

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

NERC BA, RC, and TOP Certification of PJM Interconnection, LLC for American Transmission Systems, Incorporated (ATSI) and Cleveland Public Power (CPP)

Site Visit Conducted
April 11-13, 2011
PJM's Control Center

to ensure
the reliability of the
bulk power system

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Introduction

This report presents the results of the Certification Team’s “CT” efforts that reviewed, has made a determination of, and is recommending that PJM Interconnection, LLC “PJM” (NCR00879) be North American Electric Reliability Corporation “NERC” certified as a Transmission Operator “TOP”, Balancing Authority “BA”, and Reliability Coordinator “RC” for American Transmission Systems, Incorporated “ATSI” (NCR00686) and Cleveland Public Power “CPP” (NCR00712). The team rosters for members of the CT and the PJM/ATSI/CPP teams can be found in Attachment 1.

Background

TOPs have a primary responsibility for maintaining the real-time reliability of their local transmission system, mitigate System Operating Limits “SOL” and operate, or direct the operations of, the transmission facilities. BAs have the primary responsibility to integrate resource plans ahead of time, maintain load-interchange-generation balance within their BA area, and support Interconnection frequency in real-time. RC is the entity that is the highest level of authority and is responsible for the reliable operation of the overall bulk power system, has the wide area view of the bulk power system, and has the operating tools, processes and procedures, including the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations. The RC has the purview that is broad enough to enable the calculation of Interconnection Reliability Operating Limits “IROL”, which may be based on the operating parameters of transmission systems beyond any Transmission Operator’s vision.

Acceptable reliability levels can be maintained only if the BA, RC, and TOPs (and other entities that make up the Interconnection) function in accordance with good operating practices and reliability criteria including the planning and operating standards as defined by the NERC Reliability Standards. Good operating practices include, but are not limited to, full compliance with the NERC Reliability Standards without regard to economic consideration, or burdening neighboring systems.

Certification Team

Following the request by PJM to perform the functions of BA, RC, and TOP for ATSI and CPP, NERC’s decision to complete a certification review began the process that is outlined in the NERC Rules of Procedure “RoP” Section 500 and RoP Appendix 5. As such, a CT was then formed and a review date was selected to perform the on-site visit to certify PJM. The CT is made up of representatives from NERC, SERC Reliability Corporation “SERC” and ReliabilityFirst Corporation “RFC”.

Objective and Scope

The objective of the CT’s review was to assess PJM’s processes, procedures, and tools that will allow it to perform the function of a BA, RC, and TOP for CPP and ATSI. The scope of the review included: (1) interviewing ATSI’s, CPP’s, and PJM’s management and reviewing pertinent documentation for verification of basic requirements for BA, RC, and TOP operation

that will include the ATSI and CPP area; (2) reviewing procedures, and other documentation developed by PJM to meet the applicable standards/ requirements that will include ATSI and CPP; (3) interviewing ATSI's, CPP's, and PJM's system operations personnel; (4) reviewing PJM's primary capabilities, Energy Management System "EMS", communication facilities, operator displays, etc. to ensure they include ATSI and CPP and (5) performing other validation reviews as considered necessary such as test data, training records, and applicable agreements to ensure ATSI and CPP areas are addressed. An on-site review was held at the main PJM office on April 11-13, 2011.

Overall Conclusion

The certification process was completed in reasonable accordance with the NERC RoP to determine if PJM has updated their tools, processes, and procedures to perform the function as a NERC-certified BA, RC, and TOP for the ATSI and CPP areas. PJM presented to the CT the necessary evidence for its review as it relates to the applicable standards/requirements. Because of this review, the CT has reasonable assurance that PJM has updated and has in place the tools, processes, and procedures to reliably perform the BA, RC, and TOP function for ATSI and CPP.

Therefore, the BA, RC, and TOP CT recommends to NERC and RFC that they approve certification of PJM as a NERC-certified BA, RC, and TOP for ATSI and CPP. PJM plans to commence operations as the BA, RC, and TOP in behalf of CPP and ATSI on June 1, 2011.

The CT found that the PJM operators have been trained and are equipped with the necessary operating tools, and they are prepared to take on the BA, RC, and TOP operations for their expanded footprint of ATSI and CPP. All of PJM's, CPP's and ATSI's operators are properly NERC-certified.

Certification Team Findings - Needed for Operation

PJM was able to close all findings by the issuance of this report.

Positive Observations

- ATSI, MISO, and CPP's involvement in the transition¹
 - Operations and Management
- PJM's Energy Management System "EMS" operator toolset
 - Special Protection System "SPS" overview, Cleveland interface, Intelligent Event Processing "IEP"
- PJM presently performs an independent 3 year TOP assessment of each of their Transmission Owners "TO" members
- Mock migration drills provided by PJM with ATSI and CPP to simulate the change
- PJM started planning on this transition in 2009
- Model validation was done at PJM for the CPP and ATSI footprint prior to June 1 go live

¹ Midwest ISO "MISO" is the present RC and BA for ATSI and CPP.

- Parallel monitoring by PJM of the CPP and ATSI system since May 2010
- PJM’s swap-over considerations by placing PJM operators at the Midwest ISO, CPP and ATSI control centers on go live date
- PJM’s NERC approved dispatcher training
 - Rigor to the Systematic Approach to Training “SAT” process
 - Integration with ATSI, CPP, and PJM
 - PJM operators going to ATSI and CPP Control Centers prior to go live to aid ATSI and CPP operators
 - 2010 ATSI training schedule for PJM certification

Company History – Background

PJM Interconnection is a regional transmission organization “RTO” that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia.

PJM’s role as a federally regulated RTO means that it acts independently and impartially in managing the regional transmission system and the wholesale electricity market. PJM ensures the reliability of the largest centrally dispatched grid in North America.

PJM’s members, totaling more than 500, include power generators, transmission owners, electricity distributors, power marketers and large consumers.

Company Details - Operating Facility

PJM Interconnection, LLC

The PJM operates a centrally dispatched electric power market that, as of December 31, 2010, had installed generating capacity of 166,512 megawatts “MW” in a region including more than 54 million people in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia.

As part of that function, PJM coordinates and directs the operation of the transmission grid and plans transmission expansion improvements to maintain grid reliability in this region. PJM assures there are no gaps in reliability as reflected in their manuals, compliance bulletins, and summarized in the TO/TOP matrix. There is a clear understanding of responsibilities and authorities as included in PJM agreements, the TO/TOP matrix, training and the TO audit program.

The TO/TOP matrix is intended to clarify the assignment of tasks based on the unique relationship between PJM and its member TOs as defined in the agreements and described in detail in various PJM manuals. The TO/TOP matrix does not create any new obligations for PJM or its members, but is simply a cross-reference to indicate where the assignment of various reliability tasks is documented.

American Transmission Systems, Inc.

The PJM primary control center provides the facilities necessary to monitor the status of all ATSI transmission resources including transmission line status, real and reactive power flows, voltage, load tap changers settings, and the status of rotating and static reactive resources on its system under normal and emergency conditions. Additionally, ATSI operates a backup control center located in its own transmission footprint.

FirstEnergy is a diversified energy company dedicated to safety, reliability and operational excellence. Its ten electric distribution companies comprise the nation's largest investor-owned electric system. Its diverse generating fleet features non-emitting nuclear, scrubbed baseload coal, natural gas, and pumped-storage hydro and other renewables, and has a total generating capacity of approximately 24,000 megawatts.

FirstEnergy is the parent company of ATSI. ATSI consists of the transmission systems of Ohio Edison Company "OE", Pennsylvania Power Company "PP", The Cleveland Electric Illuminating Company "CEI", and The Toledo Edison Company "TE" serving portions of north and central Ohio, as well as, western Pennsylvania. ATSI currently operates in the Midwest ISO Regional Transmission Organization "RTO" footprint and owns and operates a Bulk electrical System consisting of over 7,500 circuit-miles of transmission lines operated at nominal voltages of 345kV, 138kV and 69kV.

The ATSI system will be integrated in the PJM RTO on June 1, 2011. Upon integration, PJM will become the BA, TOP, and the RC for the ATSI system. ATSI will only remain registered as a Transmission Owner.

Cleveland Public Power

CPP is a municipal electric utility operated by The City of Cleveland's Department of Public Utilities for the purpose of supplying electric service to the residents and businesses of Cleveland. CPP serves about 75,000 residential, commercial and industrial customers and has a peak load of about 330 MW. CPP has 4 synchronous interconnections with ATSI, in The CEI service area. CPP has 35 miles of 138 kV transmission lines and ten 138 kV substations. CPP is in the planning stages of constructing a new 138 kV substation and a segment of 138 kV line that will complete a transmission loop in the CPP system.

CPP is registered for six NERC functions: TO, TOP, LSE, PSE, TP, and DP. Following the transition on June 1, 2011, CPP will cease to be a TOP and TP when those functions are assumed by PJM.

Documentation List

Copies of all of the supporting PJM documents were collected as evidence of PJM's preparedness, and will be kept as a record of evidence to support the CT's recommendation. These documents will be retained at the RFC office in Akron Ohio for a period of no less than six (6) years.

None of the documents listed below are included with the distribution of this final report. Per the NERC Rules of Procedure, and due to the confidential nature of this material, these documents are available for review at the RFC offices after proper authorization is obtained through RFC and NERC:

- PJM's TO/TOP Matrix of Shared Responsibilities

- Various PJM BA, RC, and TOP evidence files. Also evidence from ATSI and CPP, as applicable (Procedures, Training Materials, Manuals, Agreements, etc)
- Presentations made by PJM, ATSI, CPP, and the Certification Team

Evaluation of the BA, RC, and TOP Standards

The certification team was able to assess the registrant's ability to reasonably meet the BA, RC, and TOP standards/requirements as documented in the PJM Master BA, RC, and TOP Evidence files provided to the CT.

Attachment 1

Certification Team

- Dirk Baker RFC
- Don Urban RFC
- Jim Hughes NERC (Lead)
- Jim Uhrin RFC
- Steve Gibe SERC

ATSI in Person Participants:

- Robert Austin – Director, Transmission Operations
- Donald Miller – Manager, FERC and RTO Transmission Policy
- Stephen Megay – Acting Manager, Transmission Operations Services
- Richard Maxwell – Acting Manager, Transmission Operations Support Services
- John Martinez – Acting Manager, Transmission Planning and Protection
- John Reed – Supervisor, Compliance, Procedures and Training
- Chad Leas – Supervisor, Power Network Analysis
- Brian Hallett – Advanced Engineer, Transmission Planning and Protection
- David Kibler – Engineer, Transmission Operations Support Services
- Mark Backer – Transmission System Operator
- Allen Halliwell – Transmission System Operator
- Alex Sarles – Transmission System Operator

ATSI Phone Participants:

- Sherri Rhodes – Transmission Specialist, Transmission Operations Support Services
- Jim Eckels – Senior Transmission Specialist, Transmission Operations Support Services
- John Wilson – Senior Transmission Specialist, Transmission Operations Support Services
- Thomas Oborn – Senior Transmission Specialist, Transmission Operations Support Services
- Terry Keller – Transmission Specialist, Transmission Operations Support Services
- Patty Keim – Manager, EMS Operations
- Richard Murphy – Application Architect, EMS Operations
- Jason Kneale – PNA/DTS Engineer, EMS Operations
- David Mills – Manager, Network Engineering and Planning
- Noel Marrero – Network Engineering and Design Lead
- Robert Mark – ICCP Analyst, EMS Operations
- William Nolan – Voice Ops, IT Infrastructure Network Field Operations

PJM Participants at the NERC Certification Review:

- Frank Koza – Executive Director, Operations Support
- Thomas Bowe – Executive Director, Reliability and Compliance
- Michael Bryson – Executive Director, System Operations
- Paul McGlynn – General Manager, System Planning
- Patrick Brown – Manager, NERC and Regional Coordination
- Glen Boyle – Manager, System Operator Training
- Michael Sitarchyk – Manager, State and Member Training

- Thomas Moleski - Senior Analyst, NERC and Regional Coordination
- Catherine Wesley – Senior Analyst, NERC and Regional Coordination
- David Souder – Manager, Operations Planning
- Mark Sims – Manager, Transmission Planning
- Jeffrey Hoffman – Senior Engineer, Operations Support
- Joan D’Antonio – Supervisor, System Operations
- David Hislop – Reliability Engineer, System Operations
- Brian Oakes – Master Dispatcher, System Operations
- John Libertz - Master Dispatcher, System Operations
- Kevin Hatch - Master Dispatcher, System Operations
- Michael Francis - Master Dispatcher, System Operations
- Michael Herman – Engineer, System Planning
- John Baranowski – Manager, Model Management
- Megan McLaverty – Contractor, NERC and Regional Coordination
- Robert Eckenrod – Counsel, Office of General Counsel

CPP Participants at the NERC Certification Review:

- William Zigli – Chief Compliance Officer, Deputy Commissioner
- Thomas Smith – Supervisor, Operations