

Staff Report of Investigation

Glenwillow Transmission Switching Substation

Case Number
12-1727-EL-BSB

January 14, 2013



John Kasich, Governor

Power Siting
Board

Todd Snitchler, Chairman

**In the Matter of the Application by American Transmission
Systems, Incorporated for a Certificate of Environmental
Compatibility and Public Need for the Glenwillow Transmission
Switching Substation**)
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Submitted to the
OHIO POWER SITING BOARD

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

In the Matter of the Application by American Transmission Systems, Incorporated for a Certificate of Environmental Compatibility and Public Need for the Glenwillow Transmission Switching Substation)) Case Number 12-1727-EL-BSB))

Members of the Board:

- Todd Snitchler, Chairman, PUCO
Christiane Schmenk, Director, ODSA
Dr. Ted Wymyslo, Director, ODH
David Daniels, Director, ODA
Scott Nally, Director, Ohio EPA
Jim Zehringer, Director, ODNR
Jeffery J. Lechak, PE, Public Member
VACANT, State Representative
Sandra Williams, State Representative
Tom Sawyer, State Senator
Shannon Jones, State Senator

To the Honorable Power Siting Board:

In accordance with provisions of the Ohio Revised Code (ORC) Section 4906.07(C), and the Commission's rules, the Staff has completed its investigation in the above matter and submits its findings and recommendations in this staff report for consideration by the Ohio Power Siting Board (Board).

The Staff Report of Investigation has been prepared by the Staff of the Public Utilities Commission of Ohio. The findings and recommendations contained in this report are the result of Staff coordination with the Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Development Services Agency, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, the Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office, the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Federal Aviation Administration.

In accordance with ORC Sections 4906.07 and 4906.12, copies of this staff report have been filed with the Docketing Division of the Public Utilities Commission of Ohio on behalf of the Ohio Power Siting Board and served upon the Applicant or its authorized representative, the parties of record, and the main public libraries of the political subdivisions in the project area.

The staff report presents the results of the Staff's investigation conducted in accordance with ORC Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,

[Handwritten signature of Klaus Lambeck]
Klaus Lambeck, Chief
Facilities, Siting, & Environmental Analysis Division

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ACRONYMS

BMP	best management practices
FAA	Federal Aviation Administration
kV	kilovolts
MW	megawatts
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OAC	Ohio Administrative Code
ODA	Ohio Department of Agriculture
ODSA	Ohio Development Services Agency
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
Ohio EPA	Ohio Environmental Protection Agency
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
ORC	Ohio Revised Code
PUCO	Public Utilities Commission of Ohio
SWPPP	Storm Water Pollution Prevention Plan
USFWS	U.S. Fish and Wildlife Service

I. POWERS AND DUTIES

OHIO POWER SITING BOARD

The Ohio Power Siting Board (Board or OPSB) was created in 1972. The Board is a separate entity within the Public Utilities Commission of Ohio (PUCO). The authority of the Board is outlined in Ohio Revised Code (ORC) Chapter 4906.

The Board is authorized to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities as defined in ORC Section 4906.01. Included within this definition are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity greater than or equal to 125 kilovolts (kV); and gas and natural gas transmission lines and associated facilities designed for, or capable of, transporting gas or natural gas at pressures in excess of 125 pounds per square inch. In addition, per ORC Section 4906.20, the Board authority applies to economically significant wind farms, defined in ORC 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five MW or greater but less than 50 MW.

Membership of the Board is specified in ORC Section 4906.02(A). The voting members include: the Chairman of the PUCO who serves as Chairman of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health (ODH), the Ohio Development Services Agency (ODSA), the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Ex-officio Board members include two members (with alternates) from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The OPSB has promulgated rules and regulations, found in Chapter 4906 of the Ohio Administrative Code (OAC), which establish application procedures for major utility facilities and wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the OPSB an application for a certificate of environmental compatibility and public need (ORC 4906.04 and 4906.20). The application must include a description of the facility and its location, summary of environmental studies, a statement explaining the need for the facility and how it fits into the applicant's energy forecasts (for transmission projects), and any other information the OPSB may consider relevant (ORC 4906.10(A)(1) and 4906.20(B)(1)).

Within 60 days of receiving an application, the OPSB must determine whether the application is sufficiently complete to begin an investigation (OAC 4906-5-05(A)). If an application is considered complete, the Chairman of the OPSB will cause a public hearing to be held 60 to 90 days after the official filing date of the completed application. At the public hearing, any person may provide written or oral testimony and may be examined by the parties (ORC 4906.07). Parties include the Applicant, public officials, and any person who has been granted a motion of leave for intervention (ORC 4906.08(A)).

Staff Investigation and Report

The Chairman will also cause each application to be investigated and a report published not less than 15 days prior to the public hearing. The report sets forth the nature of the investigation and contains the findings and conditions recommended by Staff. The Board's Staff, which consists of career professionals drawn from the Staff of the PUCO and other member agencies of the OPSB, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio Historical Society, and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted under guidance of the OPSB rules and regulations in OAC Chapter 4906. The recommended findings resulting from the Staff's investigation are described in the staff report pursuant to ORC Section 4906.07(C). The report does not represent the views or opinions of the OPSB and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record and is served upon all parties to the proceeding and is made available to any person upon request (4906.07(C) and 4906.10). A record of the public hearings and all evidence, including the staff report, may be examined by the public at any time (ORC 4906.09 and 4906.12).

Board Decision

The OPSB may approve, modify and approve, or deny an application for a certificate of environmental compatibility and public need. If the OPSB approves, or modifies and approves an application, it will issue a certificate subject to conditions. The certificate is also conditioned upon the facility being in compliance with standards and rules adopted under the ORC (ORC 4906.10(A) and (B)).

Upon rendering its decision, the OPSB must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need (ORC 4906.11). A copy of the OPSB's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding (ORC 4906.10(C)). Any party to the proceeding that believes its issues were not adequately addressed by the OPSB may submit within 30 days an application for rehearing (ORC 4903.10 and 4906.12). An entry on rehearing will be issued by the OPSB within 30 days and may be appealed within 60 days to the Supreme Court of Ohio (ORC 4903.11, 4903.12, and 4906.12).

CRITERIA

The recommendations and conditions in this *Staff Report of Investigation* were developed pursuant to the criteria set forth in ORC Section 4906.10(A), which reads in part:

The Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas or natural gas transmission line;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generation facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704., 3734., and 6111. of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the Revised Code, the Board shall consult with the ODOT Office of Aviation of the Division of Multi-Modal Planning and Programs of the Department of Transportation under Section 4561.341 of the Revised Code.
- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) through (A)(6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929. of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternative site; and
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of the various alternatives.

II. APPLICATION

APPLICANT

American Transmission Systems, Inc. (ATSI) will construct, own, operate, and maintain the proposed Glenwillow Transmission Switching Substation. ATSI owns the existing 345 kV and 138 kV equipment that currently traverses the proposed sites.

ATSI is a wholly-owned subsidiary of The FirstEnergy Corporation. FirstEnergy Corp. was formed in 1997 through the merger of Ohio Edison Company and Centerior Energy Corporation. Through this merger, FirstEnergy became the holding company for Ohio Edison and its Pennsylvania Power Company subsidiary, as well as The Cleveland Electric Illuminating Company and The Toledo Edison Company.

In 2011, FirstEnergy completed a merger with Allegheny Energy, a Greensburg, PA-based company that served 1.6 million customers in Pennsylvania, West Virginia, Maryland and Virginia. The merger more than doubled FirstEnergy's highly efficient, supercritical coal capacity and provided opportunities for the company to grow and expand into new markets with a stronger, more focused competitive operation. Today, FirstEnergy is one of the nation's largest investor-owned electric systems based on the number of customers served.

HISTORY OF THE APPLICATION

Prior to formally submitting its application, the Applicant consulted with the Staff and representatives of the Board, including the Ohio EPA, regarding application procedures.

On June 18, 2012 through June 21, 2012, the Applicant held four public information meetings regarding the proposed electric substation project.

On October 12, 2012, the Applicant filed a motion for waiver of the requirement to submit fully-developed information for the alternate substation site. This waiver was granted.

On October 22, 2012, the Village of Glenwillow provided notice to intervene.

