



NORTHEAST POWER COORDINATING COUNCIL, INC.
1515 BROADWAY, NEW YORK, NY 10036-8901 TELEPHONE: (212) 840-1070 FAX: (212) 302-2782

Compliance Audit Report KeySpan-Ravenswood LLC

September 25, 2007

Public Version

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Executive Summary

The offsite compliance audit of the KeySpan-Ravenswood facility was conducted on September 25, 2007. The auditor evaluated Ravenswood compliance with eleven reliability standards pertaining to the Generator Owner/Generator Operator functions identified in the NERC 2007 Implementation Plan for the period of the last twelve months or monitoring timeframes specified in each reliability standard. The auditor reviewed accompanying documentation KeySpan presented as evidence of compliance.

Two of the reliability standards applicable to GO/GOP's were classified as not applicable to Ravenswood, see Audit Results Findings. KeySpan provided adequate evidence of compliance with of the remaining standards.

Audit Process

The compliance audit process steps are detailed in the NERC CMEP. The NERC CMEP generally conforms to the United States Government Accountability Office Government Auditing Standards and other generally accepted audit practices.

Objectives

All registered entities are subject to audit for compliance with all reliability standards applicable to the functions for which the registered entity is registered.¹ The audit objectives are:

- Independently review KeySpan-Ravenswood's compliance with the requirements of the reliability standards that are applicable to KeySpan-Ravenswood based on its registered functions.
- Validate compliance with applicable reliability standards from the NERC 2007 Implementation Plan list of actively monitored standards.

Scope

The compliance audit was performed by an independent auditor with support from the regional manager of compliance.

The auditor questioned one employee representing subject matter expertise and reviewed accompanying documentation KeySpan presented as evidence of compliance. The KeySpan employee represented the GO/GOP's registered function from the organization. The auditor in addition verified KeySpan-Ravenswood's GO/GOP compliance with the Reliability Coordinator for the jurisdiction, the New York Independent System Operator (NYISO).

Compliance audits of GO/GOP's are scheduled on a periodic basis of six year intervals. The reliability standards reviewed in the KeySpan-Ravenswood audit included all of the standards pertaining to the GO/GOP functions in the NERC 2007 Implementation Plan. For the 2007 program, reliability standards are monitored based on the retention periods and monitoring timeframes specified in each reliability standard. The list of reliability standards along with their corresponding monitoring timeframes are listed in Appendix 1. The Northeast Power

¹ North American Electric Reliability Corporation CMEP, paragraph 3.1, Compliance Audits

Coordinating Council's Compliance Manager provided a list of reliability standards and supporting documentation to KeySpan-Ravenswood before the audit.

Methodology

The auditor reviewed the documented evidence and if after reviewing the submitted evidence, the auditor had additional questions, the Ravenswood subject matter expert was asked to respond to the questions by way of a meeting, email and by phone.

The auditor would take time to go through submitted evidence and discuss findings with NPCC's Compliance Manager and with the NYISO's Compliance representative to determine if the evidence meets the requirements of the reliability standard. If the evidence was inadequate or did not cover all of the requirements in the reliability standard, the auditor asked for additional evidence. If KeySpan-Ravenswood could not find or submit additional evidence then the auditor determined that a possible violation exists. Ravenswood was not asked to create documentation in these instances only to submit existing evidence in addition to what was already submitted. The auditor reviewed KeySpan-Ravenswood's documentation offsite. The Ravenswood subject matter expert provided additional evidence to support their compliance in the form of verbal explanation and a follow-up emails. Examples of compliance are site procedures, and copies of the submitted information to the NYISO. Throughout the audit, the auditor took notes on findings of evidence of compliance or if evidence was not sufficient to show compliance.

The auditor shared his preliminary results verbally with the Ravenswood subject matter expert.

Audit Considerations

No audit process or procedure can define every possible aspect, situation or scenario encountered by auditors when conducting a compliance audit. Auditors are expected to use their best professional judgment. The following paragraphs describe considerations when conducting bulk electric system reliability compliance audits.

