Compliance Audit Report
Public Version

North American Energy Services - Cottonwood (NAES - Cottonwood)
NCR09018
October 30, 2007

Confidential Information (including Privileged and Critical Energy Infrastructure Information) – Has Been Removed

November 13, 2007

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EXECUTIVE SUMMARY

This final compliance audit report is the public version. Confidential information (including privileged and critical energy infrastructure information) has been redacted from this report. The full final compliance audit report was submitted to the audited entity and NERC.

The North American Energy Services – Cottonwood (NAES - Cottonwood) was audited on October 30, 2007 for compliance to the requirements contained in the NERC Reliability Standards that are currently enforceable and apply to the registered functions of NAES - Cottonwood. This audit focused on documents and other evidence provided to SERC by the staff of the NAES - Cottonwood, and did not include any evidence obtained through system observation or inspection. The findings of the audit are based on the state of compliance and current mitigation activity at the time of the audit, and do not reflect past compliance activities or activities that will be completed in the future.

The audit was conducted by asking NAES Cottonwood staff to show valid evidence of meeting each and every individual requirement and sub-requirement contained in the six (6) standards that had been previously identified by SERC to NAES - Cottonwood as subject to this audit. NAES - Cottonwood staff responded by providing evidence in the form of reports, procedures, studies, and other documents. NAES - Cottonwood staff would then cite specific portions of the evidence that demonstrated compliance. This evidence and the citations were documented and evaluated by the audit team for the level of compliance and agreement with the requirement. If all of the requirements and sub-requirements of an audited standard were met, then NAES - Cottonwood was judged to be compliant. Likewise, if any of the requirements or sub-requirements were not fully met, then NAES - Cottonwood was judged to have a possible violation of the standard. In other words, only a score of 100% is identified as compliant; 99% and below is a possible violation.

NAES - Cottonwood was found to be in compliance with all of the audited standards and exhibited a strong desire and willingness to continue improvement of their compliance effort in the future.

AUDIT PROCESS

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 and objectively review NAES – Cottonwood's compliance with the requirements of the reliability standards that are applicable to NAES - Cottonwood based on NAES - Cottonwood's functions in the bulk electric system as determined by SERC.
- Validate compliance with applicable reliability standards from the NERC 2007 Implementation Plan list of actively monitored standards.

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

Scope

The scope of the audit of North American Energy Services – Cottonwood (NAES - Cottonwood) was to look at all Generator Operator related standards that are in the NERC 2007 Compliance Monitoring and Enforcement Plan. Of the six (6) standards that apply to NAES - Cottonwood, six were selected for review in this audit. Of these six (6) standards, one (1) standard was not assessed, EOP-009, as shown in the findings table below.

Note: For the 2007 compliance program, the monitoring period for the compliance audit will be the past 12 months or periods specified in individual reliability standards. The monitoring period is not limited to the time period for which penalties and sanctions are assessed.

Methodology

The audit was conducted by reviewing all of the standards that apply to NAES - Cottonwood in the NERC 2007 Enforcement Plan. These standards were grouped and scheduled during the day to make the most efficient use of the NAES - Cottonwood staff's time. NAES - Cottonwood staff had been briefed on the standards that were to be addressed so that documentation and evidence of compliance could be assembled.

A team of auditors and subject matter experts were identified and conducted the audit of NAES - Cottonwood. The audit team had a moderator who would initiate dialogue on each standard requirement, request compliance evidence, and document the evidence and NAES - Cottonwood staff response. This was done by asking NAES - Cottonwood staff to show valid evidence of meeting each and every individual requirement and sub-requirement contained in the six standards that had been previously identified by SERC to NAES - Cottonwood as subject to this audit. NAES – Cottonwood staff responded by providing evidence in the form of reports, procedures, studies, and other documents NAES – Cottonwood staff would then cite specific portions of the evidence that demonstrated compliance. This evidence and the citations were documented by the scribe on the Reliability Standard Audit Worksheet (RSAW) and evaluated by the audit team for the level of compliance and agreement with the requirement. Discrepancies between the requirement and the evidence provided were the subject of dialogue among the team members and NAES – Cottonwood staff members until it could be agreed that each requirement was met by the cited evidence or other evidence offered. If it was felt that, after all evidence had been presented and discussed, that NAES – Cottonwood did not have sufficient evidence to support a finding of compliance, a possible violation would be identified by the team and the NAES - Cottonwoods staff would be informed.