On November 9, 2012, the Applicant filed the Glenwillow Transmission Switching Substation Project application.

On November 28, 2012, the Applicant was issued a letter of compliance regarding the application from the Chairman of the Board.

A local public hearing has been scheduled for January 30, 2013, at 6:00 p.m., at the Village of Glenwillow Council Chambers, 29555 Pettibone Road, Glenwillow, Ohio 44139. The adjudicatory hearing will commence on February 12, 2013, at 10:00 a.m., in Hearing Room 11-D, at the offices of the PUCO, 180 East Broad Street, Columbus, Ohio.

This summary of the history of the application does not include every filing in case numbers 12-1727-EL-BSB. The docketing record for this case, which lists all documents filed to date, can be found in the Appendix to this report and online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

ATSI proposes to construct, own, operate, and maintain the Glenwillow Transmission Switching Substation in Cuyahoga County, Ohio. The \$18.2 million project is part of a major transmission reinforcement effort to help ATSI maintain an adequate level of reliability and availability of electric power to customers in the greater Cleveland metropolitan area. The major transmission reinforcement effort is known as the Bruce Mansfield-Glenwillow 345 kV Transmission Line Project, which was submitted to the Board separately (case number 12-1726-EL-BLN).

The Applicant has proposed two locations for the substation for the Board's consideration, hereinafter referred to as a Preferred and Alternate site. Both sites would require approximately 5.5 acres of land. The substation would be fenced and contain five 345 kV breakers, a five-position ring bus, control building, capacitor voltage transformers, surge arresters, line traps, and disconnect switches.

The Applicant plans to begin construction in July 2013 and place the facility in service by June 2015. The Preferred and Alternate sites are shown on the map in this report.

Preferred Site

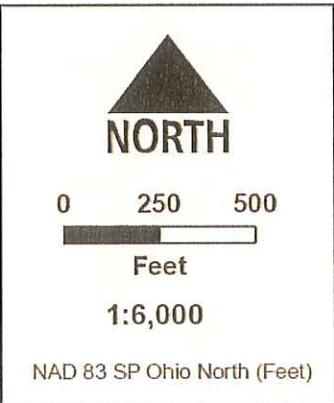
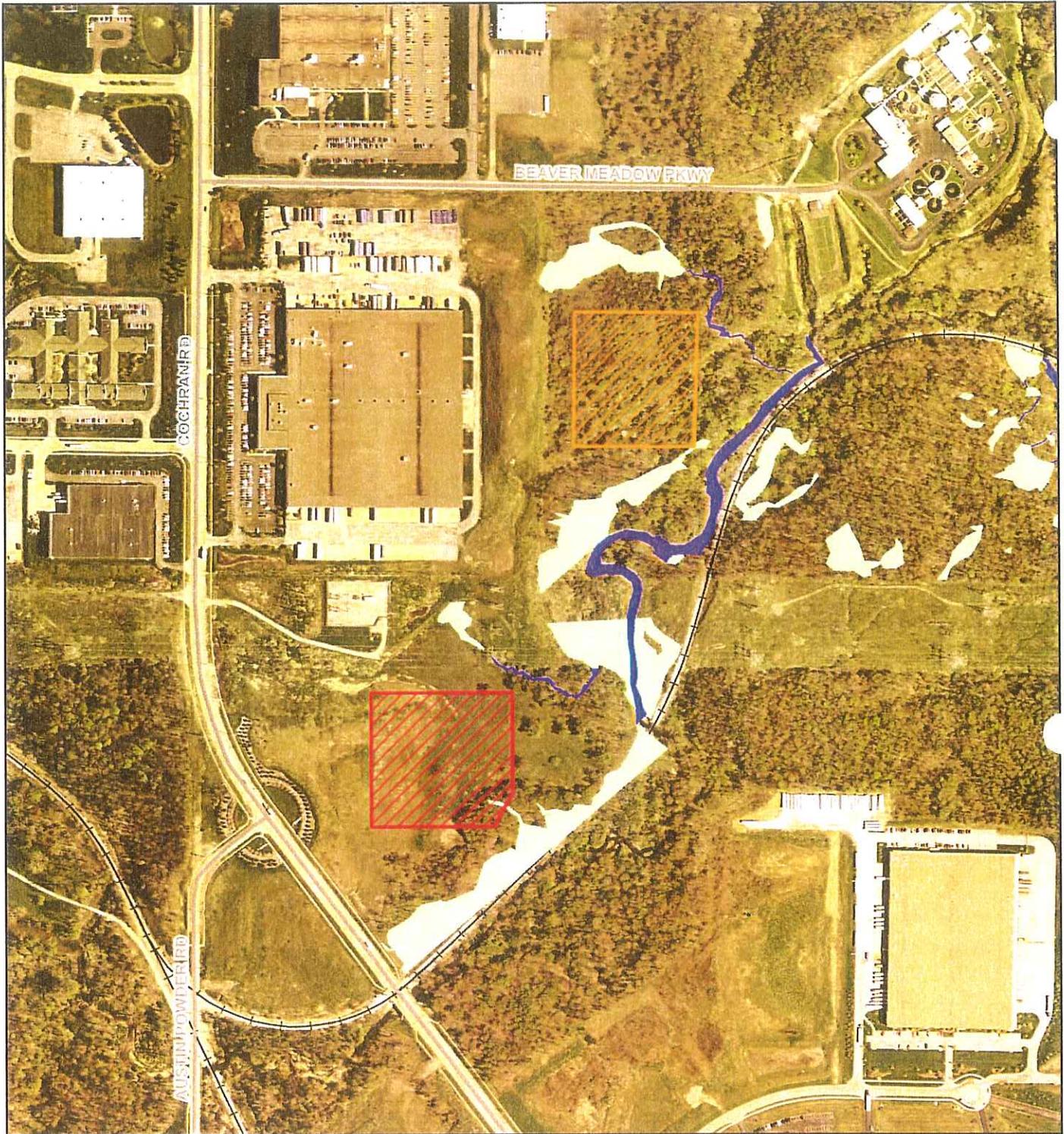
The project is located in the village of Glenwillow in Cuyahoga County, Ohio. The Preferred Site is located on an irregular-shaped parcel located at the intersection of Austin Powder Drive and Cochran Road. The parcel is approximately 24.8 acres and classified by Cuyahoga County as commercial vacant land. ATSI signed a purchase agreement with the owner of the Preferred Site.

Alternate Site

The Alternate Site is accessed from Beaver Meadow Parkway, north of the Preferred Site on an adjacent irregular-shaped parcel located on the northern side of the existing 345 kV transmission lines. The parcel is approximately 23 acres and classified by Cuyahoga County as commercial vacant land. If the Alternate Site is approved, ATSI would need to acquire approximately 400 to 800 feet of new transmission right-of-way to connect the existing Eastlake-Juniper and Perry-Inland 345 kV transmission lines into the new substation. The Alternate Site is not actively listed for sale, but the Applicant states that the landowner is willing to consider selling the property.

PROJECT MAP

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Overview Map

12-1727-EL-BSB
Glenwillow Substation

Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.

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III. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the matter of the application of American Transmission Systems, Incorporated, the following considerations and recommended findings are submitted pursuant to ORC Section 4906.07(C) and ORC Section 4906.10(A).

Considerations for ORC Section 4906.10(A)(1)

BASIS OF NEED

Purpose of Proposed Facility

The purpose of the Glenwillow Transmission Switching Substation Project is to reinforce the ATSI 138 kV and 345 kV transmission systems in the greater Cleveland metropolitan area. The proposed substation is directly related to the Bruce Mansfield-Glenwillow 345 Transmission Line Project, OPSB case number 12-1726-EL-BLN. Without the proposed substation and associated transmission line project, the Cleveland area faces significant operating limitations including thermal ratings, capacity shortage, and low voltage concerns and would be unable to maintain compliance with PJM and NERC reliability criteria for the bulk electric system. This section of the staff report focuses on reviewing the need of the proposed substation.

Long Term Forecast

The Ohio Administrative Code requires electric utilities and transmission owners to annually file a forecast report with the PUCO (OAC 4901-5-5). The report requires a 10-year plan of committed or tentatively projected projects on the bulk power transmission network. For the year 2012, PUCO assigned FirstEnergy case number 12-0504-EL-FOR for its latest long-term forecast report. The proposed substation project was not identified in the latest long-term forecast report. The substation project is a result of generation retirements in the ATSI control zone and neighboring utilities. The complete list of generation retirements and reliability analysis was not complete until after the 2012 long-term forecast report was filed.

PJM Regional Transmission Expansion Plan

PJM Interconnection LLC (PJM) is the Regional Transmission Organization charged with planning for upgrades to the regional transmission system in Ohio. PJM annually issues the Regional Transmission Expansion Plan (RTEP) report. The RTEP analyzes reliability criteria, operational performance of the transmission system, and economic and environmental factors. The RTEP provides for the construction of expansions and upgrades of the PJM transmission system, as needed to maintain compliance with reliability criteria and, when appropriate, to enhance the economic and operational efficiency of wholesale electricity markets in the PJM Region.

The proposed project was presented at the April 2012 Transmission Expansion Advisory Committee and was identified as baseline RTEP upgrade (PJM, 2012, April 27). A baseline upgrade resolves a PJM, NERC, ReliabilityFirst, or transmission owner reliability criteria violation. Baseline projects are required to be constructed to keep the bulk electric system operating reliably. Approval was received by the PJM Board on May 17, 2012. The Applicant's baseline projects were assigned upgrade IDs b1923 and b1924. The status of these projects can be tracked on PJM's website (PJM, n.d.).

Load Growth

PJM projects that electric demand will grow at an average rate of approximately 1 percent per year in the ATSI footprint (PJM, 2012, January). ATSI set a 2011 summer peak record of 14,032 MW, which represents a system peak 850 MW's higher than the 2010 actual peak load. Between the years 2001-2011, the ATSI system load increased an average of 1.5 percent per year and increased by an average of 2.8 percent since the year 2009. Without the proposed substation, increased load growth will further increase the risk for voltage and thermal violations. The table below shows the percent change to system load in the Cleveland area since the year 2001.

Peak Load Data Percent Change, Cleveland Area			
Year	CEI	OE	ATSI
2001	3.9%	12.2%	8.8%
2002	2.6%	8.6%	1.2%
2003	-8.8%	-8.6%	-8.5%
2004	-0.8%	-9.0%	1.2%
2005	9.6%	12.1%	10.3%
2006	3.4%	1.3%	1.7%
2007	-4.3%	-1.1%	-1.9%
2008	-3.9%	-6.3%	-4.2%
2009	-4.1%	-5.6%	-5.1%
2010	7.3%	7.0%	7.0%
2011	5.2%	9.8%	6.5%
Average	0.9%	1.9%	1.5%
Average (2001-2007)	0.8%	2.2%	1.8%
Average (2009-2011)	2.8%	3.7%	2.8%

System Economy and Reliability

The proposed Glenwillow Transmission Switching Substation Project would reinforce the bulk electric system in the Cleveland area. Without this project, ATSI would be unable to provide safe, reliable electric service. This project is expected to fix thermal overages, capacity limitations, and voltage violations, allowing ATSI to meet all ATSI, NERC, and PJM reliability criteria. A more-detailed investigation of voltage and electric grid concerns is found in the Electric Grid section of this report.

Conclusion

Staff concludes that ATSI has demonstrated the basis of need due to the projected load growth and the inability of the transmission system to provide safe, reliable electric service while meeting all the applicable NERC and PJM reliability criteria.

Recommended Findings

Staff recommends that the Board find that the basis of need for the project has been demonstrated and therefore complies with the requirements specified in ORC Section 4906.10(A)(1), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility. Staff has found the following with regard to the nature of the probable environmental impact:

Socioeconomic Impacts

Demographics

The project is located within the village of Glenwillow in Cuyahoga County, in a suburban area consisting of mixed land uses. Over the last ten years, the population of this region has peaked and is now in decline. According to the U.S. Census Bureau, the population of Cuyahoga County has decreased between the years of 2000 and 2010 by 8 percent to 1,280,122 (2010). Over the same period, the population of Glenwillow doubled to 923 (U.S. Census Bureau, 2010). However, according to the Ohio Department of Development, Glenwillow's dramatic growth trend has since reversed. Population estimates, published by ODOD, suggest that the population of both Cuyahoga County and Glenwillow decreased by approximately 0.6 percent between 2010 and 2011 (2012, July). In 2010, Glenwillow had an average population density of 332 persons per square mile, compared to 2,800 persons per square mile in Cuyahoga County (U.S. Census Bureau, 2010). The project is not expected to impact the demographics of the region as a whole.

Land Use

The Applicant identified four residences within 1,000 feet of the Preferred Site, none of which are within 1,000 feet of the proposed substation's fence line. Three of these residences are located southwest of the site along North Village Lane. Stratford Commons, a nursing home within the Kindred Transitional Care and Rehabilitation Center, is located approximately 935 feet to the northwest of the Preferred Site. No residences are located within 1,000 feet of the Alternate Site. Moreover, no residences would be relocated or removed for construction or operation of the substation at either the Preferred or Alternate site.

No commercial land uses are located within 1,000 feet of either the Preferred or Alternate site. No adverse impacts to commercial land are expected as a result of construction or operation of the substation.

All properties adjacent to the Preferred Site are zoned for industrial use. Five industrial facilities are located within 1,000 feet of the Preferred Site, none of which are located within 100 feet. A Dirt Devil headquarters is located approximately 450 feet north of the Preferred Site fence line. Custom Products Corporation and Genesis Plastic Technologies are located to the west of the Preferred Site along Cochran Road. Seven industrial facilities are located within 1,000 feet of the Alternate Site, none of which are within 100 feet. The Dirt Devil headquarters is approximately 350 feet to the west of the Alternate Site fence line. Three facilities, associated with the City of Solon Wastewater Treatment Plant, are located approximately 650 feet to the northeast of the Alternate Site. Approximately 900 feet to the southeast of the Alternate Site is the HD Supply facility. Finally, the Kennametal Industrial facility and Tameran Graphics Systems are located north of the Alternate Site along Beaver Meadow Parkway. No commercial structures would be relocated or removed from construction of the Preferred or Alternate site.

Two recreational land uses are located within 1,000 feet of the Preferred Site. The Fresh Air Camp of Prokop Velky Lodge is located approximately 560 feet to the west of the site along Austin Powder Drive. Glenwillow Park is located approximately 670 feet to the southwest of the Preferred Site. With the exception of a parking lot and picnic area, the park is mostly undeveloped. The Glenwillow Master Plan (2009) indicates that a Metroparks Connection Trial is proposed to run along the Wheeling & Lake Erie Railway, approximately 600 feet to the west of the Preferred Site. No recreational land uses are located within 1,000 feet of the Alternate Site.

The Applicant identified one institutional land use within 1,000 feet of the Preferred Site. The Kindred Transitional Care and Rehabilitation Center is located approximately 935 feet to the northwest of the Preferred Site. The City of Solon Police Firing Range is located within 1,000 feet of the Alternate Site. No institutional land uses would be relocated or removed as a result of project construction or operation at either the Preferred or Alternate site.

The nature of residential, recreational, industrial, and institutional land use impacts would be similar at either the Preferred or Alternate site. Impacts would primarily include temporary ambient noise increases associated with project construction. Existing noise from the nearby railroad and roadways as well as the City of Solon Police Firing Range would make these construction-related noise increases less noticeable. The distance separating the Preferred and Alternate sites from residential, recreational, and institutional land uses, as well as the woodland buffers along Tinker Creek and Beaver Meadows Creek, would also serve to reduce noise impacts. Moreover, the Applicant intends to limit project construction to daylight hours, further minimizing any construction-related noise impacts.

As a means of mitigating the potential for erosion or sedimentation on nearby land that may result during project construction, the Applicant would develop a Storm Water Pollution Prevention Plan for the project that would include silt fencing, straw bales, and other erosion and sedimentation management practices. Following substation construction and final grading, disturbed land would be restored to its original condition. Construction, operation, and maintenance of the substation is not anticipated to permanently impact residential, commercial, recreational, or institutional land use patterns in the project area. The Alternate Site would have slightly less impact to land use than the Preferred Site because of its greater distance from sensitive land uses.

Cultural and Archaeological Resources

The Applicant identified two previously-recorded archeological sites within 1,000 feet of the Preferred or Alternate site. One site is located within the parcel boundary of the Preferred Site, adjacent to the proposed access road. Archeological investigations conducted on this site in 1980 uncovered an artifact that prompted the surveyor to recommend additional studies in the project area. The second site of lesser interest was also discovered approximately 375 feet to the east of the Preferred Site.

A recent Phase I Literature Review and Cultural Resources Survey conducted for the Emerald Valley Business Park indicated that both sites have been destroyed since the 1980 study. However, the Applicant has been consulting with the Ohio Historical Preservation Office (OHPO) to further assess the site for potential cultural resources. No NRHP structures, districts, or cemeteries were identified within 1,000 feet of the Preferred Site. The Applicant identified no previously-recorded archeological sites, architectural resources listed on the NRHP, unevaluated architectural resources, historic districts, or cemeteries within 1,000 feet of the Alternate Site. However, the site has not previously been surveyed for archeological resources. The Applicant

continues to coordinate with the OHPO to determine if any additional architectural or archeological surveys are necessary.

Aesthetics

The Applicant has located both the Preferred and Alternate sites in a developed suburban area consisting of industrial, residential, and recreational land uses. Perceptions of substation compatibility with surrounding development would vary by viewer and vantage point. However, both the Preferred and Alternate sites are located in proximity to existing transmission and substation infrastructure, as well as industrial facilities and a railroad corridor. The character of the area is largely defined by this major infrastructure. Consequently, the presence of a large substation at either location would not dramatically conflict with the existing visual context.

While residential and recreational land uses are located within 1,000 feet to the southwest of the Preferred Site, the Tinkers Creek floodplain slope, Cochran Road, and the Wheeling & Lake Erie Railway would buffer area residences from the Preferred Site, significantly reducing the visibility of the proposed substation from these sensitive vantage points. Moreover, the Applicant has coordinated with the developer of the Emerald Valley Business Park in developing a landscaping plan for the project that would add vegetative screening to existing foliage along the western site boundary adjacent to Cochran Road. This design feature would further reduce any project-related visual impacts at the Preferred Site. While a substation at the Preferred Site would be largely shielded from view, the Alternate Site is far enough away from residential, recreational, and public vantage points to render any visual impacts at this location negligible. Consequently, the Alternate Site would create fewer aesthetic impacts than the Preferred Site.

Economics

The estimates of applicable intangible and capital costs for the Preferred Site and the Alternate Site for the project are \$18,175,000. The Preferred and Alternate sites for the project are located within the village of Glenwillow in Cuyahoga County, Ohio. ATSI would pay taxes on utility facilities in this county in the amount of \$184,000 in the first year based on the 2012 tax rates.

Ecological Impacts

Surface Waters

Two streams, both tributaries of Tinker's Creek, totaling approximately 1,110 linear feet, were delineated at the Preferred Site. One stream (Beaver Meadows Creek) is characterized by the Ohio EPA's Qualitative Habitat Evaluation Index (QHEI) method as having "excellent" habitat, with a QHEI score of 78. The second stream (un-named tributary of Tinker's Creek) is characterized by the Ohio EPA's Headwater Habitat Evaluation Index (HHEI) as a Modified Class II Primary Headwater Habitat stream. Both streams are located in the northeast corner of the Preferred Site. Beaver Meadows Creek (identified in the application as Stream CFBL) is located outside of the proposed construction limits, and no impacts are expected. The Applicant stated, in response to Staff interrogatories, that the un-named tributary (Stream CFBS) is located within the grading limits of the preliminary design. The Applicant estimates that 150 linear feet of Stream CFBS could be permanently impacted, and once the substation design is finalized, impacts to Stream CFBS may be reduced or avoided.

The extent of surface water impacts for the Alternate Site are not fully known because the Applicant was granted a waiver from submitting detailed engineering information on the Alternate Site. If the Alternate Site was chosen by the Board, then the Applicant would need to submit detailed engineering information that shows impacts to surface waters. Six streams were

delineated on the Alternate Site, totaling approximately 5,744 linear feet. Of these, one is characterized as having “excellent” habitat (Beaver Meadows Creek) and the other is characterized as having “good” habitat (Stream CFBM), with a QHEI score of 68.5. The third delineated stream (Stream CFBU) is characterized as a Modified Class II Primary Headwater Habitats. The remaining three streams (Streams TSDL, TSDM, and TSDO) are characterized as Class I Primary Headwater Habitats.

Based on preliminary design for the Alternate Site, it is anticipated that Beaver Meadows Creek would need to be spanned in order to connect the 345 kV lines into the new substation if the Alternate Site were developed. The Applicant also anticipates that the grading within the Alternate Site could result in permanent fill to Beaver Meadows Creek. In addition, an unnamed tributary to Beaver Meadows Creek (Stream CFBU) would likely have to be crossed and require a permanent culvert in order to construct an access road to the Alternate Site from Beaver Meadow Parkway.

Three wetlands, totaling approximately 2.85 acres, were delineated within the Preferred Site. All three wetlands are classified as Category 2 wetlands. No Category 3 wetlands were observed.

In response to Staff’s interrogatories, the Applicant anticipates no temporary impacts to wetlands within the Preferred Site. However, a finger of a modified Category 2 wetland (Wetland CFBR) would be permanently filled as part of the grading for the substation. Based on preliminary design, approximately 1,628 square feet of Wetland CFBR would be permanently filled. The Applicant would use silt fence and other best management practices (BMPs) during construction to prevent sedimentation occurring in the unfilled portion of Wetland CFBR. The total area of wetland loss is expected to be less than 0.1 acres within the Preferred Site. All other wetlands would be avoided, and protected through BMPs.

As previously mentioned, detailed engineering information and design has not been completed for the Alternate Site. Fifteen wetlands, totaling approximately 5.31 acres, were delineated within the Alternate Site. All fifteen wetlands are classified as Category 2 wetlands. Based on the Applicant’s conceptual layout of the Alternate Site, it appears that grading outside the fence line of the substation could result in permanent fill to wetlands CFBO and CFBP. The Applicant also anticipates that wetlands TSDQ and CFBX would be spanned as a result of connecting the proposed and existing transmission lines into the substation.

Tinker’s Creek is located approximately 0.1 miles west of the Preferred Site and approximately 0.3 miles southwest of the Alternate Site. All of the wetland and stream features delineated on the Preferred and Alternate sites are hydrologically connected to Tinker’s Creek. To control erosion during installation of the project, the Applicant indicates that a Storm Water Pollution Prevention Plan (SWPPP) and BMPs such as silt fence, timber mats, and sediment and erosion control blankets would be implemented.

In order to minimize impacts to surface waters, Staff recommends that the Applicant be required to provide a construction access plan for review prior to the preconstruction conference, as outlined in the conditions. The plan would consider the location of streams, wetlands, wooded areas, and sensitive plant species, as identified by the ODNR, Division of Wildlife (ODNR-DOW), and explain how impacts to all sensitive resources would be avoided or minimized during construction, operation, and maintenance.

For both construction and future maintenance, the Applicant would limit, to the greatest extent possible, the use of herbicides in proximity to surface waters, including wetlands along the right-

of-way. Individual treatment of tall-growing woody plant species is preferred, while general widespread use of herbicides during initial clearing or future maintenance should only be used where no other options exist.

Vegetation

The Preferred and Alternate sites are located adjacent to each other in an area that is heavily developed with both commercial and industrial uses. The Preferred Site is approximately 24.8 acres and is primarily cleared and characterized as old field habitat, with a small section of forest. The field areas within the Preferred Site and adjacent areas include grasses, forbs, and occasional shrubs. Approximately five acres of trees are along the southern and eastern border of the Preferred Site.

The potential impacts on woody and herbaceous vegetation at the Preferred Site would be minimal because the majority of the site is cleared and is zoned for industrial use. The Applicant anticipates that approximately 0.9 acres of trees would need to be removed for construction of the Glenwillow Transmission Switching Substation at the Preferred Site. Approximately 0.25 acres of tree clearing is anticipated within the proposed fenced area. The remaining 0.65 acres of tree clearing is anticipated in areas that would require grading.

The Alternate Site is approximately 47 acres and is almost completely forested, with a tributary to Tinker's Creek traversing the eastern portion of the property. Although fully developed engineering information is not available for the Alternate Site, the Applicant would anticipate approximately six acres of tree clearing for the proposed fence line and an additional six acres or more for grading and site access. If the Alternate Site is selected, additional tree clearing would be required to accommodate a portion of the transmission right-of-way into the substation. The right-of-way would be 150 feet in width through this area.

Staff recommends that the Applicant be required to provide a vegetative management plan, including measures to minimize tree clearing near streams, wetlands, and other environmentally-sensitive areas, for review prior to the preconstruction conference, as outlined in the conditions.

Some of the vegetative waste, such as tree limbs and trunks, that is generated during the construction may be harvested and removed from the site. The remaining vegetative waste would be chipped and disposed of appropriately, although some vegetative waste materials may be used on site for erosion control. However, no chipped vegetation, or other project-related material, will be left in wetlands or in riparian areas within 50 feet of any stream.

The Applicant worked with the developer of the Emerald Valley Business Park to prepare a landscaping plan for the Glenwillow Transmission Switching Substation. The landscaping plan involves planting various shrubs and trees, primarily along the western site boundary adjacent to Cochran Road. The tree species selected for the landscaping plan consist of eastern white pine (*Pinus strobus*), Norway spruce (*Picea abies*), arbor vitae (*Thuja occidentalis*), red maple (*Acer rubrum*), red cedar (*Juniperus virginiana*), sugar maple (*Acer saccharum*), pink flowering dogwood (*Cornus florida var. rubra*), and northern red oak (*Quercus rubra*). The shrub species selected for the landscaping plan consist of Canada yew (*Taxus Canadensis*), hazelnut (*Corylus Americana*), black chokecherry (*Aronia melanocarpa*), gray dogwood (*Coruns racemosa*), blackhaw (*Vilournum prunifolium*), and crabapple (*Maius sp.*). The landscaping plan also includes preserving the existing landscaped area of pine trees and deciduous shrubs along Cochran Road.

Threatened and Endangered Species

The Applicant requested information from the ODNR and the USFWS regarding state- and federally-listed threatened and endangered plant and animal species. Additional information was provided through field assessments and published ecological information. The following table reflects the results of the information requests, field assessments, and document review.

BIRDS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA & MBTA ¹	N/A	Known range, not found in Biodiversity Database near the project area.
piping plover	<i>Charadrius melodus</i>	Endangered	Endangered	Known range, due to the project type, location, and onsite habitat, this species would not be expected within the project area, and no impacts to this species are expected.
Kirtland's warbler	<i>Setophaga kirtlandii</i>	Endangered	Endangered	Known range, due to the project type, location, and onsite habitat, this species would not be expected within the project area, and no impacts to this species are expected.
king rail	<i>Rallus elegans</i>	N/A	Endangered	Known range, no suitable habitat found in the project area.
REPTILES & AMPHIBIANS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
spotted turtle	<i>Clemmys guttata</i>	N/A	Threatened	Known range, suitable habitat is available within the project area. Staff requests that the Applicant consult with a professional herpetologist (approved by ODNR Division of Wildlife) to determine whether a survey for this species needs to be performed.
MAMMALS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Indiana bat	<i>Myotis sodalis</i>	Endangered	Endangered	Known range, suitable habitat is present, Applicant will need to adhere to seasonal cutting dates (November 15 th to March 15 th).
black bear	<i>Ursus americanus</i>	N/A	Endangered	Known range, if present would not be impacted due to mobility
INSECTS				
Common Name	Scientific Name	Federal Status	State Status	Presence in Project Area
Canada darner	<i>Aeshna canandensis</i>	N/A	Endangered	Known range, due to the quality of wetlands being impacted, the project is not likely to impact this species.

¹ bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act

Most of these species are not expected to be negatively impacted by the proposed project. However, the loss of suitable habitat may introduce the potential for the project to negatively impact the Indiana bat.

The Indiana bat has a historical range that includes the project area. The proposed project sites are located within a five-mile radius of a suspected Indiana bat hibernaculum.² The Applicant, in coordination with the USFWS, conducted an Indiana bat habitat assessment for the Preferred Site. The results of the habitat assessment indicated that 11 potential Indiana bat roost trees exist on the property. However, only two of the identified potential roost trees are located within the limits of disturbance. Based upon the photos and descriptions of these trees, the USFWS concluded that it appears that these trees exhibit lower roosting quality than other potential roost trees in the vicinity. Therefore, removal of these trees during the winter months, while bats are hibernating, should not impact this species. However, because of the nearby hibernaculum, tree clearing at this site should only occur between the dates of November 15 and March 15 to avoid potential impacts to Indiana bats during the summer roosting season as well as fall swarming and spring staging.

The ODNR Natural Heritage Database has a record for the spotted turtle within approximately 1,500 feet of the project area. The spotted turtle's habitat includes shallow, sluggish waters of ditches, small streams, marshes, bogs, and pond edges, especially where vegetation is abundant. It occasionally wanders away from water and lives in wet woods and meadows. Staff requests that the Applicant consult with an ODNR-approved herpetologist to determine if suitable habitat is available for this species within the Preferred or Alternate site. The results of this review would need to be coordinated with OPSB Staff and ODNR to determine if avoidance, minimization, or construction restriction measures are required.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Ecological Conditions** of the Recommended Conditions of Certificate.

Public Services, Facilities, and Safety

The Applicant will comply with safety standards set by the Occupational Safety and Health Administration, the PUCO, and NERC Mandatory Reliability Standards. The Applicant will construct and operate the facility to meet the requirements of the National Electric Safety Code.

Noise

Most noise impacts associated with the proposed substation would be confined to the 24-month construction period. The Applicant proposes to mitigate noise impacts by ensuring all mufflers are properly installed and equipment has received proper maintenance. The transient nature of the construction activities and proposed limitation of construction to daylight hours on weekdays would further reduce impacts to surrounding receptors.

Communications

Radio or television interference is not expected to occur from the operation of the proposed substation at either the Preferred or Alternate site. Any likely source of radio or television

² Hibernaculum is a quiet, dark, and cool place which is necessary for hibernation of Indiana bats. These places include caves and mines where they spend the winter. The best hibernation caves are cold, but above freezing, and temperatures remain fairly stable throughout winter. During hibernation, Indiana bats stop producing body heat and, in turn, slow their metabolism, heart rate, and breathing rate to extremely low levels (USFWS, 2013).

interference would be a localized effect primarily from defective hardware that should be easily detected and replaced.

All OPSB Staff recommendations for the requirements discussed in this section can be found under the **Public Services, Facilities, and Safety Conditions** of the Recommended Conditions of Certificate.

Recommended Findings

The Staff recommends that the Board find that the nature of the probable environmental impact has been determined for the proposed facility, and therefore complies with the requirements specified in ORC Section 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Site Selection

The Applicant retained a consultant to identify Preferred and Alternate sites that would meet economic and engineering requirements for the project, while also minimizing associated ecological, cultural, and land use impacts. A project study area was defined by the location of the existing parallel section of the Eastlake-Juniper and Inland-Perry 345 kV transmission lines. The consultant then identified and mapped ecological and cultural features in the study area that represent possible constraints to project construction. Primary constraints included engineering requirements, unavailable land, habitat of endangered or threatened species, sensitive land uses, and sites of historic or archeological significance.

Eleven potential sites were identified that contain desirable attributes and avoid major constraints to the greatest extent practicable. The consultant ranked the overall desirability of these potential sites based on their quantitative and qualitative characteristics. The Applicant then selected the two highest-ranking locations as the Preferred and Alternate sites. Selection of the Preferred and Alternate sites was largely influenced by engineering considerations. The Preferred Site requires no additional right-of-way acquisition and construction of a substation at this location would minimize facility distance from existing and proposed transmission lines that would interconnect with the substation.

Minimizing Impacts

Nearby residential, recreational, institutional, and cultural land uses are similar for both sites. The Preferred Site is currently zoned industrial and located in a business park, thereby suitable for utility use. The Applicant has previously coordinated with the business park developer and is currently negotiating with the city to develop a landscaping plan to mitigate aesthetic impacts of the facility. The Preferred Site represents shorter electrical interconnections and fewer engineering challenges.

