

June 29, 2012

Ms. Kimberly D. Bose Secretary Federal Energy Regulatory Commission 888 First Street, N.E. Washington, DC 20426

Re: NERC Full Notice of Penalty regarding Calpine Corporation and Calpine Power Management, LP, FERC Docket No. NP12-_-000

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty¹ regarding Calpine Corporation (Calpine Corp), NERC Registry ID# NCR04026 and Calpine Power Management, LP (Calpine Power), NERC Registry ID# NCR04027 (collectively the Registered Entities),² in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations and orders, as well as NERC's Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).³

Calpine Corp is a United States power company, capable of delivering nearly 29,000 MW of electricity to customers and communities in 21 states in the United States and Canada. The company owns, leases and operates low-carbon, natural gas-fired, combined-cycle and renewable geothermal power plants. Calpine Power is a subsidiary of Calpine Corp.

¹ Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards (Order No. 672), III FERC Stats. & Regs. ¶ 31,204 (2006); Notice of New Docket Prefix "NP" for Notices of Penalty Filed by the North American Electric Reliability Corporation, Docket No. RM05-30-000 (February 7, 2008). See also 18 C.F.R. Part 39 (2011). Mandatory Reliability Standards for the Bulk-Power System, FERC Stats. & Regs. ¶ 31,242 (2007) (Order No. 693), reh'g denied, 120 FERC ¶ 61,053 (2007) (Order No. 693-A). See 18 C.F.R § 39.7(c)(2).

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² Texas Reliability Entity, Inc. (Texas RE) confirmed that Calpine Corp was included on the NERC Compliance Registry as a Generator Owner (GO) on June 28, 2007 and Calpine Power was included on the NERC Compliance Registry as a Generator Operator (GOP) on June 28 2007. As a GO, Calpine Corp is subject to the requirements of NERC Reliability Standards PRC-005-1 and PRC-004-1. As a GOP, Calpine Power is subject to the requirements of NERC Reliability Standard PRC-001-1.

³ See 18 C.F.R § 39.7(c)(2).



This Notice of Penalty is being filed with the Commission because Texas Reliability Entity, Inc. (Texas RE) and the Registered Entities have entered into a Settlement Agreement to resolve all outstanding issues arising from Texas RE's determination and findings of the violations⁴ of PRC-005-1 Requirement (R) 2, PRC-004-1 R2 by Calpine Corp and PRC-001-1 R2 and R3 by Calpine Power. According to the Settlement Agreement, Calpine Corp admits the violation of PRC-005-1 R2 and the Registered Entities neither admit nor deny the PRC-004-1 R2, PRC-001-1 R2 and PRC-001-1 R3 violations, but have agreed to the assessed penalty of one hundred thousand dollars (\$100,000), in addition to other remedies and actions to mitigate the instant violations and facilitate future compliance under the terms and conditions of the Settlement Agreement. Accordingly, the violations identified as NERC Violation Tracking Identification Numbers TRE201000249, TRE201000177, TRE201000178, and TRE201000179 are being filed in accordance with the NERC Rules of Procedure and the CMEP.

Statement of Findings Underlying the Violations

This Notice of Penalty incorporates the findings and justifications set forth in the Settlement Agreement executed on June 26, 2012, by and between Texas RE and the Registered Entities, which is included as Attachment a. The details of the findings and basis for the penalty are set forth in the Settlement Agreement and herein. This Notice of Penalty filing contains the basis for approval of the Settlement Agreement by the NERC Board of Trustees Compliance Committee (NERC BOTCC). In accordance with Section 39.7 of the Commission's regulations, 18 C.F.R. § 39.7 (2011), NERC provides the following summary table identifying each violation of a Reliability Standard resolved by the Settlement Agreement, as discussed in greater detail below.

Region	Registered Entity	NOC ID	NERC Violation ID	Reliability Std.	Req. (R)	VRF	Total Penalty
Texas Reliability	Calpine Corporation	NOC- 1330	TRE201000249	PRC-005-1	2	High ⁵	\$100,000

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⁴ For purposes of this document, each violation at issue is described as a "violation," regardless of its procedural posture and whether it was a possible, alleged or confirmed violation.

⁵ PRC-005-1 R2 has a "Lower" Violation Risk Factor (VRF); R2.1 and R2.2 each have a "High" VRF. During a final review of the standards subsequent to the March 23, 2007 filing of the Version 1 VRFs, NERC identified that some Standards' requirements were missing VRFs; one of these was PRC-005-1 R2.1. On May 4, 2007, NERC assigned PRC-005 R2.1 a "High" VRF. In the Commission's June 26, 2007 Order on Violation Risk Factors, the Commission approved the PRC-005-1 R2.1 "High" VRF as filed. Therefore, the "High" VRF was in effect from June 26, 2007. In the context of this case, Texas RE determined that the violation related to R2.1, and therefore a "High" VRF is appropriate.



Entity		TRE201000177	PRC-004-1	2	High	
	Calpine Power	TRE201000178	PRC-001-1	2	High ⁶	
	Management, LP	TRE201000179	PRC-001-1	3	High ⁷	

Calpine Corp Violations

TRE201000249 PRC-005-1

The purpose statement of Reliability Standard PRC-005-1 provides: "To ensure all transmission and generation Protection Systems^[8] affecting the reliability of the Bulk Electric System (BES) are maintained and tested."

[Footnote added.]

PRC-005-1 R2 provides in pertinent part:

R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization^[9] on request (within 30 calendar days). The documentation of the program implementation shall include:

⁶ When NERC filed VRFs it originally assigned PRC-001-1 R2 a Medium VRF. The Commission approved the VRF as filed; however, it directed NERC to submit modifications. NERC submitted the modified High VRF and on August 9, 2007, the Commission approved the modified High VRF. Therefore, the Medium VRF for PRC-001-1 R2 was in effect from June 18, 2007 until August 9, 2007 when the High VRF became effective. The sub-requirements have High VRFs.

⁷ When NERC filed VRFs, it originally assigned PRC-001-1 R3 a High VRF. The Commission approved the VRF as filed; however, it directed NERC to submit modifications. NERC submitted the modified <blank> VRF and on August 9, 2007, the Commission approved the modified <blank> VRF. Therefore, the High VRF for PRC-001-1 R3 was in effect from June 18, 2007 until August 9, 2007 when the <blank> VRF became effective. R3.1 and R3.2 each have a "High" VRF. In the context of this case, Texas RE determined that the violation related to R3.1, and therefore a "High" VRF is appropriate.

⁸ The NERC Glossary of Terms Used in Reliability Standards defines Protection System as "Protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry."

⁹ Consistent with applicable FERC precedent, the term "Regional Reliability Organization" in this context refers to Texas RE.



R2.1. Evidence Protection System devices were maintained and tested within the defined intervals.

PRC-005-1 R2 has a "Lower" Violation Risk Factor (VRF) and R2.1 has a "High" VRF and a "High" Violation Severity Level (VSL). The subject violation applies to Calpine Corp's GO function.

On June 29, 2010, Calpine Corp submitted a Self-Report to Texas RE stating that in an internal review of its historical Protection System maintenance and testing, Calpine Corp identified that certain elements of its Protection System were not timely maintained and tested consistently across its generation fleet. A total of 1,345 devices, including 3,963 inspections and testing intervals, were identified. The missed maintenance and testing activities affected 312 or 23.2% of all devices. All Protection System components except communication systems were affected.

Texas RE determined the duration of the violation to be from June 28, 2007, ¹⁰ the date Calpine Corp was registered and required to comply with the Standard, through March 27, 2012, when Calpine Corp completed maintenance and testing on past-due equipment.

Texas RE determined that this violation posed a moderate risk to the reliability of the bulk power system (BPS) and did not pose a serious or substantial risk to the BPS because it was possible that untested and unmaintained relays could potentially cause BPS events. Calpine Corp's generating output capability in the Electric Reliability Council of Texas, Inc. (ERCOT) Region is approximately 6,800 MW. Approximately 35 of 44 Calpine Corp generating units in the ERCOT Region use microprocessor-based protective relays that are equipped with self-diagnostic and output failure alarms that are being monitored by plant staff during daily operator walk-throughs. At the time of the Self-Report, 76.8% of Protection System testing was completed at Calpine generating facilities in the ERCOT Region within the defined interval. The number of startups, shutdowns and operating hours for each unit is indicative of reliable operation of the Protection System. Calpine Corp generating facilities in the ERCOT Region had on average 4,333, 4,501, and 4,113 starts and were connected to the BPS grid providing service for more than 4,286, 4,450, and 4,055 average hours per station each year in 2007, 2008, and 2009, respectively. When the past-due Protection System devices were maintained and tested, they were found to be within acceptable tolerance, and no re-calibration was necessary.

 $^{^{10}}$ The Disposition Document states duration of the violation began on June 18, 2007.



TRE201000177 PRC-004-1

The purpose statement of Reliability Standard PRC-004-1 provides: "Ensure all transmission and generation Protection System Misoperations affecting the reliability of the Bulk Electric System (BES) are analyzed and mitigated."

PRC-004-1 R2 provides: "The Generator Owner shall analyze its generator Protection System Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for PRC-003 R1."

PRC-004-1 R2 has a "High" VRF and a "Moderate" VSL. The subject violation applies to Calpine Corp's GO function.

On August 20, 2010, Texas RE initiated a Spot Check of the Registered Entities, and discovered that in late October of 2008, Calpine Corp's Citgo North Oak Park Unit 3 failed to synchronize, tripping a generator relay (a Misoperation). Shortly thereafter, a defective set of Protective System corrective actions were implemented. Subsequently on April 11, 2009, April 27, 2009, May 4, 2009, and May 8, 2009, additional Misoperations occurred; the Misoperations caused four trips at the North Oak Park Unit 3 (and no other units). There was no loss of customer load as a result of any of the trips. On May 9, 2009, Calpine Corp implemented an effective set of corrective actions and coordinated Protection System changes with the Transmission Owner/Transmission Operator. Regarding the violation, the GO is to analyze Protection System Misoperations, develop a Corrective Action Plan (CAP), and implement a CAP to avoid Misoperations of a similar nature. In this case, Calpine Corp analyzed the Misoperations and developed an incorrect set of recommendations for a CAP. Calpine Corp implemented a portion of the faulty recommendations, but future Misoperations of a similar nature were not avoided as demonstrated by multiple trips over an extended period.

Texas RE determined the duration of the violation to be from November 3, 2008, the date Calpine Corp implemented an incorrect set of corrective actions to avoid Misoperations of a similar nature, leading to several future Misoperations, through May 9, 2009, when Calpine Corp implemented an effective CAP. The Mitigation Plan was completed on August 11, 2011 as described below.

Texas RE determined that this violation posed a moderate risk to the reliability of the BPS and did not pose a serious or substantial risk to the BPS because incorrect recommendations for a CAP led to the implementation of incorrect settings on a relay, resulting in several future Misoperations of a similar nature which could have been avoided. Although avoidable Misoperations resulted in several instances of temporary loss of 165 MW of BPS generating capability, the system was not at any time



during such temporary losses in a state of Energy Emergency Alert. Ample replacement capacity was available to and utilized by Calpine to cover the lost generation capacity. In the event Calpine did not have adequate replacement capacity, replacement capacity was available from other entities within ERCOT. After each Misoperation, the unit was re-synchronized and serving the BPS in a short amount of time after tripping. In addition, the steam unit at Corpus Christi has a small generator rating of 230 MVA and an instantaneous capacity turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. This is a cogeneration facility which under typical operation diverts portions of the energy to the host instead of for electrical production. During incidents leading to the violations, the steam unit was only generating an average 62 MW output into the grid. Finally, there was no loss of customer load as a result of any of the trips.

Calpine Power Violations

TRE201000178 PRC-001-1

The purpose statement of Reliability Standard PRC-001-1 provides: "To ensure system protection is coordinated among operating entities."

PRC-001-1 R2 provides:

- **R2.** Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:
 - **R2.1.** If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.
 - **R2.2.** If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible.

PRC-001-1 R2 has a "High" VRF and a "Severe" VSL. The subject violation applies to Calpine Power's GOP function.

On August 20, 2010, Texas RE initiated a Spot Check of the Registered Entities and discovered that evidence did not exist of "notification" to the Transmission Operator and Host Balancing Authority for the relay failure at Citgo North Oak Park Unit #3 at the time of the event on May 8, 2009. Further,



although Calpine Power verbally reported failure as far back as late October 2008, it did not inform the TOP/Balancing Authority (BA) of why the relay failed. Moreover, Calpine Power did not take action "as soon as possible," as evidenced by the fact that the underlying issue (incorrect relay settings) was not rectified until seven months after the initial equipment issue was discovered in October 2008.

Texas RE determined the duration of the violation to be from November 3, 2008, the date of Calpine Power's Misoperation reflecting the issue was not corrected "as soon as possible," until May 9, 2009, the date that satisfactory protection system changes were implemented and the TOP/BA was notified of protection system changes. The Mitigation Plan was completed on September 30, 2010 as described below.

Texas RE determined that this violation posed a moderate risk to the reliability of the BPS and did not pose a serious or substantial risk to the BPS because although avoidable Misoperations resulted in several instances of temporary loss of 165 MW of BPS generating capability, the system was not at any time during such temporary losses in a state of Energy Emergency Alert. Ample replacement capacity was available to and utilized by Calpine. In the event Calpine did not have adequate replacement capacity, replacement capacity was available from other entities within ERCOT. After each Misoperation, the unit was re-synchronized and serving the BPS in a short amount of time after tripping. In addition, the steam unit at Corpus Christi has a small generator rating of 230 MVA and turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. During incidents leading to the violations, the steam unit was only generating an average 62 MW output into the grid.

TRE201000179 PRC-001-1

PRC-001-1 R3 provides in pertinent part: "A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows.

R3.1. Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority."

PRC-001-1 R3 has a "<blank>" VRF and R3.1 has a "High" VRF and a "High" VSL. The subject violation applies to Calpine Power's GOP function.

On August 20, 2010, Texas RE initiated a Spot Check of the Registered Entities and discovered that evidence of "coordination" with the TOP/BA and TO, for all protective system changes for the event and timeframe in the Spot Check, was not provided for Protection System changes made November 3, 2008. Calpine Power communicated subsequent changes to the TOP/BA via the interconnected TO.



Texas RE determined the duration of the violation to be from November 3, 2008, the date Calpine initially implemented new protection system changes without coordinating with the TOP and BA, until May 9, 2009, the date that satisfactory Protection System changes were implemented and the TOP/BA was notified of Protection System changes. The Mitigation Plan was completed on September 30, 2010 as described below.

Texas RE determined that this violation posed a moderate risk to the reliability of the BPS and did not pose a serious or substantial risk to the BPS because although coordination is required by the standard, the new protection system changes did not require any special actions or changes in operations or changes to the protections systems by either the TOP or the BA. Further, although avoidable Misoperations resulted in several instances of temporary loss of 165 MW of BPS generating capability, the system was not at any time during such temporary losses in a state of Energy Emergency Alert. Ample replacement capacity was available to and utilized by Calpine. In the event Calpine did not have adequate replacement capacity, replacement capacity was available from other entities within ERCOT. After each Misoperation, the unit was re-synchronized and serving the BPS in a short amount of time after tripping. In addition, the steam unit at Corpus Christi has a small generator rating of 230 MVA and turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. During incidents leading to the violations, the steam unit was only generating an average 62 MW output into the grid.

Regional Entity's Basis for Penalty

According to the Settlement Agreement, Texas RE has assessed a penalty of one hundred thousand dollars (\$100,000) for the referenced violations. In reaching this determination, Texas RE considered the following factors:

- (1) Calpine Corp self-reported the TRE201000249 PRC-005-1 violation;
- (2) The Registered Entities were cooperative throughout the compliance enforcement process;
- (3) The Registered Entities had a compliance program at the time of the violation which Texas RE considered a mitigating factor. ¹¹

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¹¹ The Compliance Program is governed by an Executive Stakeholder Committee. Funding and approvals come directly from the CEO and executive management. The Registered Entities initially introduced the Compliance Program to all employees through a memorandum that emphasizes the vital need to comply with all NERC Reliability Standards. The announcement was followed by a series of training releases with content specific to targeted skill categories within the Registered Entities. The Registered Entities continue to train and educate their employees on various aspects of NERC compliance. The Registered Entities' ERCOT trade desk staff has completed over 200 hours of ERCOT operator and NERC certification



- (4) There was no evidence of any attempt to either conceal a violation or intent to do so;
- (5) Texas RE determined that the violations posed a moderate risk and did not pose a serious or substantial risk to the reliability of the BPS, as discussed above;
- (6) A Settlement Agreement covering violations of PRC-005-1 R1 and R2 for Calpine Corp (NCR0006) in the SERC region (NOC-260) was filed with FERC under NP10-44-000 on February 1, 2010. On March 3, 2010, FERC issued an order stating it would not engage in further review of the Notice of Penalty. Texas RE determined that the prior violation of PRC-005-1 R2 in SERC should not serve as a basis for aggravating the penalty because that violation occurred contemporaneously with the instant violation. Moreover, there was nothing in the record to suggest that broader corporate issues were implicated. On February 29, 2012, NERC submitted a Find Fix Track & Report Filing under RC12-8-000 which addressed remediated issues for certain registered entities including a remediated issue of PRC-005-1 R1 for Calpine Corp in the Texas RE region. Texas RE determined that the previously filed remediated issue of PRC-005-1 R1 should not serve as a basis for aggravating the penalty because it involved a different requirement and the facts and circumstances of the two possible violations were sufficiently distinct. Moreover, there was nothing in the record to suggest that broader corporate issues were implicated; and
- (7) Texas RE reported that there were no other mitigating or aggravating factors or extenuating circumstances that would affect the assessed penalty.

After consideration of the above factors, Texas RE determined that, in this instance, the penalty amount of one hundred thousand dollars (\$100,000) is appropriate and bears a reasonable relation to the seriousness and duration of the violations.

training. The Registered Entities' Reliability Standards Program is ultimately responsible to the senior executive team. Funding and approvals come directly from the Registered Entities' senior executive team.

The program is designed to be independent of the Registered Entities' commercial and operations function and is managed by the Senior Vice President of Internal Audit and Chief Compliance Officer, with oversight of the Board of Directors. The Registered Entities have a documented Open Door Policy and an Ethics and Compliance reporting hotline for the reporting of any ethical or compliance concerns. As part of the commitment to compliance, Senior Management has provided ongoing contributions to the industry as a whole. Members of management and staff have served on the boards of directors of ERCOT and SERC. Staff has also served as members or alternate members of the Engineering Committee, Operating Committee and Reliability Committees of the SERC Reliability Corporation region (SERC) and the Reliability First Corporation region. A number of NERC and regional Standards Drafting Teams have and do include members of the Registered Entities' operations and compliance staff. Compliance staff attends compliance workshops held by all eight NERC regions and by NERC.



Status of Mitigation Plans 12

Calpine Corp Violations

TRE201000249 PRC-005-1 R2

Calpine Corp's Mitigation Plan to address its violation of PRC-005-1 R2 was submitted to Texas RE on March 26, 2012 with a proposed completion date of May 15, 2012. The Mitigation Plan was accepted by Texas RE on March 26, 2012 and approved by NERC on April 19, 2012. The Mitigation Plan for this violation is designated as TREMIT005696 and was submitted as non-public information to FERC on April 20, 2012 in accordance with FERC orders.

Calpine Corp's Mitigation Plan required Calpine Corp to:

- 1. Implement a revised maintenance and testing program to ensure compliance with PRC-005-1 R2;
- 2. Train plant personnel on their facilities' revised PRC-005 procedures;
- 3. Conduct a comprehensive NERC compliance survey of all components of Protection System equipment in the maintenance and testing program;
- 4. Bring current any late or missing maintenance and testing of Protection System components;
- Conduct all outstanding maintenance and testing; and
- 6. Compile evidence of such maintenance and testing.

Calpine Corp certified on April 9, 2012 that the above Mitigation Plan requirements were completed on March 27, 2012. As evidence of completion of its Mitigation Plan, Calpine Corp submitted the following:

- 1. Revised PRC-005 procedure which reflects that Calpine Corp's intent is to conduct timely maintenance and testing to ensure compliance with PRC-005-1 R2;
- A spreadsheet containing a list of all Protection System equipment, previous test data and next test data. The spreadsheet indicates that all maintenance and testing was brought current as of March 27, 2012; and

¹² See 18 C.F.R § 39.7(d)(7).