Compliance audits of the bulk electric system reliability are based on newly defined mandatory reliability standards. Implementation of the reliability standards involves some risk for compliance audits due to the inherent learning curve of registered entities. This risk is mitigated by educating registered entities via regional compliance seminars, providing reliability standard information on the regional and NERC websites, encouraging industry involvement in the standards development process and by training compliance auditors.

The bulk electric system contains many variables which require skilled personnel to plan and operate in a reliable manner. Many requirements in the NERC reliability standards specify or are dependent on reliability studies depicting both the planning and operational time horizons. It is difficult to audit the validity of the multitude of studies that are performed to ensure registered entities meet these requirements. To mitigate this risk the audit team must make professional judgments in its assessment of compliance based on 1) the interview with the registered entity's subject matter experts, 2) documented reports and policies, 3) tools/programs used to perform the studies, 4) results of the studies.

Company Profile

KeySpan-Ravenswood, LLC is wholly-owned by KeySpan Corporation, the parent company. KeySpan Corporation is a wholly-owned direct subsidiary of National Grid USA, which is a wholly-owned indirect subsidiary of National Grid PLC, a United Kingdom company.

KeySpan-Ravenswood, LLC is functionally separated from its affiliates. It is operated independently of its affiliates and does not participate in any market in which its affiliates have captive electric ratepayers. KeySpan-Ravenswood, LLC participates exclusively in the New York ISO market, in a State in which retail access programs exist, so that there are no captive ratepayers.

All KeySpan generation is located within New York State within NYISO's coverage area. The Ravenswood facility has a capacity of 2,450 MW primarily using natural gas and residual fuel oil.

KeySpan is affiliated with the Northeast Power Coordinating Council (NPCC). NPCC is applying to be a Regional Entity under NERC, the FERC-certified nations Electric Reliability Organization.

Audit Specifics

The offsite compliance audit was conducted on September 25, 2007.

Audit Team

Audit Team Role	Name	Title	Company
Lead	Kim Pitchell	Contracted Consultant	NPCC-Compliance Audit Program
Member	Sal Buffamante	Manager	NPCC-Compliance Audit Program

KeySpan Participant

Name	Title	KeySpan Organization
Douglas Crocker	Manager-Performance Improvement	KeySpan Generation Operations

Audit Results

The auditor documented the evidence reviewed for compliance with each applicable reliability standard.

Findings

The following table details the summarized auditor notes relating to evidence reviewed for compliance with the reliability standards.

Reliability Standard	Auditor Notes	Finding
BAL-001-0	KeySpan-Ravenswood is not a BA, NYISO holds this responsibility	NA
BAL-002-0	KeySpan-Ravenswood is not a BA; NYISO holds this responsibility.	NA
BAL-003-0	KeySpan-Ravenswood is not a BA; NYISO holds this responsibility.	NA
CIP-001-1	KeySpan-Ravenswood supplied the facility security plan	Compliant
CIP-002-1 through CIP-009-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
COM-001-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
EOP-001-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
EOP-003-1	KeySpan-Ravenswood was not requested to supply this information at this time.	NA
EOP-005-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
EOP-006-1	Not applicable – KeySpan-Ravenswood is not a reliability coordinator.	NA
EOP-008-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
EOP-009-0	KeySpan-Ravenswood provided adequate evidence	Compliant
FAC-003-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
FAC-008-1	KeySpan-Ravenswood provided adequate evidence	Compliant
FAC-009-1	KeySpan-Ravenswood provided adequate evidence	Compliant
IRO-001-1	Only R8 applies, KeySpan-Ravenswood provided adequate evidence	Compliant
IRO-004-1	Only R4 applies, KeySpan-Ravenswood provided adequate evidence	Compliant
IRO-014-1	Not applicable – KeySpan-Ravenswood is not a reliability coordinator.	NA
IRO-015-1	Not applicable – KeySpan-Ravenswood is not a reliability coordinator.	NA
IRO-016-1	Not applicable – KeySpan-Ravenswood is not a reliability coordinator.	NA
PER-002-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
PER-003-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
PER-004-1	Not applicable – KeySpan-Ravenswood is not a reliability coordinator.	NA
PRC-004-1	Only R2 applies, KeySpan-Ravenswood provided adequate evidence	Compliant
PRC-005-1	KeySpan-Ravenswood provided adequate evidence	Compliant
PRC-008-0	Not applicable to KeySpan-Ravenswood	NA
PRC-010-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
PRC-011-0	Not applicable to KeySpan-Ravenswood	NA
PRC-016-0	Not applicable to KeySpan-Ravenswood; no SPS	NA
PRC-017-0	Not applicable to KeySpan-Ravenswood; no SPS	NA

