Duke Energy Ohio Exhibit _____

BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Annual Application of Duke Energy Ohio, Inc. for an Adjustment to Rider AMRP Rates.	)))	Case No. 15-1904-GA-RDR
In the Matter of the Application of Duke Energy Ohio, Inc. for Tariff Approval.	))	Case No. 15-1905-GA-ATA

DIRECT TESTIMONY OF

GARY J. HEBBELER

ON BEHALF OF

DUKE ENERGY OHIO, INC.

February 22, 2016

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I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Gary J. Hebbeler and my business address is 139 East Fourth Street, Cincinnati, Ohio 45202.

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

A. I am employed by Duke Energy Business Services LLC (DEBS) as General Manager, Gas Field and System Operations, for Duke Energy Ohio, Inc., (Duke Energy Ohio or the Company) and Duke Energy Kentucky, Inc. (Duke Energy Kentucky). DEBS provides various administrative and other services to Duke Energy Ohio and other affiliated companies of Duke Energy Corporation (Duke Energy).

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I am a graduate of the University of Kentucky, where I obtained my Bachelor of Science in Civil Engineering. In 1994, I obtained my license as a Professional Engineer in the Commonwealth of Kentucky and, by reciprocity, later in the State of Ohio.

I began working for The Cincinnati Gas & Electric Company (CG&E), and the Union Light Heat and Power Company (ULH&P), predecessors to the Company and Duke Energy Kentucky, respectively, in 1987, as an engineer in the Gas Engineering Department. I initially worked as a project engineer and was responsible for designing gas mains and water lines, coordinating projects with governmental agencies and consulting firms, calculating pipe capacity and stress,

and evaluating company paving standards and designs. Until 1998, I worked for CG&E/ULH&P, and later for Cinergy Services, Inc., all of which were subsidiaries of Cinergy Corp. I was Vice President for Michels Concrete Construction, Inc., during 1998 and returned to Cinergy Corp.'s Gas Engineering Department in 1999. In 2000, I was promoted to Manager, Contractor Construction. In this position, I helped design the Accelerated Main Replacement Programs (AMRP) for both Ohio and Kentucky. I also managed the construction activities for replacing the cast iron and bare steel pipe under the AMRP. In 2002, I was promoted to Manager, Gas Engineering. I was responsible for managing the engineering activities and the capital expenditures for Gas Operations in the gas distributions systems of Duke Energy Ohio and Duke Energy Kentucky. In 2006, I was promoted to General Manager, Gas Engineering. In addition to my continued responsibilities for gas engineering activities and capital expenditures, I was responsible for construction activities for the AMRP, street improvements, pressure improvements, and major projects. In September 2010, I was promoted to my current position of General Manager, Gas Field and System Operations.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO?

A. Yes, I have testified in several proceedings before the Public Utilities Commission of Ohio (Commission).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THESE PROCEEDINGS?

A. The purpose of my testimony is to explain the construction and management practices of Duke Energy Ohio as they relate to the AMRP for construction activities during calendar year 2015.

II. DESCRIPTION OF THE AMRP

Q. PLEASE GENERALLY DESCRIBE THE AMRP.

A. Duke Energy Ohio adopted the AMRP in 2000, with construction beginning in 2001, to accelerate its replacement schedule for cast iron and bare steel mains and associated service lines, in order to improve the safety and reliability of Duke Energy Ohio's natural gas distribution system.

When Duke Energy Ohio adopted this program, its cast iron pipe in service dated back to 1873 and its bare steel pipe in service dated back to 1884. Cast iron and bare steel pipe, however, are more prone to leaks than plastic and coated, cathodically protected steel, which are now the materials of choice for main construction throughout the United States. In 1971, the U.S. Department of Transportation (US DOT) adopted regulations removing cast iron from its list of approved materials for new pipe construction.

Duke Energy Ohio adopted formal cast iron and bare steel main replacement programs in 1988 and 1989, respectively. Each formal program consisted of an internally developed program used in conjunction with two commercially available programs; namely, the Cast Iron Maintenance Optimization System (CIMOS®) and the Bare Steel Maintenance Optimization

System (BSMOS®), respectively. These programs identified certain factors associated with cast iron and bare steel main activities, such as year installed, operating pressure, length of pipe, and number of prior activities. The programs then generated a ranking system that Duke Energy Ohio used to determine which sections of cast iron and bare steel main to replace.

Under the CIMOS® and BSMOS® programs, Duke Energy Ohio was replacing the cast iron and bare steel mains on a replacement schedule that would have taken approximately 90 years to complete. By that time, the mains that Duke Energy Ohio would have been replacing would have been over 200 years old.

Q. PLEASE DESCRIBE THE PROGRESS DUKE ENERGY OHIO HAS MADE IN INSTALLLING NEW MAINS AND SERVICE LINES SINCE INITIATING THE AMRP.

A. Duke Energy Ohio's gas distribution system consists of approximately 5,588 miles of distribution mains. Prior to commencing the AMRP, Duke Energy Ohio had approximately 1,200 miles of cast iron and bare steel main in service. As reflected in the following table, Duke Energy Ohio has replaced approximately 1,133 miles of cast iron and bare steel mains since starting the AMRP construction in 2001:

Year	Miles Replaced
2001	70
2002	102
2003	103
2004	99
2005	99
2006	86
2007	80
2008	76
2009	80
2010	70
2011	76
2012	73
2013	47
2014	56
2015	16

Duke Energy Ohio has also replaced approximately 120,000 main-to-curb service lines. Duke Energy Ohio has completed the replacement of the cast iron and bare steel mains, according to Company mapping records. The original number of miles was determined from the 1999 end-of-year report because the project was actually proposed in 2000 and construction started in 2001. Ten miles of cast iron and bare steel was replaced in 2000 while the program was being discussed. The balance of miles is a true-up for the difference in mapping miles and what was in plant.

Q. WHY DID THE MILES OF MAIN REPLACED DECLINE SINCE 2005?

A. Duke Energy Ohio has managed to keep costs at the lowest possible levels because over approximately 95% of the annual AMRP work is done using outside contractors selected through a competitive bidding process. The competitive bidding process allows Duke Energy Ohio to award contracts to the lowest and best bidder. The Company has made investments in the AMRP each year, consistent with the rate cap levels established by the Commission's May 30, 2002, Order in Case No. 01-1228-GA-AIR, *et al.*, May 28, 2008, Order in Case No. 07-589-GA-AIR, *et al.*, and the November 13, 2013, Order in Case No. 12-1685-GA-AIR, *et al.* There are three basic reasons why the number of miles Duke Energy Ohio can replace with this level of investment has declined recently.

First, general inflation has prevented the Company from replacing the same number of miles of main with the same level of investment. Costs for construction materials and labor have increased significantly since 2005. In my opinion, these cost increases result from other utilities adopting main and riser replacement programs similar to the AMRP and Riser Replacement Program and also adopting integrity management programs in response to new gas pipeline safety regulations promulgated by the US DOT.

Second, the Company adopted new installation procedures in 2006 in response to an incident in Middletown, Ohio, where a gas line breached a sewer line. This circumstance was not discovered until a plumber augered out the clogged sewer line. The plumber's auger pierced the gas line and caused an explosion. Prior to this incident, Duke Energy Ohio relied on municipalities to

provide records of where their sewer lines were located. After this incident, however, the Company's investigation revealed that some municipalities do not maintain reliable records of sewer locations. To promote the safety of the general public and Duke Energy Ohio's customers and employees, the Company changed its installation practices to perform a pre-locate of the sewer lines before gas main installation and to video-camera the location of the sewers after the gas main installation. This additional work allowed the Company to confirm that no sewer line is breached during the gas main installation process. The Company also limited the situations where it will allow installation of curb-to-meter service lines using directional drilling. These new installation procedures have increased AMRP costs but safety compels that the Company follow these additional procedures.

Third, the Company began replacing gas mains in more urban locations, where more of the gas lines tend to be located under paved surfaces. This increased the labor, material, and restoration costs necessary to replace the gas mains and to restore the construction site to an acceptable condition. In addition, Duke Energy Ohio encountered more gas service lines in unacceptable locations. The US DOT's gas pipeline safety regulations require that gas service lines be installed in locations that will not present safety hazards if a leak occurs. Relocating the new gas service lines to a different, accessible location often increased costs.

Q. PLEASE DISCUSS THE BENEFITS OF THE AMRP PROGRAM TO CUSTOMERS.

A. The AMRP has been quite successful in allowing Duke Energy Ohio to eliminate the cast iron and bare steel mains in its distribution system. This has resulted in substantial benefits to Duke Energy Ohio's customers and to the public at large.

Customers and the public at large benefit from the improved safety and reliability of Duke Energy Ohio's natural gas distribution service. One key safety measure of the AMRP's success is the leak rate for Duke Energy Ohio's gas distribution system. The incidence of leaks repaired (excluding damages) has decreased significantly, from 6,223 in 2002 to approximately 3,760 in 2014. In addition, the severity of leaks reported has been reduced. Customer outages resulting from water infiltration have also been reduced, thereby mitigating costly emergency repairs and minimizing inconvenience to customers.

This reduced incidence of leaks has caused Duke Energy Ohio's maintenance accounts associated with leaks to decline from approximately $6.4 million in 2001 to $4.1 million in 2015. To date, customers have realized approximately $30.3 million in maintenance savings through Rider AMRP. These maintenance savings have been returned to customers through the Rider AMRP tracking mechanism. Additionally, the maintenance savings were reflected in the 2012 rate case. Customers also benefit from Rider AMRP because Duke Energy Ohio has not had to file frequent and costly general gas rate cases to recover its capital expenditures for the AMRP. The Commission has conducted

annual Rider AMRP proceedings for Duke Energy Ohio to update this tracking mechanism in an efficient and expeditious manner.

In addition to these significant benefits, Duke Energy Ohio has been able to coordinate certain construction activities with governmental agencies, thereby reducing costs and limiting the inconvenience to the public. For example, Duke Energy Ohio coordinated the replacement of natural gas facilities with governmental agencies' road improvement projects. It also provided a long-term construction schedule, which enabled these agencies to identify those future projects that may benefit from a coordinated effort. The Company has also been able to better integrate the existing natural gas distribution system. Prior to starting the AMRP, Duke Energy Ohio's natural gas service territory included areas where pressures were lowered to reduce leaks resulting from deteriorated facilities. This, in turn, resulted in the system being segregated. The AMRP allowed Duke Energy Ohio to increase pressures without having to incur costs associated with the construction of pressure improvements.

Finally, Duke Energy Ohio assumes ownership of the curb-to-meter services when installing new services, replacing an existing service, or renewing a riser. Given its expertise, as compared to the customer, Duke Energy Ohio is better positioned to determine when equipment needs to be replaced.

Q. PLEASE EXPLAIN DUKE ENERGY OHIO'S INTEGRITY MANAGEMENT PROGRAMS.

A. Duke Energy Ohio developed its Hazardous Liquid Integrity Management Program (HLIMP) and Transmission Integrity Management Program (TIMP) in

response to federal legislation issued in 2000 and 2002, respectively and accompanying Code of Federal Regulations (CFR) Title 49 Part 192 Subpart O and Part 195 Subpart F, issued by the Pipeline and Hazardous Material Safety Administration (PHMSA), US DOT. These regulations require operators of hazardous liquid pipelines and natural gas transmission pipelines to provide enhanced pipeline safety inspection and testing activities for their facilities. The regulations also require the hazardous liquid pipeline and natural gas transmission pipeline operators to develop programs to identify all heavily populated areas traversed by their pipelines, develop a baseline assessment plan, conduct periodic risk assessments, and implement certain preventative maintenance procedures.

Duke Energy Ohio's TIMP and HLIMP, developed in 2004, reflect a comprehensive, systematic approach to maintain and improve the safety of the Company's hazardous liquid and transmission pipeline system. Both are comprised of five separate plans – Integrity Management Plan, Performance Plan, Communications Plan, Management of Change Plan, and Quality Control Plan – that provide the foundation for the program and include the processes and procedures necessary to comply with the laws and regulations.

The ongoing integrity activities for 2016 include: identifying high consequence areas, evaluating pipeline threats and conducting risk assessments for each covered pipeline segment, identifying and implementing additional preventative and mitigative measures, conducting integrity assessments, remediating conditions found during integrity assessments, implementing a new risk analysis software, and developing a plan to increase the use of inline

inspection and pressure testing. In the Duke Energy Ohio system, the total length of natural gas transmission lines is 64 miles and total length of hazardous liquids lines is 4 miles.

Duke Energy Ohio developed its Distribution Integrity Management Program (DIMP) in response to federal legislation, CFR Title 49 Part 192, Subpart P issued in 2010 and accompanying regulations issued by the PHMSA. These regulations require operators of natural gas distribution pipelines to develop and implement an integrity management program that includes a written integrity management plan.

Duke Energy Ohio's DIMP was developed in 2011 and became effective August 2, 2011. This program is a comprehensive systematic approach to maintain and improve the safety of the Company's distribution pipeline system. The DIMP comprises seven key elements: (1) Knowledge of System; (2) Identify Threats; (3) Evaluate and Rank Risks; (4) Identify and Implement Measures to Address Risks; (5) Measure Performance, Monitor Results, and Evaluate Effectiveness; (6) Periodic Evaluation and Improvement; and (7) Report Results. This information provides the foundation for the program and includes the processes and procedures necessary to comply with the laws and regulations.

The ongoing integrity activities for 2016 include: reviewing available facility data, identifying and evaluating threats, evaluating and ranking risk to the distribution system, conducting root cause analysis, identifying and implementing additional measures to address risk, monitoring performance of the program and evaluating effectiveness, develop a records improvement strategy, and submitting

annual reports to document results of the program. The top risk categories identified within the DIMP are excavation damage, corrosion, and natural forces. Excavation damage includes risk from third-party contractors and difficult-to-locate facilities. Corrosion risk includes metallic, non-protected mains and services. Natural forces risk includes steel and copper services and certain types of non-restrained coupled main.

Q. HOW HAS DUKE ENERGY OHIO PLANNED FOR CAST IRON AND BARE STEEL MAIN REPLACEMENT UNDER THE AMRP?

A. The AMRP is designed to replace the cast iron and bare steel, along with the associated metallic services in the system.

The AMRP consist of four types of projects: Modules, CIMOS®, BSMOS®, and Street Improvements. The Module work encompasses two- to five-mile replacement segments and is a proactive program to replace cast iron and bare steel. CIMOS® and BSMOS® are responsive programs to replace the cast iron and bare steel in the system with the highest possibility of developing future incidents. Street Improvement work involves replacing cast iron and bare steel pipe as a result of projects initiated by governmental entities. In addition to replacing cast iron and bare steel mains, Duke Energy Ohio replaces associated services as part of the AMRP.

Q. IN 2014, DID DUKE ENERGY OHIO FOLLOW ITS PRACTICE OF USING UNIT-BASED PRICES FOR THE AMRP PROGRAM, EXCEPT IN SITUATIONS OUTLINED IN PARAGRAPH 7 OF THE 2004 AMRP STIPULATION?

A. Yes. During 2015, Duke Energy Ohio used unit-based prices for the contracts and paid contractors the unit-based prices specified in the contracts, except for the types of situations outlined in the Stipulation:[1] (a) in the case of unanticipated conditions, such as unusual field conditions not contemplated by the parties; (b) where a governmental entity imposed additional construction requirements for work within the right-of-way; (c) where a greater number of units was required for the actual work versus the number of units contemplated in the plan drawings; or (d) for certain types of construction activities where Duke Energy Ohio determined that it would result in lower costs for the contractor to perform the work under other price methods such as on a time and materials basis.

Q. AT PARAGRAPH 11 OF THE 2004 AMRP STIPULATION, DUKE ENERGY OHIO AGREED TO EXPLAIN WHY IT SELECTED THE AREAS SCHEDULED FOR MODULE WORK UNDER THE AMRP IN 2014, INCLUDING THE REASONS WHY DUKE ENERGY OHIO SELECTED EACH AREA, BASED ON SAFETY, RELIABILITY, AND PERMITTING CONSIDERATIONS. PLEASE EXPLAIN HOW DUKE ENERGY OHIO SELECTED THE MODULES FOR THE AMRP FOR 2015 BASED ON THESE CONSIDERATIONS.

A. The module work is divided into nine categories, ranked from the highest potential for reportable incidents first. Duke Energy Ohio also considers system integrity, permit requirements, and public safety. System integrity is taken into account when a large portion of a system is under construction. The Company

[1] *In the Matter of the Application of the Cincinnati Gas & Electric Company for an Increase in Gas Rates in Its Service Area,* Case No. 01-1228-GA-AIR, *et al.*, Stipulation and Recommendation (April 7, 2004).

evaluates system integrity factors such as location of tie-ins, flow, system pressures, and the time of year the tie-ins will be performed. Permitting agencies require an orderly construction methodology so that an entire municipality will not be directly affected, causing hardship throughout for municipal residents and employees. Finally, flow of traffic must be considered for the traveling public. Four of the modules constructed in 2015 were in the priority-one category. One of the modules constructed in 2015 was in the priority-seven category. Five of the modules constructed in 2015 were in the priority-eight category. The remaining modules were in the priority-one or -nine category, which spread the work over more of the system to reduce the hardship on particular communities. This enabled Duke Energy Ohio to address safety considerations, maintain system integrity, abide by permitting requirements, and maintain safety to the traveling public for all construction activities.

III. CONCLUSION

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Summary: Testimony Direct Testimony of Gary J. Hebbeler on Behalf of Duke Energy Ohio, Inc. electronically filed by Mrs. Adele M. Frisch on behalf of Duke Energy Ohio, Inc. and Kingery, Jeanne W and Spiller, Amy B