,572.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 356.00	354	Towers and Fixtures	\$ -
Indirects	\$ 369,135.00	350	Land and Land Rights	\$ 3,194,802.00
Contingency	\$ 461,498.00	357	Underground Conduit	\$ -
Grants and Easements	\$ 2,000,000.00	358	Underground Conductors and Devices	\$ -
Total	\$ 3,194,802.00	Total		\$ 3,194,802.00

Detail Project: M19030902 Hebron to 15268C Tap-Install New 69 kV Line				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 5,026,044.00	355	Poles and Fixtures	\$ 16,509,252.00
Outside Services	\$ 2,405,100.00	356	Overhead Conductors and Devices	\$ 1,242,632.00
Material	\$ 4,509,590.00	354	Towers and Fixtures	\$ -
Indirects	\$ 3,495,687.00	350	Land and Land Rights	\$ -
Contingency	\$ 2,315,463.00	357	Underground Conduit	\$ -
Grants and Easements	\$ -	358	Underground Conductors and Devices	\$ -
Total	\$ 17,751,884.00	Total		\$ 17,751,884.00

Detail Project: M19030903 Feeder 6763-Rebuild Oakbrook to Limaburg				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 2,493,754.00	355	Poles and Fixtures	\$ 6,399,764.00
Outside Services	\$ 2,131,500.00	356	Overhead Conductors and Devices	\$ 1,501,180.00
Material	\$ 1,666,688.00	354	Towers and Fixtures	\$ -
Indirects	\$ 1,890,408.00	350	Land and Land Rights	\$ -
Contingency	\$ 1,227,353.00	357	Underground Conduit	\$ -
Grants and Easements	\$ -	358	Underground Conductors and Devices	\$ -
		108	Cost of Removal	\$ 1,508,759.00
Total	\$ 9,409,703.00	Total		\$ 9,409,703.00

Detail Project: M190309DL1 F6763 Underbuild Limaburg				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 225,296.00	364	Poles and Fixtures	\$ 115,414.00
Outside Services	\$ 40,633.00	365	Overhead Conductors and Devices	\$ 363,754.00
Material	\$ 22,562.00	364	Towers and Fixtures	\$ -
Indirects	\$ 145,345.00	360	Land and Land Rights	\$ -
Contingency	\$ 65,075.00	366	Underground Conduit	\$ -
Grants and Easements	\$ -	367	Underground Conductors and Devices	\$ 19,743.00
Total	\$ 498,911.00	Total		\$ 498,911.00

Detail Project: M190309DL3 New 15264 Transfer				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 9,585.00	364	Poles and Fixtures	\$ -
Outside Services	\$ 127.00	365	Overhead Conductors and Devices	\$ 16,936.00
Material	\$ -	364	Towers and Fixtures	\$ -
Indirects	\$ 5,015.00	360	Land and Land Rights	\$ -
Contingency	\$ 2,209.00	366	Underground Conduit	\$ -
Grants and Easements	\$ -	367	Underground Conductors and Devices	\$ -
Total	\$ 16,936.00	Total		\$ 16,936.00

Detail Project: M19030901 Hebron Install 69kV CB				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 1,215,115.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 270,300.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 663,747.00	354	Towers and Fixtures	\$ -
Indirects	\$ 677,494.00	350	Land and Land Rights	\$ -
Contingency	\$ 423,998.00	352	Structures and Improvements	\$ 2,763,056.00
Grants and Easements	\$ -	353	Station Equipment	\$ 487,598.00
Total	\$ 3,250,654.00	Total		\$ 3,250,654.00

Detail Project: M19030906 Limaburg Station Uprate				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 81,723.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 17,900.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 4,420.00	354	Towers and Fixtures	\$ -
Indirects	\$ 31,858.00	350	Land and Land Rights	\$ -
Contingency	\$ 20,385.00	352	Structures and Improvements	\$ 156,286.00
Grants and Easements	\$ -	353	Station Equipment	\$ -
Total	\$ 156,286.00	Total		\$ 156,286.00

Detail Project: M19030907 Levi Strauss Station Uprate				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 39,715.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 9,000.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 2,210.00	354	Towers and Fixtures	\$ -
Indirects	\$ 16,418.00	350	Land and Land Rights	\$ -
Contingency	\$ 10,101.00	352	Structures and Improvements	\$ 77,444.00
Grants and Easements	\$ -	353	Station Equipment	\$ -
Total	\$ 77,444.00	Total		\$ 77,444.00

Detail Project: M19030908 Oakbrook Sub 15264 Changes				
Category	Estimated Cost	FERC Account / Plant	Description	Estimated Cost
Labor	\$ 58,720.00	355	Poles and Fixtures	\$ -
Outside Services	\$ 13,300.00	356	Overhead Conductors and Devices	\$ -
Material	\$ 16,575.00	354	Towers and Fixtures	\$ -
Indirects	\$ 29,019.00	350	Land and Land Rights	\$ -
Contingency	\$ 17,642.00	352	Structures and Improvements	\$ 135,256.00
Grants and Easements	\$ -	353	Station Equipment	\$ -
Total	\$ 135,256.00	Total		\$ 135,256.00

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-013

REQUEST:

Refer to the Application, Exhibits 1-3, Exhibit 7, Appendix A, Figure A-3, page 27 and Exhibit 14.

a. Provide an update to each of the listed Exhibits' maps identifying the circuit name, voltage and owner of all existing and proposed transmission lines and the service boundaries of Duke Kentucky and that of any other Kentucky neighboring electric utilities. Include in the response the anticipated East Kentucky Power Cooperative (EKPC) transmission line.

b. Confirm that all the substations shown in each listed Exhibit map is owned by Duke Kentucky. If not, identify the owner of each substation and provide an updated map for the corresponding exhibit containing the information.

RESPONSE:

a. Please see STAFF-DR-02-013 Attachment for updated map Exhibits (1-3, 8-10, and 14) identifying the circuit name, voltage, and owner of the existing and proposed transmission lines and the service boundaries of Duke Energy Kentucky and the neighboring electric utilities. Exhibit 9 was also updated and displays most of the same information in Exhibit 7, Appendix A, Figure A-3, page 27. Exhibit 7 is a static report and therefore Exhibit 7, Appendix A, Figure A-3, page 27 was not updated.

b. The Levi Strauss substation shown on Exhibits 1 and 14 is owned by the customer. All of the other substations shown in Kentucky on the exhibits are owned by Duke ¹Energy Kentucky.

PERSON RESPONSIBLE: John K. Hurd

¹ https://www.ekpc.coop/sites/default/files/PDFs/Open%20House%20Mineloa%20Pike%2004_15_2022.pdf

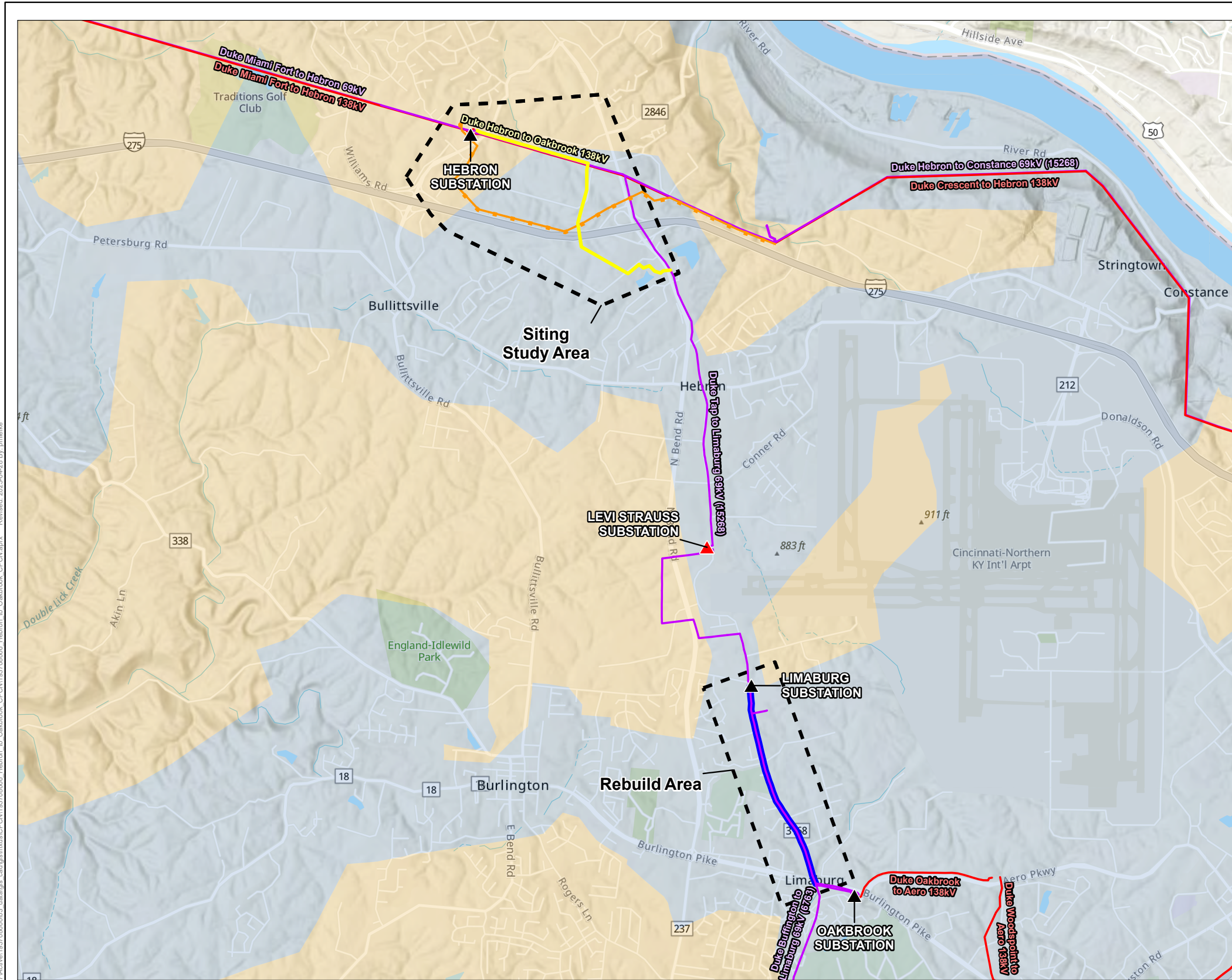


Figure No.

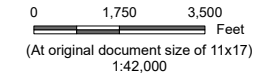
1

Title

**Project Location
 rev1**

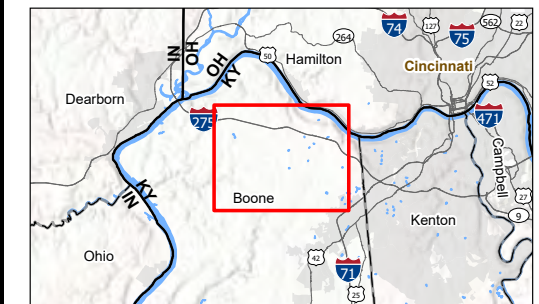
Client/Project
 Duke Energy Kentucky 193708666
 Hebron to Oakbrook 138 kV Transmission Line Project

Project Location
 Boone Co., Kentucky Prepared by PM on 2022-08-22
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08



Legend

- Study Area
- Duke-owned Existing Substation
- Customer-owned Existing Substation
- Duke-owned Existing 69 kV Transmission Line
- Duke-owned Existing 138 kV Transmission Line
- Preferred Route
- Rebuild Section
- Proposed EKPC Transmission Line
- Retail Electric Service Territory
 - DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
3. Background: Esri Topographic Map



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx - Revised: 2022-04-28 By: pmh/ke

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



Figure No.
2

Title
**Siting Study Area
 rev1**

Client/Project
 Duke Energy Kentucky
 Hebron to Oakbrook 138 kV Transmission Line Project

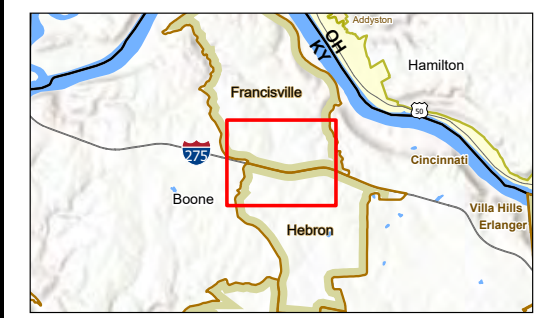
Project Location
 Boone Co., Kentucky

Prepared by PM on 2022-08-22
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08

N

0 500 1,000 Feet
 (At original document size of 11x17)
 1:12,000

- Legend
- Study Area
 - Duke-owned Existing Substation
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line
 - Foreign Owned Existing Transmission Line
 - Proposed EKPC Transmission Line
- Retail Electric Service Territory
- DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
3. Background: Esri World Imagery



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN193708666_Hebron_to_Oakbrook_CPCN193708666_Hebron_to_Oakbrook_CPCN.aprx
 Revised: 2022-04-28 By: jmm/klk
 Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



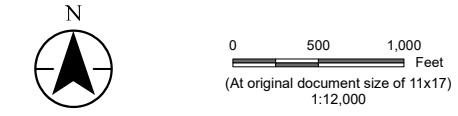
Figure No.
3

Title
**Rebuild Project Area
 rev1**

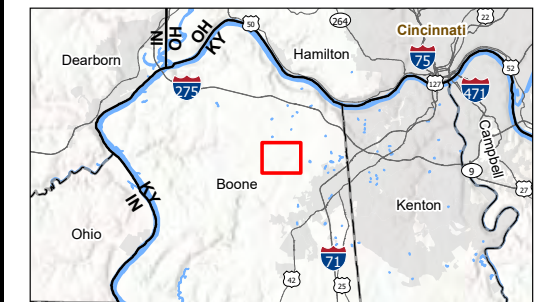
Client/Project
 Duke Energy Kentucky 193708666
 Hebron to Oakbrook 138 kV Transmission Line Project

Project Location
 Boone Co., Kentucky

Prepared by PM on 2022-08-22
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08



- Legend
- Rebuild Area
 - Duke-owned Existing Substation
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line
 - Rebuild Section
- Retail Electric Service Territory
- DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



- Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
 2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
 3. Background: Esri World Imagery



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN193708666_Hebron_to_Oakbrook_CPCN.aprx - Revised: 2022-04-28 By: jmm/klk
 Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

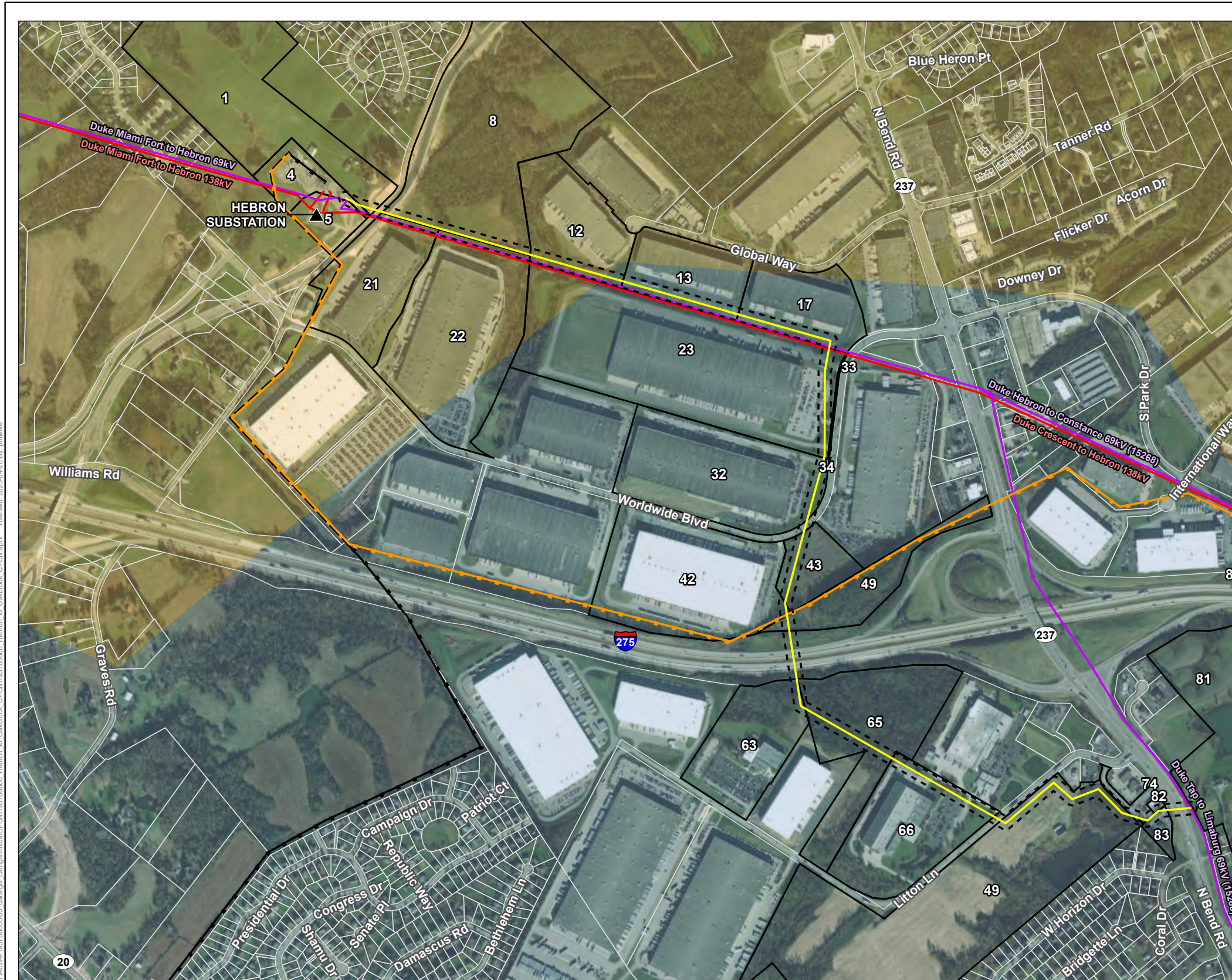


Figure No.

8

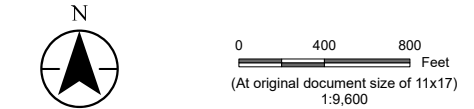
Title

**Preferred Route
 rev1**

Client/Project
 Duke Energy Kentucky
 Hebron to Oakbrook 138 kV Transmission Line Project

Project Location
 Boone Co., Kentucky

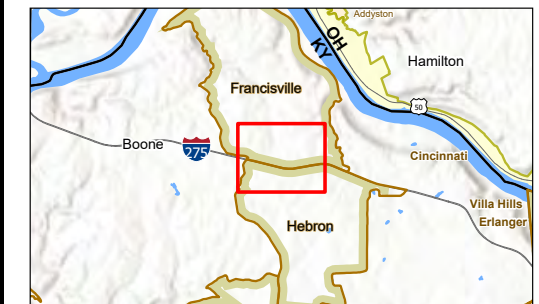
Prepared by PM on 2022-08-22
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08



Legend

- Duke-owned Existing Substation
- Duke-owned Existing 69 kV Transmission Line
- Duke-owned Existing 138 kV Transmission Line
- Foreign Owned Existing Transmission Line
- Proposed EKPC Transmission Line
- Hebron to Oakbrook Preferred Route Centerline
- Proposed ROW
- Parcels Impacted by Project (Duke Unq. ID)
- Parcel Boundary
- Retail Electric Service Territory
- DUKE ENERGY KENTUCKY
- EAST KENTUCKY POWER COOP, INC

*Exhibit reflects parcels impacted by anticipated ROW associated with preferred route at the time of CPCN submission.



Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, USFWS
3. Background: Esri World Imagery



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Reviser: 2022-04-28 By: pmalike
 V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Reviser: 2022-04-28 By: pmalike

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



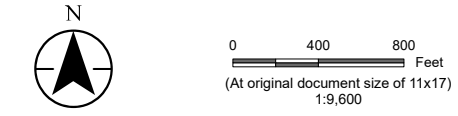
Figure No.
9

Title
**Alternative Route Segments
 rev1**

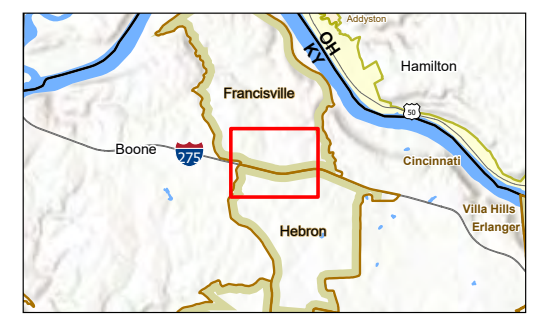
Client/Project
 Duke Energy Kentucky
 Hebron to Oakbrook 138 kV Transmission Line Project

Project Location
 Boone Co., Kentucky

193708666
 Prepared by PM on 2022-08-23
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08



- Legend
- ▲ Duke-owned Existing Substation
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line
 - Foreign Owned Existing Transmission Line
 - Proposed EKPC Transmission Line
 - Segment Network
- Retail Electric Service Territory
- DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



Notes

1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
3. Background: Esri World Imagery



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Revises: 2022-04-28 By: jmm/ake
 V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Revises: 2022-04-28 By: jmm/ake

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.



Figure No.
10

Title
**Rebuild Area
 rev1**

Client/Project
 Duke Energy Kentucky
 Hebron to Oakbrook 138 kV Transmission Line Project

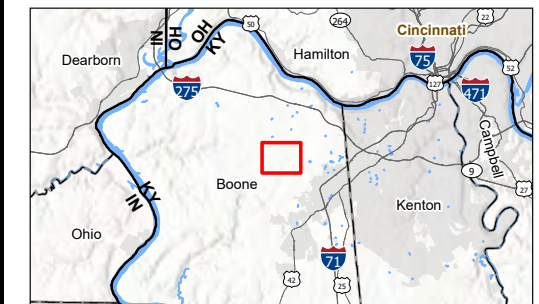
Project Location
 Boone Co., Kentucky

Prepared by PM on 2022-08-23
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08

N

0 500 1,000 Feet
 (At original document size of 11x17)
 1:12,000

- Legend
- Rebuild Area
 - Duke-owned Existing Substation
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line
 - Rebuild Section
 - Parcels Impacted by Project (Duke Unq. ID)
 - Parcel Boundary
 - Retail Electric Service Territory
 - DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



- Notes
1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
 2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
 3. Background: Esri World Imagery



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Reviser: 2022-04-28 By: pmhmk
 V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Reviser: 2022-04-28 By: pmhmk

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

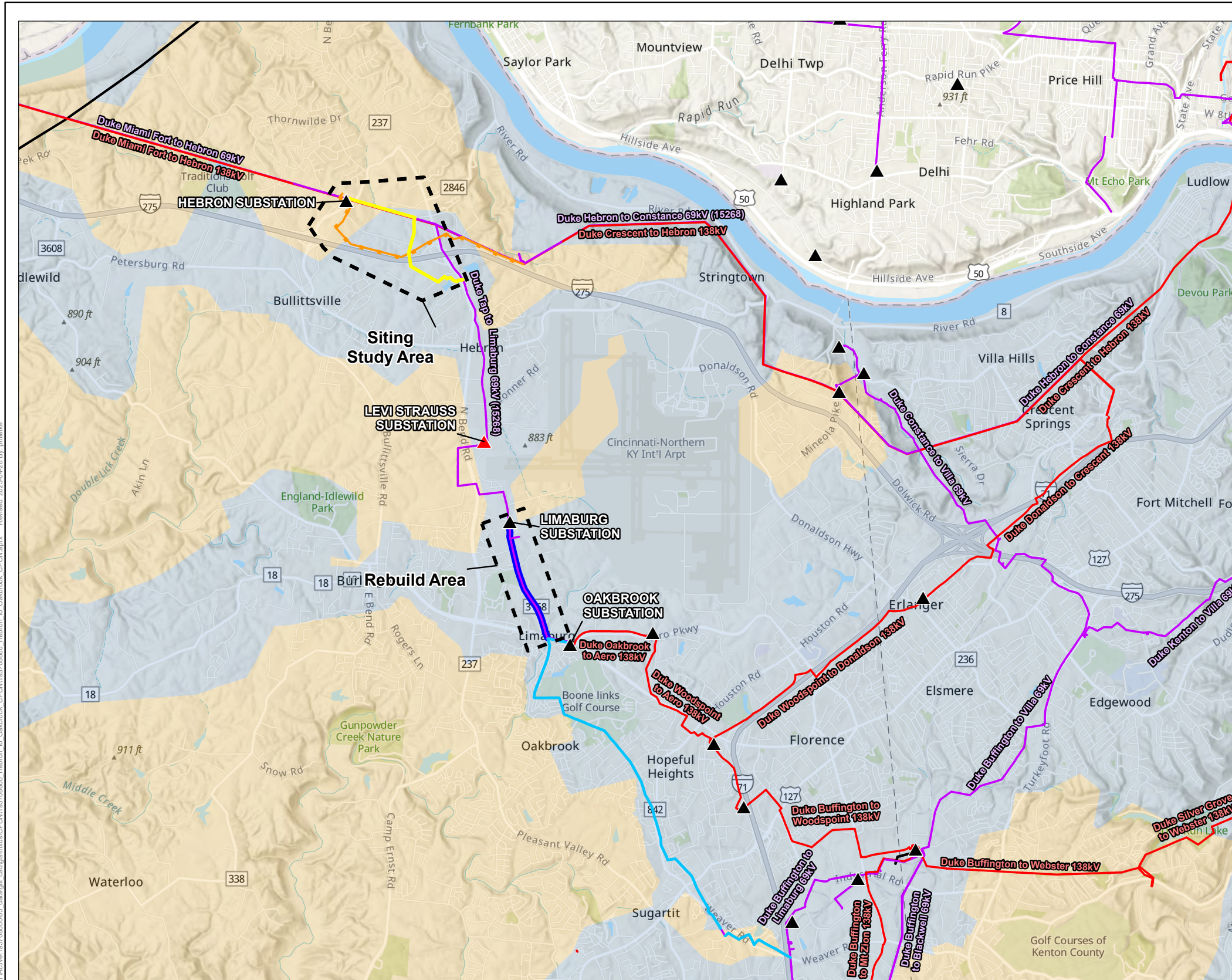
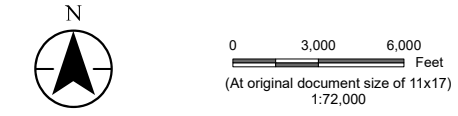
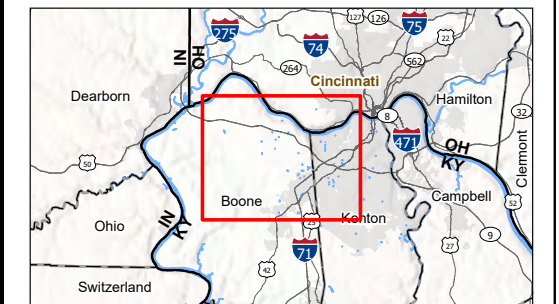


Figure No. **14**
 Title **Present System and Proposed Project Components rev1**
 Client/Project Duke Energy Kentucky 193708666
 Hebron to Oakbrook 138 kV Transmission Line Project

Project Location Boone Co., Kentucky Prepared by PM on 2022-08-23
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08



- Legend**
- Study Area
 - Duke-owned Existing Substation
 - Customer-owned Existing Substation
 - Duke-owned Existing 69 kV Transmission Line
 - Duke-owned Existing 138 kV Transmission Line
 - Duke-owned Existing 345 kV Transmission Line
 - Preferred Route
 - Rebuild Section
 - Proposed EKPC Transmission Line
 - Buffington 6763 Retirement
 - Retail Electric Service Territory
 - DUKE ENERGY KENTUCKY
 - EAST KENTUCKY POWER COOP, INC



- Notes**
1. Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
 2. Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
 3. Background: Esri World Imagery



V:\1937\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx
 Reviewer: 2022-04-28 By: pmmlk
 Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-0014

REQUEST:

Refer to the Application, Exhibits 1-3 and Exhibit 15, the Boutwell Direct Testimony, page 5 lines 8-23 and page 6, lines 1-7. Explain Duke Kentucky's plans for that portion of the existing 69 kV line running north from the Limaburg substation to the proposed interconnection point 138 kV line intersects the existing 69 kV line.

RESPONSE:

In 2024, the existing line between Limaburg Substation and the point where the new 138 kV-constructed (69 kV-energized) line intersects the existing line will be looped through the new Litton distribution supply substation. There are no other current plans for upgrades or modifications to this existing section of the Duke Energy Kentucky 69 kV Feeder 15268. It is anticipated that the loads in this region may eventually exceed the capacity of the 69 kV system. At that time, this line section will be reconstructed to enable operation at 138 kV and the Hebron to Oakbrook circuit will be converted to 138 kV operation.

PERSON RESPONSIBLE: Jeff O. Turner

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

PUBLIC STAFF-DR-02-015
(As to Attachment (a) only)

REQUEST:

Refer to the Application, Exhibits 1-3 and Exhibit 15, the Boutwell Direct Testimony, pages 5- 6 and page 16.

a. Provide the PJM and Duke Kentucky transmission studies that identify any contingencies that will be cured by the proposed projects. Include in the response the “do-no-harm” analysis specifically referenced on Boutwell Direct Testimony, page 16.

b. Provide a map depicting the proposed project and include transmission lines and the Woodspoint and Aero and new Litton substations, as described by Boutwell Direct Testimony.

c. Explain the types of equipment to be installed at the new Litton substation, the total estimated installation cost and why a CPCN for the new Litton substation was not included in the application.

RESPONSE:

CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment (a) only)

a. Please see STAFF-DR-02-015(a) Confidential Attachment which presents a transmission analysis that identifies the contingencies that will be cured by the proposed projects. The PJM “do-no-harm” analysis is intended to verify that a supplemental projected proposed by Duke Energy Kentucky does not cause any baseline violations on

the bulk electric system. No analysis is provided by PJM, beyond notification by PJM that no such violations are found. PJM notified Duke Energy Kentucky of that finding.

b. Please see STAFF-DR-02-015(b) Attachment which depicts the new Woodspoint and Aero substations, the new Woodspoint to Aero and Oakbrook to Aero transmission lines, and the proposed Litton Substation.

c. The transmission equipment to be installed for the new Litton substation project will include 13 direct embedded poles, 954 ACSR conductor, substation takeoff towers and foundations, substation bus, bus support structures and foundations, 10 switches, switch support structures and foundations, control system for switches, and protection and control equipment for switches, bus, and transmission line. The total estimated cost of the transmission equipment for the new Litton substation project is \$2,807,636. The reason that the Litton substation project was not included as part of the application is it is separate standalone project from the Hebron to Oakbrook transmission line project and also the transmission line component of the Litton substation project was significantly less than 1 mile in overall length.

PERSON RESPONSIBLE: Jeff O. Turner – a.
Yanthi W. Boutwell – b., c.

