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COPY

February 2, 2005

**VIA UNITED PARCEL SERVICE**

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
P.O. Box 3265  
Harrisburg, PA 17105-3265

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FEB 02 2005

PA PUBLIC UTILITY COMMISSION  
CENTRAL FILE BUREAU

**Re: Advanced Notice of Proposed Rulemaking  
Regarding Small Generation Interconnection Standards  
and Procedures  
Docket No. ~~L-00040105~~  
L-00040168**

Dear Mr. McNulty:

Enclosed for filing is an original and fifteen (15) copies of Comments on behalf of FirstEnergy Companies, Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company for the above-referenced docket.

Sincerely,



Michael G. Wolfe, Esquire

dln  
Enclosures

c: C. Choate  
B. Rimmel

BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

COPY RECEIVED

FEB 02 2005

PENNSYLVANIA PUBLIC UTILITY COMMISSION  
HARRISBURG, PENNSYLVANIA

Advanced Notice of Proposed :  
Rulemaking Regarding Small Generation : Docket No. L-00040168  
Interconnection Standards and Procedures :  
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COMMENTS ON BEHALF OF METROPOLITAN EDISON COMPANY,  
PENNSYLVANIA ELECTRIC COMPANY AND PENNSYLVANIA POWER COMPANY –  
THE FIRSTENERGY OPERATING COMPANIES

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**INTRODUCTION**

Pursuant to the Advanced Notice of Proposed Rulemaking Regarding Small Generation Interconnection Standards and Procedures (“ANOPR”), the FirstEnergy operating companies of Pennsylvania Electric Company, Metropolitan Edison Company, and Pennsylvania Power Company (collectively, “FirstEnergy” or “FE”) submit these preliminary comments. The ANOPR was issued by the Commission on November 18, 2004, and published in the Pennsylvania Bulletin Volume 34 Number 49, Saturday, December 4, 2004, Harrisburg, Pennsylvania, Pages 6426—6429. The Advanced Notice set forth six separate goals with this rulemaking: 1) eliminate unnecessary barriers to entry in the distributed generation market; 2) promote distributed generation in order to provide peak demand responsiveness; 3) enhance grid reliability; 4) increase transparency in the interconnection process; 5) create uniformity and thereby ease the difficulty presented by a patchwork of different procedures; and 6) lower the overall cost of locating and placing distributed generation across the Commonwealth.

FirstEnergy respectfully submits the following comments in response to the ANOPR and also endorses the comments being submitted by the Energy Association of Pennsylvania on behalf of its member companies.

### **INTERCONNECTION STANDARDS VS. NET METERING ISSUES**

In issuing the ANOPR regarding the development of Interconnection Standards, the Commission has requested comments from interested parties. It is important to note that the ANOPR did not include or address the issue of net metering, which we applaud and submit is the appropriate course to take. It is fundamental that net metering should be considered separately from interconnection standards. Interconnection is a technical and safety matter. It should be strictly limited in scope to operational and safety parameters and the appropriate allocation of costs associated with the interconnection of distributed generation resources ("DG"). Conversely, the financial issues related to net metering are paramount and represent the business rules between the parties related to the transfer of energy and its associated value and is not otherwise directly related to the interconnection issue. With the exception of New Jersey, all of the existing standards referenced in the ANOPR (as well as Ohio) do not incorporate net metering requirements in their interconnection standards; nor should Pennsylvania.

### **INTERCONNECTION ISSUES**

The Commission in its ANOPR for the development of an interconnection standard directed the parties to review existing standards such as those identified in the

ANOPR and identify preferences and comment on the merits of the standards. In addition to the standards identified in the ANOPR, the state of Ohio has also implemented standards applicable to all EDCs in its state. Several of the EDCs in Ohio are in the process of becoming part of the PJM system. While most of the existing standards have some merit, none of these should be adopted “as is” for the Ohio standard and indeed implementation in Pennsylvania. However, if the Commission elects to choose one of the existing standards to serve as the basis to build from, we believe the Ohio and Texas standards provides the best starting point.