¹³ A previous Mitigation Plan was submitted on June 29, 2010, but was rejected by Texas RE on March 26, 2012.. Calpine Corp submitted a more detailed Mitigation Plan the same date, March 26, 2012, to outline additional mitigating activities.



3. A test report of the last equipment to be brought current, which reflects a date of March 27, 2012.

On April 9, 2012, after reviewing Calpine Corp's submitted evidence, Texas RE verified that Calpine Corp's Mitigation Plan was completed on March 27, 2012.

TRE201000177 PRC-004-1 R2

Calpine Corp's Mitigation Plan to address its violation of PRC-004-1 R2 was submitted as complete to Texas RE on March 2, 2011. The Mitigation Plan was accepted by Texas RE on January 13, 2012 and approved by NERC on February 6, 2012. The Mitigation Plan for this violation is designated as TREMIT005661 and was submitted as non-public information to FERC on February 10, 2012 in accordance with FERC orders.

Calpine Corp's Mitigation Plan required Calpine Corp to:

- Implement a revised PRC-004-1 Misoperation Analysis and Reporting Procedure at Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities. The last procedures were implemented at the last plant, Freestone Energy Center, on April 8, 2010; and
- 2. Conduct additional training on NERC Standards including the revised PRC-004-1 procedure. The final training occurred at the Freestone Energy Center on August 11, 2010.

Calpine Corp certified on March 19, 2012 that the above Mitigation Plan requirements were completed on August 11, 2010. As evidence of completion of its Mitigation Plan, Calpine Corp submitted the following:

- 1. A pdf of Corpus Christi PRC-004-1 Procedure dated March 21, 2010, including:
 - a. A revised Corrective Action Plan form; and
 - b. Section 5.2, which addresses Unnecessary Trip during a Fault Any relay initiated operation of a circuit breaker during a fault when the fault is outside the intended zone of protection;
- 2. A copy of training records for Corpus Christi for PRC-004-1 (training records dated Jun-2010);
- 3. Working copy (MSWord) of the Corpus Christi PRC-004-1 Procedure dated March 31, 2010;
- 4. A pdf of Freestone Energy Center PRC-004-1 Procedure dated April 8, 2010 (the last facility to implement the new procedure); and



5. A copy of training records for Freestone Energy for PRC-004-1 (page 9 of 21, dated August 11, 2010).

On March 19, 2012, after reviewing Calpine Corp's submitted evidence, Texas RE verified that Calpine Corp's Mitigation Plan was completed on August 11, 2010.

Calpine Power Violations

TRE201000178 PRC-001-1 R2

Calpine Power's Mitigation Plan to address its violation of PRC-001-1 R2 was submitted as complete to Texas RE on March 2, 2011. The Mitigation Plan was accepted by Texas RE on March 23, 2012 and approved by NERC on May 29, 2012. The Mitigation Plan for this violation is designated as TREMIT005662 and was submitted as non-public information to FERC on May 29, 2012 in accordance with FERC orders.

Calpine Power's Mitigation Plan required Calpine Power to:

- Implement revised PRC-001 Protection System Coordination Procedures at the Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities. The last procedures were implemented at the last plant, Pasadena Energy Center, on April 9, 2010. The revised Facility PRC-001-1 Procedure states clearly that all relay or Protection System failures must be reported promptly to the Qualified Scheduling Entity; and
- 2. Conduct additional training on NERC Standards including PRC-001-1. The final training occurred at Pasadena Energy Center on September 30, 2010.

Calpine Power certified on March 23, 2012 that the above Mitigation Plan requirements were completed on September 30, 2010. As evidence of completion of its Mitigation Plan, Calpine Power submitted the following:

- 1. A .pdf of Corpus Christi PRC-001-1 Procedure dated March 31, 2010;
- 2. A copy of training records for Corpus Christi for PRC-001-1;
- 3. A working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated March 31, 2010;
- 4. A pdf of Pasadena Energy Center PRC-001-1 Procedure dated April 9, 2010; and
- 5. Training records for Pasadena Energy Center for PRC-001-1 dated September 30, 2010.



On March 23, 2012, after reviewing Calpine Power's submitted evidence, Texas RE verified that Calpine Power's Mitigation Plan was completed on September 30, 2010.

TRE201000179 PRC-001-1 R3

Calpine Power's Mitigation Plan to address its violation of PRC-001-1 R3 was submitted as complete to Texas RE on March 2, 2011. The Mitigation Plan was accepted by Texas RE on January 16, 2012 and approved by NERC on February 6, 2012. The Mitigation Plan for this violation is designated as TREMIT005663 and was submitted as non-public information to FERC on February 10, 2012 in accordance with FERC orders.

Calpine Power's Mitigation Plan required Calpine Power to:

- Implement revised PRC-001 Protection System Coordination Procedures at the Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities. The last procedures were implemented at the last plant, Pasadena Energy Center, on April 9, 2010. The revised Facility PRC-001-1 Procedure states clearly that all relay or protection system failures must be reported promptly to the Qualified Scheduling Entity; and
- 2. Conduct additional training on NERC Standards including PRC-001-1. The final training occurred at Pasadena Energy Center on September 30, 2010.

Calpine Power certified on March 19, 2012 that the above Mitigation Plan requirements were completed on September 30, 2010. As evidence of completion of its Mitigation Plan, Calpine Power submitted the following:

- 1. A .pdf of Corpus Christi PRC-001-1 Procedure dated March 31, 2010;
- 2. A copy of training records for Corpus Christi for PRC-001-1;
- 3. A working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated March 31, 2010:
- 4. A .pdf of Pasadena Energy Center PRC-001-1 Procedure dated April 9, 2010; and
- 5. Training records for Pasadena Energy Center for PRC-001-1 dated September 30, 2010.

On March 19, 2012, after reviewing Calpine Power's submitted evidence, Texas RE verified that Calpine Power's Mitigation Plan was completed on September 30, 2010.

¹⁴ The Disposition Document states Texas RE accepted the Mitigation Plan on March 23, 2012.

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Statement Describing the Assessed Penalty, Sanction or Enforcement Action Imposed 15

Basis for Determination

Taking into consideration the Commission's direction in Order No. 693, the NERC Sanction Guidelines and the Commission's July 3, 2008, October 26, 2009 and August 27, 2010 Guidance Orders, ¹⁶ the NERC BOTCC reviewed the Settlement Agreement and supporting documentation on June 11, 2012. The NERC BOTCC approved the Settlement Agreement, including Texas RE's assessment of a one hundred thousand dollar (\$100,000) financial penalty against the Registered Entities and other actions to facilitate future compliance required under the terms and conditions of the Settlement Agreement. In approving the Settlement Agreement, the NERC BOTCC reviewed the applicable requirements of the Commission-approved Reliability Standards and the underlying facts and circumstances of the violations at issue.

In reaching this determination, the NERC BOTCC considered the following factors:

- 1. The PRC-001-1 and PRC-004-1 violations constituted the Registered Entities' first occurrence of violations of the subject NERC Reliability Standards. Calpine Corp has one violation of PRC-005-1 R1 and one violation of R2 which were filed with FERC but which did not serve as a basis for aggravating the penalty. The issues underlying these previously filed violations of PRC-005-1 R1 and R2 were not considered an aggravating factor in the penalty determination because they occurred in another Region simultaneously with the issues in Texas, Moreover, there was nothing in the record to suggest that broader corporate issues were implicated;
- 2. Calpine Corp self-reported the TRE201000249 PRC-005-1 violation;
- 3. Texas RE reported that the Registered Entities were cooperative throughout the compliance enforcement process;
- 4. The Registered Entities had a compliance program at the time of the violation which Texas RE considered a mitigating factor, as discussed above;
- 5. There was no evidence of any attempt to conceal a violation nor evidence of intent to do so;

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¹⁵ See 18 C.F.R. § 39.7(d)(4).

¹⁶ North American Electric Reliability Corporation, "Guidance Order on Reliability Notices of Penalty," 124 FERC ¶ 61,015 (2008); North American Electric Reliability Corporation, "Further Guidance Order on Reliability Notices of Penalty," 129 FERC ¶ 61,069 (2009); North American Electric Reliability Corporation, "Notice of No Further Review and Guidance Order," 132 FERC ¶ 61,182 (2010).



- 6. Texas RE determined that the violations posed a moderate risk and did not pose a serious or substantial risk to the reliability of the BPS, as discussed above; and
- 7. Texas RE reported that there were no other mitigating or aggravating factors or extenuating circumstances that would affect the assessed penalty.

For the foregoing reasons, the NERC BOTCC approved the Settlement Agreement and believes that the assessed penalty of one hundred thousand dollars (\$100,000) is appropriate for the violations and circumstances at issue, and is consistent with NERC's goal to promote and ensure reliability of the BPS.

Pursuant to 18 C.F.R. § 39.7(e), the penalty will be effective upon expiration of the 30 day period following the filing of this Notice of Penalty with FERC, or, if FERC decides to review the penalty, upon final determination by FERC.

Attachments to be Included as Part of this Notice of Penalty

The attachments to be included as parts of this Notice of Penalty are the following documents:

- a) Settlement Agreement by and between Texas RE and the Registered Entities executed June 26, 2012, included as Attachment a;
- b) Record documents for Calpine Corp's violation of PRC-005-1 R2, included as Attachment b:
 - 1. Calpine Corp's source document dated June 29, 2010;
 - 2. Calpine Corp's Mitigation Plan designated as TREMIT005696 submitted March 26, 2012;
 - 3. Calpine Corp's Certification of Mitigation Plan Completion dated April 09, 2012;
 - 4. Texas RE's Verification of Mitigation Plan Completion dated April 9, 2012;
- c) Record documents for Calpine Corp's violation of PRC-004-1 R2, included as Attachment c:
 - 1. Calpine Corp's source document dated February 15, 2011;
 - 2. Calpine Corp's Mitigation Plan designated as TREMIT005661 submitted March 2, 2011;
 - 3. Calpine Corp's Certification of Mitigation Plan Completion dated March 19, 2012;
 - 4. Texas RE's Verification of Mitigation Plan Completion dated March 19, 2012;
- d) Record documents for Calpine Power's violation of PRC-001-1 R2, included as Attachment d:
 - 1. Calpine Power's source document dated February 15, 2011;
 - 2. Calpine Power's Mitigation Plan designated as TREMIT005662 submitted March 2, 2011;



- 3. Calpine Power's Certification of Mitigation Plan Completion dated March 23, 2012;
- 4. Texas RE's Verification of Mitigation Plan Completion dated March 23, 2012;
- e) Record documents for Calpine Power's violation of PRC-001-1 R3, included as Attachment e:
 - 1. Calpine Power's source documents dated February 15, 2011;
 - 2. Calpine Power's Mitigation Plan designated as TREMIT005663 submitted March 2, 2011;
 - 3. Calpine Power's Certification of Mitigation Plan Completion dated March 19, 2012;
 - 4. Texas RE's Verification of Mitigation Plan Completion dated March 19, 2012;

A Form of Notice Suitable for Publication 17

A copy of a notice suitable for publication is included in Attachment f.

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¹⁷ See 18 C.F.R § 39.7(d)(6).



Notices and Communications: Notices and communications with respect to this filing may be addressed to the following:

Gerald W. Cauley

President and Chief Executive Officer North American Electric Reliability

Corporation

3353 Peachtree Road NE

Suite 600, North Tower

Atlanta, GA 30326-1001

(404) 446-2560

David N. Cook*

Senior Vice President and General Counsel

North American Electric Reliability

Corporation

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*Persons to be included on the Commission's service list are indicated with an asterisk. NERC requests waiver of the Commission's rules and regulations to permit the inclusion of more than two people on the service list.



Conclusion

NERC respectfully requests that the Commission accept this Notice of Penalty as compliant with its rules, regulations and orders.

Gerald W. Cauley
President and Chief Executive Officer
North American Electric Reliability Corporation
3353 Peachtree Road NE
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Respectfully submitted,

/s/ Rebecca J. Michael
Rebecca J. Michael
Associate General Counsel for Corporate and Regulatory Matters
North American Electric Reliability
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cc: Calpine Corporation and Calpine Power Management, LP Texas Reliability Entity, Inc.

Attachments

Attachment a

Settlement Agreement by and between Texas RE and the Registered Entities executed June &*, 2012



SETTLEMENT AGREEMENT

OF

TEXAS RELIABILITY ENTITY, INC.

AND

CALPINE CORPORATION AND CALPINE POWER MANAGEMENT, LP

I. INTRODUCTION

- 1. North American Electric Reliability Corporation ("NERC") delegated authority to Texas Reliability Entity, Inc. to become the regional entity for the ERCOT region effective July 1, 2010, pursuant to Section 215(e)(4) of the Federal Power Act. NERC also delegated to Texas Reliability Entity, Inc. the authority and responsibility for the continuation of all compliance monitoring and enforcement activities that it had previously delegated to Texas Regional Entity (a division of Electric Reliability Council of Texas, Inc.). The term "Texas RE" is used herein to refer to both Texas Regional Entity and Texas Reliability Entity, Inc.
- 2. Calpine Corporation and Calpine Power Management, LP (collectively referred to as "Registered Entities") and Texas RE (collectively, the Registered Entities and Texas RE are referred to herein as the "parties") enter into this Settlement Agreement ("Settlement Agreement") to resolve all outstanding issues arising from a preliminary and non-public assessment resulting in Texas RE's determination and findings, pursuant to the NERC Rules of Procedure, of three violations¹ by the Registered Entities of NERC Reliability Standards PRC-005-1, R2 (TRE201000249); PRC-004-1, R2 (TRE201000177); PRC-001-1 R2 (TRE201000178); and PRC-001-1, R3 (TRE201000179).
- 3. The Registered Entities admit the violation of NERC Reliability Standard PRC-005-1 R2, and neither admit nor deny the violations of NERC Reliability Standards PRC-001-1, R2 and R3 and PRC-004-1 R2, and have agreed to an aggregate proposed penalty of \$100,000 to be assessed to the Registered Entities, in addition to other remedies and mitigation actions to mitigate the instant violations and facilitate future compliance under the terms and conditions of this Settlement Agreement.

II. STIPULATION

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¹ For the purposes of this Settlement Agreement, each violation at issue is described as a "violation," regardless of its procedural posture and whether it was a possible or alleged violation.

4. The facts stipulated herein are stipulated solely for the purpose of resolving, between the Registered Entities and Texas RE, the matters discussed herein and do not constitute stipulations or admissions for any other purpose. The attached Disposition Document (Addendum A) is incorporated herein in its entirety. The Registered Entities and Texas RE hereby stipulate and agree to the following:

Background

5. See Section I of the Disposition Document for a description of the Registered Entities.

Violations of NERC Reliability Standards PRC-005, R2; PRC-004-1, R2; and PRC-001-1, R3

6. See Section II of the Disposition Document for the description of the violations.

III. PARTIES' SEPARATE REPRESENTATIONS

STATEMENT OF TEXAS RE AND SUMMARY OF FINDINGS

- 7. On June 29, 2010 Calpine Corporation submitted a self-report for the violation of PRC-005-1 R2. Texas RE found that Calpine Corporation's documentation did not show test dates from June 2007 to December 2007 for certain devices, a violation of PRC-005-1 R2.
- 8. On August 20, 2010 Texas RE initiated spot checks of Calpine Corporation (the Generator Owner) and Calpine Power Management, LP (the Generator Operator) based on a review of a May 8, 2009 event involving Citgo North Oak Park Unit #3. The unit had tripped April 11, April 27, and May 4, 2009 under similar circumstances. Texas RE found that the Generator Owner did not document a Corrective Action Plan and did not implement a Corrective Action Plan to avoid future misoperations of a similar nature, a violation of PRC-004-1 R2. In addition, Texas RE found that the Generator Operator did not provide evidence of coordination with the Transmission Operator and Balancing Authority for all protective system changes, a violation of PRC-001-1 R3. Finally, Texas RE found that the Generator Operator did not notify reliability entities (Transmission Operator or Host Balancing Authority) of relay or equipment failures, a violation of PRC-001-1 R2.
- 9. Texas RE agrees that this Settlement Agreement is in the best interest of the parties and in the best interest of bulk power system reliability.

STATEMENT OF THE REGISTERED ENTITIES

10. The Registered Entities admit that the facts set forth herein and agreed to by the parties for purposes of this Settlement Agreement constitute violations of PRC-005-1 R2. The Registered Entities neither admit nor deny that the facts set forth herein

and agreed to by the parties for purposes of this Agreement constitute violations of PRC-004-1 R2 and PRC-001-1 R2 and R3.

11. The Registered Entities have agreed to enter into this Settlement Agreement with Texas RE to avoid extended litigation with respect to the matters described or referred to herein, to avoid uncertainty, and to effectuate a complete and final resolution of the issues set forth herein. The Registered Entities agree that this Settlement Agreement is in the best interest of the parties and in the best interest of maintaining a reliable electric infrastructure.

IV. MITIGATING ACTIONS, REMEDIES AND SANCTIONS

- 12. Texas RE and the Registered Entities agree that the Registered Entities have completed and Texas RE has verified completion of the mitigating actions set forth in Section IV of the Disposition Document. Further, Texas RE has verified that the Registered Entities have completed the additional actions addressed in Section IV of the Disposition Document (if any). The Mitigating Actions, Remedies and Sanctions are discussed in detail in the Disposition Document.
- 13. For purposes of settling any and all disputes arising from Texas RE's assessment of the matters reported by the Registered Entities in their self-report and discovered by Texas RE in its spot checks of the Registered Entities, Texas RE and the Registered Entities agree that on and after the effective date of this Agreement, the Registered Entities shall take the following actions:

Activity	Dates to be completed
i.Participation in industry educational events	Ongoing
ii. Internal and external training regarding procedures	Ongoing
iii. Participation as member of several NERC and Regional Standard Drafting Teams. RFC MOD-24, MOD-25, PRC-002 and NERC MOD-24, MOD-25, MOD-26, MOD-27, PRC-24	Ongoing

- 14. In order to facilitate Texas RE's need to communicate the status and provide accountability to the ERO (NERC), the Registered Entities will provide updates quarterly, or more frequently, upon request by Texas RE. The Registered Entities will submit these status updates to Texas RE in accordance with the confidentiality provisions of Section 1500 of the NERC Rules of Procedure.
- 15. It is understood that Texas RE staff shall audit the progress of mitigation plans and any other remedies of this Settlement Agreement, including, but not limited to site inspection, interviews, and request other documentation to validate progress and/or completion of the mitigation plans and any other remedies of this Settlement Agreement. Texas RE shall reasonably coordinate audits and information requests with the Registered Entities related to this Settlement Agreement.
- 16. Texas RE staff also consider the specific facts and circumstances of the violations and the Registered Entities' actions in response to the violations in determining a



proposed penalty that meets the requirement in Section 215 of the Federal Power Act that "[a]ny penalty imposed under this section shall bear a reasonable relation to the seriousness of the violation and shall take into consideration the efforts of such user, owner, or operator to remedy the violation in a timely manner." The factors considered by Texas RE staff in the determination of the appropriate penalty are set forth in Section V of the Disposition Document.

- 17. Based on the above factors, as well as the mitigation actions and preventative measures taken, the Registered Entities shall pay the monetary penalty of \$100,000 to Texas RE within twenty days after the Settlement Agreement is either approved by the Federal Energy Regulatory Commission or by operation of law, and Texas RE shall notify NERC if the payment is not received.
- 18. The estimated costs to the Registered Entities to implement the agreed to actions beyond those necessary to come into compliance with the Standard, as discussed above, are approximately \$36,000. Texas RE may audit and inspect financial records to validate actual expenditures with estimates in this Settlement Agreement. Funding and programs associated with this Settlement Agreement will be above the original planned budget and programs for the 2012 year.
- 19. Failure to make a timely penalty payment or to comply with any of the terms and conditions agreed to herein, or any other conditions of this Settlement Agreement, shall be deemed to be either the same alleged violations that initiated this Settlement and/or additional violation(s) and may subject the Registered Entities to new or additional enforcement, penalty or sanction actions in accordance with the NERC Rules of Procedure.
- 20. If the Registered Entities do not make the monetary penalty payment above at the times agreed by the parties, interest payable to Texas RE will begin to accrue pursuant to the Commission's regulations at 18 C.F.R. § 35.19(a)(2)(iii) from the date that payment is due, in addition to the penalty specified above. The Registered Entities shall retain all rights to defend against such additional enforcement actions in accordance with NERC Rules of Procedure.