The Preferred Site would require significantly less overall vegetative clearing than the Alternate Site, needing only about one acre for the Preferred Site and about 12 acres for the Alternate Site. Impacts to wetlands, streams, and other ecologically sensitive land uses are greater for the Alternate Site. Overall project impacts would be minimized by the Applicant's development of vegetation management and access plans. Coordination with appropriate agencies and the employment of an environmental specialist would also be required.

Conclusion

The construction of this facility would result in both temporary and permanent impacts to the project area. The Preferred Site is owned by the Applicant, thus reducing overall land use conflicts. Because of this and the reasons discussed above, Staff concludes that the Preferred Site represents the minimal adverse environmental impact. With the recommended conditions, Staff concludes that minimum adverse environmental impacts would be realized.

Recommended Findings

The Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in ORC Section 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(4)

ELECTRIC GRID

Pursuant to ORC Section 4906.10(A)(4), the Board must determine that the proposed electric facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility will serve the interests of electric system economy and reliability.

The purpose of this section is to evaluate the impact of integrating the proposed Glenwillow Transmission Switching Substation Project into the existing regional transmission grid. FirstEnergy has retired or is in the process of retiring several generating units in Ohio (PJM, n.d.). The retirement of these units will cause reliability problems in the greater Cleveland metropolitan area. The proposed project would reinforce the ATSI 138 kV and 345 kV transmission systems and enable ATSI to maintain compliance with PJM and NERC reliability criteria for the bulk electric system.

NERC/ATSI Planning Criteria

The North American Electric Reliability Corporation (NERC) is responsible for the development and enforcement of the federal government's approved reliability standards, which are applicable to all owners, operators, and users of the bulk power system. NERC requires planners of the bulk electric transmission system to meet Reliability Standards TPL-001-0.1 through TPL-004-0 under transmission outage conditions for categories A, B, C, and D contingencies (NERC, 2012). According to NERC, a contingency is an unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. Below is a partial list of the NERC categories and their meanings:

- Category A (no contingencies, normal system conditions);
- Category B (single contingency outage, N-1), the planning authority and transmission planner shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand; and,
- Category C (multiple contingency outages, N-1-1), the planning authority shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand and may rely upon the controlled interruption of customers or curtailment of firm transmission service.

FirstEnergy planning criteria states that, during system normal conditions and categories B and C system outages, transmission lines shall not exceed their conductor thermal rating. Substation bus voltages must range from 0.95 per unit to 1.05 per unit, with a minimum contingency voltage of .092 per unit for 345 kV and networked 138 kV transmission lines. Transformer ratings are specific to each transformer and are based on seasonal conditions, considering loss of life and thermal stresses, and ratings should not be exceeded during normal conditions or emergency conditions.

PJM Analysis

In January of 2012, FirstEnergy gave notice to PJM about their plan to retire 14 generating units with a total capacity of 2,705 MW. PJM performed a deactivation study which studied the transmission system and found significant reliability concerns as a result of the generator

retirements (PJM, 2012, April 26). The proposed substation project is one of many that PJM proposed to bring the system up to required reliability requirements. Below is a summary of reliability impacts on the FirstEnergy and surrounding systems due to the FirstEnergy generator retirements.

Single Contingency Outage (N-1)

Voltage Violations

- Ten low voltage violations on the 138 kV system

Multiple Contingency Outages (N-1-1)

Thermal Violations

- Six 138 kV thermal violations in the Allegheny Power zone
- Thirty 138 kV and 345 kV thermal violations in the ATSI zone
- Two 230 kV / 115 kV thermal violations (transformers) in the Penelec zone
- Ten 138 kV thermal violations in the American Electric Power zone

Voltage Violations

- Ninety-two low voltage violations in the ATSI zone

Load Deliverability Analysis

The annual load deliverability analysis is performed to ensure the transmission system is able to deliver capacity resources to load under peak system conditions. The analysis is performed by increasing load in the study area, while removing generation, under many scenarios and contingencies. Below are the reliability violations that were found.

- One voltage collapse violation observed in the ATSI zone
- One 345 kV overload on an American Electric Power / ATSI facility

Generator Deliverability

The annual generator deliverability assessment is run to ensure the transmission system has the resources to deliver the output of all generators to the remainder of PJM during peak system conditions. The analysis is performed by ramping up generation in one area and scaling down generation in another area, under many scenarios and contingencies, to verify that all of the generators' output can be delivered. Below are the overloads that were found.

- Twenty-six 138 kV and 345 kV overloaded facilities in the ATZI zone.
- One 138 kV overload facility in the Allegheny Power zone.
- Seven 115 kV and 345 kV overloaded facilities in the Penelec zone.
- Eight 345 kV and 138 kV overloads in the AEP zone.

Load Flow Studies

ATSI and PJM studied the system using a 2015 summer peak forecast with and without the proposed project in-service. The studies were run using a variety of contingencies at both 50/50³ and 90/10⁴ load levels.

³ 50/50 peak load is the forecast for which there is a 50 percent probability that the actual peak load for the season will be less than the forecast and a 50 percent probability that it will be higher.

Normal Conditions

Under normal system conditions and with the announced generation retirements, the system can not support the increased load forecast. ATSI plans to convert a few generating units to synchronous condensers to help maintain a level of dynamic reactive power response, which will help maintain voltage levels. The synchronous condensers will allow the system to operate within reliability limits during normal system conditions through 2015.

N-1 Conditions

ATSI's studies revealed several thermal issues with the bulk electric system due to the retirement of FirstEnergy generators. The results indicated seven thermal violations at the 50/50 load level and 26 thermal violations at the 90/10 load level. The table below shows a snapshot of the results with and without the Glenwillow Transmission Switching Substation Project and Bruce Mansfield-Glenwillow 345 kV Transmission Line Project, case number 12-1726-EL-BLN, in-service. With the proposed project in-service, the analysis shows the thermal ratings are within the allowable range.

Category B - Contingency Thermal Analysis, Study Year 2015 (Perry Nuclear Power Plant Offline)					
Thermal Overload	Line Outage	WITHOUT Project (per unit)		WITH Project (per unit)	
		50/50 load	90/10 load	50/50 load	90/10 load
Hanna- Juniper 345 kV	Hanna-Chamberlin 345 kV	1.128	1.219	0.917	0.969
	Hardin-Chamberlin 345 kV	1.063	1.139	0.847	0.898
Brush- West Akron 138 kV	Hardin-Chamberlin 138 kV	1.04	1.143	0.855	0.938
	Juniper-Star 345 kV	1.063	1.17	0.889	0.975
	Juniper- Hanna 345 kV	1.065	1.185	0.876	0.966
Cloverdale- Barberton 138 kV	Harmon-Star 345	1.005	1.068	0.927	0.971

N-1-1 Conditions

As discussed above in the PJM analysis section, PJM performed a deactivation study which studied the transmission system and found several N-1-1 reliability concerns (PJM, 2012, April 26). The proposed substation project is one of many that PJM proposed to bring the system up to required reliability requirements (PJM, 2012, April 27).

Conclusion

The Applicant provided details on studies that were performed by ATSI and PJM. These studies demonstrated that, without the proposed Glenwillow Transmission Switching Substation Project and associated projects, ATSI would be unable to provide safe, reliable electric service. In addition, the studies revealed that the system would experience significant reliability problems in the year 2015 without any system improvements. The proposed substation would help ATSI meet and maintain required ATSI, NERC, and PJM planning criteria. The proposed facility is consistent with plans for expansion of the regional power system, and serves the interests of electric system economy and reliability.

⁴ 90/10 peak load is the forecast for which there is a 90 percent probability that the actual peak load for the season will be less than the forecast and a 10 percent probability that it will be higher.

Recommended Findings

The Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, the facility complies with the requirements specified in ORC Section 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(5)

AIR, WATER, SOLID WASTE, AND AVIATION

Pursuant to ORC Section 4906.10(A)(5), the facility must comply with specific sections of the ORC regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air

Air quality permits are not required for construction of the proposed facility. However, fugitive dust rules adopted pursuant to the requirements of ORC Chapter 3704 (air pollution control laws) may be applicable to the proposed facility. The Applicant will control fugitive dust through dust suppression techniques such as irrigation, mulching, or application of tackifier resins. These methods of dust control are sufficient to comply with fugitive dust rules.

Water

Neither construction nor operation of the proposed facility would require the use of significant amounts of water, so requirements under ORC 1503.33 and 1501.34 are not applicable to this project.

A U.S. Army Corps of Engineers (USACE) Nationwide Permit No. 12 is likely to be required to permit the minor stream and wetland impacts associated with construction of the switching substation.

The Applicant has indicated that it intends to submit a Notice of Intent (NOI) for coverage under the Ohio EPA's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity, and a related Storm Water Pollution Prevention Plan (SWPPP). This SWPPP would be developed for the project pursuant to Ohio EPA regulations and would conform to the ODNR's Rainwater and Land Development Manual. The SWPPP would include a detailed construction access plan. Following the SWPPP, as well as using best management practices for construction activities, would help minimize any erosion-related impacts to streams and wetlands. Wetlands, streams, and other environmentally-sensitive areas shall be clearly identified before commencement of clearing or construction. No construction or access is permitted in these areas unless clearly specified in the construction plans and specifications, thus minimizing any clearing-related disturbance to surface water bodies. Construction of this facility would comply with requirements of ORC Chapter 6111, and the rules and laws adopted under this chapter.

Solid Waste

Solid waste generated from construction activities would include items such as conductor scrap, construction material packaging including cartons, insulator crates, conductor reels, and wrapping, and used storm water erosion control materials. All construction-related debris would be disposed of in Ohio EPA approved landfills, or other appropriately licensed and operated facilities.

Any contaminated soils discovered or generated during construction would be handled in accordance with applicable regulations. The Applicant plans to have a Spill Prevention Plan in place and would follow manufacturer's recommendations for any spill cleanup. Vegetation waste from clearing activities is to be removed or wind-rowed along the edge of the right-of-way. Marketable timber would be cut into appropriate lengths for sale or disposition by the landowner, and stumps would not be removed. However, no windrowed or chipped vegetation, or other

project-related material, will be left in wetlands or in riparian areas within 50 feet of any stream. The Applicant's solid waste disposal plans would comply with solid waste disposal requirements in ORC Chapter 3734, and the rules and laws adopted under this chapter.

Aviation

According to the Federal Aviation Administration's (FAA) Office of Aeronautical Information Services, five airports and 20 heliports are located in Cuyahoga County. None of these facilities are located within 0.5 miles of the Preferred or Alternate site. The closest of these facilities, the St. Vincent Charity Medical Center Solon Heliport, is located approximately two miles from the Preferred Site and 1.7 miles from the Alternate Site. The height of the tallest proposed above ground structure and construction equipment at the Preferred Site is expected to be approximately 100 feet. Because of the distance from the nearest airport facilities and the absence of structures at the Preferred Site that would be greater than 200 feet above ground level, the construction and operation of the proposed facility at the Preferred Site is not expected to have an impact on airport facilities.

In accordance with ORC 4561.32, Staff contacted the ODOT Office of Aviation during review of this application in order to coordinate review of potential impacts of the facility on local airports. As of the date of preparation of this report, no such concerns have been identified. Construction and operation at the Preferred Site is not expected to have an impact on aviation.

The exact pole heights have not yet been determined for the Alternate Site. If the Alternate Site is selected by the Board, then the Applicant would need to submit pole heights to the ODOT Office of Aviation, the FAA, and Staff for review and approval prior to commencement of construction.

All Staff recommendations for the requirements discussed in this section can be found under the **Air, Water, Solid Waste, and Aviation Conditions** heading of the Recommended Conditions of Certificate.

Recommended Findings

The Staff finds that the proposed facility complies with the requirements specified in ORC Section 4906.10(A)(5), provided that any certificate issued by the Board for the certification of the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to ORC Section 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity. The Glenwillow Transmission Switching Substation Project would serve the public interest by helping to ensure reliable electric service throughout the area.

EMF

Electric transmission lines generate electromagnetic fields (EMF). Laboratory studies have failed to establish a strong correlation between exposure to EMF and effects on human health. However, there have been concerns that EMF may have impacts on human health. Because these concerns exist, the Applicant is required to compute the EMF associated with the new circuits. The fields were computed based on the maximum loadings of the lines, which would lead to the highest EMF values that might exist at the proposed substation. Daily current load levels would normally operate below the maximum load conditions, thereby further reducing nominal EMF values. The EMF profiles are shown in Figures 06-2 to 06-5 in the application.

ASTI filed a request with the Board for a waiver of the need to submit fully developed engineering and EMF information for the Alternate Site. Because engineering design was not completed for the Alternate Site, specific EMF calculations were not included. The Applicant states that EMF calculations for the Alternate Site should be similar to the Preferred Site.

The electric field is a function of the voltage, the line configuration, and the distance from the substation. Electric fields are produced by voltage or electric charge. For example, a plugged in lamp cord produces an electric field, even if the lamp is turned off. The electric field would be less than 2.27 kilovolt/meter. The electric fields are easily shielded by physical structures such as the walls of a house, foliage, or other barriers.

The magnetic fields are a function of the electric current, the configuration of the conductors, and the distance from transmission lines. The magnetic fields were estimated at the Preferred Site fence to be less than 265.88 milligauss. The magnetic field output is comparable to that of common household appliances; for example, a corded power tool has a magnetic field output of 123 milligauss. The maximum magnetic field scenarios for the proposed Preferred Site are listed in the application (Table 06-2).

The magnetic fields generated by the substation are attenuated very rapidly as the distance from them increases. Past experience has shown that, within 100 feet of the fence line of the substation, the magnetic field is not of sufficient strength to be measureable because the background effects overwhelm the measurements (NIEHS/DOE EMF RAPID Program, 2002; OPSB Staff, 1996). The nearest residence is over 1,309 feet from the Preferred Site, and about 1,810 feet from the Alternate Site.

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in ORC Section 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(7)

AGRICULTURAL DISTRICTS

Pursuant to ORC Section 4906.10(A)(7), the Board must determine the facility's impact on the agricultural viability of any land in an existing agricultural district within the Preferred and Alternate site of the proposed utility facility. The agricultural district program was established under ORC Chapter 929. Agricultural district land is exempt from sewer, water, or electrical service tax assessments. Agricultural land can be classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Eligible land must be devoted exclusively to agricultural production or be qualified for compensation under a land conservation program for the preceding three calendar years. Furthermore, eligible land must be at least 10 acres or produce a minimum average gross annual income of \$2,500.

The Applicant has confirmed with the Cuyahoga County Auditor that no agricultural district land is located within 1,000 feet of both the Preferred and Alternate sites. No adverse impacts to agricultural land are expected as a result of construction or operation of the substation.

Recommended Findings

The Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in ORC Section 4906.10(A)(7), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to ORC Section 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

Because the facility would not require the use of water for operation, water conservation practice as specified under ORC 4906.10(A)(8) is not applicable to the project.

Recommended Findings

The Staff recommends that the Board find that the requirements specified in ORC Section 4906.10(A)(8) are not applicable to this project.

IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by American Transmission Systems, Incorporated and the record compiled to date in this proceeding, Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of public or other input received subsequent to issuance of this report.

GENERAL CONDITIONS

Staff recommends the following conditions to ensure conformance with the proposed plans and procedures as outlined in the case record to date, and to ensure compliance with all conditions listed in this staff report:

- (1) The facility shall be installed at the Applicant's Preferred Site, as presented in the application, and as modified and/or clarified by the Applicant's supplemental filings and further clarified by recommendations in the *Staff Report of Investigation*.
- (2) The Applicant shall utilize the equipment and construction practices as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in the *Staff Report of Investigation*.
- (3) The Applicant shall implement the mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in the *Staff Report of Investigation*.
- (4) The Applicant shall conduct a preconstruction conference prior to the start of any construction activities. Staff, the Applicant, and representatives of the prime contractor and all subcontractors for the project shall attend the preconstruction conference. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for Staff review. The Applicant may conduct separate preconstruction meetings for each stage of construction.
- (5) At least 30 days before the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance, one set of detailed engineering drawings of the final project design, including the substation, temporary and permanent access roads, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically-referenced electronic data. The final design shall include all conditions of the certificate and references at the locations where the Applicant and/or its contractors must adhere to a specific condition in order to comply with the certificate.
- (6) If any changes are made to the project layout after the submission of final engineering drawings, all changes shall be provided to Staff in hard copy and as geographically-referenced electronic data. All changes outside the environmental survey areas and any changes within environmentally-sensitive areas will be subject to Staff review and acceptance, to ensure compliance with all conditions of the certificate, prior to construction in those areas.

- (7) Within 60 days after the commencement of commercial operation, the Applicant shall submit to Staff a copy of the as-built specifications for the entire facility. The Applicant shall provide as-built drawings in both hard copy and as geographically-referenced electronic data.
- (8) The certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five years of the date of journalization of the certificate.
- (9) As the information becomes known, the Applicant shall provide to Staff the date on which construction will begin, the date on which construction was completed, and the date on which the facility begins commercial operation.

ECOLOGICAL CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Ecological Impacts** section of the Nature of Probable Environmental Impact:

- (10) The Applicant shall have a construction access plan based on final plans for the access roads, substation, and types of equipment to be used, that addresses the concerns outlined in this *Staff Report of Investigation*. Prior to commencement of construction, the Applicant shall submit the plan to Staff, for review and confirmation that it complies with this condition.
- (11) The Applicant shall have a vegetation management plan that addresses the concerns outlined in this *Staff Report of Investigation*. Prior to commencement of construction, the Applicant shall submit this plan to Staff, for review and confirmation that it complies with this condition.
- (12) The Applicant shall have a Staff-approved environmental specialist on site during construction activities that may affect sensitive areas, as mutually agreed upon between the Applicant and Staff, and as shown on the Applicant's final construction access plan. Sensitive areas include but are not limited to areas of vegetation clearing, designated wetlands and streams, and locations of threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction.
- (13) The Applicant shall contact Staff, ODNR, and the USFWS within 24 hours if state or federal threatened or endangered species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, Staff, and ODNR in coordination with the USFWS. Nothing in this condition shall preclude agencies having jurisdiction over the facility with respect to threatened or endangered species from exercising their legal authority over the facility consistent with law.
- (14) Based on coordination with USFWS, the Applicant shall adhere to seasonal cutting dates of November 15 through March 15 for removal of suitable Indiana bat habitat trees located within the five-mile buffer of a suspected hibernaculum.
- (15) The Applicant shall consult with an ODNR-approved herpetologist to review the project area and construction access routes for impacts to the spotted turtle. The results of this

review shall be coordinated with OPSB Staff and ODNR to determine if avoidance, minimization, or construction restriction measures are required.

PUBLIC SERVICES, FACILITIES, AND SAFETY CONDITIONS

Staff recommends the following conditions to address the impacts discussed in the **Public Services, Facilities, and Safety** section of the Nature of Probable Environmental Impact:

- (16) Prior to commencement of construction activities that require transportation permits, the Applicant shall obtain all such permits. The Applicant shall coordinate with the appropriate authority regarding any temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility. Coordination shall include, but not be limited to, the county engineer, ODOT, local law enforcement, and health and safety officials. This coordination shall be detailed as part of a final traffic plan submitted to Staff prior to the preconstruction conference for review and confirmation that it complies with this condition.
- (17) General construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 p.m. Impact pile driving and hoe ram operations, if required, shall be limited to the hours between 10:00 a.m. to 5:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary.

AIR, WATER, SOLID WASTE, AND AVIATION CONDITIONS

Staff recommends the following conditions to address the requirements discussed in Air, Water, Solid Waste, and Aviation:

- (18) Prior to the commencement of construction activities that require permits, licenses, or authorizations by federal or state laws and regulations, the Applicant shall obtain and comply with such permits, licenses, or authorizations. The Applicant shall provide copies of permits and authorizations, including all supporting documentation, to Staff within seven days of issuance or receipt by the Applicant. The Applicant shall provide a schedule of construction activities and acquisition of corresponding permits for each activity at the preconstruction conference.

APPENDIX

1. DOCKETING RECORD

CASE NUMBER: 12-1727-EL-BSB

DESCRIPTION: Glenwillow Transmission Switching Substation

FILINGS AS OF: 01/14/2013

01/11/2013	Affidavit of Jay A. Ruberto confirming mailing of addresses of property owners to local government officials electronically filed by Mr. Robert J. Schmidt on behalf of American Transmission Systems Inc.
01/11/2013	Motion and memorandum in support for Order Approving Public Notification Letter Mailing Date electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.
12/19/2012	Proof of pub for the County of Cuyahoga filed by R. Schmidt on behalf of ATSI.
12/11/2012	Service Notice
12/10/2012	Administrative Law Judge Entry granting Glenwillow's motion to intervene in accordance with Finding (3), granting applicant's motion for a waiver in accordance with Finding (7), ordering hearings in this matter at the times and places designated in Finding (10), ordering that the notices of the application and hearings be published by ATSI in accordance with Findings (12) and (13), ordering Staff file its Staff Report in accordance with Finding (14), and ordering the parties file their issue lists and testimony in accordance with Finding (14). - electronically filed by Sandra Coffey on behalf of Jay Agranoff, Attorney Examiner, Public Utilities Commission of Ohio.
11/30/2012	Service Notice of Accepted and Complete Application on Local Government Officials electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.
11/28/2012	Chair Letter Regarding Compliance sent to: Mr. Morgan Parke Senior Corporate Counsel filed by T. Snitchler Chairman on behalf of the OPSB.
11/14/2012	Village of Glenwillow's memorandum in opposition to applicant's motion for certain waivers filed by Stephen M. Klonowski on behalf of Village of Glenwillow.
11/09/2012	Application continued. (part 4 of 4)
11/09/2012	Application continued. (part 3 of 4)
11/09/2012	Application continued. (part 2 of 4)
11/09/2012	Application of FirstEnergy Service Company (ATSI) for the Glenwillow Substation Project filed by J. Ruberto. (part 1 of 4)
11/05/2012	Letter of Notification submitted by Steven L. Beeler, Assistant Attorney General, on behalf of the Staff of the Ohio Power Siting Board stating that Staff does not object to the waivers requested by applicant in its October 12, 2012 motion for certain waivers electronically filed by Kimberly L. Keeton on behalf of Ohio Power Siting Board.
10/22/2012	Notice of intention to intervene by The Village of Glenwillow, Ohio filed by S. Klonowski.
10/12/2012	Motion for Certain Limited Waivers and Memorandum in Support electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.
10/02/2012	Correspondence of Mayor M. Cegelka of the Village of Glenwillow in regard to concern over the location of the Glenwillow Transmission Substation Project, filed by Mayor Mark A. Cegelka.
09/12/2012	Proof of Publications for American Transmission Systems. Incorporated published in the counties of Columbiana, Mahoning, Trumbull, Portage, Cuyahoga, and Summit, filed by R. J. Schmidt, Jr.
07/10/2012	Response letter sent to: Mark A. Cegelka, Mayor Village of Glenwillow filed by K. Wissman on behalf of OPSB.
06/27/2012	Letter in opposition to the proposed location of the substation the Village of Glenwillow filed by Mayor Mark Cegelka.
06/05/2012	Notice of Correction of Typographical Error electronically filed by Mr. Robert J. Schmidt on behalf of American Transmission Systems Inc.
06/01/2012	In the matter of the Pre- Application Notification for the Glenwillow Transmission Substation Project

2. REFERENCES

- NERC. (2012). *Standards: Reliability Standards*. Retrieved November 8, 2012, from North American Electric Reliability Corporation: <http://www.nerc.com/page.php?cid=2|20>
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- OPSB Staff. (1996, October). *EMF Survey Report*.
- PJM. (2012, January). *2012 Load Forecast Report*. Retrieved December 10, 2012, from <http://pjm.com/~media/documents/reports/2012-pjm-load-report.ashx>
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- USFWS. (2013, January 3). *Indiana Bat Fact Sheet*. Retrieved from U.S. Fish & Wildlife Service Endangered Species: <http://www.fws.gov/midwest/endangered/mammals/inba/inbafactsht.html>



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Summary: Staff Report Filed electronically filed by Mr. James S. O'Dell on behalf of Staff of OPSB