Although these comments are preliminary, there are two primary elements of the interconnection issue that need to be addressed: 1) the specific technical requirements necessary to ensure a safe & reliable electrical distribution system, and 2) the procedural and cost recovery aspects of the interconnection process.

### **Technical**

Each of the existing state standards is primarily based on IEEE 1547 with few exceptions. IEEE 1547 is intended to provide minimum technical requirements for interconnection. The Commonwealth should not adopt any standard, which in any way diminishes the integrity, reliability and safety of the interconnection of DG to the EDC’s electrical system. This should be paramount. For example, all generation systems must have a readily accessible, outdoor and lockable disconnect switch in order to ensure safety of workers and the public, as well as to timely prevent potential damage to the distribution system. IEEE 1547 provides for the requirement of this switch where the EDC deems it necessary. Only New Jersey has pre-empted the EDC’s ability to

enforce this important safety requirement. Pennsylvania should not follow that approach, but should instead preserve EDCs ability to insist upon such a reasonable requirement which adds only minimally to the cost but significantly to worker safety and system integrity.

Further, in addition to meeting the requirements of IEEE 1547 for interconnection, the customer's generating facility must be installed in accordance with the provisions of the National Electrical Code. If the customer is utilizing any pre-certified equipment, the equipment must be tested by a nationally recognized testing laboratory and certified as to meeting the requirements of UL 1741 for pre-certification.

Islanding (the ability to generate energy into a portion of the utility system while the system is down) of any type should not be permitted. There are no national standards for allowing a DG to export power in the event of a utility outage. IEEE 1547 does not allow unintentional islanding and provides that a DG cease to energize the system within two seconds of the formation of an island. IEEE 1547 recognizes the lack of any standard for intentional islanding and provides that this topic is under possible consideration for future revisions to the Standard. Further, islanding would leave the DG responsible for providing PUC mandated voltage, frequency, and power quality to both utility and other customer's equipment making up the island. The DG would have to shoulder the responsibility of resultant damage either to utilities' or other customers' equipment to which they would provide power during the island condition. Also, the islanded system creates a serious problem for system restoration. Utilities would not be able to reconnect with this islanded system using standard utility reclosing practices. This would force the installation of synchronism checking relays for every

island interconnection point, not just the DG interconnect point. Reclosing without synchronization would cause serious damage to the customer's generation equipment and is a significant safety concern as well.

Additionally, if the utility energized system and the DG energized system are running closely in frequency but are out of synchronism, then the DG powered island must be forced to "push" its frequency to bring the two systems into synchronism. The utility system cannot be adjusted since it is running in parallel with major portions of the United States. This would require communications between the DG facility and the points in the utility system where synchronism check relays were installed.

IEEE 1547 does not currently provide for any standardized interconnection of DR to a secondary grid network and limited permissibility to secondary spot networks. Most of the existing standards provide limited accessibility to network interconnections or defer to IEEE 1547. PJM's standard only allows for network interconnection on an exception basis at the discretion of the EDC. Again, only New Jersey has relaxed the requirements of IEEE 1547 by providing for standardized automatic approval process for the interconnection of DG to a secondary grid network.

If any screening process for automatic approval of pre-certified DG is utilized at all, it should be limited to small inverter-based systems and should not include larger inverter-based systems or, more importantly, rotating equipment systems, which should always be subject to a full review process, including system impact study. In the event of a fault, rotating equipment has the potential to generate current which is five to seven times its full load rating which can cause damage to the distribution

system and customer equipment. While this is also a procedural issue, it is included here as an important safety concern.

In general, we submit that IEEE 1547 should control and form the basis for the technical requirements for interconnection and parallel operation of DG, and when revised should supersede or modify any previously approved minimum technical requirements.

In this respect, PJM's standard, when finalized (the standard is in the final stages of the formal approval and filing process), should be adopted for implementation in Pennsylvania. It recognizes the uniqueness of different EDC systems, particularly with regard to grounding and fault protection. It also provides for additional consideration for power quality issues and additional requirements for voltage balance regulation, which may likely be incorporated into future revisions to the IEEE standard.

