

**CARLISLE-JOHNSON 138 kV TRANSMISSION LINE TAP** TO THE FIELDSTONE SUBSTATION

> OPSB CASE NO.: 07- 145 -EL-BLN

> > **February 9, 2007**

American Transmission Systems, Incorporated 76 South Main Street Akron, Ohio 44308 and **Ohio Edison Company** 76 South Main Street Akron, Ohio 44308

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# LETTER OF NOTIFICATION CARLISLE-JOHNSON 138 kV TRANSMISSION LINE TAP TO THE FIELDSTONE SUBSTATION

The following information is being provided in accordance with the procedures delineated in Ohio Administrative Code Section 4906-11-01: <u>Letter of Notification Requirements</u> of the Rules and Regulations of the Ohio Power Siting Board.

#### 4906-11-01 (A) (1): a. Name and Reference Number

Name of Project:Carlisle-Johnson 138 kV Transmission Line Tap to theFieldstone Substation Project ("Project")

2006 LTFR Reference: This Project is not identified in FirstEnergy Corp.'s 2006 Electric Long-Term Forecast Report ("LTFR") submitted to the Public Utility Commission of Ohio in Case Number 06-0504-EL-FOR.

# 4906-11-01 (A) (1): b. Brief Description of Project

In the Carlisle-Johnson 138 kV Transmission Line Tap to the Fieldstone Substation Project, American Transmission Systems, Incorporated ("ATSI") and Ohio Edison Company ("OE"), subsidiaries of FirstEnergy Corp., are proposing to install an approximately 75 feet (0.02 mile) long, single circuit radial transmission line tap from an existing ATSI transmission line to a new OE distribution substation. The transmission line tap will extend from the existing Carlisle-Johnson 138 kV transmission line to the new Fieldstone Substation which is being installed adjacent to the west side of the existing transmission line. As a part of installing the transmission line tap, two new poles will be installed for the transmission line tap, five new poles will be installed in the existing transmission line to support two switches and the tap connection, and one existing transmission line pole will be removed. The Project area is located approximately 190 feet south of Chestnut Ridge Road and approximately

725 feet east of State Route 57 in and in Eaton Township, Lorain County, Ohio and in close proximity to the City of Elyria.

The general location of the Project is shown in Exhibit 1, which is a partial copy of the United States Geologic Survey, Grafton Ohio Quad Map, ID number 41082-C1. Exhibit 2 shows the general arrangement of the proposed Project. The existing Carlisle-Johnson 138 kV transmission line, along with the Carlisle-Lorain 138 kV transmission line, are part of a double circuit transmission line supported primarily on single wood pole structures that trend north to south in the Project area. This existing double circuit transmission line is located approximately 725 feet east of SR 57.

The proposed Carlisle-Johnson 138 kV Transmission Line Tap to the Fieldstone Substation is located in the vicinity of the first existing transmission line pole south of Chestnut Ridge Road. This existing pole in the transmission line will be removed. Two new switch structures, shown in Exhibit 3, and an adjoining tangent pole, shown in Exhibit 7, will be installed in the existing transmission lines approximately 120 feet north and 50 feet south of the existing pole. The installation of the adjoining poles at each of the switch poles is necessary to provide the necessary clearance between the switch pole and the adjacent Carlisle-Lorain 138 kV transmission line. A new tap pole structure, shown in Exhibit 4, will be installed approximately 42 feet north of the existing pole. The tap to Fieldstone substation will begin at the new tap structure and extend approximately 27 feet to the west to a corner pole, shown in Exhibit 5, where it will turn to the south. From this point the transmission line conductors extend southerly approximately 46 feet to the take-off structure of the new Fieldstone substation. The static wire will extend from the corner pole approximately 100 feet southerly, passing above the substation, to a new dead end pole shown in Exhibit 6. The poles are planed as wood poles although wood laminated poles may be installed in lieu of wood poles to resolve pole availability or structure loading issues.

ATSI owns the existing Carlisle-Johnson 138 kV transmission line and will own the new poles and switches and the hardware at the tap location. Ohio Edison, in addition

to owning the new Fieldstone substation, will own the transmission line tap extending to the Fieldstone substation.

#### <u>4906-11-01 (A) (1): c. Need for the Project</u>

The proposed Project is needed to supply electrical energy to Ohio Edison's new Fieldstone Substation. This new substation is needed because the electrical load on Ohio Edison's local electric distribution system has out grown the capacity of Ohio Edison's existing local distribution substation. Due to residential and commercial growth in the area, Ohio Edison's nearby Ely and Shawville distribution substations have become overloaded during peak load periods. Over the past five years, Ohio Edison's load growth in the North Ridgeville area has averaged 8 to 9 percent per year, with more than 2,300 residential units installed since 2000, and an additional 4,200 units planned. Nearby commercial development is also occurring, including the area adjacent to the Project site on the north side of Chestnut Ridge Road. Installation of the Fieldstone substation will allow the transfer of 3.5 MVA from the Ely substation, 6.4 MVA from Shawville substation, and 1.9 MVA from the Abbe substation to the new Fieldstone Substation, thus reducing the load on the existing substations to within their normal operating loadings.

# <u>4906-11-01 (A) (1): d. Why the Project Meets the Requirements for a Letter of Notification</u>

The Project meets the requirements for a Letter of Notification because the Project is within the types of project defined by Items (1)(c) and (4)(a) of the Application Requirement Matrix for Electric Power Transmission Lines in Appendix A of 4906-1-01 of the Ohio Administrative Code. This item states:

(1) Rerouting or extension or new construction of single or multiple circuit electric power transmission line(s) as follows:

(c) Line(s) one hundred twenty-five kiloVolts and above but less than three hundred kilovolts, and not greater than two miles in length.

(4) Replacing electric power transmission line structure(s) with a different type of structure(s) or adding structure(s) within an existing electric power transmission line and:

(a) Two miles or less of new right-of-way required.

The proposed Project includes installing an approximately 0.02 mile long singlecircuit 138 kV transmission line tap located on existing right-of-way and property rights acquired for the Fieldstone substation, adds five new poles, and removes one pole in the existing transmission line.

#### 4906-11-01 (A) (2): Location Relative to Existing or Proposed Lines

The location of the Project relative to ATSI's existing transmission system is shown in Exhibit No. 9. Exhibit No. 9 (which is not attached to the LON) is the FirstEnergy Geographic – West (CEI, OE, PP,TE) Map, included as the last map in Chapter 3 of the confidential portion of FirstEnergy's 2006 Electric Long-Term Forecast Report submitted to the PUCO under rules 4901:5-5:04 (C) of the Ohio Administrative Code, and is incorporated by reference only. This map shows ATSI's 345 kV and 138 kV transmission lines and transmission substations, including the location of the Carlisle-Johnson 138 kV transmission line. The Project area is located on Map 4 (8-1/2 by 11 inch printed version) approximately 4-11/16 inches from the right edge of the map box and 4-1/16 inches from the bottom edge of the map box. The general location of the Project is shown in Exhibit 1 and Exhibit 2 shows the general arrangement of the proposed Project. The details of the new transmission line structures are shown on Exhibits 3, 4, 5, 6 and 7.

#### 4906-11-01 (A) (3): Alternatives Considered

Rapid commercial development is occurring in the area immediately adjacent to the north and west of the proposed substation, and the area to the east is largely residential. The site for the substation and the proposed Project is near the growing load center, is as close as practical to the existing transmission line, is near the locations of the associated distribution circuits, is compatible with the continuing commercial development of the area and existing residential areas and is the best

opportunity to locate the substation at a location where the property owner is willing to grant the necessary property rights. No other location for the substation provides these benefits. Additionally, there are no significant adverse environmental impacts associated with the proposed location of the Project.

#### 4906-11-01 (A) (4): Construction Schedule

Construction on the Project is expected to begin on approximately April 1, 2007 and is expected to be completed and placed in-service by June 1, 2007.

OAC Section 4906-5-02 (A) (1) states that a letter of notification shall be filed not less than ninety days before planned commencement of construction. As construction of the proposed Project is proposed to start in less than the required ninety days, a request to waive the requirements of OAC Section 4906-5-02 (A) (1) is being submitted to the Ohio Power Siting Board with this Letter of Notification.

#### <u>4906-11-01 (A) (5): Area Map</u>

Exhibit No. 1 is a map depicting the general location of the project site. To locate and view the project site from the Columbus, Ohio area, travel north on Interstate 71. Exit Interstate 71 at exit 204 onto to State Route 83 and travel north for approximately 17.2 miles to State Route 57. Turn west on State Route 57 and then follow it northerly for approximately 9 miles to Chestnut Ridge Road. Travel east on Chestnut Ridge Road approximately 0.1 miles to the project area located to the south of where the existing Carlisle-Johnson 138 kV transmission line crosses Chestnut Ridge Road.

#### 4906-11-01 (B): Technical Features of the Project

# 4906-11-01 (B) (1): Operating Characteristics

The new transmission line tap, similar to the existing Carlisle-Johnson 138 kV transmission line, will be designed and constructed for 138 kV operations. The transmission line tap has the following characteristics:

Voltage: 138 kV
Conductor: 336.4 kcmil 26/7 ACSR
Static wire: 3 #6 Alumoweld
Insulators: Polymer Dead-end and Horizontal Post
Structure types: Exhibit No. 3 – Typical Switch Structures
Exhibit No. 4 – Tap Structure
Exhibit No. 5 – Corner Dead End Pole
Exhibit No. 6 – Single Pole Structure
Exhibit No. 7 – Single Tangent Pole Structure

## 4906-11-01 (B) (2) (a): Calculated Electric and Magnetic Fields

The following table itemizes the line loading of the transmission line tap being installed in the Proposed project. The normal and emergency line loading of 75 amps is based on the maximum load to be served from the Fieldstone substation. The Fieldstone substation is expected to initially serve approximately 11.8 MVA (50 amps) with a capacity of serving approximately 18 MVA (75 amps). The winter rating is based on the continuous maximum conductor ratings (MCR) of the circuits for an ambient temperature of zero degrees centigrade (32 deg. F), wind speed of 1.3 miles per hour, and a circuit design operating temperature of 100 degrees centigrade (212 deg. F).

Line Name	Normal Loading	Emergency	Winter Rating
	Amps	Loading Amps	Amps
Carlisle-Johnson 138 kV Transmission Line Tap to Fieldstone Substation	75	75	1,100

The following EMF calculations were performed using the EPRI EXPOCALC program software. This program software assumes the input transmission line configuration is located on flat terrain. Also, a balanced, three-phase circuit loading is assumed for the transmission circuits. The conductor arrangement modeled for the transmission line tap is based on the conductor arrangement at the corner pole, shown in Exhibit 4, with a minimum assumed ground clearance of 21 feet 7 inches in a 60 foot wide right-of-way. Effects from the existing transmission lines, substation or distribution facilities are not included in the model.

ATSI/OE: Carlisle-Johnson 138 kV Transmission Line Tap to the Fieldstone Substation Project

6

EMF	CALCULATIONS	Electric Field kV/meter	Magnetic Field mGauss
Normal	Under Lowest Conductors 2.11	12.4	
Loading	At Right-of-Way Edges	0.21	5.0
Emergency Loading	Under Lowest Conductors	2.11	12.4
	At Right-of-Way Edges	0.21	5.0
Winter Rating	Under Lowest Conductors	2.11	126
	At Right-of-Way Edges	0.21	51

# 4906-11-01 (B) (2) (b): EMF Discussion

# **Background Information**

Electric and magnetic fields (EMFs) are naturally occurring in the environment and can be found in the Earth's interior and in the human body. EMFs are generated essentially anywhere there is a flow of electricity, including electrical appliances and power equipment. Electric fields are associated with the voltage of the source; magnetic fields are associated with the flow of current in a wire. The strength of these fields decreases rapidly with distance from the source. EMFs associated with electricity use are not disruptive to cells like x-rays or ultraviolet rays from the sun. These fields are thought to be too weak to break molecules or chemical bonds in cells. Extensive research has been conducted over the past three decades to determine whether EMFs are associated with adverse health effects. A number of independent scientific panels have reviewed the research and have stated that there is no basis to conclude that EMFs cause adverse health effects nor has it been shown that levels in everyday life are harmful.

#### Recent Developments

As a part of the National Energy Policy Act of 1992, the Electric and Magnetic Fields Research and Public Information Dissemination (EMF RAPID) program was initiated within the five-year effort under the National EMF Research Program. The culmination of this five-year effort resulted in a final RAPID Working Group report, which was released for public review in August 1998. The Director of the National Institutes of Environmental Health Sciences (NIEHS) then prepared a final report to Congress after receiving public comments. The NIEHS' Director's final report, released to Congress on May 4, 1999, concluded that extremely low frequency electric and magnetic fields (ELF-EMF) exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. The Director further stated that the conclusion of this report is insufficient to warrant aggressive regulatory concern. The results of more recent studies continue to provide varied results and have not significantly advanced or eliminated EMF related health concerns.

# Sources for Additional Information

The following websites sponsored by federal agencies or other organizations provide additional information on EMF:

- Centers for Disease Control/National Institute for Occupational Safety and Health: <u>http://www.cdc.gov/niosh/topics/emf/</u>
- National Institute of Environmental Health Sciences (NIEHS) EMF Rapid Program: <u>http://www.niehs.nih.gov/emfrapid/home.htm</u>

#### 4906-11-01 (B) (3): Estimated Costs

The estimated capital costs by FERC Accounts for the proposed Project are:

Account	Cost	
350 Land Rights	\$	0
355 Poles and Fixtures \$ 55		,000
356 Overhead Conductors & Devices	\$140,000	
Total	\$195,	,000

#### 4906-11-01 C: Socioeconomic Data

#### 4906-11-01 (C) (1): Land Use

The Project area is located in an agricultural field adjacent to residential land use. Neighboring land use in the area of the proposed Project includes residential to the east and northeast, and commercial to the west and northwest. Based on the current commercial development in the area, it appears that the agricultural land use will be converted to commercial land use. Assuming that the agricultural area is converted to commercial land use, the proposed location of the Project should have minimal impact on the efficient land use utilization of this area. Based on the U.S. Bureau of Census estimates, the 2000 population of the City of Elyria was 55,593, Eaton Township was 9,675 and Lorain County, Ohio was 284,664.

# 4906-11-01 (C) (2): Agricultural Land

The Project is located in an existing agricultural land use area. The placement of the new structures and guying will likely remove some of the area between the poles and guys at each structure from agricultural use, although it is not expected to create a significant impact to the agricultural land use.

#### <u>4906-11-01 (C) (3): Archaeological or Cultural Resources</u>

The project involves the installation of wood and laminated wood poles in approximately 12 feet deep augured holes. It is unlikely that any significant archaeological or cultural resources currently exist at the project site and would be disturbed by the limited nature of the ground disturbance associated with installing the new transmission line direct imbedded poles proposed in the Project. Based on the results of previous construction of similar projects, it is expected that archaeological and cultural resources will not be impacted by the proposed Project. As part of ATSI's investigation of the project site, a search of the Ohio Historic Preservation Office (OHPO) National Register of Historic Places on-line database was conducted. This search did not identify the existence of any historic sites within the project area. Properties in the OHPO database include all Ohio listings on the National Register of Historic Places as well as districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

> ATSI/OE: Carlisle-Johnson 138 kV Transmission Line Tap to the Fieldstone Substation Project

9

# 4906-11-01 (C) (4) (a): Documentation of Letter of Notification Transmittal

This Letter of Notification is being provided concurrently to the following officials of the City of Elyria, Eaton Township and Lorain County, Ohio.

# City of Elyria

The Honorable William M. Grace Mayor, City of Elyria 131 Court St Elyria, Oh 44035

Mr. Ken Burkhard City of Elyria Council President 131 Court St. Elyria, OH. 44035

Mr. Arthur Weber City of Elyria Clerk of Council 131 Court St. Elyria, OH. 44035

#### Lorain County

Mr. Kenneth P. Carney Lorain County Engineer 247 Hadaway Court Elyria, Ohio 44035

The Honorable Betty. C. Blair Lorain County Commissioner 226 Middle Avenue Elyria, Ohio 44035

The Honorable Ted Kalo Lorain County Commissioner 226 Middle Avenue Elyria, Ohio 44035

The Honorable Lori Kokoski Lorain County Commissioner 226 Middle Avenue Elyria, Ohio 44035 Ms. Angie Byington City Planner City of Elyria Planning Commission 131 Court St. Elyria, OH. 44035