Company Profile

North American Energy Services Company (NAES - Cottonwood) is a broad-based provider of services to the power generation industry. NAES – Cottonwood is the operations and maintenance provider of four large gas-fired combined cycle plants owned by Kelson Energy: Cottonwood Energy in Deweyville, Texas; Magnolia Energy in Ashland, Mississippi; Redbud Energy in Luther, Oklahoma; and Dogwood Energy in Pleasant Hill, Missouri. The plants serve markets in the Southwest Power Pool and the Central and Entergy sub-regions of the SERC Reliability Corporation region.

NAES – Cottonwood is headquartered in Issaquah, Washington and has offices in Carneys Point, Houston, New York City, Pittsburgh, and Portland NAES - Cottonwood is the industry's largest independent, third-party provider of power plant operations and maintenance services with an experience base of more than 32,000 MW.

NAES - Cottonwood is owned by ITOCHU International Inc., the U.S. affiliate of ITOCHU Corporation. With operations in over 80 countries covering a broad range of industries, ITOCHU is among the world's largest corporations.

Currently, Merrill Lynch functions as the energy manager for Cottonwood. Within Kelson Energy, each plant, including Cottonwood, has a President (Asset Manager) that is ultimately responsible for the profit and loss of the plant. Each President reports directly to the CEO of Kelson Energy. Cottonwood's Plant Manager, although he is a NAES – Cottonwood employee, also reports to the President of Cottonwood Energy.

NAES - Cottonwood is the Generator Operator for Cottonwood Energy which is a natural gas-fired, combined-cycle electricity generating facility located in Newton County, Texas approximately 30 miles North East of Beaumont, Texas in Deweyville, Texas. The plant is nominally rated to produce 1,230 Megawatts (ISO conditions) at 500 kV, and provides power to Entergy's Hartburg substation through two (2) 500 kV lines.

Audit Specifics

The compliance audit was conducted on October 30, 2007 at the Cottonwood site located at 976 County Road 4213, Deweyville, Texas.

Audit Team

Audit Team Role	Name	Title	Company
Audit Team Leader	James Harrell	Compliance Auditor	SERC
Member	Mike Vastano	Compliance Auditor	SERC
Member	John Troha	Manager, Operations	SERC
Member	Phil Winston	Manager, Protection & Control	Georgia Power Company

AUDIT RESULTS

The audit team arrived at the Cottonwood Energy Power Plant at 7:45 a.m., October 30, 2007 and was required to present identification and sign the Cottonwood daily log-in sheet. The audit team viewed a required plant safety orientation film at 8:00 a.m., October 30, 2007. After viewing the safety film the audit team was escorted to a conference room to set up for the audit. At 8:20 a.m., the plant fire alarm sounded and the audit team, along with all other plant personnel, evacuated the building. The plant safety procedure went into effect and a roll call was completed; all persons were accounted for. After the all clear was sounded the audit team returned to the conference room.

The audit began at 8:35 a.m., October 30, 2007 with an opening presentation by James Harrell, SERC Compliance Auditor and Audit Team Lead. He reviewed the NERC compliance plan for 2007 in general, and how it applied to NAES – Cottonwood specifically. He introduced and reviewed the standards to be covered in the audit, and addressed both the expectations of North American Energy Services – Cottonwood staff and the quality of evidence to be presented. He also covered the basic procedure for the audit, and the bounding rules of conduct. Each member of the audit team was introduced and professional affiliation identified. His presentation was followed by a brief presentation covering the background of NAES - Cottonwood and its compliance activities. The staff of NAES – Cottonwood was introduced, and general housekeeping matters explained.

The audit team initially reviewed the registration status of NAES - Cottonwood with NAES - Cottonwood staff to verify application of each standard. Each standard's audit began with a recitation of each requirement and an explanation, if requested by the NAES – Cottonwood staff. The NAES – Cottonwood staff would then present evidence of meeting this requirement, or cite evidence in material already presented to the team. At that point, the evidence was reviewed and dialogue took place until the team reached a point of satisfaction with the evidence. Consensual approval or concern was reached on each of the requirements, and explained to the NAES - Cottonwood staff before proceeding to the next requirement. At that point the team scribe would record the evidence presented to satisfy the requirement and the team's recommendation on that requirement using the Reliability Standard Audit Worksheet (RSAW).

After completing a review of all applicable requirements in the standard, the overall compliance to that standard was reviewed first by the team and NAES – Cottonwood staff, and then by the Audit Team Leader. Any concerns or dissention with the recommendation was offered, and the Audit Team Leader would indicate support or disagreement with the recommendation. Dialogue would ensue to the point of decision on the part of the Audit Team Leader. Following this review, the Reliability Standard Audit Worksheet would be updated by the scribe with the compliance recommendation.