Should the Commission adopt this approach, thereafter, PJM in conjunction with the EDC's and in consideration of any revisions to IEEE 1547, can update the PJM standard as necessary and appropriate, thereby obviating the need for continuous Commission scrutiny.

#### **Procedural/Cost Recovery/Contractual**

Review times must be reasonable and adequate to ensure safety and reliability of the system. Review times should recognize a basic difference between small inverter-based generators and larger capacity inverters as well as rotating equipment systems. The potential impact of rotating systems on the safety and reliability of the EDC system can be substantial. Time limitations on the application

review process should never result in a “deemed approval”. This represents a serious potential safety concern.

As indicated above, it is important that any screening tools for predetermined approval of pre-certified systems should be limited to very small inverter-based systems and not be very prescriptive. The EDCs should be allowed to review these systems as best suits their practices. Several of the screening processes in the existing standards either make the approval process more cumbersome than it would be absent the screens, or institute such a proscriptive process as to afford inadequate review time for the EDCs.

It cannot be overemphasized that due to the complexity of electric distribution systems, variable conditions and differences between EDC systems, it is necessary that EDCs be able to adequately evaluate systems through a thorough review. Nothing should limit the ability of the EDC to conduct a thorough review and require that the generator meet specific requirements to ensure safety, system control, and reliability. In this respect, it is submitted that response times should never be limited to less than two weeks if for no other reason than practicality.

It is also recommended that the Commission adopt a standardized interconnection agreement format which could be based upon the PJM model. However, contract modifications for larger systems requiring additional protective equipment, including dealing with such issues as short circuit duty, voltage regulation and power factor correction and other similar impacts on the distribution grid should be expressly permitted. Insurance and indemnification should be included in every interconnection agreement.

Further, the agreement must provide the EDC with the ability to disconnect a distributed generation unit from the utility system when certain events occur. Primarily this would encompass such events as system emergencies and normal system maintenance. During a system emergency, the EDC, without prior customer notice, must be able to disconnect a generating facility where the interconnection is endangering persons or property and during forced outages of the connected distribution feeder where repairs are required. Additionally, the EDC should, with prior customer notice, have the ability to disconnect a generator during normal system maintenance in order to perform the required work in a safe and efficient manner. Other reasons for disconnection by the EDC may include customer non-compliance with the required technical standards or the terms of the interconnection agreement.

Threshold application fees should be required for all applications with an incremental cost over some specified size (e.g., \$350 minimum, increased by \$5 per kW for systems larger than 50 kW). The minimum fees will help prevent the EDCs from being inundated with incomplete applications and allow the EDCs to recover some of the costs of a high-level, preliminary feasibility study. Where full interconnection impact studies are required for larger systems, the EDC should be permitted to recover its reasonable costs, including overheads but excluding profit.

Construction and upgrade costs should be borne by the interconnection service customer, i.e., those costs incurred by the EDC to upgrade its distribution system in order to accommodate the interconnection service customer. Additionally, any required periodic inspection and routine maintenance performed by the EDC as

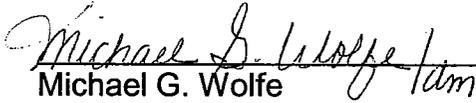
reasonably required to ensure safety and reliability should also be performed at the interconnection service customer's cost.

### **CONCLUSION**

FirstEnergy appreciates the opportunity to submit these comments to the Commission ANOPR on Interconnection Standards. In addition, as noted above, it endorses the comments of the Energy Association of Pennsylvania (EAP) submitted on behalf of its member companies. FirstEnergy urges the Commission to develop standards which are consistent with PJM and IEEE 1547, ensure the EDC's ability to require equipment that protects the integrity of the system and worker safety, and permits the EDC to recover its reasonable costs.

Dated: February 2, 2005

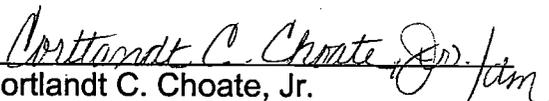
Respectfully submitted,

  
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