Reliability Standard	Auditor Notes	Finding
PRC-021-1	Not applicable to KeySpan-Ravenswood	NA
TOP-003-0	Only R1 and R3 apply, KeySpan-Ravenswood provided adequate evidence	Compliant
TOP-004-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
TOP-005-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA
TOP-007-0	KeySpan-Ravenswood was not requested to supply this information at this time	NA
TPL-001-0	Not applicable to KeySpan-Ravenswood	NA
TPL-002-0	Not applicable to KeySpan-Ravenswood	NA
TPL-003-0	Not applicable to KeySpan-Ravenswood	NA
TPL-004-0	Not applicable to KeySpan-Ravenswood	NA
VAR-001-1	KeySpan-Ravenswood was not requested to supply this information at this time	NA

Conclusions

KeySpan-Ravenswood provided evidence of compliance with all of the applicable monitored reliability standards. The documentation and employee support afforded the auditor by KeySpan was precise and excellent. However, many procedures/guidelines offered did not technically meet some of the requirements of a “valid” procedure. Valid procedures are:

- Dated
- Referenced by Revision number
- Approved
- Signed

NPCC has recommended to other registered entities an Electronic Signature policy that has the approval signature on file. If using electronic signatures, each procedure/guideline must state “electronically signed.” NPCC also recommends that in the future, please ensure that if you are going to use the NYISO tariff and other NYISO documents, that you specify their title and include the specific sections and page numbers in your submittals.

As a result of the audit, NPCC concluded that KeySpan-Ravenswood is doing an excellent job in supporting the NERC compliance program.

Appendix I – Applicable Reliability Standards

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
BAL-001-0	All	<p align="center">Real Power Balancing Control Performance</p>	BA	<p>To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time.</p>	<p>The data that supports the calculation of CPS1 and CPS2 (Attachment 1-BAL-001-0) are to be retained in electronic form for at least a one-year period. If the CPS1 and CPS2 data for a Balancing Authority Area are undergoing a review to address a question that has been raised regarding the data, the data are to be saved beyond the normal retention period until the question is formally resolved. Each Balancing Authority shall retain for a rolling 12-month period the values of: one-minute average ACE (ACEi), one-minute average Frequency Error, and, if using variable bias, one-minute average Frequency Bias.</p>	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
BAL-002-0	All	Disturbance Control Performance	BA, RSG, RRO	To ensure the Balancing Authority is able to utilize its Contingency Reserve to balance resources and demand and return Interconnection frequency within defined limits.	Compliance for DCS will be evaluated for each reporting period. Reset is one calendar quarter without a violation. The data that support the calculation of DCS are to be retained in electronic form for at least a one-year period.	No
BAL-003-0	All	Frequency Response and Bias	BA	This standard provides a consistent method for calculating the Frequency Bias component of ACE.	Yearly or by request.	No
CIP-001-1	All	Sabotage Reporting	RC, BA, TOP, GOP, LSE	Disturbances or unusual occurrences, suspected or determined to be caused by sabotage, shall be reported to the appropriate systems, governmental agencies, and regulatory bodies.	By request and any events in the last year.	Yes
CIP-002-1 through CIP-009-1	All	Critical Infrastructure Protection Standards	BA, GO, GOP, IA, LSE, NERC, RC, RRO, TO, TOP, TSP	Cyber Security Standards-Follow revised Implementation Plan for Cyber Security Standards CIP-002-1 through CIP-009-1	By request.	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
COM-001-1	R2 and R5	Telecommunications	TO, BA, RC, NERCNet User Organizations.	Each Reliability Coordinator, Transmission Operator and Balancing Authority needs adequate and reliable telecommunications facilities internally and with others for the exchange of Interconnection and operating information necessary to maintain reliability.	By request.	No
EOP-001-0	All	Emergency Operations Planning	BA, TOP	Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.	By request.	No
EOP-003-1	All	Load Shedding Plans	BA, TOP	A Balancing Authority and Transmission Operator operating with insufficient generation or transmission capacity must have the capability and authority to shed load rather than risk an uncontrolled failure of the Interconnection.	R1, R5, R6 - Event Driven. Has an event occurred in the past year? R2, R3, R4, R7, R8 – By request	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
EOP-005-1	All	System Restoration Plans	BA, TOP	To ensure plans, procedures, and resources are available to restore the electric system to a normal condition in the event of a partial or total shut down of the system	By request. Note: entity must follow the timelines specified in the standard: show that the plan is reviewed annually; simulation or testing must be done every 5 years.	No
EOP-006-1	All	Reliability Coordination – System Restoration	RC	The Reliability Coordinator must have a coordinating role in system restoration to ensure reliability is maintained during restoration and priority is placed on restoring the Interconnection.	By request.	No
EOP-008-0	All	Plans for Loss of Control Center Functionality	BA, RC, TOP	Each reliability entity must have a plan to continue reliability operations in the event its control center becomes inoperable.	By request.	No
EOP-009-0	All	Documentation of Blackstart Generating Unit Test Results	GO, GOP	To ensure that the quantity and location of system black start generators are sufficient and that they can perform their expected functions.	By request. Note entity must meet testing frequency specified in EOP-007-0.	Yes

