



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

March 31, 2010

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

**Re: NERC Notice of Penalty regarding PPL Electric Utilities Corporation  
FERC Docket No. NP10-\_-000**

Dear Ms. Bose:

The North American Electric Reliability Corporation (NERC) hereby provides this Notice of Penalty<sup>1</sup> regarding PPL Electric Utilities Corporation (PPL EU), NERC Registry ID NCR00884,<sup>2</sup> in accordance with the Federal Energy Regulatory Commission's (Commission or FERC) rules, regulations and orders, as well as NERC Rules of Procedure including Appendix 4C (NERC Compliance Monitoring and Enforcement Program (CMEP)).<sup>3</sup>

On September 24, 2007, PPL EU self-reported in a letter to ReliabilityFirst Corporation (ReliabilityFirst), followed by a Self-Report form on October 8, 2007, a possible violation of FAC-003-1 Requirement (R) 1.2<sup>4</sup> and R2 due to a contact on PPL EU's Hosensack-Steel City 500 kV transmission line. On January 29, 2009,<sup>5</sup> PPL EU, after notification of an upcoming compliance audit, self-reported a potential violation of EOP-004-1 R3.1 due to its failure to report to the United States Department of Energy (DOE), NERC and ReliabilityFirst two weather related outages which resulted in the loss of service to more than 50,000 PPL EU customers. On June 12, 2009, PPL EU self-reported a possible second violation of FAC-003-1 R2 due to additional encroachments on PPL EU's 230 kV and 500 kV transmission lines. On

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<sup>1</sup> *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 (2008). *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).

<sup>2</sup> ReliabilityFirst Corporation confirmed that PPL EU was included on the NERC Compliance Registry as a Distribution Provider, Load Serving Entity, Purchasing-Selling Entity and Transmission Owner on May 30, 2007. As a Transmission Owner, PPL EU was subject to the requirements of NERC Reliability Standard FAC-003-1; as a Load Serving Entity, PPL EU was subject to the requirements of EOP-004-1; and as a Transmission Owner and Distribution Provider, PPL EU was subject to the requirements of PRC-005-1.

<sup>3</sup> See 18 C.F.R. § 39.7(c)(2).

<sup>4</sup> After reviewing the October 8, 2007 Self-Report form, ReliabilityFirst determined that a violation of FAC-003-1 R1.2 did not exist and dismissed the violation.

<sup>5</sup> The Settlement Agreement incorrectly states that PPL EU's Self-Report for EOP-004-1 R3.1 was submitted on January 28, 2009.

September 30, 2009, PPL EU self-certified non-compliance with PRC-005-1 R1 due to its failure to perform maintenance and testing on relays for facilities in its ‘sub-transmission’ system that were subject to the requirements of its Protection System Testing and Maintenance Program. This Notice of Penalty is being filed with the Commission because, based on information from ReliabilityFirst, ReliabilityFirst and PPL EU have entered into a Settlement Agreement to resolve all outstanding issues arising from a preliminary and non-public assessment resulting in ReliabilityFirst’s determination and findings of the enforceable alleged violations of FAC-003-1 R2, EOP-004-1 R3.1 and PRC-005-1 R1. According to the Settlement Agreement, PPL EU neither admits nor denies the alleged violations but has agreed to the proposed penalty of two hundred ninety thousand dollars (\$290,000) to be assessed to PPL EU, 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 alleged violations identified as NERC Violation Tracking Identification Numbers RFC200700007, RFC200900117, RFC200900142, and RFC200900185 are being filed in accordance with the NERC Rules of Procedure and the CMEP.

### Statement of Findings Underlying the Alleged Violations

This Notice of Penalty incorporates the findings and justifications set forth in the Settlement Agreement executed on December 22, 2009, by and between ReliabilityFirst and PPL EU, which is included as Attachment e and the Supplemental Record of Information dated January 18, 2010. 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 (2007), NERC provides the following summary table identifying each alleged 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 (\$)
ReliabilityFirst Corporation	PPL EU	NOC-074	RFC200700007	FAC-003-1	2	High	290,000
			RFC200900142	FAC-003-1	2	High	
			RFC200900117	EOP-004-1	3.1	Lower	
			RFC200900185	PRC-005-1	2.1	High <sup>6</sup>	

<sup>6</sup> PRC-005-1 R2 has a “Lower” Violation Risk Factor (VRF); R2.1 has 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 include 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.

FAC-003-1

The purpose of Reliability Standard FAC-003-1 is to improve the reliability of the electric transmission systems by preventing outages from vegetation located on transmission rights-of-way (ROW) and minimizing outages from vegetation located adjacent to ROW, maintaining clearances between transmission lines and vegetation on and along transmission ROW, and reporting vegetation-related outages of the transmission systems to the respective Regional Entities and NERC.

FAC-003-1 R2 requires the Transmission Owner, such as PPL EU, to create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan must describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan are to be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner is to have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.

FAC-003-1 R2 has a “High” Violation Risk Factor (VRF).

Violation #1 - RFC200700007

According to the Settlement Agreement, on September 24, 2007, PPL EU submitted a letter to ReliabilityFirst in which PPL EU informed ReliabilityFirst of vegetation encroachments within the Clearance 2 distances set forth in the PPL EU Transmission Vegetation Management Plan (TVMP). PPL EU explained that it first discovered these encroachments after a momentary outage on PPL EU’s Hosensack-Steel City 500 kV transmission line on August 8, 2007. PPL EU followed the September 24, 2007 letter with the submission of a CMEP Violation Self-Reporting Form, dated October 8, 2007 in which PPL EU described possible non-compliance with FAC-003-1 R1.2 and R2. ReliabilityFirst determined that a dismissal of the possible violation of FAC-003-1 R1.2 was appropriate and proceeded accordingly with investigation of an alleged violation of FAC-003-1 R2.<sup>7</sup>

PPL EU stated that the August 8, 2007 outage triggered an internal review of PPL EU’s vegetation management practices that revealed a number of Clearance 2 distance encroachments that were identified during annual aerial inspections in May or June of 2007 but not immediately scheduled for remediation. Instead, PPL EU forestry personnel deemed these encroachments not to be immediate threats and scheduled them for future vegetation work to be completed during the next clearing cycle pursuant to the TVMP. However, after inspecting the causes of the momentary outage on the Hosensack-Steel City 500 kV transmission line on August 8, 2007,

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<sup>7</sup> ReliabilityFirst determined that PPL EU had a TVMP in place at the time of the momentary outage, but had failed to effectively implement that TVMP.

PPL EU management determined that certain clearing work had been deferred rather than being conducted immediately. The deferred work was subsequently scheduled for clearing and was completed in September 2007.

Additionally, PPL EU submitted records showing that an outside contractor conducted another aerial inspection between September 18, 2007 and October 8, 2007 to determine whether the rescheduled work was performed successfully and to assess whether more Clearance 2 distance encroachments existed. This aerial inspection revealed more areas of vegetation growth within the Clearance 2 distance on 230 kV and 500 kV transmission lines, two of which were determined to be within the Institute of Electrical and Electronics Engineers (IEEE) prescribed minimum clearance distance. PPL EU conducted the requisite clearing work relating to the September 2007 aerial inspection findings by November 8, 2007.

ReliabilityFirst issued its findings to PPL EU on February 27, 2008 in the form of a Notice of Alleged Violation and Proposed Penalty or Sanction (NAVAPS). Considering the momentary nature of the outage on the Hosensack-Steel City transmission line, as well as PPL EU's action to mitigate the encroachments, ReliabilityFirst exercised its discretion and proposed a penalty of zero dollars. On March 24, 2008, PPL EU issued its response to the NAVAPS via letter, informing ReliabilityFirst that PPL EU accepted the findings of the NAVAPS.

On September 18, 2008, ReliabilityFirst issued a Notice of Confirmed Violation (NOCV), informing NERC of its determinations. On March 20, 2009, the NERC BOTCC remanded the NOCV to ReliabilityFirst for further proceedings. In doing so, the NERC BOTCC stated, "[T]he [NERC] BOTCC hereby rejects the \$0 penalty financial penalty proposed by [ReliabilityFirst] for this violation and directs [ReliabilityFirst] to impose a financial penalty on PPL [EU] that, after addressing the issues identified and discussed above, is proportionate to those financial penalties applied in other cases of the same Reliability Standard with similar facts and circumstances."

In response to the NERC BOTCC's remand, ReliabilityFirst requested a description from PPL EU of the additional encroachments and the line loading at the time of the contact.

According to PPL EU, two additional encroachments within the IEEE minimum clearance distances were discovered. These two additional encroachments were both discovered on 230 kV transmission lines via aerial inspection. PPL EU's aerial patrol vendor reported observing vegetation that was between one and five feet from the conductor. A subsequent field review determined that in each case the vegetation was five feet from the conductor.

On August 8, 2007, at the time of the outage, the line loading on the Hosensack-Steel City 500 kV transmission line was 933.8 amps, which represents 34.5 percent of the normal facility rating.

Given the difficulty inherent in determining precisely when vegetation may have first encroached into the Clearance 2 distances, ReliabilityFirst deemed the alleged violation RFC200700007 to have begun on August 8, 2007, the date on which the momentary outage on the Hosensack-Steel

City transmission line occurred.<sup>8</sup> The violation ended November 3, 2007, the date on which all mitigating actions were completed.

ReliabilityFirst determined that the alleged violation created a substantial risk to the bulk power system (BPS). At the time of the momentary contact, the BPS was operating under stressed conditions as evidenced by the actions taken by PJM in response to this condition. Contemporaneous with the contact, PJM implemented a mandatory voltage reduction and loaded the available “Maximum Emergency Generation” facilities. The system’s stressed state led ReliabilityFirst to determine that the alleged violation posed a substantial risk to the BPS.

Violation #2 - RFC200900142

Following the prior confirmed violation of FAC-003-1 R2, although no new outage had occurred, PPL EU had contracted with a third party vendor in 2008 to conduct an overview of its BPS transmission lines using Light Detection and Ranging (LiDAR) technology. This technology was deployed on a trial basis to assess the efficacy of the technology and to compare its results with those yielded by PPL EU’s conventional annual aerial inspection of the BPS conducted in the spring of 2008.<sup>9</sup>

On September 10, 2008, the LiDAR vendor reported to PPL EU a Clearance 2 distance encroachment on the Quarry-Northwood transmission line to PPL EU, and on the same day, PPL EU confirmed in the field that the vegetation was in fact encroaching within the Clearance 2 distance. LiDAR identified this encroachment that had not been detected by the conventional aerial patrols which had been previously conducted. The PPL EU TVMP requires that 230 kV transmission lines maintain a Clearance 2 distance of 5.2 feet. In this case, vegetation along the Quarry-Northwood transmission line had grown to within 3.84 feet of the as-observed position of the line.<sup>10</sup> On September 11, 2008, PPL EU cleared the vegetation according to the procedures in the PPL EU TVMP.

On March 26, 2009 PPL EU informed ReliabilityFirst via conference call that, based on data provided by the LiDAR vendor, PPL EU calculated additional areas with possible Clearance 2 distance encroachments. Vegetation at these possible locations was not observed to be encroaching within the Clearance 2 distances. The LiDAR vendor, however, calculated that if PPL EU were to operate its transmission system such that its transmission lines were at maximum sag conditions, Clearance 2 distance encroachments would occur.

On June 12, 2009, PPL EU submitted to ReliabilityFirst a Self-Report in which PPL EU reported a Clearance 2 distance encroachment on its 230 kV Quarry-Northwood transmission line in potential violation of FAC-003-1 R2.

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<sup>8</sup> Because there is difficulty in determining when the vegetation encroachment would have initially occurred, ReliabilityFirst deemed the start date of the violation to be August 8, 2007, which is the date the tree encroachment was discovered.

<sup>9</sup> The spring 2008 aerial inspection was required by the PPL EU TVMP.

<sup>10</sup> “As-observed” refers to the position of the line under current operating conditions regardless of the means used to make the observation.



On June 18, 2009, in a follow-up conference call, PPL EU informed ReliabilityFirst that the LiDAR vendor had calculated 230 areas with possible Clearance 2 distance encroachments. As noted on that call, the LiDAR vendor calculated 839 total data points where maximum sag Clearance 2 distance encroachments were calculated. PPL EU “clustered” these data points to recognize the fact that the same vegetation could cause multiple data points on a transmission line. Although PPL EU had not developed a mechanism for validating the accuracy of the maximum sag adjusted results provided by the LiDAR vendor, PPL EU cleared the vegetation at 230 areas near the LiDAR calculated maximum sag Clearance 2 distance encroachments in the timeframe established within the PPL EU TVMP.

Based on these facts, ReliabilityFirst determined that in two separate instances, comprising two violations, PPL EU failed to effectively implement a TVMP that took into account the anticipated and actual growth of vegetation located inside the ROW with respect to maintaining clearances to conductors. ReliabilityFirst deemed the alleged violation RFC200900142 to have begun on September 10, 2008,<sup>11</sup> the date on which the confirmed Clearance 2 distance encroachment on the Quarry-Northwood transmission line was discovered. The violation ended December 31, 2009, the date on which PPL EU completed all mitigating actions. As described more fully in the Settlement Agreement, all vegetation clearing work, including clearing work on the LiDAR vendor’s calculated Clearance 2 distance encroachments, was completed as of March 25, 2009.

ReliabilityFirst determined that although the second alleged violation created a moderate to high risk to the bulk power system (BPS), it did not rise to the level of a serious or substantial risk because PPL EU operates its BPS facilities to first contingency limits, meaning that had the Quarry-Northwood transmission line tripped, the remainder of the system would have remained stable. ReliabilityFirst also considered that the Quarry-Northwood transmission line was loaded at less than 50% of its normal rating from September 9, 2008 to September 11, 2008. Historical loading data shows that this loading level is typical for the Quarry-Northwood transmission line.

#### EOP-004-1

The purpose of Reliability Standard EOP-004-1 is to ensure that disturbances or unusual occurrences that jeopardize the operation of the BPS, or result in system equipment damage or customer interruptions, are studied and understood to minimize the likelihood of similar events in the future.

EOP-004-1 R3.1 requires the Load Serving Entity, such as PPL EU, experiencing a reportable disturbance or unusual occurrence to provide a preliminary written report to its Regional Entity and NERC. (R3.1) The affected entity, such as PPL EU, must submit within 24 hours of the disturbance or unusual occurrence either a copy of the report submitted to DOE, or, if no DOE report is required, a copy of the NERC Interconnection Reliability Operating Limit and Preliminary

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<sup>11</sup> As noted in RFC200700007 there is difficulty inherent in determining precisely when vegetation may have first encroached into the Clearance 2 distances.

Disturbance Report form. Events that are not identified until some time after they occur must be reported within 24 hours of being recognized.  
EOP-004-1 R3 and R3.1 each have a “Lower” VRF.

According to the Settlement Agreement, on January 29, 2009, PPL EU reported to ReliabilityFirst its possible non-compliance with EOP-004-1 R3.1.<sup>12</sup> In an accompanying letter, PPL EU explained that in the course of preparing for a ReliabilityFirst compliance audit, it discovered two disturbance incidents which had been reported to Pennsylvania Public Utility Commission (Pennsylvania PUC) but not reported to the DOE, NERC, and ReliabilityFirst as required by the Standard.

Specifically, PPL EU experienced two separate weather related outages on its system. The first outage occurred on December 16, 2007, as a result of an ice storm. The second outage occurred on June 10, 2008, as a result of a storm producing thunder and lightning. In each case the storm damage occurred on PPL EU’s 69 kV and 12 kV systems and no single incident or case of trouble in either storm exceeded the 50,000 customer threshold; however, the aggregate customer impact from hundreds of small outage events exceeded the threshold. Because, more than 50,000 PPL EU customers lost service for one hour or more, PPL EU was required to report these outages to the DOE, NERC, and ReliabilityFirst.

PPL EU reported each incident to the Pennsylvania PUC, as required by Pennsylvania law.<sup>13</sup> The December 16, 2007 outage was reported to the Pennsylvania PUC on January 3, 2008, and the June 10, 2008 outage was reported on June 19, 2008. PPL EU failed, however, to file a Form OE-417 with the DOE.<sup>14</sup> Since PPL EU did not submit the required preliminary Schedule 1 of Form OE-417 to the DOE within 24 hours, it was unable to meet its obligation to provide a copy to NERC and ReliabilityFirst within 24 hours of each disturbance or unusual occurrence.

For entities that do not discover disturbances until some time after they occur, EOP-004-1 R3.1 allows those entities to report those disturbances within 24 hours of their discovery. In the instant case, ReliabilityFirst reviewed PPL EU’s records from the days on which the respective storms occurred and determined that PPL EU was clearly aware of the events. Furthermore, PPL EU submitted its reports to the Pennsylvania PUC, which show that PPL EU was aware of both events months before reporting them to the DOE, NERC, and ReliabilityFirst. On January 21, 2009, PPL EU submitted the required forms to the DOE, NERC and ReliabilityFirst.

Because PPL EU discovered and self-reported these two violations of EOP-004-1 R3.1 at the same time, even though the events occurred over six months apart, ReliabilityFirst determined these events comprised one alleged violation. ReliabilityFirst determined that PPL EU failed to

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<sup>12</sup> The Settlement Agreement incorrectly states that PPL EU’s Self-Report for EOP-004-1 R3.1 was submitted on January 28, 2009.

<sup>13</sup> According to 52 PA. CODE § 67.1 (2009), utilities experiencing an outage have five working days of the total restoration of service to report that outage to the Pennsylvania PUC. ReliabilityFirst confirmed that PPL EU in fact complied with this requirement as part of its fact and circumstance review.

<sup>14</sup> Form OE-417, also called the “Electric Emergency Incident and Disturbance Report,” is a required filing when entities experience certain events. In this case, loss of electric service to more than 50,000 customers for one (1) hour or more, entities must file a preliminary Schedule 1 of Form OE-417 within six (6) hours of the incident.

provide a copy of the report submitted to the DOE to NERC and ReliabilityFirst within 24 hours of the two disturbances or unusual occurrences in question in violation of EOP-004-1 R3.1. ReliabilityFirst determined the duration of the alleged violation to be from December 16, 2007, the date of the first disturbance, through April 20, 2009, when PPL EU completed its Mitigation Plan.

ReliabilityFirst determined that this alleged violation did not pose a serious or substantial risk to the BPS because the storm damage in both events was limited to PPL EU's 12 kV and 69 kV distribution facilities.

#### PRC-005-1

The purpose Reliability Standard PRC-005-1 is to ensure that all transmission and generation Protection Systems<sup>15</sup> affecting the reliability of the BPS are maintained and tested.

PRC-005-1, R2.1 requires each Transmission Owner and Distribution Provider, such as PPL EU, that owns a transmission Protection System to provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Entity on request (within 30 calendar days). This documentation of the program implementation must include (R2.1) evidence that Protection System devices were maintained and tested within the defined intervals and (R2.2) the date each Protection System was last tested/maintained. PRC-005-1 R2.1 has a "High" VRF.

According to the Settlement Agreement, on September 30, 2009, PPL EU self-certified non-compliance with PRC-005-1 R2.1, PPL EU explained that it has in place a "transmission and substation Protection System Testing and Maintenance Program for networked facilities 138 kV and above (transmission), for 69 kV and radial 138 kV facilities (sub-transmission), and for below 69 kV facilities (distribution)." According to PPL EU, the three-tiered Testing and Maintenance Program described above had been developed under the mistaken belief that PRC-005-1 was inapplicable to all its sub-transmission and distribution facilities because those facilities are below the BPS definition voltage threshold of 100 kV. In fact, ReliabilityFirst confirmed that PRC-005-1 does apply to certain sub-transmission facilities since they are "associate auxiliary and protection and control system equipment that could automatically trip a BES facility." PPL EU's mistaken reasoning was brought to PPL EU's attention through an official interpretation of the ReliabilityFirst "Bulk Electric System" definition performed by ReliabilityFirst at the request of another Registered Entity.<sup>16</sup> PPL EU reviewed this interpretation in the course of preparing for its September 30, 2009 self-certification and, after doing so, determined that it should self-certify non-compliance with PRC-005-1 R2.1. Subsequently on October 6, 2009, PPL EU submitted a Violation Self-Reporting Form to

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<sup>15</sup> The NERC Glossary of Terms Used in Reliability Standards, updated April 20, 2009, defines Protection System as "Protective relays, associated communication systems, voltage and current sensing devices, station batteries and DC control circuitry."

<sup>16</sup> The ReliabilityFirst Bulk Electric System definition and associated interpretations can be found at <http://www.rfirst.org/MiscForms/BESDefinition.aspx>.



ReliabilityFirst which explained PPL EU's reasons for believing it was not compliant with that Standard.

There are approximately 5,800 protective relays included in the PPL EU transmission Protection System Maintenance and Testing Program for BPS facilities. According to PPL EU's transmission Protection System Maintenance and Testing Program, the facilities classified "transmission" are subject to testing on a four year testing interval, and the facilities classified "sub-transmission" are subject to testing on a six year testing interval.

ReliabilityFirst determined that in addition to the 5,800 devices currently included in PPL EU's PRC-005-1 Maintenance and Testing Program, 695 "sub-transmission" protective relays are also within the scope of PRC-005-1. Of these 695 devices, PPL EU produced testing records showing that 126 devices were beyond the six year testing interval but were recently tested and that 74 devices are currently beyond the six year testing interval and are awaiting testing. Therefore, a total of 200 devices are or were beyond the PPL EU Maintenance and Testing Program testing interval, and therefore in violation of PRC-005-1, notwithstanding PPL EU's misunderstanding of the applicability of the requirements of PRC-005-1.

ReliabilityFirst determined that PPL EU failed to produce documentation that 200 of its 5,800 Protection System devices were maintained and tested within the defined intervals for those devices. ReliabilityFirst determined that the violation duration was from June 18, 2007, the date the Standard became enforceable, until PPL EU completes its Mitigation Plan with an approved completion date of June 30, 2010.

ReliabilityFirst determined that this alleged violation did not pose a serious or substantial risk to the BPS because the PPL EU system is designed such that the BPS transmission line would be momentarily interrupted allowing for the transformer high side disconnecting device to isolate the failed low side non-BPS equipment. Following this operation, the transmission line would reclose allowing the BPS facilities to return to normal functioning.

#### