COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF DUKE ENERGY KENTUCKY, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE PHASE FOUR REPLACEMENT OF THE AM07 PIPELINE	)))))	CASE NO. 2025-00057

DIRECT TESTIMONY OF

KELSEY M. PACE

ON BEHALF OF

DUKE ENERGY KENTUCKY, INC.

March 13, 2025

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Attachment:

CONFIDENTIAL KMP-1 – Detailed Cost Breakdown of Project

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Kelsey M. Pace and my business address is 525 S. Tryon St, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Business Services LLC (DEBS) as Senior Project Manager for Duke Energy Kentucky, Inc. (Duke Energy Kentucky or the Company) and affiliated natural gas utilities. DEBS provides various administrative and other services to Duke Energy Kentucky and other affiliated companies of Duke Energy Corporation (Duke Energy).

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I earned a Bachelor of Science in Civil Engineering from the University of Cincinnati in 2015. In 2018, I obtained my Project Management Professional Certification. I began my career with Duke Energy in 2012 with the Natural Gas Engineering group as an engineering Co-op. My responsibilities included completing pipeline designs and managing gas projects under the supervision of a natural gas full time engineer. In 2015, I assumed the position of project engineer, where my responsibilities included the design of gas mains, street improvements, pressure improvements, maximum allowable operating pressure (MAOP) verification projects, and other gas engineering-related projects. In this role, I was responsible for managing projects from design through construction, including field support. In 2018, I transitioned into the role of Project Manager in the Natural Gas

Major Projects group. My primary responsibilities include management of large infrastructure projects on our high-pressure distribution and transmission pipeline system. I oversee the entire scope of the project, as well as schedule and budget. In 2024, I began my current role as Senior Project Manager.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AS SENIOR PROJECT MANAGER.

A. I am responsible for managing the execution of major projects within the natural gas business unit in Kentucky, North Carolina, and South Carolina. My role includes leading a project team of subject matter experts within the Company and facilitating coordination of project activities while providing oversight of the scope, schedule, and budget. I ensure the projects comply with the Company's requirements for project management best practices and provide reporting to senior management.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss and support Duke Energy Kentucky's request for approval of a certificate of public convenience and necessity (CPCN) to commence construction of the fourth phase of its AM07 natural gas pipeline replacement project (Phase Four). I describe how Duke Energy Kentucky will implement and execute the AM07 Replacement, including, but not limited to,

supporting the construction maps, plans, and specifications. I discuss the cost of the Phase Four construction and how that compares to the alternatives, thereby demonstrating that the AM07 continues to be the least cost and most reasonable solution to meet customer needs and provide safe and reliable natural gas service. I also support the estimated costs of the construction and the ongoing cost of operation for the pipeline project.

II. OVERVIEW OF THE PROJECT

Q. PLEASE BRIEFLY DESCRIBE THE AM07 PIPELINE.

A. AM07 is the primary artery that transports natural gas from upstream suppliers, extending sixteen miles to the Ohio River, and supports natural gas delivery throughout the Duke Energy Kentucky natural gas delivery system via connected pipelines. The AM07 pipeline was constructed in the 1950's, in accordance with existing regulations at the time. Today, AM07 is of a vintage where the materials are no longer industry standard. Duke Energy Kentucky needs to replace certain sections of its AM07 pipeline, totaling approximately 13.7 miles, and associated regulator stations through its Northern Kentucky territory over the next few years to comply with Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSAL FOR THE PHASE FOUR AM07 REPLACEMENT.

A. Duke Energy Kentucky witness Mr. Huey summarizes the total AM07 Replacement project in his direct testimony. For Phase Four of the AM07 Replacement that is the subject of this Application, Duke Energy Kentucky is

proposing to replace approximately 2.5 miles of section of AM07 east of the current AM07 section that is being replaced via Phase Three. The new route, which is approximately 2.3 miles of this 24-inch section will be replaced with new, industry standard material that will comply with PHMSA regulations as detailed by Mr. Huey.

Q. WILL THE NEW PIPELINE BE PHYSICALLY LOCATED IN PUBLIC RIGHTS-OF-WAY OR IN PRIVATE EASEMENTS?

A. Duke Energy Kentucky anticipates approximately 80 percent of Phase Four will be located in private easements that will be obtained with the approval of this Application. Where private easements are not feasible, the Company will locate the Project within existing public rights-of-way.

Q. WILL THE COMPANY NEED TO OBTAIN ANY PERMITS FOR CONSTRUCTION OF THE PROJECT?

A. Yes. Duke Energy Kentucky will have to obtain the following permits/approvals to complete the Project:

a) Kentucky Transportation Cabinet permit to cross state and federal roads and to install the pipeline inside road right-of-way, and construction access;

b) Energy and Environmental Protection Cabinet - Division of Water, Application for a Permit to Construct Along or Across a Stream and/or Water Quality Certification;

c) US Army Corp Section 404/General Nationwide Permit 12 (including Section 7 Threatened and Endangered Species Act of 1973, Section 106

National Historic Preservation Act of 1966, and Section 10 – River and Harbors Act of 1899 clearances);

d) City of Cold Spring stormwater management permit and ROW encroachment permit to cross jurisdictional roads;

e) Coordination with the Kentucky Heritage Council (KHC) regarding cultural resources, including cultural resource investigations/digs and potential viewshed impacts to architectural resources along the project route;

f) Coordination with the U.S. Fish and Wildlife Service (USFWS) and Kentucky Department of Fish and Wildlife Resources (KDFWR) with respect to federal and state endangered, threatened, and otherwise protected species;

g) Sanitation District No. 1 Land Disturbing Permit; and

h) KDOW Construction Storm Water Permit KYR10.

Duke Energy Kentucky has already applied for parts (a), (e), and (f). Part (f) has already been approved. Parts (b) and (c) will be applied for in the coming weeks while parts (d), (g), and (h) will be applied for closer to construction as those permits are required immediately before actual construction begins. There has been no indication that the permit applications will not be approved. The Company will supplement the application as the remaining permit approvals are received.

Q. HAS THE COMPANY DEVELOPED CONSTRUCTION SPECIFICATIONS TO BE USED IN THE PROJECT?

A. Yes. Confidential Exhibit 4 to the Application contains, among other things, maps depicting the location of the proposed Project along the Company's natural gas delivery system, engineering plans, drawings, and the construction specifications for the Project. Confidential Exhibit 4 shows the connection of the new route to the existing delivery system, the design of the Project and proposed route for the new 24-inch steel pipeline. Due to the sensitive nature of gas utility infrastructure, Confidential Exhibit 4 is being provided under petition for confidential treatment.

Q. IS THE DESIGN OF THE PROJECT SUBSTANTIALLY COMPLETE?

A. Yes. Duke Energy Kentucky has submitted stamped engineering drawings for the Project depicting the design and route for the Project in Confidential Exhibit 4. The route is based upon best available information at this time, acknowledging that Duke Energy Kentucky must still complete negotiations and acquisitions for private easements where applicable along the route. The Company anticipates that there may be minor deviations in the estimated length and location of the pipe due to not wanting to interfere with trees, fences, power poles, sewers, water mains, municipal right of way issues, and in accordance with any restrictions in acquired easements that are yet to be determined.

Q. PLEASE DESCRIBE HOW THE PROJECT WILL BE CONSTRUCTED.

A. The new pipeline will be constructed in accordance with Duke Energy Kentucky's work specifications, standards, and procedures. Confidential Exhibit 4 contains these work specifications. The Company and contractor crews are qualified to

perform the work in accordance with design specifications prior to installing any facilities. Duke Energy Kentucky personnel will provide oversight to any contractor crews installing facilities on the Company's behalf.

Q. PLEASE BRIEFLY DESCRIBE HOW THE COMPANY WILL EXECUTE AND COMPLETE CONSTRUCTION UNDER THE PROJECT.

A. Duke Energy Kentucky will use both Company and contractor crews where appropriate to complete this project. If contractor crews are deployed, awarding of contracts will be accomplished through a bidding process similar to that the Company has successfully employed in prior construction projects, such as previous phases of the AM07 and the UL60 Pipeline. Duke Energy Kentucky will use industry standard equipment, materials, and designs to construct the pipeline in accordance with the work specifications.

Q. WHAT IS THE ESTIMATED TIMELINE FOR CONSTRUCTION OF THE PROJECT?

A. The estimated timeline is dependent upon the approval of the project. Duke Energy Kentucky has developed the below timeline with key milestones to ensure the Phase Four of the AM07 Replacement is completed in time to comply with PHMSA requirements as explained by Mr. Huey. This schedule is based upon the Company receiving CPCN approval by fourth quarter of 2025, to allow sufficient time to make necessary procurements, easement acquisitions and commence construction in the spring of 2026. The entire project is projected to be in service by October 2026.

Estimated Project Schedule

February 2025	Design substantially complete
August 2025	Design complete Bid for construction
January 2026	Award construction contract
Q4 2025	Anticipated CPCN Approval
March 2026	Construction begins
October 2026	Project in service*

***** Assumes no delays in outstanding approvals/permitting.

Q. WHAT IS THE ESTIMATED COST OF CONSTRUCTION FOR PHASE FOUR?

A. The current estimated project cost is approximately $43.1 million dollars as detailed in the chart below. Please refer to Confidential Attachment KMP-1 which shows a detailed cost breakdown of the various areas of cost associated with the project. A summary of the costs is as follows:

Task	**Total in millions**
Design	$2.2
Land	$3.9
Construction	$32.4
Materials	$4.6

The current estimated costs of the AM07 replacement are approximately $227.6 million. This estimate includes inflationary costs that the Company has experienced during Phase One due primarily to higher than initially estimated easement and right-of way acquisition costs, increases in labor and materials expenses for contractors, and inflation due to supply chain constraints.[1]

[1] *See In the Matter of the Electronic Application of Duke Energy Kentucky, Inc. for a Certificate of Public Convenience and Necessity Authorizing the Phase One Replacement of the AM07 Pipeline*, Case No. 2022-00084, Post Case Correspondence Letter (Jun. 14, 2023), explaining increased costs for Phase One.

Q. HOW WAS THAT ESTIMATE DERIVED?

A. This Class 4 (-30%/+50%) estimate is based on the pricing Duke Energy Kentucky has already received for design services and anticipated expenses for easement acquisition and construction (labor and materials). Duke Energy Kentucky compared these figures to other recently completed projects and it is confident in the estimate being provided.

Q. WHAT IS THE ESTIMATED ONGOING COST OF OPERATION OF THE NEW PIPELINE ONCE CONSTRUCTED?

A. The Company anticipates that there will be minimal (<$10,000 per year) incremental operational and maintenance expense (O&M) associated with the ongoing operation of the new pipeline except for required periodic inspections and/or testing. The Company does not anticipate that operations & maintenance (O&M) expense will be different to maintain the new pipeline than it is to maintain the old pipeline. The Company does not track O&M by project. The Company only tracks O&M by FERC account number, and these costs are recorded to FERC Account 863.

III. COST EFFECTIVENESS OF PIPELINE REPLACEMENT VERSUS RETROFIT

Q. PLEASE EXPLAIN WHY THE AM07 REPLACEMENT IS BETTER FOR CUSTOMERS THAN A RETROFIT?

A. The existing AM07 pipeline is of a vintage that predates current PHMSA requirements that require a baseline pressure test for all transmission pipelines. As previously explained, the records of initial pressure tests simply do not currently exist. Therefore, an initial pressure test is required regardless of retrofit or

replacement. Because, the material of the AM07, A.O. Smith manufacturer is now a known integrity risk, performing a pressure test presents significant risks on the existing pipeline because of unknown issues that may be discovered due to failures, which may prompt replacements. Also, the design of the existing AM07 does not accommodate the use of an in-line inspection (ILI) tool. Therefore, the existing AM07 would either need to be pressure tested to establish a baseline with ongoing pressure test confirmations or retrofit to accommodate an ILI tool going forward.

Q. PLEASE FURTHER DISCUSS THE PRESSURE TESTING ALTERNATIVE TO REPLACEMENT.

A. The estimated cost of hydro pressure testing of this existing section of pipeline (excluding retrofit), is approximately $11 million. This does not include any costs to repair deficiencies identified while performing the hydrotest. Additional costs to repair discovered deficiencies would be incremental and would take the line out of service for additional time and at an unknown and incalculable incremental cost, especially considering the risks to the system and customer reliability related to continuing natural gas service if the repairs could not be accommodated to put the line back in service in time for winter heating seasons. Additionally, a hydrotest of AM07 Phase Four pipeline would be required on a 7-year cycle at an approximate cost of $11 million (not including inflation) each time the hydrotest is performed as opposed to the $43.1 million upfront cost to replace the line and perform an ILI every 7 years.

Q. PLEASE EXPLAIN THE DIFFERENCE BETWEEN PRESSURE TESTING AND ILI.

A. The purposes of pressure testing and ILI inspections are different. Pressure testing establishes and confirms the strength of the pipeline at the time of initial installation or at the time of a transmission integrity management program (TIMP) assessment (i.e., hypothetical retrofit and pressure test), which is now required per PHMSA CFR 192. The ILI is an ongoing integrity management inspection tool that can easily be used for the duration of the pipeline's life going forward. It is used to check for pipe wall loss due to dents, gouges, or corrosion related to third party damage that may develop during the lifetime operation of the pipeline. Unlike pressure testing, an ILI inspection can be performed out of cycle and without taking the pipeline out of service. Accordingly, both ILI and Pressure Testing are necessary going forward to meet PHMSA requirements for new pipelines. And ILI and Pressure Testing would be required for a hypothetical retrofit where existing records do not exist to confirm pressure. With a retrofit strategy, there are additional risks in which a failure of a pressure test could make a retrofit of the existing pipeline impractical, if not impossible, as a full replacement at additional and incremental costs could then be required.

Q. PLEASE FURTHER DISCUSS THE ILI ALTERNATIVE TO REPLACEMENT.

A. Even with an ILI, an initial pressure test must occur at an initial cost of approximately $11 million, exclusive of any unknown and unpredictable deficiencies that are identified and need corrected. The estimated costs of

retrofitting existing pipeline to accommodate an ILI tool is approximately $8.75 million. This cost is separate from a hydrotest cost that would still need to be done. Then, ongoing, the inspection must occur every seven years to comply with CFR 192 Subpart O – Gas Transmission Pipeline Integrity Management requirements. A typical In line inspection on a seven-year basis would cost approximately $400,000-$500,000. This does not include the cost for any retrofit work that is found as a result of the ILI work itself.

Q. WILL ILI AND PRESSURE TESTING BE REQUIRED FOR THE AM07 REPLACEMENT?

A. Per CFR 192 PHMSA regulations, pressure testing must occur on any pipe that is to be placed in service. Pressure testing for new construction ensures a leak free system and validates the mechanical strength of all components in that pipeline. Additionally, pressure testing is one of four options to assess TIMP risk. Those four include, pressure testing, in-line inspection, direct assessment, or replacement.

Part of the Phase Four segment of pipe required a TIMP pressure test to mitigate manufacturing threats associated with insufficient pressure test records at time of installation in the 1950s. While a valid pressure test provides the level of requirement needed to satisfy the pipelines ability to handle the operating pressure, it does not provide the level of detail regarding physical integrity of the pipeline that an in-line inspection otherwise would. As is the case, both ILI retrofit work and pressure testing would need to be employed to maximize the potential for a successful pressure test and to minimize the risk of pipe failure during the pressure testing activity.

Q. IF ILI AND PRESSURE TESTING ARE REQUIRED FOR BOTH A RETROFIT AND A REPLACEMENT, PLEASE EXPLAIN WHY A REPLACEMENT STRATEGY IS THE BEST SOLUTION AND LEAST COST SOLUTION FOR CUSTOMERS.

A. Liquid natural gas (LNG) would be needed for all phases of a hypothetical AM07 retrofit and pressure test because the Company would need to take segments out of service for an extended period of time (e.g., weeks) to maintain customer service. Once the hypothetical retrofit would be completed, LNG would not be needed for ongoing ILI inspections (absent an integrity issue being discovered) because ILI inspections can be performed while the pipeline is in operation. In instances where pressure testing is selected for TIMP risk mitigation purposes, consideration for a customer's natural gas usage must be implemented while facilities are out of service to facilitate pressure testing. Temporary LNG would be required.

The cost associated with each phase of a hypothetical retrofit and pressure test for each phase and corresponding activities is broken down as follows:

- Phase I (4.5 miles): ILI Retrofit work - $15,750,000 ($3.5 million/mile)
  Temp LNG and Pressure Testing: $14,750,000
  Permanent receiver barrel: $3,375,000
- Phase II (3.25 miles): ILI Retrofit work - $11,375,000 ($3.5 million/mile)
  Temp LNG and Pressure testing: $12,350,000
- Phase III (4.3 miles): ILI Retrofit work - $15,050,000 ($3.5 million/mile)

Temp LNG and Pressure testing: $14,750,000

- Phase IV (2.5 miles): ILI Retrofit work - $8,750,000 ($3.5 million/mile)

Temp LNG and Pressure testing: $11,000,000

Permanent receiver barrel: $3,375,000

- Phase V (1.9 miles): ILI Retrofit work - $6,650,000 ($3.5 million/mile)

Temp LNG and Pressure testing: $10,000,000

For these reasons, the Company, with Commission authorization, has endeavored to replace (not retrofit) the existing AM07 in segments.

IV. FILING REQUIREMENTS SPONSORED BY WITNESS

Q. PLEASE DESCRIBE THE FILING REQUIREMENTS CONTAINED IN THE COMPANY'S APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY THAT YOU ARE SPONSORING AND SUPPORTING.

A. I sponsor data that is responsive to the filing requirements in accordance with 807 KAR 5:001:

- Exhibits 3(a) through (f), Section 15(2)(b): permits required for construction; and
- Confidential Exhibit 4; Section 15(2)(c), Section 15(2)(d)(1)-(2), and Section 15(2)(e): Full description of the proposed location, route, or routes, including a description of the manner in which the facilities will be constructed, drawings, and map of the construction area, and work specifications.

V. CONCLUSION

Q. WERE EXHIBITS 3 AND 4 TO THE COMPANY'S APPLICATION AND CONFIDENTIAL ATTACHMENT KMP-1 PREPARED BY YOU OR UNDER YOUR DIRECTION AND CONTROL?

A. Yes.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

VERIFICATION

STATE OF NORTH CAROLINA)
) **SS:**
COUNTY OF MECKLENBURG)

The undersigned, Kelsey Pace, Sr. Project Manager, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing testimony, and that it is true and correct to the best of her knowledge, information, and belief.

Kelsey Pace Affiant

Subscribed and sworn to before me by Kelsey Pace on this 24th day of February 2025.

NOTARY PUBLIC

RAINA LAGLENNE
Notary Public, North Carolina
Union County
My Commission Expires
November 04, 2028

My Commission Expires:

11/4/28