**CONFIDENTIAL PROPRIETARY TRADE
SECRET**

**STAFF-DR-02-015(a)
CONFIDENTIAL ATTACHMENT**

FILED UNDER SEAL

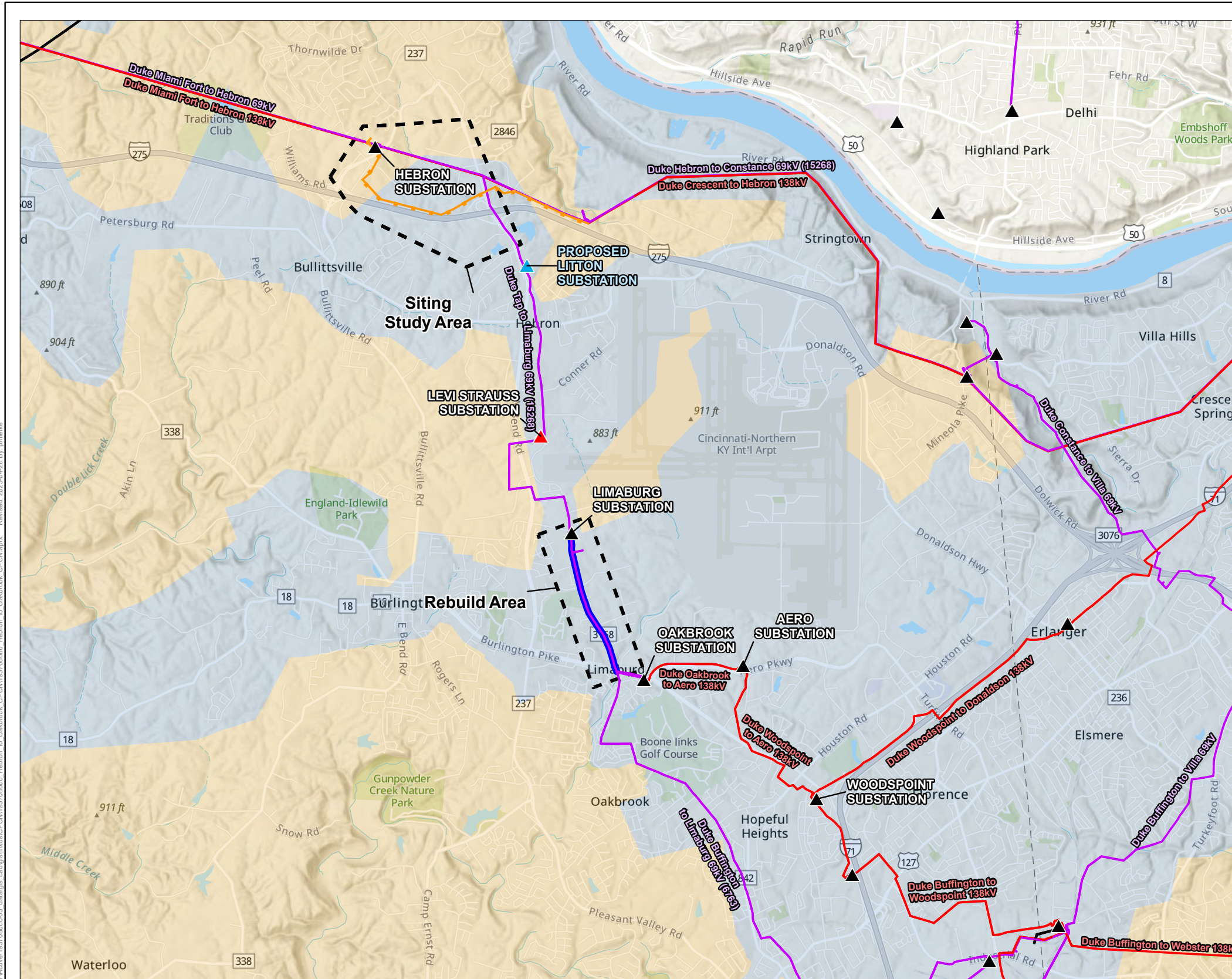


Figure No.
1

Title
STAFF-DR-02-015(b)

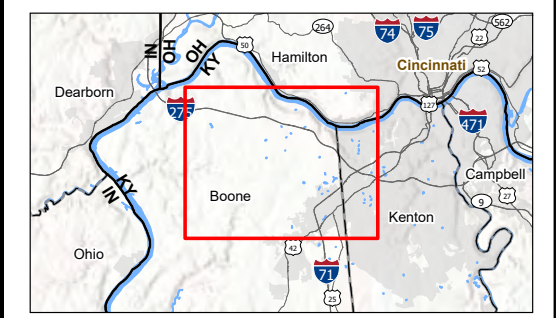
Client/Project
Duke Energy Kentucky
Hebron to Oakbrook 138 kV Transmission Line Project

Project Location
Boone Co., Kentucky

Prepared by PM on 2023-04-27
 TR by BT on 2021-11-09
 IR by TR on 2022-09-08

Legend

- Study Area
- Duke-owned Existing Substation
- Proposed Substation
- Customer-owned Existing Substation
- Duke-owned Existing 69 kV Transmission Line
- Duke-owned Existing 138 kV Transmission Line
- Duke-owned Existing 345 kV Transmission Line
- Rebuild Section
- Proposed EKPC Transmission Line
- Retail Electric Service Territory
- DUKE ENERGY KENTUCKY
- EAST KENTUCKY POWER COOP, INC



Notes

- Coordinate System: NAD 1983 StatePlane Kentucky North FIPS 1601 Feet
- Data Sources: Stantec, Duke, USGS, NADS, PennWell, OSM, EKPC
- Background: Esri Topographic Map



V:\11837\Active\193708666\03_data\gis_cad\gis\mxd\CPCN\193708666_Hebron_to_Oakbrook_CPCN.aprx - Revised: 2023-04-28 By: pmmlk

Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

**Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023**

STAFF-DR-02-016

REQUEST:

Refer to the Application, Exhibit 3. Explain which of the 69 kV lines connecting to the Oakbrook substation are associated with the Buffington #6763 retirement project.

RESPONSE:

The structures closest to KY 18 will be removed except the ones that have distribution lines on them until we reach Duke Energy Kentucky property. Once on Duke Energy Kentucky property we will reconfigure and most structures will remain.

PERSON RESPONSIBLE: John K. Rogers

REQUEST:

Refer to Exhibit 14 and Exhibit 15, and Boutwell Direct Testimony, page 6.

a. With the exception of the proposed project, explain what additional planned electrical infrastructure in the area surrounding the proposed project is Duke Kentucky planning to build and the expected timeline for these additional projects.

b. Explain in detail how the existing and planned electrical infrastructure in the area is not sufficient to serve the anticipated load without the addition of the proposed project. Include in the explanation the existing capacity of the 69 kV line, the anticipated line capacity deficit once the load growth materializes, and the sources of the anticipated load growth. Include all supporting forecasts, load studies and contracts for service to substantiate the answer.

RESPONSE:

a. The following projects are planned:

Litton Substation – New substation to be constructed, to be supplied from existing Feeder 15268 that is planned to become part of the proposed Hebron to Oakbrook circuit. This substation will contain two 69-13.09 kV, 22.4 MVA transformers to supply distribution system load. It is planned for service in 2024.

Oakbrook Substation – Existing substation, presently supplied by 69 V Feeder 6763 and 138 kV Feeder 30689. A second 22.4 MVA transformer, 138-13.09 kV, is to be installed to supply distribution system load. It is planned for service in 2025.

b. The responses to STAFF-DR-02-011(b) and STAFF-DR-02-015(b) cover the existing capacity of the 69 kV lines and the anticipated line capacity constraints without the proposed project. In summary, two existing line sections rated at 459 Amperes will begin to be subjected to overloads for separate single contingencies once the load experiences modest growth from current levels. The projected overloads will start at low levels and increase as the load continues to grow. STAFF-DR-02-011(b) Attachments 1 and 2 prepared by Duke Kentucky Customer Delivery supports the expectation that loading on the impacted facilities will soon exceed their capability.

PERSON RESPONSIBLE: Jeff O. Turner

Duke Energy Kentucky
Case No. 2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-018

REQUEST:

Refer to the Application, Exhibit 14 and Exhibit 15, Boutwell Direct Testimony, page 4 and page 12.

a. Provide the remaining useful life of that portion of the Buffington #6763 circuit to be retired and explain if there are existing issues with that line segment other than the construction of the new proposed circuit that would warrant retirement as opposed to rebuild or repair.

b. For any distribution circuits along Buffington #6763, explain how they will be served once the line segment is retired.

c. Confirm that Duke Kentucky will relinquish its easements associated with the Buffington #6763 as part of the retirement project. If not, explain why not.

d. Explain the timeline for the Buffington #6763 retirement project and how it relates to the proposed project.

RESPONSE:

a. From a transmission standpoint, circuit 6763 is functionally obsolete in the section identified to be retired of Spring 2026. The plan is to retire transmission circuit 6763 from the structures, and the distribution class equipment will remain in-service. The section of line was originally built in the early 1960's and there have been multiple transmission components (conductor, static, hardware, etc.) in addition to poles and crossarms identified and required emergent replacement. Any upgrades to the transmission

conductors and/or static would require a complete rebuild of the line section. Additionally, the existing easement widths do not meet current transmission standards for this voltage class and are more appropriate for distribution class electrical requirements.

b. Existing distribution circuits along Buffington #6763 will remain in place. Once the transmission conductor is removed, the top section of the pole will be cut leaving the pole with distribution asset only.

c. At this point of the design, all poles are to remain in place to support distribution assets. If the design identifies poles that have no distribution assets, we will relinquish easements associated with those transmission poles.

d. Once the rebuild of the section of line from Limaburg to Oakbrook is complete, 6763 circuit will be retired which is to be completed in Spring of 2026.

PERSON RESPONSIBLE: Yanthi W. Boutwell

Duke Energy Kentucky
2022-00364
STAFF Second Set of Data Requests
Date Received: April 19, 2023

STAFF-DR-02-019

REQUEST:

Confirm that Duke Kentucky is requesting to recover the entirety of the cost of this project in its rate case, Case No. 2022-00372.¹ If confirmed, provide justification for its inclusion based on an in-service date of 2025.

RESPONSE:

The Company is not requesting to recover any of the cost of this project in its rate case, Case No. 2022-00372.

PERSON RESPONSIBLE: Lisa D. Steinkuhl

¹ Case No. 2022-00372, *Electronic Application of Duke Energy Kentucky, Inc. For (1) An Adjustment of Electric Rates; (2) Approval of New Tariffs; (3) Approval of Accounting Practices to Establish Regulatory Assets and Liabilities; and (4) All Other Required Approvals and Relief*. (Ky. PSC Dec. 14, 2022).