Mr. Mukund Moghe, P.E. City of Elyria Engineer 131 Court St., Suite 303 Elyria, OH. 44035

Mr. James R. Cordes County Administrator 226 Middle Avenue Elyria, Ohio 44035

Mr. Ronald F. Twining, Director Lorain County Community Development 226 Middle Avenue Elyria, Ohio 44035

Ms. Roxann Blair Clerk of the Board of Commissioners 226 Middle Avenue Elyria, Ohio 44035

Mr. Dan Martin Director, Lorain County Metroparks 12882 Diagonal Road LaGrange, OH. 44050

10

#### Eaton Township (Lorain County)

Mr. Douglas Edwards Eaton Township Trustee Eaton Township 12043 Avon Belden Road Grafton, OH 44044

Mr. Gary McCort Eaton Township Trustee Eaton Township 12043 Avon Belden Road Grafton, OH 44044 Ms. Linda Morrison Eaton Township Trustee Eaton Township 12043 Avon Belden Road Grafton, OH 44044

Ms. Sue Miller Eaton Township Secretary Eaton Township 12043 Avon Belden Road Grafton, OH 44044

Copies of the transmittal letters to these officials have been included with the transmittal letter submitting this Letter of Notification to the Ohio Power Siting Board.

# 4906-11-01 (C) (4) (b): Public Information Program

FirstEnergy's Area Manager will advise local officials of features and the status of the proposed transmission line Project as necessary.

#### 4906-11-01 (C) (5): Current or Pending Litigation

There is no known current or pending litigation involving this Project.

# 4906-11-01 (C) (6): Local, State, and Federal Requirements

There are no known local, state, or federal requirements that must be met prior to commencement of construction on the proposed transmission line Project.

#### 4906-11-01 (D): Environmental Data

#### 4906-11-01 (D) (1): Endangered, Threatened, and Rare Species Investigation

A written request was submitted to the Ohio Department of Natural Resources (ODNR) on January 4, 2007 to research the presence of any endangered, threatened, or rare species within the Project area. The ODNR's response of January 10, 2007, attached as Exhibit No. 8, indicated that they have no records of rare or endangered species within one half mile of the identified Project area.

# 4906-11-01 (D) (2): Areas of Ecological Concern

A visual assessment of the Project area did not identify any areas of ecological concern in immediate vicinity of the Project.

# 4906-11-01 (D) (3): Additional Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the NESC as adopted by the PUCO and will meet all applicable safety standards established by OSHA.

















# Ohio Department of Natural Resources

TED STRICKLAND, GOVERNOR

SEAN D. LOGAN, DIRECTOR

2045 Morse Rd., Bldg. F-1 Columbus, OH 43229-6693

January 10, 2007

Ted Krauss First Energy Service Company 76 South Main St. Akron, OH 44308 CARLISLE-JOHNSON 138 kV TRANSMISSION LINE TAP TO FIELDSTONE SUBSTATION ODNR RESPONSE

**EXHIBIT 8** 

Dear Mr. Krauss:

After reviewing our Natural Heritage maps and files, I find the Division of Natural Areas and Preserves has no records of rare or endangered species within one half mile of the First Energy Service Company Carlisle-Johnson 138kV Transmission Line Tap project. The site is located 0.25 mi. E. of the junction of Co.Rt. 25 and Twp.Rt. 171, Eaton Twp., Lorain Co., Grafton Quadrangle.

There are no existing or proposed state nature preserves at the project site. We are also unaware of any unique ecological sites, geologic features, breeding or nonbreeding animal concentrations, state parks, scenic rivers, state nature preserves, state forests, or wildlife areas within the project area.

Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area. Although we inventory all types of plant communities, we only maintain records on the highest quality areas. For National wetlands Inventory maps, please contact Madge Fitak in the Division of Geological Survey at (614) 265-6576. Aerial photos may be obtained from ODOT at (614) 275-1369. USGS maps can be requested directly from the U.S. Geological Survey at 1-888-275-8747.

Please contact me at (614) 265-6409 if I can be of further assistance.

Sincerely,

Butch Grieszmer, Data Specialist Resource Services Group