V. ADDITIONAL TERMS

21. The signatories to the Settlement Agreement agree that they enter into the Settlement Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer or promise of any kind by any member, employee, officer, director, agent or representative of Texas RE or the Registered Entities has been made to induce the signatories or any other party to enter into the Settlement Agreement.

² 16 U.S.C. § 8240(e)(6).

- 22. Texas RE shall report the terms of all settlements of compliance matters to NERC. NERC will review the settlement for the purpose of evaluating its consistency with other settlements entered into for similar violations or under other, similar circumstances. Based on this review, NERC will either approve the settlement or reject the settlement and notify Texas RE and the Registered Entities of changes to the settlement that would result in approval. If NERC rejects the settlement, NERC will provide specific written reasons for such rejection and Texas RE will attempt to negotiate a revised settlement agreement with the Registered Entities including any changes to the settlement specified by NERC. If a settlement cannot be reached, the enforcement process shall continue to conclusion. If NERC approves the settlement, NERC will (i) report the approved settlement to the Commission for the Commission's review and approval by order or operation of law and (ii) publicly post this Settlement Agreement.
- 23. This Settlement Agreement shall become effective upon the Commission's approval of the Settlement Agreement by order or operation of law as submitted to it or as modified in a manner acceptable to the parties.
- 24. The Registered Entities agree that this Settlement Agreement, when approved by NERC and the Commission, shall represent a final settlement of all matters set forth herein and the Registered Entities waive their right to further hearings and appeal, unless and only to the extent that the Registered Entities contend that any NERC or Commission action on the Settlement Agreement contains one or more material modifications to the Settlement Agreement. Texas RE reserves all rights to initiate enforcement, penalty or sanction actions against the Registered Entities in accordance with the NERC Rules of Procedure in the event that the Registered Entities fail to comply with the Mitigation Plan and compliance program agreed to in this Settlement Agreement. In the event the Registered Entities fail to comply with any of the stipulations, remedies, sanctions or additional terms, as set forth in this Settlement Agreement, Texas RE will initiate enforcement, penalty, or sanction actions against the Registered Entities to the maximum extent allowed by the NERC Rules of Procedure, up to the maximum statutorily allowed penalty. Except as otherwise specified in this Settlement Agreement, the Registered Entities shall retain all rights to defend against such enforcement actions, also according to the NERC Rules of Procedure.
- 25. The Registered Entities consent to the use of Texas RE's determinations, findings, and conclusions set forth in this Settlement Agreement for the purpose of assessing the factors, including the factor of determining the company's history of violations, in accordance with the NERC Sanction Guidelines and applicable Commission orders and policy statements. Such use may be in any enforcement action or compliance proceeding undertaken by NERC and/or any Regional Entity; provided, however, that the Registered Entities do not consent to the use of the specific acts set forth in this Settlement Agreement as the sole basis for any other action or proceeding brought by NERC and/or Texas RE, nor do the Registered Entities consent to the use of this Settlement Agreement by any other party in any other action or proceeding.



- 26. Each of the undersigned warrants that he or she is an authorized representative of the entity designated, is authorized to bind such entity and accepts the Settlement Agreement on the entity's behalf.
- 27. The undersigned representative of each party affirms that he or she has read the Settlement Agreement, that all of the matters set forth in the Settlement Agreement are true and correct to the best of his or her knowledge, information and belief, and that he or she understands that the Settlement Agreement is entered into by such party in express reliance on those representations.
- 28. The Settlement Agreement may be signed in counterparts.
- 29. This Settlement Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

Agreed to and accepted:

W. Lane Lanford

President and CEO

Texas Reliability Entity, inc.

W. Thaddeus Miller

EVP and Chief Legal Officer()

Calpine Corporation

Calpine Power Management, LP

6/26/12 Date

Date



Addendum A

DISPOSITION OF VIOLATION¹ Dated

NERC TRACKING NO.	REGIONAL ENTITY	NOC#
	TRACKING NO.	
TRE201000249 (Calpine Corp violation of PRC-005-1 R2)	TRE201000249	
TRE201000177 (Calpine Corp violation of PRC-004-1 R2)	TRE201000177	
TRE201000178 (Calpine Power violation of PRC-001-1 R2)	TRE201000178	
TRE201000179 (Calpine Power violation of PRC-001-1 R3)	TRE201000179	

Calpine Corporation ("Calpine Corp")

Calpine Power Management, LP ("Calpine Power")

Collectively ("Registered Entities")

NERC

REGISTRY

NCR04026

NCR04027

REGIONAL ENTITY

REGISTERED ENTITY

Texas Reliability Entity, Inc. ("Texas RE")

I. REGISTRATION INFORMATION

ENTITIES ARE REGISTERED FOR THE FOLLOWING FUNCTIONS (BOTTOM ROW **INDICATES REGISTRATION DATE):**

BA	DP		IA	LSE	PA	PSE	RC	RP	RSG	TO	TOP	TP	TSP
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]													
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						ľ				1 1		ĺ	

^{*} Violations apply to shaded functions

805 Las Cimas Parkway, Suite 200 Austin, Texas 78746

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Tel: (512) 583-4950 Fax: (512) 583-4903

¹ For purposes of this document and attachments hereto, each violation at issue is described as a "violation," regardless of its procedural posture and whether it was a possible, alleged or confirmed violation.

² Calpine Corporation

³ Calpine Power Management, LP



DESCRIPTION OF THE REGISTERED ENTITIES

Founded in 1984, Calpine Corp is a major U.S. power company, capable of delivering nearly 29,000 megawatts of clean, cost-effective, reliable and fuel-efficient electricity to customers and communities in 21 states in the U.S. and Canada. The company owns, leases and operates low-carbon, natural gas-fired, combined-cycle and renewable geothermal power plants. Using advanced technologies, Calpine Corp generates electricity in a reliable and environmentally responsible manner for the customers and communities it serves.

Calpine Corp is registered as a Generator Owner ("GO") in the ERCOT region.

Calpine Power Management, LP ("Calpine Power"), a subsidiary of Calpine Corp, is registered as a Generator Operator ("GOP") in the ERCOT region.

II. VIOLATION INFORMATION

RELIABILITY STANDARD	REQUIREMENT(S)	SUB- REQUIREMENT(S)	VRF(S)	VSL(S)
PRC-005-1	R2	R2.1	High	High
PRC-004-1	R2		High	Moderate
PRC-001-1	R2	R2.1	High	Severe
PRC-001-1	R3	R3.1	High	High

The purpose of PRC-005-1 is to ensure all transmission and generation Protection Systems affecting the reliability of the Bulk Electric System ("BES") are maintained and tested.

The purpose of PRC-004-1 is to ensure all transmission and generation Protection System Misoperations affecting the reliability of the BES are analyzed and mitigated.

The purpose of PRC-001-1 is to ensure system protection is coordinated among operating entities.

TEXT OF RELIABILITY STANDARDS AND REQUIREMENT(S)/SUB-REQUIREMENT(S)

PRC-005-1, R2

Transmission and Generation Protection System Maintenance and Testing

- R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:
 - **R2.1.** Evidence Protection System devices were maintained and tested within the defined intervals.



PRC-004-1, R2

Analysis and Mitigation of Transmission and Generation Protection System Misoperations

R2. The Generator Owner shall analyze its generator Protection System Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for PRC-003 R1

PRC-001-1, R2 System Protection Coordination

- **R2.** Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows:
 - **R2.1.** If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.

PRC-001-1, R3 System Protection Coordination

- **R3.** A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows.
 - **R3.1.** Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority.

VIOLATION DESCRIPTIONS

PRC-005-1, R2: violation self-reported by Calpine Corp:

PRC-005-1, R2:

During an internal review of historical Protection System maintenance and testing, Calpine Corp identified that certain elements of its Protection System were not timely maintained and tested consistently across its generation fleet in the ERCOT Region. Calpine Corporation self-reported this deficiency to Texas RE on June 29, 2010.

A total of 1345 devices including 3963 activities have been identified. At the time of the self-report, Calpine Corp was in compliance with 76.8% of all Protection System maintenance and testing activities.

PRC-004-1, R2 and PRC-001-1, R2 and R3 violations discovered by spot checks of Calpine Corp and Calpine Power:



Violations Timeline

- October 2008 Calpine Corp's Citgo North Oak Park Unit 3 ("generator") failed to synchronize to the grid, tripping generator over-current/under-voltage (50/27) relay (a Misoperation).
- 2. Late October 2008 November 3, 2008: Calpine Corp analyzed the Misoperation.
- November 3, 2008 Calpine Corp Engineering issued recommendations for a Corrective Action Plan ("CAP") to the Citgo North Oak Park plant. The recommendations included:
 - a. 50/27 Pickup 4.A (set slightly above rated output)
 - b. 50/27 Voltage Control 0.7 x 120 V = 84 V (70% of rated output)⁴
 - c. 50/27 Pickup Delay 60 cycles
 - d. 50/27 Dropout Delay 6 cycles
 - e. i) Blocking inputs FL (fuse failure), and ii) 41b Exciter breaker (41) position!⁵
- 4. Shortly thereafter (precise timing is unknown), Items a, b, c, and d in the previous step were implemented without notifying the TOP/BA or TO, a violation of PRC-001-1 R3, which calls for coordinating all new protective system changes with the TOP and BA. The effect of implementing the incorrect calculation for item (b) meant that the setting for (b) above was always "on" or that portion of the relay design activated. Consequently, the design sensed under-voltage, and the incorrect (higher than it should have been) setting meant it was always "on."
- 5. December 17, 2008 an email was sent from Calpine Corp Engineering regarding implementation of the corrective action recommendations. The engineer stated: "As far as incorporating the exciter breaker position, the sooner the better."
- 6. April 11, 2009, a transient current spike on the system caused the generator to trip. This transient current spike should not have tripped the relay because voltage did not dip significantly, and is a Misoperation.
- 7. April 20, 2009 Calpine Corp Engineering issued the same recommendations as found in Item 3 above to plant, only this time, he re-emphasized item (e) above.
- 8. April 27, 2009 another transient current spike caused the generator to trip inappropriately, a Misoperation.
- 9. May 1, 2009 Calpine Corp Engineering issued a corrected list of recommended corrective actions to the generator plant⁶.

⁴ This was later determined to be incorrect. The setting should have been $0.7 \times 69V = 48.3V$ Line-to-neutral. (70% of rated line to neutral)

⁵ Item e) was not implemented by choice of plant personnel. According to Calpine Corp IEEE Std C37.102-1006 (IEEE Guide for AC Generator Protection, ©2007) Blocking the Exiter breaker (41) position is not required. Texas RE reviewed this document and concurs that blocking inputs is indicated as an alternative to the other recommendations.

⁶ Other than Item b., which was corrected to be 48V line-to-neutral, the May 1, 2009 CAP was identical to the original November 3, 2008 CAP.



- 10. May 4, 2009 another transient current spike caused the generator to trip inappropriately, a Misoperation.
- 11. May 8, 2009 a failure of the capacitor bank at AEP's Airline substation caused the generator to trip inappropriately again, a Misoperation. There was no evidence provided that this Misoperation was reported by Calpine Power to the TOP/BA. The analysis of this cap bank failure was investigated as an Event by Texas RE and precipitated this analysis.
- 12. May 9, 2009 Calpine Corp fully implemented the May 1, 2009 recommended corrective actions, correcting all associated issues, and Calpine Power coordinated protection system changes with the TOP/BA pursuant to PRC-001-1 R3.

Violation Descriptions

PRC-004-1, R2: The Generator Owner is to analyze Protection System Misoperations, develop a CAP, and implement a CAP to avoid misoperations of a similar nature. In this case, Misoperations were "analyzed" by Calpine Corp, and a defective set of recommendations for a CAP "developed" (though Texas RE contends a CAP was never documented, thus no evidence exists it was definitively "developed") and a portion of the faulty recommendations "implemented," but "future misoperations of a similar nature" were not "avoided" as demonstrated by multiple trips over an extended period.

PRC-001-1 R2: The Generator Operator shall notify its Transmission Operator and Host Balancing Authority (ERCOT) in the event protective relay or equipment failure reduces system reliability, and take corrective action as soon as possible. Evidence of "notification" to The Transmission Operator and Host Balancing Authority (ERCOT and AEP acting as agent for certain of ERCOT's TOP functions) for the relay failure at Citgo North Oak Park Unit #3 at the time of the event on May 8, 2009 does not exist. Further, although Calpine Power verbally reported each other failure as far back as late October 2008, they did not inform the TOP/BA (ERCOT) as to the nature of why the relay failed. Moreover, Calpine Power did not take action "as soon as possible" as evidenced by the fact that the underlying issue (incorrect relay settings) was not rectified until seven months after the initial issue was discovered in October 2008.

PRC-001-1, R3: The Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. Evidence of "coordination" with the TOP/BA and TO, for all protective system changes for the event and timeframe in the Spot Check was not provided for protection system changes made in October of 2008. Calpine Power communicated subsequent changes with the TOP/BA via their interconnected TO, AEP.

RELIABILITY IMPACT STATEMENT- POTENTIAL AND ACTUAL

PRC-005-1, R2: This violation did not pose a serious or substantial risk to the bulk power system, but did have a moderate impact because although there is no evidence this violation



caused any BES events during the violation period, there was the possibility that the lack of testing and maintenance of the relays could have potentiality caused substantial BES events, if uncorrected. As background, Calpine Corp generating output capability in the ERCOT Region is approximately 6,800 MW. At the time of the self-report 76.8% of Protection System testing was completed at Calpine Corp generating facilities in the ERCOT Region. Approximately 35 of 44 generating units in the ERCOT Region used microprocessor based protective relays that are equipped with self-diagnostic and output failure alarms and which are being monitored by plant staff during daily operator walk-throughs. As of March 27, 2012, all Protection System devices were maintained and tested and found to be within acceptable tolerance and no re-calibration was determined to be necessary.

Calpine Corp has summarized the number of Protection System devices including relays, battery banks, CTs & PTs, DC circuitry, and communication devices and their associated activities for its generating plants in the ERCOT Region. A total of 1345 devices including 3963 activities have been identified by each of the plants in the ERCOT Region. At the time of the self-report to Texas RE, Calpine Corp was in compliance with (i) 76.8 % of all Protection System maintenance and testing activities. (ii) 78.4% of all protective relays were tested. Approximately one half of the remaining 21.3% of protective relays not tested at the time of the self-report were microprocessor based relays with a selfcheck status indication at the front of the relay. These are checked daily by operators during their daily walk-throughs of the plant relay room. (iii) Battery maintenance was performed at average 81.4%, of which 17.2% was recorded in plant operator logs. It should be noted that the condition of battery banks is continuously monitored in the control room. In addition, battery condition is inspected during daily operator rounds. (v) DC circuitry testing was performed at 68.4%. It should be noted that trip circuit and trip coil status is also monitored by the microprocessor relays at their front panel view. Also, conditions of DC circuitry to the circuit breaker trip coil(s) are monitored on a continuous basis. DC circuitry and CTs & PTs performance were validated by unit start-ups and shut downs. Calpine Corp generating facilities in the ERCOT Region had on average 4333, 4501, and 4113 starts and were connected to the BES for more than 4286, 4450, and 4055 average hours per station each year in 2007, 2008, and 2009 respectively. The number of startups, shutdowns and operating hours for each unit is indicative of reliable operation of the Protection System. (vi) Communication devices were 100 % complete.

Although a consistent Protection System maintenance program for these plants was not fully executed prior to the self-report by Calpine Corp, the operation and health of these devices is validated through normal unit operation. The startup process for each unit is completed through signals from relays, battery banks, CTs, PTs, and closing circuit DC circuitry to connect each unit to the grid. Similarly, tripping each unit offline is done using signals from relays, battery banks, CTs, PTs, and trip circuit DC circuitry. The real time validation of the operating status of the Protection System elements is a methodology that is widely accepted by the utility industry.

In light of the nature of the violation, offset by the foregoing mitigating factors, Texas RE has determined that the violation posed a moderate risk to the reliability of the BPS.

PRC-004-1, R2: This violation did not pose a serious or substantial risk to the bulk power system, but had a moderate impact due to two factors: 1) The steam unit at Corpus Christi has



a generator rating of 230 MVA and a turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. During incidents leading to the alleged violations, the steam unit was generating on average 62 MW output into the grid, and 2) after each Misoperation, the unit was re-synchronized and serving the BES in a short amount of time after tripping.

PRC-001-1, R2: This violation did not pose a serious or substantial risk to the bulk power system and had a moderate impact due to two factors: 1) The steam unit at Corpus Christi has a generator rating of 230 MVA and a turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. During incidents leading to the alleged violations, the steam unit was generating on average 62 MW output into the grid, and 2) after each Misoperation, the unit was re-synchronized and serving the BES in a short amount of time after tripping.

PRC-001-1, R3: This violation did not pose a serious or substantial risk to the bulk power system and had a moderate impact due to two factors: 1) The steam unit at Corpus Christi has a generator rating of 230 MVA and a turbine rating of 165 MW. The average annual output for the steam unit is approximately 80 MW. During incidents leading to the alleged violations, the steam unit was generating on average 62 MW output into the grid, and 2) after each Misoperation, the unit was re-synchronized and serving the BES in a short amount of time after tripping. Although Calpine Corp's Corpus Christi plant staff did not communicate initial relay setting changes with applicable entities, plant staff eventually communicated subsequent changes with their interconnected TO (AEP).

IS THERE A SETTLEMENT AGREEMENT	Yes ⊠	No 🗌					
WiTH RESPECT TO THE ALLEGED/CONFIRMED VIOLAT Neither admits nor denies it (settlement only) 001-1 R2 and R3 Admits to it Does not contest it (Including within 30 days)	⊠ PR □	C-004-1 R2 and PRC- C-005-1 R2					
WITH RESPECT TO THE ASSESSED PENALTY OR SANC	TION, REG	ISTERED ENTITY					
Accepts it/Does not contest it	\boxtimes						
III. DISCOVERY INFORMATION							
METHOD OF DISCOVERY Self-Report Self-Certification Compliance Audit Compliance Violation Investigation Spot Check	⊠ □ □ PRC-0	(PRC-005-1 R2) (PRC-004-1 R2, 01-1 R2 and R3)					



	-		
Complaint Periodic Data Submittal Exception Reporting			
DURATION DATE(S)			
PRC-005-1 R2: June 18, 2007, the date Calpine Corp was r 2012, the date that Calpine Corp completed equipment.	egistered in the I maintenance ar	ERCOT reg	ion until March 27, tivities on all past due
PRC-004-1 R2, PRC-001-1 R2 and R3: November 3, 2008, the date of Calpine Pow that satisfactory protection system changes protection system changes.	er's initial Misop were implement	eration, unti ed and the 1	l May 9, 2009, the date ΓΟΡ/ΒΑ notified of
DATE DISCOVERED BY OR REPORTED 1 PRC-005-1 R2: PRC-004-1 R2, PRC-001-1 R2 and R3:	TO REGIONAL I June 29, 2010 (October 22, 201	via self-repo	
Is the violation still occurring		Yes 🗌	No ⊠
Explain if yes			
Remedial Action Directive issued		Yes 🗌	No ⊠
Pre to post June 18, 2007 violation	ı	Yes 🗌	No 🖾
IV. MITIGATI	ON INFORM	ATION	
PRC-005-1 R2: MITIGATION PLAN NO.	TREMIT005696		
Date Submitted to Regional Entity			21/2010 26, 2012
Date Accepted by Regional Entity		March	26, 2012
Date approved by NERC			
Date provided to FERC			
Identify and explain all prior versio A previous mitigation plan was submit 2012 after a compliance audit conduct	tted June 29, 20	10, but was	rejected March 26

had not completed maintenance and testing of protection system equipment. Calpine submitted a more detailed mitigation plan to further explain their mitigating activities.



MITIGATION PLAN COMPLETED

Yes ⊠ No □

Expected completion date

May 15, 2012

Extensions granted
Actual Completion Date

March 27, 2012

Date of Certification Letter

April 9, 2012

Certifled as complete by Registered Entity as of

March 27, 2012

Date of Verification Letter

April 9, 2012

Verified complete by Regional Entity as of

April 9, 2012

Actions taken to mitigate the issue and prevent recurrence

- 1. Calpine Corp will implement a revised maintenance and testing program to ensure compliance with PRC-005-1 R2.
- Calpine Corp will conduct a comprehensive NERC compliance survey of all components of Protection System equipment in the maintenance and testing program.
- 3. Calpine Corp will bring current any late or missing maintenance and testing of Protection System components. All outstanding maintenance and testing will be conducted, and evidence of such maintenance and testing will be compiled.

List of evidence reviewed by Regional Entity to evaluate completion of Mitigation Plan or Milestones (for cases in which mitigation is not yet completed, list evidence reviewed for completed milestones)

- a. Texas RE reviewed Calpine Corp's revised PRC-005 procedure which reflects that Calpine Corp's intent is to conduct timely maintenance and testing to ensure compliance with PRC-005-1 R2.
- b. Additionally, Texas RE reviewed a spreadsheet which contains a list of all protection system equipment, previous test data and next test data. The spreadsheet indicates that all maintenance and testing was brought current as of March 27, 2012.
- c. Texas RE reviewed a test report of the last equipment to be brought current and verified that it reflects a date of March 27, 2012.

PRC-004-1 R2: MITIGATION PLAN NO. TREMIT005661

Date Submitted to Regional Entity

March 2, 2011

Date Accepted by Regional Entity

January 13, 2012

Date approved by NERC

February 6, 2012



Date provided to FERC

February 10, 2012

identify and explain all prior versions that were accepted or rejected, if applicable

MITIGATION PLAN COMPLETED

Yes ⊠ No □

Expected completion date

Submitted as complete

Extensions granted Actual Completion Date

August 11, 2010

Actual Completion Date

March 19, 2012

Date of Certification Letter
Certified as complete by Registered Entity as of

August 11, 2010

Date of Verification Letter
Verified complete by Regional Entity as of

March 19, 2012 August 11, 2010

Actions taken to mitigate the issue and prevent recurrence

- 1. Calpine has implemented revised PRC-004-1 Misoperation Analysis and Reporting Procedure at Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities. The last procedures were implemented at the last plant, Freestone Energy Center on April 8, 2010.
- 2. Additional training on NERC Standards including the revised PRC-004-1 procedure. The final training occurred at the Freestone Energy Center on August 11, 2010

List of evidence reviewed by Regional Entity to evaluate completion of Mitigation Plan or Milestones (for cases in which mitigation is not yet completed, list evidence reviewed for completed milestones)

- a. A pdf of Corpus Christi PRC-004-1 Procedure dated March 21, 2010, including:
 - i. A revised Corrective Action Plan form.
 - ii. Section 5.2, which address Unnecessary Trip during a Fault Any relay initiated operation of a circuit breaker during a fault when the fault is outside the intended zone of protection.
- b. A copy of training records for Corpus Christi for PRC-004-1 (training records dated Jun-2010).
- c. Working copy (MSWord) of the Corpus Christi PRC-004-1 Procedure dated March 31, 2010.
- d. A pdf of Freestone Energy Center PRC-004-1 Procedure dated April 8, 2010 (the last facility to implement the new procedure).
- e. A copy of training records for Freestone Energy for PRC-004-1 (page 9 of 21, dated August 11, 2010.



PRC-001-1 R2: MITIGATION PLAN NO. TREMIT005662

Date Submitted to Regional Entity

March 2, 2011

Date Accepted by Regional Entity

March 23, 2012

Date approved by NERC

Date provided to FERC

Identify and explain all prior versions that were accepted or rejected, if applicable

MITIGATION PLAN COMPLETED

Yes 🛛 No \square

Expected completion date Extensions granted

Submitted as complete

Actual Completion Date

September 30, 2010

Date of Certification Letter

March 23, 2012

Certified as complete by Registered Entity as of

September 30, 2010

Date of Verification Letter Verified complete by Regional Entity as of

March 23, 2012 September 30, 2010

Actions taken to mitigate the issue and prevent recurrence

- 1. Calpine has implemented revised PRC-001 Protection System Coordination Procedures at the Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities. The last procedures were implemented at the last plant, Pasadena Energy Center, on April 9, 2010. The revised Facility PRC-001-1 Procedure states clearly that all relay or protection system failures must be reported promptly to the QSE.
- 2. Additional training on NERC Standards including PRC-001-1. The final training occurred at Pasadena Energy Center on September 30, 2010.

List of evidence reviewed by Regional Entity to evaluate completion of Mitigation Plan or Milestones (for cases in which mitigation is not yet completed, list evidence reviewed for completed milestones)

- A pdf of Corpus Christi PRC-001-1 Procedure dated March 31, 2010. a.
- b. A copy of training records for Corpus Christi for PRC-001-1.
- A working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated C. March 31, 2010.
- d. A pdf of Pasadena Energy Center PRC-001-1 Procedure dated April 9, 2010.



No \square

e. Training records for Pasadena Energy Center for PRC-001-1 dated September 30, 2010.

PRC-001-1 R3: MITIGATION PLAN NO. TREMIT005663 (identical in substance to TREMIT005662)

Date Submitted to Regional Entity March 2, 2011

Date Accepted by Regional Entity

March 23, 2012

Date approved by NERC February 6, 2012

Date provided to FERC February 10, 2012

Identify and explain all prior versions that were accepted or rejected, if applicable

MITIGATION PLAN COMPLETED Yes 🖂

Expected completion date

Submitted as complete

Extensions granted

Actual Completion Date September 30, 2010

Date of Certification Letter March 23, 2012
Certified as complete by Registered Entity as of September 30, 2010

Date of Verification Letter

Warch 23, 2012

Verified complete by Regional Entity as of

March 23, 2012

September 30, 2010

Actions taken to mitigate the Issue and prevent recurrence

- Calpine has implemented revised PRC-001 Protection System Coordination Procedures
 at the Corpus Christi facility and at each of the Calpine ERCOT-region generation
 facilities. The last procedures were implemented at the last plant, Pasadena Energy
 Center, on April 9, 2010. The revised Facility PRC-001-1 Procedure states clearly that
 all relay or protection system failures must be reported promptly to the QSE.
- 2. Additional training on NERC Standards including PRC-001-1. The final training occurred at Pasadena Energy Center on September 30, 2010.

List of evidence reviewed by Regional Entity to evaluate completion of Mitigation Plan or Milestones (for cases in which mitigation is not yet completed, list evidence reviewed for completed milestones)

- a. A pdf of Corpus Christi PRC-001-1 Procedure dated March 31, 2010.
- b. A copy of training records for Corpus Christi for PRC-001-1.

- C. A working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated March 31, 2010.
- d. A pdf of Pasadena Energy Center PRC-001-1 Procedure dated April 9, 2010.
- Training records for Pasadena Energy Center for PRC-001-1 dated September e. 30, 2010.

V. PENALTY INFORMATION

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\$100,000.00

(1)	Registered	Entity's	compliance	history
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Previous filed violations of any of the Reliability Standard(s) or Requirement(s) thereunder

Yes	∇	NoΓ	_
Yes	IXI	NO I	

I let violations and etatue

-101 11014110	mis and states	
MRO201000191	VAR-002-1 R1	NOP (NP11-152-000) approved on 04/29/11
SERC200800140	TOP-002-2 R3	NOP (NP10-43-000) approved on 03/03/10
SERC200800139	TOP-003-0 R1	NOP (NP10-43-000) approved on 03/03/10
SERC200800136	TOP-005-1 R4	NOP (NP10-43-000) approved on 03/03/10
SERC200800141	IRO-004-1 R4	NOP (NP10-43-000) approved on 03/03/10
SERC200800138	PRC-005-1 R1	NOP (NP10-44-000) approved on 03/03/10
SERC200800137	PRC-005-1 R2	NOP (NP10-44-000) approved on 03/03/10
SERC200800142	IRO-004-1 R4	NOP (NP10-44-000) approved on 03/03/10

Additional comments

The violations of VAR-002-1 R1, TOP-002-2 R3, TOP-003-0 R1, TOP-005-1 R4. and IRO-004-1 R4 were not considered an aggravating factor in the penalty determination because they involved standards that are not the same or similar to the instant standards. The violation of PRC-005-1 R1 and R2 were not considered an aggravating factor in the penalty determination because the violations took place in other regions at the same time they were violated in Texas RE. Moreover, there was nothing in the record to suggest that broader corporate issues were implicated.

(2) The degree	and quality	of cooperation b	y the Registered Entity
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Full cooperation Yes⊠ No □

If no, explain

(3) The presence and quality of the Registered Entity's Compliance Program



		Yes	Z) 140	o∐ U	ndetermir	ied [
Explai	n						
Fundin Calpino memoi Standa conten train a Calpino	g and appro e initially into andum that rds. The ar t specific to nd educate	ovals come troduced the emphasization nouncement targeted to trade des	e directly for the Complines the vitagent was for skill categotes upon k staff ha	from the C lance Prog al need to llowed by lories with on various live comple	EO and e gram to all comply we a series of in Calpine aspects	takeholder Coxecutive man Il employees to ith all NERC of training rele c. Calpine cor of NERC co 200 hours o	agement. through a Reliability ases with ntinues to mpliance.
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Evolei	ı If Yes			11	35 🗀	140 🖂	



Explain if Yes	Yes 🗌	No 🖾
(6) Any other mitigating factors for consideration Explain if Yes	Yes 🗌	No ⊠
(7) Any other aggravating factors for consideration	on Yes 🗌	No ⊠
(8) Any other extenuating circumstances Explain if Yes	Yes 🗍	No ⊠
OTHER RELEVANT INFORMATION		
Notice of Alleged Violation issued		
Date Or N/A	\boxtimes	
Settlement discussions commenced Date Or N/A	Februa	ary 28, 2011
Notice of Confirmed Violation Issued Date Or N/A	⋈	
Supplemental Record Information Date(s) Or N/A	\boxtimes	
Registered Entity response contested Findings Penalty Both Did not contest		
Hearing Requested Date	Yes 🗌	No 🖾



Outcome Appeal Requested

EXHIBITS

Incorporated by Reference (submittal dates noted):

- 1. June 29, 2010 Calpine Corp PRC-005 Self-Report
- 2. March 26, 2012 Calpine Corp PRC-005 Mitigation Plan
- 3. April 9, 2012 Certification of Completion PRC-005
- 4. April 9, 2012 Texas RE Verification PRC-005
- 5. January 31, 2011 Calpine Corp PRC-004 Spot Check Conclusions Report
- 6. March 2, 2011 Calpine Corp PRC-004 Mitigation Plan
- 7. March 19, 2012 Certification of Mitigation Plan Completion PRC-004-1, R2
- 8. March 19, 2012 Texas RE Verification PRC-004-1, R2
- 9. January 31, 2011 Calpine Power PRC-001 Spot Check Conclusions Report
- 10. March 2, 2011 Calpine Power PRC-001-1 R2 Mitigation Plan
- 11. March 23, 2012 Certification of Mitigation Plan Completion PRC-001-1, R2
- 12. March 23, 2012 Texas RE Verification PRC-001-1, R2
- 13. March 2, 2011 Calpine Power PRC-001-1 R3 Mitigation Plan
- 14. March 19, 2012 Certification of Mitigation Plan Completions PRC-001-1, R3
- 15. March 19, 2012 Texas RE Verification PRC-001-1, R3

Attachment b

Record documents for Calpine Corp's violation of PRC-005-1 R2:

- 1. Calpine Corp's source document dated June 29, 2010
- 2. Calpine Corp's Mitigation Plan designated as TREMIT005696 submitted March 26, 2012
- Calpine Corp's Certification of Mitigation Plan Completion dated April 09, 2012
- 4. Texas RE's Verification of Mitigation Plan Completion dated April 9, 2012

PORTAL



Edit Calpine Corporation

Logged in as: Sheila Alexander

▶ Log Out

- ▶ System Administration
- ▶ Compliance
- ▶ Self-Report
- ▶ TFE Request

PRC-005-1 Self-Report (GO)

🔛 Save Item | 🗙 Delete Item | Cancel Changes | 🔊 Save PDF | Return To Search Results

New Mitigation Plan | Attachments (3)

This form was submitted on 6/29/2010.



Texas Regional Entity will disclose this information to NERC and other third parties, only as required, and in accordance with established procedures pursuant to section 1500 of the NERC rules of procedure.

As an authorized representative of Calpine Corporation, I certify the following:

Calpine Corporation is Not in Compliance with the following requirement(s) of NERC Reliability Standard PRC-005-1 (indicated by checkmark) but is in compliance with all other requirements of the standard.

- **b** Calpine Corporation is indicating a possible violation that has **not** been previously identified to Texas Regional Entity.
- $\hat{\epsilon}$ Calpine Corporation is indicating a possible violation that was previously identified to

Texas Regional Entity. Provide issues tracking number, if known.

Check all requirements for which Calpine Corporation was Not in Compliance:

- **R1.** Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall have a Protection System maintenance and testing program for Protection Systems that affect the reliability of the BES. The program shall include:
 - **B** R1.1. Maintenance and testing intervals and their basis.

NOTE: While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation. (See NERC Rules of Procedure, Appendix 4C, Section 6.4.)

Provide a detailed explanation why this was not accomplished

The initial implementation of the company's PRC-005 program template provided to each plant in the TRE region did not provide sufficient guidance regarding requirements for stating a consistent basis for maintenance and testing or for implementing maintenance and testing at specific intervals. The guidance to the sites has been updated and the sites have fully implemented a standardized, comprehensive PRC-005-1 program.

Violation Severity Level

VSL - Lower

Enter date of alleged violation

4/22/2009

Enter time of alleged violation 12:00:00 hh: mm: ss

- R1.2. Summary of maintenance and testing procedures.
- **R2.** Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection

System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include:

B R2.1. Evidence Protection System devices were maintained and tested within the defined intervals.

NOTE: While submittal of a mitigation plan is not required until after a determination of a violation is confirmed, early submittal of a mitigation plan to address and remedy an identified deficiency is encouraged. Submittal of a mitigation plan shall not be deemed an admission of a violation. (See NERC Rules of Procedure, Appendix 4C, Section 6.4.)

Provide a detailed explanation why this was not accomplished

The initial implementation of the company's PRC-005 program template provided to the plant sites in the TRE region did not provide sufficient guidance regarding requirements for implementing and documenting required maintenance and testing at specific intervals. The company's guidance to the sites has been updated and the sites have fully implemented a standardized, comprehensive PRC-005-1 program.



€ R2.2. Date each Protection System device was last tested/maintained.

Date Violation Discovered

4/22/2010

PRC-005-1 R1.1 During implementation of a revised fleetwide protection system maintenance and testing program intended to update the company's existing program, internal review of the individual sites' existing programs determined that those programs had been inconsistently implemented. Although each site had implemented a version of the company's original PRC-005-1 program, internal review has determined that the stated basis and intervals varied between sites, and that improvements to the statements of basis and statements of intervals were warrented to standardize the company's approach to PRC-005-1 compliance. The company has since corrected this issue through implementation of a consistent, detailed revised PRC-005-1 program that clearly states the maintenance and testing interavls and the technical basis for the intervals for each covered component. This revised program has been implemented at all of the company's TRE-region sites. With the implementation of that revised PRC-005-1 fleetwide program, the basis and interval language has now been updated to reflect detailed guidance and to ensure maintenance and testing is performed consistently throughout the fleet.

Reason for the noncompliance

PRC-005-1 R2.1. Internal review conducted as part of the updating of the company's PRC-005-1 program indicated that site conformance to the company's existing PRC-005-1 program varied among plant sites, and that in some cases not all maintenance and testing called for in the site's program could be documented. This issue has been corrected through implementation of a revised, prescriptive PRC-005-1 fleetwide program that states consistent basis, intervals, and scope for maintenance and testing. All of the company's site's in the TRE-region have fully implemented the standardized PRC-005-1 program.

The company has not identified any system events related to

Reliability Impact Statement the issues described above. The actual reliability impact has been low. However, the corrective actions taken to standardize maintenance and testing will enhance future reliability by providing for a consistent approach to compliance.

Mitigation Plan Included?

jn Yes jn No

Additional Comments:

The date of 04/22/09 submitted as the date of the violation occurrence represents the date that the original PRC-005-1 mitigation plan was accepted as complete by TRE.

Return to top

b Submit to Texas Regional Entity





Mitigation Plan

Registered Entity: Calpine Corporation

NERC Violation IDRequirementViolation Validated OnTRE201000249PRC-005-1 R202/15/2011

Mitigation Plan Submitted On: March 26, 2012 Mitigation Plan Accepted On: March 26, 2012

Mitigation Plan Proposed Completion Date: May 15, 2012

Actual Completion Date of Mitigation Plan:

Mitigation Plan Certified Complete by CALPCO001 On:

Mitigation Plan Completion Validated by TRE On:

Mitigation Plan Completed? (Yes/No): No

Section A: Compliance Notices

Section 6.2 of the NERC CMEP sets forth the information that must be included in a Mitigation Plan. The Mitigation Plan must include:

- (1) The Registered Entity's point of contact for the Mitigation Plan, who shall be a person (i) responsible for filing the Mitigation Plan, (ii) technically knowledgeable regarding the Mitigation Plan, and (iii) authorized and competent to respond to questions regarding the status of the Mitigation Plan. This person may be the Registered Entity's point of contact described in Section B.
- (2) The Alleged or Confirmed Violation(s) of Reliability Standard(s) the Mitigation Plan will correct.
- (3) The cause of the Alleged or Confirmed Violation(s).
- (4) The Registered Entity's action plan to correct the Alleged or Confirmed Violation(s).
- (5) The Registered Entity's action plan to prevent recurrence of the Alleged or Confirmed violation(s).
- (6) The anticipated impact of the Mitigation Plan on the bulk power system reliability and an action plan to mitigate any increased risk to the reliability of the bulk power-system while the Mitigation Plan is being implemented.
- (7) A timetable for completion of the Mitigation Plan including the completion date by which the Mitigation Plan will be fully implemented and the Alleged or Confirmed Violation(s) corrected.
- (8) Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined or recommended to the applicable governmental authorities for not completing work associated with accepted milestones.
- (9) Any other information deemed necessary or appropriate.
- (10) The Mitigation Plan shall be signed by an officer, employee, attorney or other authorized representative of the Registered Entity, which if applicable, shall be the person that signed the Self Certification or Self Reporting submittals.
- (11) This submittal form may be used to provide a required Mitigation Plan for review and approval by regional entity(ies) and NERC.
- The Mitigation Plan shall be submitted to the regional entity(ies) and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.
- This Mitigation Plan form may be used to address one or more related alleged or confirmed violations of one Reliability Standard. A separate mitigation plan is required to address alleged or confirmed violations with respect to each additional Reliability Standard, as applicable.
- If the Mitigation Plan is accepted by regional entity(ies) and approved by NERC, a copy of this Mitigation Plan will be provided to the Federal Energy Regulatory Commission or filed with the applicable governmental authorities for approval in Canada.
- Regional Entity(ies) or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- Remedial action directives also may be issued as necessary to ensure reliability of the bulk power system.
- The user has read and accepts the conditions set forth in these Compliance Notices.

Section B: Registered Entity Information

B.1 Identify your organization:

Entity Name: Calpine Corporation

NERC Compliance Registry ID: NCR04026

Address: 717 Texas Ave., Suite 1000

Houston TX 77002

B.2 Identify the individual in your organization who will serve as the Contact to the Regional Entity regarding this Mitigation Plan. This person shall be technically knowledgeable regarding this Mitigation Plan and authorized to respond to Regional Entity regarding this Mitigation Plan.:

Name: Hamid Zakery

Title: Director of Compliance
Email: hamid.zakery@calpine.com

Phone: 832-325-5007

Section C: Identification of Reliability Standard Violation(s) Associated with this Mitigation Plan

C.1 This Mitigation Plan is associated with the following violation(s) of the reliability standard listed below:

Violation ID	Date of Violation	Requirement			
Requirement Description					
TRE201000249	10/31/2007	PRC-005-1 R2			

Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30calendar days). The documentation of the program implementation shall include:

C.2 Identify the cause of the violation(s) identified above:

The initial implementation of the company's PRC-005 program template provided to the individual company sites in the TRE region did not provide sufficient guidance to individual company sites regarding standardized requirements for documenting the basis for required maintenance and testing or for implementing and documenting required maintenance and testing at specific intervals. The company's guidance to the sites has been updated and the sites have fully implemented a revised standardized and comprehensive PRC-005-1 program with detailed statements of the technical basis and scope for maintenance and testing and detailed requirements for intervals and documentation of testing.

PRC-005-1 R2.1. Internal review conducted as part of the updating of the company's PRC-005-1 program indicated that site conformance to the company's existing PRC-005-1 program varied among plant sites, and that in some cases not all maintenance and testing called for in the site's program could be documented. This issue has been corrected through implementation of a revised, prescriptive PRC-005-1 fleetwide program that states consistent basis, intervals, and scope for maintenance and testing. All of the company's site's in the TRE-region have fully implemented the standardized PRC-005-1 program.

C.3 Provide any relevant information regarding the violation(s) associated with this Mitigation Plan: [If known] No information provided.

Section D: Details of Proposed Mitigation Plan

D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the violation(s) identified above in Section C.1 of this form:

The company will implement a revised maintenance and testing program to ensure compliance with PRC-005-1 R2.

The company will conduct a comprehensive NERC compliance survey of all components of Protection System equipment in the maintenance and testing program.

The company will bring current any late or missing maintenance and testing of Protection System components. All outstanding maintenance and testing will be conducted, and evidence of such maintenance and testing will be compiled.

D.2 Provide the timetable for completion of the Mitigation Plan, including the completion date by which the Mitigation Plan will be fully implemented and the violations associated with this Mitigation Plan are corrected:

Proposed Completion date of Mitigation Plan: May 15, 2012

D.3 Milestone Activities, with completion dates, that your organization is proposing for this Mitigation Plan:

Milestone Activity	Description	*Proposed Completion Date (Shall not be greater than 3 months apart)	Actual Completion Date
1	Implement revised PRC-005-1 Revision 10 Company Procedure at all TRE-region generation sites.	06/17/2010	
2	Coordinate with TRE on progress of mitigation plan and activities.	08/31/2010	
3	Coordinate with TRE on progress of mitigation plan status.	11/30/2010	
4	Poll plants for evidence of testing and maintenance activities.	02/28/2011	
5	Continue with polling of plants for maintenance and testing activities.	05/31/2011	
6	Coordinate with TRE on current status of mitigation activities.	08/31/2011	
7	Conduct comprehensive NERC compliance survey of all components of Protection System equipment in the maintenance and testing program.	11/30/2011	
8	Implement a revised maintenance and testing program to ensure compliance with PRC-005-1 R2. New fleetwide procedure "Protection System Maintenance and Testing for PRC-005-1", Rev. FW-01 was approved by executive management.	02/28/2012	

Milestone Activity	Description	*Proposed Completion Date (Shall not be greater than 3 months apart)	Actual Completion Date
9	Bring current any late or missing maintenance and testing of Protection System components.	05/15/2012	

D.4 Additional Relevant Information (Optional)

Please find attached an example of the PRC-005-1 Revision 10 procedure: implemented at all of the company's TRE-region generation sites. Both signed pdf of the file and a working MS Word version with working attachments are provided.

HIDALGO PRC-005-1 Rev. 10 04.02.10.pdf (signed pdf)

HIDALGO PRC-005-1 Rev. 10 04.02.10.doc

Section E: Interim and Future Reliability Risk

E.1 Abatement of Interim BES Reliability Risk

While your organization is implementing the Mitigation Plan proposed in Section D of this form, the reliability of the Bulk Power System may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take or is proposing as part of the Mitigation Plan to mitigate any increased risk to the reliability of the bulk power system while the Mitigation Plan is being implemented:

The risk to the Bulk Power System during the mitigation period is minimal because, even though some Protection System equipment may not have been tested, the equipment is monitored and evaluated while in use, or during start-up or shut-down of a unit.

Calpine's TRE facilities use many microprocessor-based protective relays that are equipped with self-diagnostic and output failure alarms and that are monitored by plant staff during daily operator walk-throughs.

E.2 Prevention of Future BES Reliability Risk

Describe how successful completion of the Mitigation Plan as laid out in Section D of this form will prevent or minimize the probability that your organization incurs further violations of the same or similar reliability standards requirements in the future:

Implementation of the revised program, which includes detailed technical basis for the scope and intervals of the required testing and requires documentation of future maintenance and testing, will ensure that maintenance and testing of the Protection System components at each site are consistently implemented in a standardized manner throughout the company's TRE-region generating facilities.

E.3 Your organization may be taking or planning other action, beyond that listed in the Mitigation Plan, as proposed in Section D.1, to prevent or minimize the probability of incurring further violations of the same or similar standards requirements listed in Section C.1, or of other reliability standards. If so, identify and describe any such action, including milestones and completion dates:

Section F: Authorization

An authorized individual must sign and date the signature page. By doing so, this individual, on behalf of your organization:

- (a) Submits the Mitigation Plan, as laid out in Section D, to the Regional Entity for acceptance and approval by NERC, and
- (b) If applicable, certifies that the Mitigation Plan, as laid out in Section D of this form, was completed (i) as laid out in Section D of this form and (ii) on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- (c) Acknowledges:
 - 1. I am Director of Compliance of Calpine Corporation
 - 2. I am qualified to sign this Mitigation Plan on behalf of Calpine Corporation
 - 3. I have read and understand Calpine Corporation's obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure and the NERC CMEP currently in effect or the NERC CMEP-Province of Manitoba, Schedule B currently in effect, whichever is applicable.
 - 4. I have read and am familiar with the contents of the foregoing Mitigation Plan.
 - 5. Calpine Corporation Agrees to be bound by, and comply with, this Mitigation Plan, including the timetable completion date, as accepted by the Regional Entity, NERC, and if required, the applicable governmental authorities in Canada.

Authorized Individual Signature:	
•	

(Electronic signature was received by the Regional Office via CDMS. For Electronic Signature Policy see CMEP.)

Name: Hamid Zakery

Title: Director of Compliance

Authorized On: March 26, 2012

Certification of Mitigation Plan Completion

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for the Regional Entity to verify completion of the Mitigation Plan. The Regional Entity may request additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6)

Registered Entity Name: Calpine Corporation

NERC Registry ID: NCR04026

NERC Violation ID(s): TRE201000249

Mitigated Standard Requirement(s): PRC-005-1 R2,

Scheduled Completion as per Accepted Mitigation Plan: May 15, 2012

Date Mitigation Plan completed: March 27, 2012

Submission Date of Completion Certification: April 09, 2012

Entity Comment:

	Additional Documents					
From	Document Name	Description	Size in Bytes			
Entity	Calpine - Exhibit 7 4 9 2012 PRC-005 R2 Testing Data.xls		706,048			
Entity	138 kV Switchyard CT-PT Verification 03_27_2012.pdf		52,155			
Entity	DEER PARK PRC-005-1 Rev. 10 05.13.10.pdf		305,601			

I certify that the Mitigation Plan for the above named violation(s) has been completed on	the date shown	above
and that all submitted information is complete and correct to the best of my knowledge.		

Name: Krista Mathews

Title: Senior Compliance Analyst
Email: krista.mathews@calpine.com

Phone: 1 (832) 325-5007

(Electronic signature was received by the Regional Office via CDMS. For Electronic Signature Policy see CMEP.)

E-Mail Notification Detail

noreply@oatinet Sent: 04/09/2012 14:40:16

Subject: A Mitigation Plan has been verified as completed for Entity Calpine Corporation - Violation#TRE201000249

Please do not REPLY to this message. It was sent from an unattended mailbox and replies are not monitored.

The following Mitigation Plan has been verified as completed by TRE.

Entity: Calpine Corporation - NCR04026 NERC Violation ID: TRE201000249 Standard Requirement: PRC-005-1 R2 Proposed Completion Date: 05/15/2012

Verification Date: 04/09/2012

Mitigation Plan submitted on: 03/26/2012 (Version 1), for Program Year: 2010

If you have any questions regarding this notification, please contact: webcdms@texasre.org.

Note: This is a webCDMS application generated message. Please Do NOT respond to this email.

CONFIDENTIAL INFORMATION: This email and any attachment(s) contain confidential and/or proprietary information of Open Access Technology International, Inc. Do not copy or distribute without the prior written consent of OATI. If you are not a named recipient to the message, please notify the sender immediately and do not retain the message in any form, printed or electronic.

[OATI Information - Email Template; MitPlan Completed]

Attachment c

Record documents for Calpine Corp's violation of PRC-004-1 R2:

- Calpine Corp's source document dated February 15, 2011
- 2. Calpine Corp's Mitigation Plan designated as TREMIT005661 submitted March 2, 2011
- 3. Calpine Corp's Certification of Mitigation Plan Completion dated March 19, 2012
- 4. Texas RE's Verification of Mitigation Plan Completion dated March 19, 2012



Compliance Spot Check Report Public Version

Calpine Corporation NERC ID # NCR04026

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

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Report Date: February 15,2011

Prepared By: Curtis Crews, Spot Check Team Leader



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1.0 EXECUTIVE SUMMARY

The Spot Check (Off-Site) compliance audit of Calpine Corporation (Calpine Corp) was conducted on August 20- October 22, 2010 by a Spot Check team led by Texas Reliability Entity (Texas RE). Spot Check team evaluated Calpine Corp for compliance with one (1) requirement of one (1) North American Electric Reliability Corporation (NERC) Reliability Standard. The NERC Reliability Standards that are being actively monitored for 2010 were reviewed based on Calpine Corp's registration as a Generator Owner.

The Spot Check team reviewed the evidence and documentation provided by Calpine Corp to assess compliance with standards applicable to Calpine Corp at this time.

There was a total of one (1) reliability standard included in the scope of this Spot Check. Based on the information and documentation provided by Calpine Corp, the Spot Check team found Calpine Corp to have issues of noncompliance with the applicable requirement.

The Spot Check team identified one (1) possible alleged violation during the Spot Check. For PRC-004-1 R2 the Generator Owner is to analyze Protection System Misoperations, develop a Corrective Action Plan, and implement a Corrective Action Plan to avoid misoperations of a similar nature. In this case the misoperation was analyzed and a Corrective Action Plan was developed. However, Calpine Corporation did not implement the Corrective Action Plan which led to multiple misoperations. These Spot Check results are further explained in the Spot Check Results Findings section of this report which includes detailed information of the Spot Check team's findings of applicability and compliance for the NERC Reliability Standards within the scope of the compliance Spot Check. This Spot Check report includes information regarding the possible alleged violation. This information will be used to help determine the severity level of sanctions and penalties. The possible alleged violations will be processed through the Texas RE's NERC Compliance Monitoring and Enforcement Program. Any further actions related to possible alleged violations will follow the same process. Any Possible Alleged Violations will be processed through the NERC and Texas RE CMEP.

2.0 AUDIT PROCESS

The compliance audit process is detailed in the NERC Compliance Monitoring and Enforcement Program (CMEP), available at www.nerc.com. The NERC CMEP generally conforms to the United States Government Accountability Office Government Auditing Standards and other generally accepted audit practices.

2.1 Objectives

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

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



- Independently review Calpine Corp's compliance with the requirements of the reliability standards that are applicable to Calpine Corp based on the Calpine Corp registered functions included in the scope of this audit.
- Validate compliance with applicable reliability standards within the scope of the Spot Check...
- Document Calpine Corp's compliance culture.

2.2 Scope

The scope of this compliance Spot Check is inclusive of NERC Reliability Standard PRC-004-1 Requirement 2 (PRC-004-1 R2) applicable to a Generator Owner. At the time of the Spot Check, Calpine Corp was registered as a Generator Owner. The Spot Check team evaluated Calpine Corp for compliance during the specific period of November 1, 2008 through May 10, 2009.

2.2.1 Confidentiality and Conflict of Interest

Confidentiality agreements and code of conduct documentation for the Regional Entity staff were provided to Calpine Corp prior to the Spot Check. Work history and conflict of interest forms submitted for each Spot Check team member were provided to Calpine Corp. Calpine Corp was given an opportunity to object to an Spot Check team member on the basis of a possible conflict of interest or the existence of other circumstances that could interfere with the Spot Check team member's impartial performance of duties. Calpine Corp had not submitted any objections by the stated five (5) day objection due date and accepted the Spot Check team member participants with no objections. There have been no denials of or access limitations placed upon this Spot Check team by Calpine Corp.

2.3 Methodology

Once a Spot Check date was set by Texas RE, Calpine Corp was sent a Reliability Standard Audit Work Sheets (RSAWs) for the list of actively monitored NERC Standards within the scope of the Spot Check.

The Spot Check team reviewed the completed RSAW, information, data, and evidence submitted by Calpine Corp and assessed compliance with requirements of the applicable reliability standards. Initial submittal of information and data were sent to Texas RE on or before the scheduled due date for the submittal. Additional information relevant to the Spot Check could be requested by Texas RE and submitted by Calpine Corp until the last day of the review at the Spot Check site.

During the Spot Check, Texas RE reviewed the responses to the RSAW and auditor questions with Calpine Corp's staff. The Spot Check team reviewed documentation provided by Calpine Corp that included data, information and evidence submitted in the form of policies, procedures, emails, logs, studies, data sheets, etc. which were validated, substantiated and cross checked for accuracy as appropriate. Requirements which required a sampling to be conducted were developed based upon the significance of the sampling to the reliability of the Bulk Electrical System (BES).

Findings were based on the Spot Check team's knowledge of the BES, the NERC Reliability Standards and their professional judgment. All findings were developed based upon the consensus of the Spot Check team.



The Spot Check team conducted an exit briefing for the Spot Check with Calpine Corp sharing the preliminary results with Calpine Corp's management.

2.4 Company Profile

Founded in 1984, Calpine is a major U.S. power company, capable of delivering nearly 29,000 megawatts of clean, cost-effective, reliable and fuel-efficient electricity to customers and communities in 21 states in the U.S. and Canada. The company owns, leases and operates low-carbon, natural gas-fired and renewable geothermal power plants. Using advanced technologies, Calpine generates electricity in a reliable and environmentally responsible manner for the customers and communities it serves².

2.5 Spot Check Audit Specifics

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Texas RE Spot Check Team:

Company/Title	Spot Check Team Role
Texas RE/Lead Reliability	Spot Check Team
Assessment Engineer	Leader
Texas RE/Compliance Engineer III	Auditor

Calpine Corp's Spot Check Participants:

Company	Title	
Calpine Corp	Director of Compliance	
Calpine Corp	Protection Engineer	
	Director, Commercial Operations	
Calpine Corp	Compliance	
Calpine Corp	Paralegal - Compliance	

3.0 SPOT CHECK AUDIT RESULTS

3.1 Spot Check Audit Findings

The Spot Check Team found that Calpine Corp was non-compliant with the following standards and requirements:

Reliability Standard &	
Requirement	
PRC-004-1 R2	



² http://www.calpine.com/about/index.asp

The following table is a summary of the auditor's findings for those NERC standards reviewed during the Spot Check:

Reliability Standard	Requirement	Finding
PRC-004-1	R2	Possible Violation

3.2 Conclusion

The Spot Check team found that Calpine Corp was non-compliant with the following standard and requirement:

Reliability Standard & Requirement
PRC-004-1 R2

The possible alleged violation along with this compliance report will be provided to Texas RE's compliance staff for processing through the NERC CMEP. Any further actions related to possible alleged violations will be through that process.

3.3 Compliance Culture

Calpine Corp was cooperative with the Spot Check team's needs and information requests throughout the entire Spot Check process. The organizational structure of Calpine Corp, the extensive participation during the Spot Check by Calpine Corp's personnel, the detailed documentation of procedures and records and the direct observations made by the Spot Check team confirmed a strong commitment by Calpine Corp to promote a healthy compliance culture within their organization.



Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: 03/02/2011

If this Mitigation Plan has already been completed:

- Provide the Date of Completion of the Mitigation Plan: 03/02/2011

Section A: Compliance Notices

- Section 6.2 of the CMEP¹ sets forth the information that must be included in a Mitigation Plan. The Mitigation Plan must include:
 - (1) The Registered Entity's point of contact for the Mitigation Plan, who shall be a person (i) responsible for filing the Mitigation Plan, (ii) technically knowledgeable regarding the Mitigation Plan, and (iii) authorized and competent to respond to questions regarding the status of the Mitigation Plan. This person may be the Registered Entity's point of contact described in Section 2.0.
 - (2) The Alleged or Confirmed Violation(s) of Reliability Standard(s) the Mitigation Plan will correct.
 - (3) The cause of the Alleged or Confirmed Violation(s).
 - (4) The Registered Entity's action plan to correct the Alleged or Confirmed Violation(s).
 - (5) The Registered Entity's action plan to prevent recurrence of the Alleged or Confirmed violation(s).
 - (6) The anticipated impact of the Mitigation Plan on the bulk power system reliability and an action plan to mitigate any increased risk to the reliability of the bulk power-system while the Mitigation Plan is being implemented.
 - (7) A timetable for completion of the Mitigation Plan including the completion date by which the Mitigation Plan will be fully implemented and the Alleged or Confirmed Violation(s) corrected.
 - (8) Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.
 - (9) Any other information deemed necessary or appropriate.
 - (10) The Mitigation Plan shall be signed by an officer, employee, attorney or other authorized representative of the Registered Entity, which if applicable, shall be the person that signed the Self-Certification or Self Reporting submittals.
- This submittal form may be used to provide a required Mitigation Plan for review and approval by Texas Reliability Entity (Texas RE) and NERC.
- The Mitigation Plan shall be submitted to the Texas RE and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.

2700 Via Fortuna, Suite 225 Austin, Texas 78746 Tel: (512) 583-4900 Fax: (512) 583-4903

¹ "Uniform Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on NERC's website.



- This Mitigation Plan form may be used to address one or more related violations of one Reliability Standard. A separate mitigation plan is required to address violations with respect to each additional Reliability Standard, as applicable.
- If the Mitigation Plan is approved by Texas RE and NERC, a copy of this Mitigation Plan will be provided to the Federal Energy Regulatory Commission in accordance with applicable Commission rules, regulations and orders.
- Texas RE or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- Remedial action directives also may be issued as necessary to ensure reliability of the bulk power system.

Section B: Registered Entity Information

B.1 Identify your organization:

Company Name: Calpine Corporation

Company Address: 717 Texas Avenue Suite 1000, Houston, TX 77002

NERC Compliance Registry ID [if known]: NCR04026

B.2 Identify the individual in your organization who will serve as the Contact to Texas RE regarding this Mitigation Plan. This person shall be technically knowledgeable regarding this Mitigation Plan and authorized to respond to Texas RE regarding this Mitigation Plan.

Name: Phil Porter

Title: Director of Compliance Email: porterp@calpine.com

Phone: 925-557-2274

Section C: <u>Identity of Reliability Standard Violations Associated with this Mitigation Plan</u>

This Mitigation Plan is associated with the following violation(s) of the reliability standard listed below:

C.1 Standard: PRC-004-1

[Identify by Standard Acronym (e.g. FAC-001-1)]



C.2 Requirement(s) violated and violation dates: [Enter information in the following Table]

NERC Violation ID # [if known]	Texas RE Violation ID # [if known]	Requirement Violated (e.g. R3.2)	Violation Date ^(*)
		2	11/3/2008- 5/9/2009

- (*) Note: The Violation Date shall be: (i) the violation occurred; (ii) the date that the violation was self-reported; or (iii) the date that the violation has been deemed to have occurred on by Texas RE. Questions regarding the date to use should be directed to the Texas RE.
- C.3 Identify the cause of the violation(s) identified above:
 - R2. The Generator Owner shall analyze its generator Protection System Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for PRC-003.

The cause of the alleged violation identified above was alleged inadequate response to recommendations to improve the robustness of the 50/27 function circuit by immediately adding a blocking input to address a failure-to-start condition in October 2008, which in retrospect would have prevented the at the time unforeseen future tripping of the unit during system disturbances in April and May 2009.

The change in protection system configuration required a scheduled shutdown to implement, and was therefore not immediately implemented, as there were no scheduled outages planned between October 2008 and May 2009. Although substantial efforts were made to correct the on-line tripping problem after it first occurred on April 11, 2009 and prior to the implementation of the blocking input on May 09, 2009 (as detailed in the response to the TRE request for information) the problem was not prevented from recurring until that blocking input was installed.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



C.4 **[Optional]** Provide any relevant additional information regarding the violations associated with this Mitigation Plan:

Response for PRC-001-1 R2

The unit is equipped with a 50/27 Inadvertent Energization function on its Beckwith microprocessor relays. The 50/27 function is designed to detect accidental closing of the generator breakers when the unit is at rest. The 50 overcurrent element is designed to detect current on the generator and is wired to open the generator breakers when armed by the 27 undervoltage element. This 27 is routinely set up to arm the overcurrent relay at a level well below rated terminal voltage, to ensure that the 50 element does not operate to trip open the generator breakers when the generator has already been synchronized to the grid.

In this case the 27 element was set to arm the 50 element below approximately 70% of rated voltage to prevent unnecessary on-line trips. This setting has been in effect for years without resulting in any tripping with the unit online.

The unit experienced a failure-to-start issue of October 24, 2008. The failure-to-start was caused by operation of the 50 element of the 50/27 function during startup after the generator field was energized after the exciter (41) breaker was closed. Operation of the 50/27 function after the field was energized had the effect of preventing synchronization of the unit by preventing closing of the generator breaker. This effect appears to have been caused when the current measured by the 50 element exceeded its pickup setting. This failure-to-start event appears to have occurred due to the configuration of the unit with the generator breakers on the high side of the step-up transformer. The transformer (which is disconnected from the grid prior to synchronization) can experience inrush current upon excitation of the field before sufficient voltage is built up on the generator to disable the 50/27 function, resulting in a false operation.

To correct this start-up problem the assigned engineer changed the settings on the 50 element to allow a higher current before operating, correcting the failure-to-start problem. This changed ameliorated the failure-to-start issue.

The assigned engineer also made a recommendation to add a blocking input to prevent operation of the 50 element when the exciter breaker was closed, to ensure that the unit would not trip on operation of the 50/27 element unnecessarily during start-up. This recommendation, in retrospect, would also have prevented the future on-line trips in April and May 2009.

The combination of the 50 and 27 elements is designed to prevent inadvertent operation when the unit is at rest and also to disable that function when the unit is intentionally energized. The engineer's recommendation to add a blocking input was intended to improve the protection system circuit's robustness, rather than address an as-yet unknown future issue with on-line tripping. There were no reported instances of the unit tripping when online at that time that indicated a need to add a



blocking input for that purpose. The engineer also recommended changes to the 27 element that resulted in arming the 50 element up to a higher voltage level.

As the initial failure-to-start problem had apparently been ameliorated in October 2008, and as no scheduled outages were planned during the intervening period, the engineer's recommendation to add a hard-wired blocking input to disarm the 50 element whenever the unit was intentionally energized was not given a high priority by Plant personnel.

When a trip occurred on April 11, 2009 due to 50/27 function operation, the company took steps to correct the issue by attempting additional changes to 50 element settings, as implementing the blocking input required a scheduled outage.

On May 09, 2009, after several trips within a short time span caused by operation of the 50/27 function, the blocking input was wired into the circuit during a scheduled shutdown.

Significant engineering and operations resources were deployed to correct the problem and the company aggressively worked to solve the issue after it became apparent on April 11, 2008 that the protection system was intermittently misoperating. Calpine coordinated with AEP during the subsequent changes to the protection system configuration that added a blocking input and AEP eventually approved the final changes. ERCOT was notified of the changes after AEP approved them.

1

Corrective Actions for R2

Corrective actions to prevent recurrence of the alleged failure to adequately analyze and implement a Corrective Action Plan include:

- i) Implementation of a revised Facility PRC-004-1 Procedure that states clearly that all misoperations must be promptly analyzed and Corrective Action Plans implemented to address the Misoperation. See Attachment A (pdf) and Attachment C (working copy in MSWord).
- ii) Additional training on NERC Standards including PRC-004-1 at the Facility. See Attachment B.

:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Section D: <u>Details of Proposed Mitigation Plan</u>

Mitigation Plan Contents



D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the violations identified above in Part C.2 of this form:

Calpine has implemented revised PRC-004-1 Misoperation Analysis and Reporting Procedure at Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities.

- On 03/31/2011, the Corpus Christi Energy Center implemented a revised NERC Reliability Procedure PRC-004-1 Protection System
 - a. Please find attached as Attachment A a pdf of Corpus Christi PRC-004-1 Procedure dated 03/31/2010).
 - b. Please find attached as Attachment B a copy of training records for Corpus Christi for PRC-004-1 (training records dated Jun-2010).
 - c. Please find attached as Attachment C a working copy (MSWord) of the Corpus Christi PRC-004-1 Procedure dated 03/31/2010).

The revised PRC-004-1 Facility Procedure includes:

- A revised Corrective Action Plan form (see attachment 1 of the Procedure).
- Section 5.2, which address Unnecessary Trip during a Fault Any relay initiated operation of a circuit breaker during a fault when the fault is outside the intended zone of protection.
- Training Attachments

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Check this box A and proceed to Section E of this form if this Mitigation Plan, as set forth in Part D.1, has already been completed; otherwise respond to Part D.2, D.3 and, optionally, Part D.4, below.

Mitigation Plan Timeline and Milestones

- D.2 Provide the timetable for completion of the Mitigation Plan, including the completion date by which the Mitigation Plan will be fully implemented and the violations associated with this Mitigation Plan are corrected:
- D.3 Enter Milestone Activities, with completion dates, that your organization is proposing for this Mitigation Plan:



Milestone Activity	Proposed Completion Date* (shall not be more than 3 months apart)
Implementation of a blocking input to the 50/27 function	05/08/2009
Implementation of Revised Procedure for PRC-004-1 for the Corpus Christi Facility	03/31/2010
Completion of formal re-training on PRC- 001 and other NERC Standards at the Corpus Christi Facility	06/31/2010

(*) Note: Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.

[Note: Provide your response here; additional detailed information may be provided as an attachment as necessary]

Additional Relevant Information (Optional)

D.4 If you have any relevant additional information that you wish to include regarding the mitigation plan, milestones, milestones dates and completion date proposed above you may include it here:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section E: Interim and Future Reliability Risk

Check this box and proceed and respond to Part E.2 and E.3, below, if this Mitigation Plan, as set forth in Part D.1, has already been completed.

Abatement of Interim BPS Reliability Risk

E.1 While your organization is implementing the Mitigation Plan proposed in Part D of this form, the reliability of the Bulk Power System may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take or is proposing as part of the Mitigation Plan to mitigate any increased risk to the reliability of the bulk power system while the Mitigation Plan is being implemented:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Prevention of Future BPS Reliability Risk

E.2 Describe how successful completion of the Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that your organization incurs further violations of the same or similar reliability standards requirements in the future:

Successful completion of this Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that Calpine will incur future violations for failing to analyze and implement corrective actions to prevent similar misoperations in the future through i) implementation of a revised procedure that require the Generation Facility personnel to analyze misoperations and implement corrective action plans, and ii) by implementation of improved training materials.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

E.3 Your organization may be taking or planning other action, beyond that listed in the Mitigation Plan, as proposed in Part D.1, to prevent or minimize the probability of incurring further violations of the same or similar standards requirements listed in Part C.2, or of other reliability standards. If so, identify and describe any such action, including milestones and completion dates:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section F: <u>Authorization</u>

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits the Mitigation Plan, as laid out in Section D of this form, to Texas RE for acceptance by Texas RE and approval by NERC, and
- b) If applicable, certifies that the Mitigation Plan, as laid out in Section D of this form, was completed (i) as laid out in Section D of this form and (ii) on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
 - 1. I am [Director of Compliance] of [Calpine Corporation]
 - 2. I am qualified to sign this Mitigation Plan on behalf of [Calpine Corporation]
 - 3. I have read and understand [Organization's] obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure, including Appendix 4(C) (Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation (NERC CMEP)).
 - 4. I have read and am familiar with the contents of the foregoing Mitigation Plan.
 - 5. [Organization] agrees to be bound by, and comply with, the Mitigation Plan, including the timetable completion date, as approved by Texas RE and approved by NERC.

Authorized Individual Signature	Phil Porter	
•	(Electronic signatures	are acceptable; see CMEP)

Name (Print): Phil Porter Title: Director of Compliance

Date: 03/01/2011



Section G: Comments and Additional Information

You may use this area to provide comments or any additional relevant information not previously addressed in this form.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Submit completed and signed forms to mitigation@texasre.org

Please direct any questions regarding completion of this form to:

Texas Reliability Entity Rashida Caraway 512-583-4977 rashida.caraway@texasre.org

Certification of Mitigation Plan Completion

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for the Regional Entity to verify completion of the Mitigation Plan. The Regional Entity may request additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6)

Registered Entity Name: Calpine Corporation

NERC Registry ID: NCR04026

NERC Violation ID(s): TRE201000177

Mitigated Standard Requirement(s): PRC-004-1 R2,

Scheduled Completion as per Accepted Mitigation Plan: March 02, 2011

Date Mitigation Plan completed: August 11, 2010

Submission Date of Completion Certification: March 19, 2012

Entity Comment:

	Additional Documents		
From	Document Name	Description	Size in Bytes
Entity	Attachment A TRE PRC-004 MIT PLAN CR PRC-004-1 Rev 10.pdf		1,023,031
Entity	Attachment B Corpus Christi NERC Training Attendance.pdf		97,983
Entity	Attachment C TRE PRC-004-1 MIT PLAN CR PRC-004-1 Rev 10.doc		310,784
Entity	Attachment D FREESTONE PRC-004-1 Rev. 10 04.08.10.pdf		365,908
Entity	Attachment E Freestone NERC traing signed sheets.pdf		897,075

I certify that the Mitigation Plan for the abo	ove named violation(s)	has been comple	eted on the date	shown above
and that all submitted information is compl	lete and correct to the	best of my knowle	edge.	

Name:	Krista	Mathews
-------	--------	---------

Title: Senior Compliance Analyst
Email: krista.mathews@calpine.com

Phone: 1 (832) 325-5007

Authorized Signature	Dr	ate

(Electronic signature was received by the Regional Office via CDMS. For Electronic Signature Policy see CMEP.)

(ATI E-Mail Notification Detail

 From:
 noreply@oati.net

 Sent:
 03/19/2012 15:14:03

 To:
 krista.mathews@calpine.com

Subject: A Mitigation Plan has been verified as completed for Entity: Calpine Corporation - Violation#TRE201000177

Please do not REPLY to this message. It was sent from an unattended mailbox and replies are not monitored.

The following Mitigation Plan has been verified as completed by TRE.

Entity: Calpine Corporation - NCR04026 NERC Violation ID:TRE201000177 Standard Requirement: PRC-004-1 R2 Proposed Completion Date: 03/02/2011 Verification Date: 03/19/2012

Mitigation Plan submitted on: 03/02/2011 (Version 1), for Program Year: 2010

If you have any questions regarding this notification, please contact: webcdms@texasre.org.

Note: This is a webCDMS application generated message. Please Do NOT respond to this email.

CONFIDENTIAL INFORMATION: This email and any attachment(s) contain confidential and/or proprietary information of Open Access Technology International, Inc. Do not copy or distribute without the prior written consent of OATI. If you are not a named recipient to the message, please notify the sender immediately and do not retain the message in any form, printed or electronic.

[OATI Information - Email Template: MitPlan Completed]

Attachment d

Record documents for Calpine Power's violation of PRC-001-1 R2:

- 1. Calpine Power's source document dated February 15, 2011
- 2. Calpine Power's Mitigation Plan designated as TREMIT005662 submitted March 2, 2011
- 3. Calpine Power's Certification of Mitigation Plan Completion dated March 23, 2012
- 4. Texas RE's Verification of Mitigation Plan Completion dated March 23, 2012



Compliance Spot Check Report Public Version

Calpine Power Management NERC ID # NCR04027

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

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Report Date: February 15, 2011

Prepared By: Curtis Crews, Spot Check Team Leader



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1.0 EXECUTIVE SUMMARY

The Spot Check (Off-Site) compliance audit of Calpine Power Management (Calpine) was conducted on August 20- October 22, 2010 by a Spot Check team led by Texas Reliability Entity (Texas RE). Spot Check team evaluated Calpine for compliance with three (3) requirements of one (1) North American Electric Reliability Corporation (NERC) Reliability Standard. The NERC Reliability Standards that are being actively monitored for 2010 were reviewed based on Calpine's registration as a Generator Operator.

The Spot Check team reviewed the evidence and documentation provided by Calpine to assess compliance with standards applicable to Calpine at this time.

There was a total of one (1) reliability standard included in the scope of this Spot Check. Based on the information and documentation provided by Calpine, the Spot Check team found Calpine to have issues of noncompliance with two (2) applicable requirements.

The Spot Check team identified two (2) possible alleged violations during the Spot Check. For PRC-001-1 R2 the Generator Operator is to notify its Transmission Operator and Host Balancing Authority of the relay failure as well as take corrective action as soon as possible. Evidence of notification to the Transmission Operator and Host Balancing Authority, Electric Reliability Council of Texas, Inc (ERCOT) at the time of the event, for the relay failure was not provided nor did Calpine take corrective action as soon as possible. For PRC-001-1 R3 the Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. Evidence of coordination with the TOP and BA, ERCOT, Inc., for all protective system changes for the event and timeframe in the Spot Check was not provided. These Spot Check results are further explained in the Spot Check Results Findings section of this report which includes detailed information of the Spot Check team's findings of applicability and compliance for the NERC Reliability Standards within the scope of the compliance Spot Check. This Spot Check report includes information regarding the possible alleged violation. This information will be used to help determine the severity level of sanctions and penalties. The possible alleged violations will be processed through the Texas RE's NERC Compliance Monitoring and Enforcement Program. Any further actions related to possible alleged violations will follow the same process. Any Possible Alleged Violations will be processed through the NERC and Texas RE CMEP.

2.0 AUDIT PROCESS

The compliance audit process is detailed in the NERC Compliance Monitoring and Enforcement Program (CMEP), available at www.nerc.com. The NERC CMEP generally conforms to the United States Government Accountability Office Government Auditing Standards and other generally accepted audit practices.

2.1 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:

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



- Independently review Calpine's compliance with the requirements of the reliability standards that are applicable to Calpine based on the Calpine registered functions included in the scope of this audit.
- Validate compliance with applicable reliability standards within the scope of the Spot Check.
- Document Calpine's compliance culture.

2.2 Scope

The scope of this compliance Spot Check is inclusive of NERC Reliability Standard PRC-001-1 (PRC-001-1) applicable to a Generator Operator. At the time of the Spot Check, Calpine was registered as a Generator Operator. The Spot Check team evaluated Calpine for compliance during the specific period of November 1, 2008 through May 10, 2009.

2.2.1 Confidentiality and Conflict of Interest

Confidentiality agreements and code of conduct documentation for the regional entity staff were provided to Calpine prior to the Spot Check. Work history and conflict of interest forms submitted for each Spot Check team member were provided to Calpine. Calpine was given an opportunity to object to a Spot Check team member on the basis of a possible conflict of interest or the existence of other circumstances that could interfere with the Spot Check team member's impartial performance of duties. Calpine had not submitted any objections by the stated five (5) day objection due date and accepted the Spot Check team member participants with no objections. There have been no denials of or access limitations placed upon this Spot Check team by Calpine.

2.3 Methodology

Once a Spot Check date was set by Texas RE, Calpine was sent a Reliability Standard Audit Work Sheets (RSAWs) for the list of actively monitored NERC Standards within the scope of the Spot Check.

The Spot Check team reviewed the completed RSAW, information, data, and evidence submitted by Calpine and assessed compliance with requirements of the applicable reliability standards. Initial submittal of information and data were sent to Texas RE on or before the scheduled due date for the submittal. Additional information relevant to the Spot Check could be requested by Texas RE and submitted by Calpine until the last day of the review at the Spot Check site.

During the Spot Check, Texas RE reviewed the responses to the RSAWs and auditor questions with Calpine's staff. The Spot Check team reviewed documentation provided by Calpine that included data, information and evidence submitted in the form of policies, procedures, emails, logs, studies, data sheets, etc. which were validated, substantiated and cross checked for accuracy as appropriate. Requirements which required a sampling to be conducted were developed based upon the significance of the sampling to the reliability of the Bulk Electrical System (BES).

Findings were based on the Spot Check team's knowledge of the BES, the NERC Reliability Standards and their professional judgment. All findings were developed based upon the consensus of the Spot Check team.

The Spot Check team conducted an exit briefing for the Spot Check with Calpine sharing the preliminary results with Calpine's management.



2.4 Company Profile

Founded in 1984, Calpine is a major U.S. power company, capable of delivering nearly 29,000 megawatts of clean, cost-effective, reliable and fuel-efficient electricity to customers and communities in 21 states in the U.S. and Canada. The company owns, leases and operates low-carbon, natural gas-fired and renewable geothermal power plants. Using advanced technologies, Calpine generates electricity in a reliable and environmentally responsible manner for the customers and communities it serves².

2.5 Spot Check Audit Specifics

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Texas RE Spot Check Team:

Company/Title	Spot Check Team Role	
Texas RE/Lead Reliability	Spot Check Team	
Assessment Engineer	Leader	
Texas RE/Compliance Engineer III	Auditor	

Calpine's Spot Check Participants:

Company	Title	
Calpine	Director of Compliance	
Calpine	Protection Engineer	
	Director, Commercial Operations	
Calpine	Compliance	
Calpine	Paralegal - Compliance	

² http://www.calpine.com/about/index.asp



3.0 SPOT CHECK AUDIT RESULTS

3.1 Spot Check Audit Findings

The Spot Check Team found that Calpine was non-compliant with the following standards and requirements:

Reliability Standard & Requirement	
PRC-001-1 R2.1	
PRC-001-1 R3.1	

The following table is a summary of the auditor's findings for those NERC standards reviewed during the Spot Check:

Reliability Standard	Requirement	Finding
PRC-001-1	R2	Possible Violation
PRC-001-1	R3	Possible Violation

3.2 Conclusion

The Spot Check team found that Calpine was non-compliant with the following standard and requirements:

Reliability Standard & Requirement		
PRC-001-1 R2		
PRC-001-1 R3		

The possible alleged violation along with this compliance report will be provided to Texas RE's compliance staff for processing through the NERC CMEP. Any further actions related to possible alleged violations will be through that process.

3.3 Compliance Culture

Calpine was cooperative with the Spot Check team's needs and information requests throughout the entire Spot Check process. The organizational structure of Calpine, the extensive participation during the Spot Check by Calpine's personnel, the detailed documentation of procedures and records and the direct observations made by the Spot Check team confirmed a strong commitment by Calpine to promote a healthy compliance culture within their organization.



Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: 03/02/2011

If this Mitigation Plan has already been completed:

- Provide the Date of Completion of the Mitigation Plan: 03/02/2011

Section A: Compliance Notices

- Section 6.2 of the CMEP¹ sets forth the information that must be included in a Mitigation Plan. The Mitigation Plan must include:
 - (1) The Registered Entity's point of contact for the Mitigation Plan, who shall be a person (i) responsible for filing the Mitigation Plan, (ii) technically knowledgeable regarding the Mitigation Plan, and (iii) authorized and competent to respond to questions regarding the status of the Mitigation Plan. This person may be the Registered Entity's point of contact described in Section 2.0.
 - (2) The Alleged or Confirmed Violation(s) of Reliability Standard(s) the Mitigation Plan will correct.
 - (3) The cause of the Alleged or Confirmed Violation(s).
 - (4) The Registered Entity's action plan to correct the Alleged or Confirmed Violation(s).
 - (5) The Registered Entity's action plan to prevent recurrence of the Alleged or Confirmed violation(s).
 - (6) The anticipated impact of the Mitigation Plan on the bulk power system reliability and an action plan to mitigate any increased risk to the reliability of the bulk power-system while the Mitigation Plan is being implemented.
 - (7) A timetable for completion of the Mitigation Plan including the completion date by which the Mitigation Plan will be fully implemented and the Alleged or Confirmed Violation(s) corrected.
 - (8) Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.
 - (9) Any other information deemed necessary or appropriate.
 - (10) The Mitigation Plan shall be signed by an officer, employee, attorney or other authorized representative of the Registered Entity, which if applicable, shall be the person that signed the Self-Certification or Self Reporting submittals.
- This submittal form may be used to provide a required Mitigation Plan for review and approval by Texas Reliability Entity (Texas RE) and NERC.
- The Mitigation Plan shall be submitted to the Texas RE and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.

2700 Via Fortuna, Suite 225 Austin, Texas 78746 Tel: (512) 583-4900 Fax: (512) 583-4903

¹ "Uniform Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on NERC's website.



- This Mitigation Plan form may be used to address one or more related violations of one Reliability Standard. A separate mitigation plan is required to address violations with respect to each additional Reliability Standard, as applicable.
- If the Mitigation Plan is approved by Texas RE and NERC, a copy of this Mitigation Plan will be provided to the Federal Energy Regulatory Commission in accordance with applicable Commission rules, regulations and orders.
- Texas RE or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- Remedial action directives also may be issued as necessary to ensure reliability of the bulk power system.

Section B: Registered Entity Information

B.1 Identify your organization:

Company Name: Calpine Power Management, LP

Company Address: 717 Texas Avenue Suite 1000, Houston, TX 77002

NERC Compliance Registry ID *[if known]*: NCR04027

B.2 Identify the individual in your organization who will serve as the Contact to Texas RE regarding this Mitigation Plan. This person shall be technically knowledgeable regarding this Mitigation Plan and authorized to respond to Texas RE regarding this Mitigation Plan.

Name: Phil Porter

Title: Director of Compliance Email: porterp@calpine.com

Phone: 925-557-2274

Section C: <u>Identity of Reliability Standard Violations Associated with this Mitigation Plan</u>

This Mitigation Plan is associated with the following violation(s) of the reliability standard listed below:

C.1 Standard: PRC-001-1
[Identify by Standard Acronym (e.g. FAC-001-1)]



C.2 Requirement(s) violated and violation dates: [Enter information in the following Table]

NERC Violation ID # [if known]	Texas RE Violation ID # [if known]	Requirement Violated (e.g. R3.2)	Violation Date ^(*)
		2.1	11/3/2008- 5/9/2009
		3.1	11/3/2008- 5/9/2009

(*) Note: The

Violation Date shall be: (i) the violation occurred; (ii) the date that the violation was self-reported; or (iii) the date that the violation has been deemed to have occurred on by Texas RE. Questions regarding the date to use should be directed to the Texas RE.

- C.3 Identify the cause of the violation(s) identified above:
 - **R2.1** Failure to notify the Transmission Operator and Host Balancing Authority of relay or protection system failure. The cause of the alleged failure to provide notification of relay or protection system failure was that tripping due to a misoperation caused by a relay setting or configuration issue was not perceived to be a "failure of relay or protection system". As a result, no notice of relay or protection system failure was made at the time of the change.
 - **R3.1** Failure to notify the Transmission Operator and Host Balancing Authority of changes in system occurred due to inadequate procedures and training at the Generation Facility requiring that all such communication be routed through the Calpine Power Management, LP Generation Desk.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

C.4 **[Optional]** Provide any relevant additional information regarding the violations associated with this Mitigation Plan:

Response for PRC-001-1 R2.1

The unit is equipped with a 50/27 Inadvertent Energization function on its Beckwith microprocessor relays. The 50/27 function is designed to detect accidental closing of the generator breakers when the unit is at rest. The 50 overcurrent element is



designed to detect current on the generator and is wired to open the generator breakers when armed by the 27 undervoltage element. This 27 is routinely set up to arm the overcurrent relay at a level well below rated terminal voltage, to ensure that the 50 element does not operate to trip open the generator breakers when the generator has already been synchronized to the grid.

In this case the 27 element was set to arm the 50 element below approximately 70% of rated voltage to prevent unnecessary on-line trips. This setting has been in effect for years without resulting in any tripping with the unit online.

The unit experienced a failure-to-start issue of October 24, 2008. The failure-to-start was caused by operation of the 50 element of the 50/27 function during startup after the generator field was energized after the exciter (41) breaker was closed. Operation of the 50/27 function after the field was energized had the effect of preventing synchronization of the unit by preventing closing of the generator breaker. This effect appears to have been caused when the current measured by the 50 element exceeded its pickup setting. This failure-to-start event appears to have occurred due to the configuration of the unit with the generator breakers on the high side of the step-up transformer. The transformer (which is disconnected from the grid prior to synchronization) can experience inrush current upon excitation of the field before sufficient voltage is built up on the generator to disable the 50/27 function, resulting in a false operation.

To correct this start-up problem the assigned engineer changed the settings on the 50 element to allow a higher current before operating, correcting the failure-to-start problem. This changed ameliorated the failure-to-start issue.

The assigned engineer also made a recommendation to add a blocking input to prevent operation of the 50 element when the exciter breaker was closed, to ensure that the unit would not trip on operation of the 50/27 element unnecessarily during start-up. This recommendation, in retrospect, would also have prevented the future on-line trips in April and May 2009.

The combination of the 50 and 27 elements is designed to prevent inadvertent operation when the unit is at rest and also to disable that function when the unit is intentionally energized. The engineer's recommendation to add a blocking input was intended to improve the protection system circuit's robustness, rather than address an as-yet unknown future issue with on-line tripping. There were no reported instances of the unit tripping when online at that time that indicated a need to add a blocking input for that purpose. The engineer also recommended changes to the 27 element that resulted in arming the 50 element up to a higher voltage level.

As the initial failure-to-start problem had apparently been ameliorated in October 2008, and as no scheduled outages were planned during the intervening period, the engineer's recommendation to add a hard-wired blocking input to disarm the 50 element whenever the unit was intentionally energized was not given a high priority by Plant personnel.



When a trip occurred on April 11, 2009 due to 50/27 function operation, the company took steps to correct the issue by attempting additional changes to 50 element settings, as implementing the blocking input required a scheduled outage

On May 09, 2009, after several trips within a short time span caused by operation of the 50/27 function, the blocking input was wired into the circuit during a scheduled shutdown.

Significant engineering and operations resources were deployed to correct the problem and the company aggressively worked to solve the issue after it became apparent on April 11, 2008 that the protection system was intermittently misoperating. Calpine coordinated with AEP during the subsequent changes to the protection system configuration that added a blocking input and AEP eventually approved the final changes. ERCOT was notified of the changes after AEP approved them.

Corrective Actions for R2.1

Corrective actions to prevent recurrence of the problem include:

- i) Implementation of a revised Facility PRC-001-1 Procedure that states clearly that all relay or protection system failures must be reported promptly to the QSE. See Attachment A (pdf) and Attachment C (working MSWord copy).
- ii) Additional training on NERC Standards including PRC-001 at the Facility. See Attachment B Training Record.

Response for PRC-001-1 R3.1

R3.1. Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority.

Calpine coordinated the wiring change made to add a blocking input to the inadvertent energization function from the exciter breaker with the Transmission Owner AEP. No changes were made to wiring before discussion with the Transmission Owner AEP. As noted, Calpine was contacted by AEP regarding the April 11, 2009 trip and coordinated the subsequent changes in protection system configuration. As referenced in the previously-supplied documentation, actual review by AEP took several months.



Calpine notified ERCOT of the changes to the system after receiving AEP's response.

Corrective Actions for R3.1

Corrective actions to prevent recurrence of the problem include:

- i) Implementation of a revised Facility PRC-001-1 Procedure at the Facility that states clearly that all relay or protection system failures must be reported promptly to the QSE. See Attachment A (pdf) and Attachment C (working MSWord copy).
- ii) Additional training on NERC Standards including PRC-001 at the Facility. See Attachment B Training record.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Section D: <u>Details of Proposed Mitigation Plan</u>

Mitigation Plan Contents

D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the violations identified above in Part C.2 of this form:

Calpine has implemented revised PRC-001 Protection System Coordination Procedures at the Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities.

- On 03/31/2011, the Corpus Christi Energy Center implemented a revised NERC Reliability Procedure PRC-001-1 Protection System See example Coordination. Procedure.
 - a. Please find attached as Attachment A a pdf of Corpus Christi PRC-001-1 Procedure dated 03/31/2010).
 - b. Please find attached as Attachment B a copy of training records for Corpus Christi for PRC-001-1 (training records dated Jun-2010).
 - c. Please find attached as Attachment C a working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated 03/31/2010).

Section 5.4 of the Facility PRC-001-1 procedure requires the Facility to notify Calpine Power Generation, LP Generation Desk (Gen Desk) if a relay or protection system failure reduces system reliability. Calpine Power Generation, LP is the Qualified Scheduling Entity (QSE) for all of Calpine's ERCOT-region Generation Desk.



[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Check this box \boxtimes and proceed to Section E of this form if this Mitigation Plan, as set forth in Part D.1, has already been completed; otherwise respond to Part D.2, D.3 and, optionally, Part D.4, below.

Mitigation Plan Timeline and Milestones

- D.2 Provide the timetable for completion of the Mitigation Plan, including the completion date by which the Mitigation Plan will be fully implemented and the violations associated with this Mitigation Plan are corrected:
- D.3 Enter Milestone Activities, with completion dates, that your organization is proposing for this Mitigation Plan:

Milestone Activity	Proposed Completion Date* (shall not be more than 3 months apart)
Implementation of Revised Procedure for	03/31/2010
PRC-001 -1 for the Corpus Christi Facility Completion of formal re-training on PRC-	06/31/2010
001 and other NERC Standards at the Corpus Christi Facility	

(*) Note: Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.

[Note: Provide your response here; additional detailed information may be provided as an attachment as necessary]

Additional Relevant Information (Optional)

D.4 If you have any relevant additional information that you wish to include regarding the mitigation plan, milestones, milestones dates and completion date proposed above you may include it here:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section E: Interim and Future Reliability Risk

Check this box \boxtimes and proceed and respond to Part E.2 and E.3, below, if this Mitigation Plan, as set forth in Part D.1, has already been completed.

Abatement of Interim BPS Reliability Risk

E.1 While your organization is implementing the Mitigation Plan proposed in Part D of this form, the reliability of the Bulk Power System may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take or is proposing as part of the Mitigation Plan to mitigate any increased risk to the reliability of the bulk power system while the Mitigation Plan is being implemented:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Prevention of Future BPS Reliability Risk

E.2 Describe how successful completion of the Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that your organization incurs further violations of the same or similar reliability standards requirements in the future:

Successful completion of this Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that Calpine will incur future violations for failing to notify the Transmission Operator and Host Balancing Authority (ERCOT) of relay or protection system failures (R2.1) or for failing to coordinate protection system changes with the Transmission Operator and Host Balancing Authority through i) implementation of procedures that require the Generation Facility personnel to notify the Gen Desk and for the Gen Desk to notify ERCOT, and ii) by implementation of improved training materials.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

E.3 Your organization may be taking or planning other action, beyond that listed in the Mitigation Plan, as proposed in Part D.1, to prevent or minimize the probability of incurring further violations of the same or similar standards requirements listed in Part C.2, or of other reliability standards. If so, identify and describe any such action, including milestones and completion dates:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section F: <u>Authorization</u>

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits the Mitigation Plan, as laid out in Section D of this form, to Texas RE for acceptance by Texas RE and approval by NERC, and
- b) If applicable, certifies that the Mitigation Plan, as laid out in Section D of this form, was completed (i) as laid out in Section D of this form and (ii) on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
 - 1. I am [Director of Compliance] of [Calpine Corporation]
 - 2. I am qualified to sign this Mitigation Plan on behalf of [Calpine Power Management, LP]
 - 3. I have read and understand [Organization's] obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure, including Appendix 4(C) (Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation (NERC CMEP)).
 - 4. I have read and am familiar with the contents of the foregoing Mitigation Plan.
 - 5. [Organization] agrees to be bound by, and comply with, the Mitigation Plan, including the timetable completion date, as approved by Texas RE and approved by NERC.

Authorized Individual Signature Phil Porter_
(Electronic signatures are acceptable; see CMEP)

Name (Print): Phil Porter Title: Director of Compliance

Date: 03/01/2011



Section G: Comments and Additional Information

You may use this area to provide comments or any additional relevant information not previously addressed in this form.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Submit completed and signed forms to mitigation@texasre.org

Please direct any questions regarding completion of this form to:

Texas Reliability Entity Rashida Caraway 512-583-4977 rashida.caraway@texasre.org

Certification of Mitigation Plan Completion

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for the Regional Entity to verify completion of the Mitigation Plan. The Regional Entity may request additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6)

Registered Entity Name: Calpine Power Management, LP

NERC Registry ID: NCR04027

NERC Violation ID(s): TRE201000178

Mitigated Standard Requirement(s): PRC-001-1 R2,

Scheduled Completion as per Accepted Mitigation Plan: March 02, 2011

Date Mitigation Plan completed: September 30, 2010

Submission Date of Completion Certification: March 23, 2012

Entity Comment:

Additional Documents				
From	Document Name	Description	Size in Bytes	
Entity	Attachment A Corpus Christi PRC-001-1 Rev 10.pdf		884,876	
Entity	Attachment B Corpus Christi NERC Training Attendance.pdf		97,983	
Entity	Attachment D PASADENA PRC-001-1 Rev. 10 04.09.10.pdf		166,258	
Entity	Attachment E Pasadena Training Log PRC-001-1.pdf		161,849	

I certify that t	he Mitigation Pla	an for the abov	e named v	violation(s)	has beer	n completed	on the date	shown	above
and that all s	ubmitted informa	ation is comple	te and cor	rrect to the	best of m	y knowledg	e.		

Name: Krista Mathews

Title: Senior Compliance Analyst
Email: krista.mathews@calpine.com

Phone: 1 (925) 557-2274

Authorized Signature	Date	
_		

(Electronic signature was received by the Regional Office via CDMS. For Electronic Signature Policy see CMEP.)

(ATI E-Mail Notification Detail

From: noreply@oati.net
Sent: 03/23/2012 10:38:43

To: compliancereports@texasre.org

Subject: A Mitigation Plan has been verified as completed for Entity: Calpine Power Management, LP - Violation#TRE201000178

Please do not REPLY to this message. It was sent from an unattended mailbox and replies are not monitored.

The following Mitigation Plan has been verified as completed by TRE.

Entity: Calpine Power Management, LP - NCR04027

NERC Violation ID:TRE201000178 Standard Requirement: PRC-001-1 R2 Proposed Completion Date: 03/02/2011 Verification Date: 03/23/2012

Mitigation Plan submitted on: 03/02/2011 (Version 1), for Program Year: 2010

If you have any questions regarding this notification, please contact: webcdms@texasre.org.

Note: This is a webCDMS application generated message. Please Do NOT respond to this email.

CONFIDENTIAL INFORMATION: This email and any attachment(s) contain confidential and/or proprietary information of Open Access Technology International, Inc. Do not copy or distribute without the prior written consent of OATI. If you are not a named recipient to the message, please notify the sender immediately and do not retain the message in any form, printed or electronic.

[OATI Information - Email Template: MitPlan Completed]

Attachment e

Record documents for Calpine Power's violation of PRC-001-1 R3:

- 1. Calpine Power's source documents dated February 15, 2011
- 2. Calpine Power's Mitigation Plan designated as TREMIT005663 submitted March 2, 2011
- 3. Calpine Power's Certification of Mitigation Plan Completion dated March 19, 2012
- 4. Texas RE's Verification of Mitigation Plan Completion dated March 19, 2012



Compliance Spot Check Report Public Version

Calpine Power Management NERC ID # NCR04027

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

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Report Date: February 15, 2011

Prepared By: Curtis Crews, Spot Check Team Leader



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1.0 EXECUTIVE SUMMARY

The Spot Check (Off-Site) compliance audit of Calpine Power Management (Calpine) was conducted on August 20- October 22, 2010 by a Spot Check team led by Texas Reliability Entity (Texas RE). Spot Check team evaluated Calpine for compliance with three (3) requirements of one (1) North American Electric Reliability Corporation (NERC) Reliability Standard. The NERC Reliability Standards that are being actively monitored for 2010 were reviewed based on Calpine's registration as a Generator Operator.

The Spot Check team reviewed the evidence and documentation provided by Calpine to assess compliance with standards applicable to Calpine at this time.

There was a total of one (1) reliability standard included in the scope of this Spot Check. Based on the information and documentation provided by Calpine, the Spot Check team found Calpine to have issues of noncompliance with two (2) applicable requirements.

The Spot Check team identified two (2) possible alleged violations during the Spot Check. For PRC-001-1 R2 the Generator Operator is to notify its Transmission Operator and Host Balancing Authority of the relay failure as well as take corrective action as soon as possible. Evidence of notification to the Transmission Operator and Host Balancing Authority, Electric Reliability Council of Texas, Inc (ERCOT) at the time of the event, for the relay failure was not provided nor did Calpine take corrective action as soon as possible. For PRC-001-1 R3 the Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. Evidence of coordination with the TOP and BA, ERCOT, Inc., for all protective system changes for the event and timeframe in the Spot Check was not provided. These Spot Check results are further explained in the Spot Check Results Findings section of this report which includes detailed information of the Spot Check team's findings of applicability and compliance for the NERC Reliability Standards within the scope of the compliance Spot Check. This Spot Check report includes information regarding the possible alleged violation. This information will be used to help determine the severity level of sanctions and penalties. The possible alleged violations will be processed through the Texas RE's NERC Compliance Monitoring and Enforcement Program. Any further actions related to possible alleged violations will follow the same process. Any Possible Alleged Violations will be processed through the NERC and Texas RE CMEP.

2.0 AUDIT PROCESS

The compliance audit process is detailed in the NERC Compliance Monitoring and Enforcement Program (CMEP), available at www.nerc.com. The NERC CMEP generally conforms to the United States Government Accountability Office Government Auditing Standards and other generally accepted audit practices.

2.1 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:

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



- Independently review Calpine's compliance with the requirements of the reliability standards that are applicable to Calpine based on the Calpine registered functions included in the scope of this audit.
- Validate compliance with applicable reliability standards within the scope of the Spot Check.
- Document Calpine's compliance culture.

2.2 Scope

The scope of this compliance Spot Check is inclusive of NERC Reliability Standard PRC-001-1 (PRC-001-1) applicable to a Generator Operator. At the time of the Spot Check, Calpine was registered as a Generator Operator. The Spot Check team evaluated Calpine for compliance during the specific period of November 1, 2008 through May 10, 2009.

2.2.1 Confidentiality and Conflict of Interest

Confidentiality agreements and code of conduct documentation for the regional entity staff were provided to Calpine prior to the Spot Check. Work history and conflict of interest forms submitted for each Spot Check team member were provided to Calpine. Calpine was given an opportunity to object to a Spot Check team member on the basis of a possible conflict of interest or the existence of other circumstances that could interfere with the Spot Check team member's impartial performance of duties. Calpine had not submitted any objections by the stated five (5) day objection due date and accepted the Spot Check team member participants with no objections. There have been no denials of or access limitations placed upon this Spot Check team by Calpine.

2.3 Methodology

Once a Spot Check date was set by Texas RE, Calpine was sent a Reliability Standard Audit Work Sheets (RSAWs) for the list of actively monitored NERC Standards within the scope of the Spot Check.

The Spot Check team reviewed the completed RSAW, information, data, and evidence submitted by Calpine and assessed compliance with requirements of the applicable reliability standards. Initial submittal of information and data were sent to Texas RE on or before the scheduled due date for the submittal. Additional information relevant to the Spot Check could be requested by Texas RE and submitted by Calpine until the last day of the review at the Spot Check site.

During the Spot Check, Texas RE reviewed the responses to the RSAWs and auditor questions with Calpine's staff. The Spot Check team reviewed documentation provided by Calpine that included data, information and evidence submitted in the form of policies, procedures, emails, logs, studies, data sheets, etc. which were validated, substantiated and cross checked for accuracy as appropriate. Requirements which required a sampling to be conducted were developed based upon the significance of the sampling to the reliability of the Bulk Electrical System (BES).

Findings were based on the Spot Check team's knowledge of the BES, the NERC Reliability Standards and their professional judgment. All findings were developed based upon the consensus of the Spot Check team.

The Spot Check team conducted an exit briefing for the Spot Check with Calpine sharing the preliminary results with Calpine's management.



2.4 Company Profile

Founded in 1984, Calpine is a major U.S. power company, capable of delivering nearly 29,000 megawatts of clean, cost-effective, reliable and fuel-efficient electricity to customers and communities in 21 states in the U.S. and Canada. The company owns, leases and operates low-carbon, natural gas-fired and renewable geothermal power plants. Using advanced technologies, Calpine generates electricity in a reliable and environmentally responsible manner for the customers and communities it serves².

2.5 Spot Check Audit Specifics

Spot Check Date: August 20- October 22, 2010

Spot Check Location: Texas Reliability Entity Office, Austin, TX

Texas RE Spot Check Team:

Company/Title	Spot Check Team Role
Texas RE/Lead Reliability	Spot Check Team
Assessment Engineer	Leader
Texas RE/Compliance Engineer III	Auditor

Calpine's Spot Check Participants:

Company	Title		
Calpine	Director of Compliance		
Calpine	Protection Engineer		
	Director, Commercial Operations		
Calpine	Compliance		
Calpine	Paralegal - Compliance		

² http://www.calpine.com/about/index.asp



3.0 SPOT CHECK AUDIT RESULTS

3.1 Spot Check Audit Findings

The Spot Check Team found that Calpine was non-compliant with the following standards and requirements:

Reliability Standard & Requirement
PRC-001-1 R2.1
PRC-001-1 R3.1

The following table is a summary of the auditor's findings for those NERC standards reviewed during the Spot Check:

Reliability Standard	Requirement	Finding
PRC-001-1	R2	Possible Violation
PRC-001-1	R3	Possible Violation

3.2 Conclusion

The Spot Check team found that Calpine was non-compliant with the following standard and requirements:

Reliability Standard & Requirement		
PRC-001-1 R2		
PRC-001-1 R3		

The possible alleged violation along with this compliance report will be provided to Texas RE's compliance staff for processing through the NERC CMEP. Any further actions related to possible alleged violations will be through that process.

3.3 Compliance Culture

Calpine was cooperative with the Spot Check team's needs and information requests throughout the entire Spot Check process. The organizational structure of Calpine, the extensive participation during the Spot Check by Calpine's personnel, the detailed documentation of procedures and records and the direct observations made by the Spot Check team confirmed a strong commitment by Calpine to promote a healthy compliance culture within their organization.



Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: 03/02/2011

If this Mitigation Plan has already been completed:

- Provide the Date of Completion of the Mitigation Plan: 03/02/2011

Section A: Compliance Notices

- Section 6.2 of the CMEP¹ sets forth the information that must be included in a Mitigation Plan. The Mitigation Plan must include:
 - (1) The Registered Entity's point of contact for the Mitigation Plan, who shall be a person (i) responsible for filing the Mitigation Plan, (ii) technically knowledgeable regarding the Mitigation Plan, and (iii) authorized and competent to respond to questions regarding the status of the Mitigation Plan. This person may be the Registered Entity's point of contact described in Section 2.0.
 - (2) The Alleged or Confirmed Violation(s) of Reliability Standard(s) the Mitigation Plan will correct.
 - (3) The cause of the Alleged or Confirmed Violation(s).
 - (4) The Registered Entity's action plan to correct the Alleged or Confirmed Violation(s).
 - (5) The Registered Entity's action plan to prevent recurrence of the Alleged or Confirmed violation(s).
 - (6) The anticipated impact of the Mitigation Plan on the bulk power system reliability and an action plan to mitigate any increased risk to the reliability of the bulk power-system while the Mitigation Plan is being implemented.
 - (7) A timetable for completion of the Mitigation Plan including the completion date by which the Mitigation Plan will be fully implemented and the Alleged or Confirmed Violation(s) corrected.
 - (8) Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.
 - (9) Any other information deemed necessary or appropriate.
 - (10) The Mitigation Plan shall be signed by an officer, employee, attorney or other authorized representative of the Registered Entity, which if applicable, shall be the person that signed the Self-Certification or Self Reporting submittals.
- This submittal form may be used to provide a required Mitigation Plan for review and approval by Texas Reliability Entity (Texas RE) and NERC.
- The Mitigation Plan shall be submitted to the Texas RE and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.

2700 Via Fortuna, Suite 225 Austin, Texas 78746 Tel: (512) 583-4900 Fax: (512) 583-4903

¹ "Uniform Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on NERC's website.



- This Mitigation Plan form may be used to address one or more related violations of one Reliability Standard. A separate mitigation plan is required to address violations with respect to each additional Reliability Standard, as applicable.
- If the Mitigation Plan is approved by Texas RE and NERC, a copy of this Mitigation Plan will be provided to the Federal Energy Regulatory Commission in accordance with applicable Commission rules, regulations and orders.
- Texas RE or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- Remedial action directives also may be issued as necessary to ensure reliability of the bulk power system.

Section B: Registered Entity Information

B.1 Identify your organization:

Company Name: Calpine Power Management, LP

Company Address: 717 Texas Avenue Suite 1000, Houston, TX 77002

NERC Compliance Registry ID *[if known]*: NCR04027

B.2 Identify the individual in your organization who will serve as the Contact to Texas RE regarding this Mitigation Plan. This person shall be technically knowledgeable regarding this Mitigation Plan and authorized to respond to Texas RE regarding this Mitigation Plan.

Name: Phil Porter

Title: Director of Compliance Email: porterp@calpine.com

Phone: 925-557-2274

Section C: <u>Identity of Reliability Standard Violations Associated with this Mitigation Plan</u>

This Mitigation Plan is associated with the following violation(s) of the reliability standard listed below:

C.1 Standard: PRC-001-1

[Identify by Standard Acronym (e.g. FAC-001-1)]



C.2 Requirement(s) violated and violation dates: [Enter information in the following Table]

NERC Violation ID # [if known]	Texas RE Violation ID # [if known]	Requirement Violated (e.g. R3.2)	Violation Date ^(*)
		2.1	11/3/2008- 5/9/2009
		3.1	11/3/2008- 5/9/2009

(*) Note: The

Violation Date shall be: (i) the violation occurred; (ii) the date that the violation was self-reported; or (iii) the date that the violation has been deemed to have occurred on by Texas RE. Questions regarding the date to use should be directed to the Texas RE.

- C.3 Identify the cause of the violation(s) identified above:
 - **R2.1** Failure to notify the Transmission Operator and Host Balancing Authority of relay or protection system failure. The cause of the alleged failure to provide notification of relay or protection system failure was that tripping due to a misoperation caused by a relay setting or configuration issue was not perceived to be a "failure of relay or protection system". As a result, no notice of relay or protection system failure was made at the time of the change.
 - **R3.1** Failure to notify the Transmission Operator and Host Balancing Authority of changes in system occurred due to inadequate procedures and training at the Generation Facility requiring that all such communication be routed through the Calpine Power Management, LP Generation Desk.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

C.4 **[Optional]** Provide any relevant additional information regarding the violations associated with this Mitigation Plan:

Response for PRC-001-1 R2.1

The unit is equipped with a 50/27 Inadvertent Energization function on its Beckwith microprocessor relays. The 50/27 function is designed to detect accidental closing of the generator breakers when the unit is at rest. The 50 overcurrent element is



designed to detect current on the generator and is wired to open the generator breakers when armed by the 27 undervoltage element. This 27 is routinely set up to arm the overcurrent relay at a level well below rated terminal voltage, to ensure that the 50 element does not operate to trip open the generator breakers when the generator has already been synchronized to the grid.

In this case the 27 element was set to arm the 50 element below approximately 70% of rated voltage to prevent unnecessary on-line trips. This setting has been in effect for years without resulting in any tripping with the unit online.

The unit experienced a failure-to-start issue of October 24, 2008. The failure-to-start was caused by operation of the 50 element of the 50/27 function during startup after the generator field was energized after the exciter (41) breaker was closed. Operation of the 50/27 function after the field was energized had the effect of preventing synchronization of the unit by preventing closing of the generator breaker. This effect appears to have been caused when the current measured by the 50 element exceeded its pickup setting. This failure-to-start event appears to have occurred due to the configuration of the unit with the generator breakers on the high side of the step-up transformer. The transformer (which is disconnected from the grid prior to synchronization) can experience inrush current upon excitation of the field before sufficient voltage is built up on the generator to disable the 50/27 function, resulting in a false operation.

To correct this start-up problem the assigned engineer changed the settings on the 50 element to allow a higher current before operating, correcting the failure-to-start problem. This changed ameliorated the failure-to-start issue.

The assigned engineer also made a recommendation to add a blocking input to prevent operation of the 50 element when the exciter breaker was closed, to ensure that the unit would not trip on operation of the 50/27 element unnecessarily during start-up. This recommendation, in retrospect, would also have prevented the future on-line trips in April and May 2009.

The combination of the 50 and 27 elements is designed to prevent inadvertent operation when the unit is at rest and also to disable that function when the unit is intentionally energized. The engineer's recommendation to add a blocking input was intended to improve the protection system circuit's robustness, rather than address an as-yet unknown future issue with on-line tripping. There were no reported instances of the unit tripping when online at that time that indicated a need to add a blocking input for that purpose. The engineer also recommended changes to the 27 element that resulted in arming the 50 element up to a higher voltage level.

As the initial failure-to-start problem had apparently been ameliorated in October 2008, and as no scheduled outages were planned during the intervening period, the engineer's recommendation to add a hard-wired blocking input to disarm the 50 element whenever the unit was intentionally energized was not given a high priority by Plant personnel.



When a trip occurred on April 11, 2009 due to 50/27 function operation, the company took steps to correct the issue by attempting additional changes to 50 element settings, as implementing the blocking input required a scheduled outage

On May 09, 2009, after several trips within a short time span caused by operation of the 50/27 function, the blocking input was wired into the circuit during a scheduled shutdown.

Significant engineering and operations resources were deployed to correct the problem and the company aggressively worked to solve the issue after it became apparent on April 11, 2008 that the protection system was intermittently misoperating. Calpine coordinated with AEP during the subsequent changes to the protection system configuration that added a blocking input and AEP eventually approved the final changes. ERCOT was notified of the changes after AEP approved them.

Corrective Actions for R2.1

Corrective actions to prevent recurrence of the problem include:

- i) Implementation of a revised Facility PRC-001-1 Procedure that states clearly that all relay or protection system failures must be reported promptly to the QSE. See Attachment A (pdf) and Attachment C (working MSWord copy).
- ii) Additional training on NERC Standards including PRC-001 at the Facility. See Attachment B Training Record.

Response for PRC-001-1 R3.1

R3.1. Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority.

Calpine coordinated the wiring change made to add a blocking input to the inadvertent energization function from the exciter breaker with the Transmission Owner AEP. No changes were made to wiring before discussion with the Transmission Owner AEP. As noted, Calpine was contacted by AEP regarding the April 11, 2009 trip and coordinated the subsequent changes in protection system configuration. As referenced in the previously-supplied documentation, actual review by AEP took several months.



Calpine notified ERCOT of the changes to the system after receiving AEP's response.

Corrective Actions for R3.1

Corrective actions to prevent recurrence of the problem include:

- i) Implementation of a revised Facility PRC-001-1 Procedure at the Facility that states clearly that all relay or protection system failures must be reported promptly to the QSE. See Attachment A (pdf) and Attachment C (working MSWord copy).
- ii) Additional training on NERC Standards including PRC-001 at the Facility. See Attachment B Training record.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Section D: <u>Details of Proposed Mitigation Plan</u>

Mitigation Plan Contents

D.1 Identify and describe the action plan, including specific tasks and actions that your organization is proposing to undertake, or which it undertook if this Mitigation Plan has been completed, to correct the violations identified above in Part C.2 of this form:

Calpine has implemented revised PRC-001 Protection System Coordination Procedures at the Corpus Christi facility and at each of the Calpine ERCOT-region generation facilities.

- On 03/31/2011, the Corpus Christi Energy Center implemented a revised NERC Reliability Procedure PRC-001-1 Protection System See example Coordination. Procedure.
 - a. Please find attached as Attachment A a pdf of Corpus Christi PRC-001-1 Procedure dated 03/31/2010).
 - b. Please find attached as Attachment B a copy of training records for Corpus Christi for PRC-001-1 (training records dated Jun-2010).
 - c. Please find attached as Attachment C a working copy (MSWord) of the Corpus Christi PRC-001-1 Procedure dated 03/31/2010).

Section 5.4 of the Facility PRC-001-1 procedure requires the Facility to notify Calpine Power Generation, LP Generation Desk (Gen Desk) if a relay or protection system failure reduces system reliability. Calpine Power Generation, LP is the Qualified Scheduling Entity (QSE) for all of Calpine's ERCOT-region Generation Desk.



[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Check this box \boxtimes and proceed to Section E of this form if this Mitigation Plan, as set forth in Part D.1, has already been completed; otherwise respond to Part D.2, D.3 and, optionally, Part D.4, below.

Mitigation Plan Timeline and Milestones

- D.2 Provide the timetable for completion of the Mitigation Plan, including the completion date by which the Mitigation Plan will be fully implemented and the violations associated with this Mitigation Plan are corrected:
- D.3 Enter Milestone Activities, with completion dates, that your organization is proposing for this Mitigation Plan:

Proposed Completion Date* (shall not be more than 3 months apart)	
03/31/2010	
06/31/2010	

(*) Note: Implementation milestones no more than three (3) months apart for Mitigation Plans with expected completion dates more than three (3) months from the date of submission. Additional violations could be determined for not completing work associated with accepted milestones.

[Note: Provide your response here; additional detailed information may be provided as an attachment as necessary]

Additional Relevant Information (Optional)

D.4 If you have any relevant additional information that you wish to include regarding the mitigation plan, milestones, milestones dates and completion date proposed above you may include it here:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section E: Interim and Future Reliability Risk

Check this box and proceed and respond to Part E.2 and E.3, below, if this Mitigation Plan, as set forth in Part D.1, has already been completed.

Abatement of Interim BPS Reliability Risk

E.1 While your organization is implementing the Mitigation Plan proposed in Part D of this form, the reliability of the Bulk Power System may remain at higher risk or be otherwise negatively impacted until the plan is successfully completed. To the extent they are, or may be, known or anticipated: (i) identify any such risks or impacts; and (ii) discuss any actions that your organization is planning to take or is proposing as part of the Mitigation Plan to mitigate any increased risk to the reliability of the bulk power system while the Mitigation Plan is being implemented:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Prevention of Future BPS Reliability Risk

E.2 Describe how successful completion of the Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that your organization incurs further violations of the same or similar reliability standards requirements in the future:

Successful completion of this Mitigation Plan as laid out in Part D of this form will prevent or minimize the probability that Calpine will incur future violations for failing to notify the Transmission Operator and Host Balancing Authority (ERCOT) of relay or protection system failures (R2.1) or for failing to coordinate protection system changes with the Transmission Operator and Host Balancing Authority through i) implementation of procedures that require the Generation Facility personnel to notify the Gen Desk and for the Gen Desk to notify ERCOT, and ii) by implementation of improved training materials.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

E.3 Your organization may be taking or planning other action, beyond that listed in the Mitigation Plan, as proposed in Part D.1, to prevent or minimize the probability of incurring further violations of the same or similar standards requirements listed in Part C.2, or of other reliability standards. If so, identify and describe any such action, including milestones and completion dates:

[Provide your response here; additional detailed information may be provided as an attachment as necessary]



Section F: <u>Authorization</u>

An authorized individual must sign and date this Mitigation Plan Submittal Form. By doing so, this individual, on behalf of your organization:

- a) Submits the Mitigation Plan, as laid out in Section D of this form, to Texas RE for acceptance by Texas RE and approval by NERC, and
- b) If applicable, certifies that the Mitigation Plan, as laid out in Section D of this form, was completed (i) as laid out in Section D of this form and (ii) on or before the date provided as the "Date of Completion of the Mitigation Plan" on this form, and
- c) Acknowledges:
 - 1. I am [Director of Compliance] of [Calpine Corporation]
 - 2. I am qualified to sign this Mitigation Plan on behalf of [Calpine Power Management, LP]
 - 3. I have read and understand [Organization's] obligations to comply with Mitigation Plan requirements and ERO remedial action directives as well as ERO documents, including, but not limited to, the NERC Rules of Procedure, including Appendix 4(C) (Compliance Monitoring and Enforcement Program of the North American Electric Reliability Corporation (NERC CMEP)).
 - 4. I have read and am familiar with the contents of the foregoing Mitigation Plan.
 - 5. [Organization] agrees to be bound by, and comply with, the Mitigation Plan, including the timetable completion date, as approved by Texas RE and approved by NERC.

Authorized Individual Signature	Phil Porter_	
•	(Electronic signatures	s are acceptable: see CMEP)

Name (Print): Phil Porter Title: Director of Compliance

Date: 03/01/2011



Section G: Comments and Additional Information

You may use this area to provide comments or any additional relevant information not previously addressed in this form.

[Provide your response here; additional detailed information may be provided as an attachment as necessary]

Submit completed and signed forms to mitigation@texasre.org

Please direct any questions regarding completion of this form to:

Texas Reliability Entity
Rashida Caraway
512-583-4977
rashida.caraway@texasre.org

Certification of Mitigation Plan Completion

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for the Regional Entity to verify completion of the Mitigation Plan. The Regional Entity may request additional data or information and conduct follow-up assessments, on-site or other Spot Checking, or Compliance Audits as it deems necessary to verify that all required actions in the Mitigation Plan have been completed and the Registered Entity is in compliance with the subject Reliability Standard. (CMEP Section 6.6)

Registered Entity Name: Calpine Power Management, LP

NERC Registry ID: NCR04027

NERC Violation ID(s): TRE201000179

Mitigated Standard Requirement(s): PRC-001-1 R3,

Scheduled Completion as per Accepted Mitigation Plan: March 02, 2011

Date Mitigation Plan completed: September 30, 2010

Submission Date of Completion Certification: March 19, 2012

Entity Comment:

Additional Documents							
From	Document Name	Description	Size in Bytes				
Entity	Attachment A Corpus Christi PRC-001-1 Rev 10.pdf		884,876				
Entity	Attachment B Corpus Christi NERC Training Attendance.pdf		97,983				
Entity	Attachment D PASADENA PRC-001-1 Rev. 10 04.09.10.pdf		166,258				
Entity	Attachment E Pasadena Training Log PRC-001-1.pdf		161,849				

I certify that the	e Mitigation Plan for t	he above name	ed violation(s)) has been	completed	on the date	shown	above
and that all sub	omitted information is	complete and	correct to the	best of m	y knowledge	e.		

Name: Krista Mathews

Title: Senior Compliance Analyst
Email: krista.mathews@calpine.com

Phone: 1 (832) 325-5007

Authorized Signature	Date .	
_		

(Electronic signature was received by the Regional Office via CDMS. For Electronic Signature Policy see CMEP.)

(MT E-Mail Notification Detail

From: noreply@oati.net
Sent: 03/19/2012 16:01:18

To: compliancereports@texasre.org

Subject: A Mitigation Plan has been verified as completed for Entity: Calpine Power Management, LP - Violation#TRE201000179

Please do not REPLY to this message. It was sent from an unattended mailbox and replies are not monitored.

The following Mitigation Plan has been verified as completed by TRE.

Entity: Calpine Power Management, LP - NCR04027

NERC Violation ID:TRE201000179 Standard Requirement: PRC-001-1 R3 Proposed Completion Date: 03/02/2011

Verification Date: 03/19/2012

Mitigation Plan submitted on: 03/02/2011 (Version 1), for Program Year: 2010

If you have any questions regarding this notification, please contact: webcdms@texasre.org.

Note: This is a webCDMS application generated message, Please Do NOT respond to this email.

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[OATI Information - Email Template: MitPlan Completed]



Attachment f Notice of Filing

UNITED STATES OF AMERICA FEDERAL ENERGY REGULATORY COMMISSION

Calpine Corporation and Calpine Power Management, LP. Docket No. NP12-___-000

NOTICE OF FILING June 29, 2012

Take notice that on June 29, 2012, the North American Electric Reliability Corporation (NERC) filed a Notice of Penalty regarding Calpine Corporation and Calpine Power Management, LP in the Texas Reliability Entity, Inc. region.

Any person desiring to intervene or to protest this filing must file in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211, 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a notice of intervention or motion to intervene, as appropriate. Such notices, motions, or protests must be filed on or before the comment date. On or before the comment date, it is not necessary to serve motions to intervene or protests on persons other than the Applicant.

The Commission encourages electronic submission of protests and interventions in lieu of paper using the "eFiling" link at http://www.ferc.gov. Persons unable to file electronically should submit an original and 14 copies of the protest or intervention to the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426.

This filing is accessible on-line at http://www.ferc.gov, using the "eLibrary" link and is available for review in the Commission's Public Reference Room in Washington, D.C. There is an "eSubscription" link on the web site that enables subscribers to receive email notification when a document is added to a subscribed docket(s). For assistance with any FERC Online service, please email FERCOnlineSupport@ferc.gov, or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: [BLANK]

Kimberly D. Bose, Secretary