The review of all applicable standards was completed at approximately 3:15 p.m., October 30, 2007 and the audit team met to review and discuss the findings. Following these discussions, the scribe collected all notes and evidence as needed and began to finalize the Reliability Standard Audit Worksheet. The Audit Team Leader began to develop the Exit Briefing with the help of all team members by using a projector attached to his laptop computer. This facilitated the consensus of the full team on the content of the Exit Briefing, and re-affirmed the findings.

The Exit Briefing was presented to the assembled Audit Team and NAES – Cottonwood staff at approximately 4:45 p.m., October 30, 2007 and was followed by an informal response from the NAES – Cottonwood staff. The Audit Team Leader solicited both informal comments from NAES – Cottonwood staff, along with requesting that they fill out formal feedback forms for submission to SERC. The audit team left the NAES - Cottonwood meeting room at around 5:45 p.m., October 30, 2007.

Findings

Reliability Standard	Auditor Notes	Finding
BAL-001-0	Not Applicable – NAES - Cottonwood is not a BA	NA
BAL-002-0	Not Applicable – NAES - Cottonwood is not a BA, RSG or RRO	NA
BAL-003-0	Not Applicable – NAES - Cottonwood is not a BA	NA
CIP-001-1	Applies to NAES - Cottonwood as currently registered. Regarding requirement 1 – NAES - Cottonwood provided evidence in the form of the document entitled Plant Procedure CEC-NRS-200, Admin Procedure AMP-110 and Standing Order # 8 - Management Communication. All plant personnel, due to the size of the on shift staff, will be actively involved in the investigation of a sabotage event. Regarding requirement 2 – NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-200, Plant Procedure CEC-NRS-400, Admin Procedure AMP-110. Regarding requirement 3 – NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-200, Plant Procedure CEC-NRS-400, Admin Procedure AMP-110 and an e-Mail From FBI Agent Jerry Lyons Supervisory Senior Resident Agent. Regarding requirement 4 – NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-200, Plant Procedure CEC-NRS-400, Admin Procedure AMP-110 and an e-Mail From FBI Agent Jerry Lyons Supervisory Senior Resident Agent. NAES - Cottonwood was found by the audit team to meet all standard requirements through the evidence provided.	Compliant
CIP-002-1 through CIP-009-1	Applies to NAES - Cottonwood as currently registered, but not assessed in this audit	Not Assessed
COM-001-1	Not Applicable – NAES - Cottonwood is not a BA,TO or RC	NA
EOP-001-0	Not Applicable – NAES - Cottonwood is not a BA, TOP	NA
EOP-003-1	Not Applicable – NAES - Cottonwood is not a BA, TOP	NA

Reliability Standard	Auditor Notes	Finding
EOP-005-1	Not Applicable – NAES - Cottonwood is not a BA, TOP	NA
EOP-006-1	Not Applicable – NAES - Cottonwood is not an RC	NA
EOP-008-0	Not Applicable – NAES - Cottonwood is not a BA, TOP or RC	NA
EOP-009-0	Applies to NAES - Cottonwood as currently registered; however, NAES - Cottonwood is not a blackstart plant and is not in the region's blackstart plan, thus this standard was not assessed	Not Assessed
FAC-003-1	Not Applicable – NAES - Cottonwood is not a RRO,TO	NA
FAC-008-1	Not Applicable – NAES - Cottonwood is not a TO or GO	NA
FAC-009-1	Not Applicable NAES - Cottonwood is not a TO or GO	NA
IRO-001-1	Applies to NAES - Cottonwood as currently registered since NAES - Cottonwood is not a Reliability Coordinator or a Regional Reliability Organization requirement 8 was the only requirement applicable to NAES - Cottonwood. Regarding requirement 8 NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-1100 and NAES - Cottonwood has not received any directive from their Reliability Coordinator. NAES - Cottonwood was found by the audit team to meet all standard requirements through the evidence provided	Compliant
IRO-004-1	Applies to NAES - Cottonwood as currently registered since NAES - Cottonwood is not a Reliability Coordinator requirement 4 was the only requirement applicable to NAES - Cottonwood . Regarding requirement 4 NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-1200 and Cottonwood Energy Facility Dispatch availability Form for the next day. NAES - Cottonwood was found by the audit team to meet all standard requirements through the evidence provided.	Compliant
IRO-014-1	Not Applicable – NAES - Cottonwood is not a RC	NA
IRO-015-1	Not Applicable – NAES - Cottonwood is not a RC	NA
IRO-016-1	Not Applicable – NAES - Cottonwood is not a RC	NA
PER-002-0	Not Applicable – NAES - Cottonwood is not a BA or TOP	NA
PER-003-0	Not Applicable – NAES - Cottonwood is not a BA, TOP or RC	NA
PER-004-1	Not Applicable – NAES - Cottonwood is not a RC	NA
PRC-004-1	Not Applicable – NAES - Cottonwood is not a TO or GO	NA
PRC-005-1	Not Applicable – NAES - Cottonwood is not a TO or GO	NA
PRC-008-0	Not Applicable – NAES - Cottonwood is not a TO or DP	NA
PRC-010-0	Not Applicable – NAES - Cottonwood is not a TO, DP,LSE or TOP	NA
PRC-011-0	Not Applicable – NAES - Cottonwood is not a TO or DP	NA

Reliability Standard	Auditor Notes	Finding
PRC-016-0	Not Applicable – NAES - Cottonwood is not a TO or GO	NA
PRC-017-0	Not Applicable – NAES - Cottonwood is not a TO or GO	NA
PRC-021-1	Not Applicable – NAES - Cottonwood is not a TO or DP	NA
TOP-003-0	Applies to NAES - Cottonwood as currently registered. Regarding requirement 1 – NAES - Cottonwood provided evidence in the form of the document entitled Plant Procedure CEC-NRS-2700 with Attachment 2 – Generation Planned Outage Coordination and the team viewed a fax dated 12 September 2007 at 01:22 of the Outage Coordination Log. Regarding requirement 2 – NAES - Cottonwood provided evidence in the form of the documents entitled Plant Procedure CEC-NRS-2700, Plant Procedure CEC-NRS-3000 and Standing Order # 11 Entergy System Voltage Support, to send Generation Planned Outage Coordination Form. Regarding requirements 3 and 4 – NAES - Cottonwood is not a Transmission Owner (TO), Balancing Authority (BA), Generator Owner (GO) or a Reliability Coordinator (RC) therefore requirements 3 and 4 are not applicable to NAES - Cottonwood. NAES - Cottonwood was found by the audit team to meet all standard requirements through the evidence provided	Compliant
TOP-004-1	Not Applicable – NAES - Cottonwood is not a TOP	NA
TOP-005-1	Not Applicable – NAES - Cottonwood is not a BA, TOP, RC or PSE	NA
TOP-007-0	Not Applicable – NAES - Cottonwood is not a TOP or RC	NA
TPL-001-0	Not Applicable – NAES - Cottonwood is not a PA or TPL	NA
TPL-002-0	Not Applicable – NAES - Cottonwood is not a PA or TPL	NA
TPL-003-0	Not Applicable – NAES - Cottonwood is not a PA or TPL	NA
TPL-004-0	Not Applicable – NAES - Cottonwood is not a PA or TPL	NA
VAR-001-1	Applies to NAES - Cottonwood as currently registered since not a Transmission Operator or PSE requirement 8 was the only requirement applicable to NAES - Cottonwood. The evidence presented show that Cottonwood has not been contacted by the Transmission Operator to change transformer tap settings. NAES - Cottonwood was found by the audit team to meet NERC reliability standard requirement 8 through the evidence provided.	Compliant

Conclusions

The North American Energy Services- Cottonwood (NAES - Cottonwood) was found to be in compliance with the standards that were audited, and exhibited a strong desire and willingness to

continue improvement of their compliance effort in the future. NAES – Cottonwood personnel were very well prepared for the audit and showed tremendous pride in their work.

SUMMARY OF NAES-COTTONWOOD RESPONSE TO THE AUDIT FINDINGS

North American Energy Services- Cottonwood concurs with the SERC Audit Team's conclusions.

APPENDIX 1 — APPLICABLE RELIABILITY STANDARDS

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or No
BAL-001-0	All	**Real Power Balancing Control Performance**	BA	To maintain Interconnection steady-state frequency within defined limits by balancing real power demand and supply in real-time.	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.	No
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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.	Yes
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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
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 five 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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or No
EOP-009-0	All	**Documentation of Blackstart Generating Unit Test Results**	GO, GOP	To ensure that the quantity and location of system blackstart 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
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 four 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.	No
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.	No

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or No
IRO-001-1	All	**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	All	**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 NAES - Cottonwood? Yes or No
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	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	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
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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	All	**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.	No
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.	No
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
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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	All	**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
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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.	No
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
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

Std #	Requirements	Standard	Who	Purpose	Monitoring Timeframe	Applicable to NAES - Cottonwood? Yes or 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