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
FAC-003-1	All	Vegetation Management	RRO, TO	To improve the reliability of the electric transmission systems by preventing outages from vegetation located on transmission rights-of-way (ROW) and minimizing outages from vegetation located adjacent to ROW, maintaining clearances between transmission lines.	By request – program documentation and last 4 quarterly outage reports.	No
FAC-008-1	All	Facility Ratings Methodology	GO, TO	To ensure that Facility Ratings used in the reliable planning and operation of the Bulk Electric System (BES) are determined based on an established methodology.	By request the current methodology and any superseded portions of the methodology within the past 12 months.	Yes
FAC-009-1	All	Establish and Communicate Facility Ratings	GO, TO	To ensure that Facility Ratings used in the reliable planning and operation of the Bulk Electric System (BES) are determined based on an established methodology or methodologies.	By request.	Yes

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
IRO-001-1	R8	Reliability Coordination – Responsibilities and Authorities	BA, GOP, LSE, PSE, RC, RRO, TOP, TSP	Reliability Coordinators must have the authority, plans, and agreements in place to immediately direct reliability entities within their Reliability Coordinator Areas to re-dispatch generation, reconfigure transmission, or reduce load to mitigate critical conditions to return the system to a reliable state. If a Reliability Coordinator delegates tasks to others, the Reliability Coordinator retains its responsibilities for complying with NERC and regional standards. Standards of conduct are necessary to ensure the Reliability Coordinator does not act in a manner that favors one market participant over another.	By request.	Yes
IRO-004-1	R4	Reliability Coordination — Operations Planning	BA, GO, GOP, LSE, RC, TO, TOP, TSP	Each Reliability Coordinator must conduct next-day reliability analyses for its Reliability Coordinator Area to ensure the Bulk Electric System can be operated reliably in anticipated normal and Contingency conditions.	By request.	Yes

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
IRO-014-1	All	Procedures, Processes, or Plans to Support Coordination Between Reliability Coordinators	RC	To ensure that each Reliability Coordinator's operations are coordinated such that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas and to preserve the reliability benefits of interconnected operations.	By request.	No
IRO-015-1	All	Notifications and Information Exchange Between Reliability Coordinators	RC	To ensure that each Reliability Coordinator's operations are coordinated such that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas and to preserve the reliability benefits of interconnected operations.	Rolling 12 months of information provided on request.	No
IRO-016-1	All	Coordination of Real-time Activities Between Reliability Coordinators	RC	that they will not have an Adverse Reliability Impact on other Reliability Coordinator Areas	Rolling 12 months of information provided on request.	No
PER-002-0	All	Operating Personnel Training	BA, TOP	Each Transmission Operator and Balancing Authority must provide their personnel with a coordinated training program that will ensure reliable system operation.	By request training program and training records.	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
PER-003-0	All	Operating Personnel Credentials	BA, RC, TOP	Certification of operating personnel is necessary to ensure minimum competencies for operating a reliable Bulk Electric System.	By request latest certification information and present calendar year plus previous calendar year staffing plan.	No
PER-004-1	All	Reliability Coordination — Staffing	RC	Reliability Coordinators must have sufficient, competent staff to perform the Reliability Coordinator functions.	By request - Each Reliability Coordinator shall keep evidence of compliance for the previous two calendar years plus the current year.	No
PRC-004-1	R2	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	DP*, GO, TO	Provide trip operation / misoperation information per regional process.	By request – last 12 months of protection system Misoperation analysis.	Yes
PRC-005-1	All	Transmission and Generation Protection System Maintenance and Testing	DP*, GO, TO	Document/implement transmission protection system maintenance/testing/monitoring PROGRAM	By request - maintenance and testing program and testing records to show that testing intervals are on schedule.	Yes
PRC-008-0	All	Implementation and Documentation of Underfrequency Load Shedding Equipment Maintenance Program	DP, TO	Document/implement UFLS maintenance/testing PROGRAM	By request - maintenance and testing program and testing records to show that testing intervals are on schedule.	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
PRC-010-0	All	Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program.	DP, LSE, TO, TOP	ASSESS design and effectiveness of UVLS programs	By request – current assessment.	No
PRC-011-0	All	UVLS System Maintenance and Testing	DP, TO	Document/implement UVLS maintenance/testing PROGRAM	By request - maintenance and testing program and testing records to show that testing intervals are on schedule.	No
PRC-016-0	All	Special Protection System Misoperations	DP, GO, TO	DOCUMENT/analyze misoperations	By request – last 12 months of special protection system Misoperation analysis.	No
PRC-017-0	All	Special Protection System Maintenance and Testing	DP, GO, TO	Document/implement SPS maintenance/testing PROGRAM	By request - maintenance and testing program and testing records to show that testing intervals are on schedule.	No
PRC-021-1	All	Under-Voltage Load Shedding Program Data	DP, TO	DOCUMENTATION of undervoltage load shedding program	By request – latest UVLS data.	No
TOP-003-0	R1,R3	Planned Outage Coordination	BA, GOP, RC, TOP	Scheduled generator and transmission outages that may affect the reliability of interconnected operations must be planned and coordinated among Balancing Authorities, Transmission Operators, and Reliability Coordinators.	By request.	Yes

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
TOP-004-1	R6	Transmission Operations	TOP	To ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies.	By request - Each Transmission Operator shall keep 90 days of historical data for Measure 1. Each Transmission Operator shall have current, in-force policies and procedures, as evidence of compliance to Measure 2.	No
TOP-005-1	All	Operational Reliability Information	BA, PSE, RC, TOP	To ensure reliability entities have the operating data needed to monitor system conditions within their areas.	By request.	Yes
TOP-007-0	All	Reporting System Operating Limit (SOL) and Interconnection Reliability	RC, TOP	Ensure SOL and IROL violations are being reported to the Reliability Coordinator so that the Reliability Coordinator may evaluate actions being taken and direct additional corrective actions as needed.	Event driven.	No
TPL-001-0	All	System Performance Under Normal (No Contingency) Conditions	PA, TPL	System performance under normal conditions	By request – latest annual assessment.	No
TPL-002-0	All	System Performance Following Loss of a Single Bulk Electric System Element	PA, TPL	System performance under single contingency	By request – latest annual assessment.	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to KeySpan-Ravenswood?
TPL-003-0	All	System Performance Following Loss of Two or More Bulk Electric System Elements	PA, TPL	System performance under multiple contingencies	By request – latest annual assessment.	No
TPL-004-0	All	System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements	PA, TPL	System performance under extreme contingencies	By request – latest annual assessment.	No
VAR-001-1	All	Voltage and Reactive Control	PSE, TOP	To ensure voltage levels, reactive flows, and reactive resources are monitored, controlled, and maintained within limits in real time to protect equipment and the reliable operation of the Interconnection.	By request – last 12 months of data.	No

Appendix 2: Confidential Security Sensitive Information

[This section contains confidential security sensitive information which is not included with the public version, but retained by NERC and the regional organization and is sent privately to the audited entity.]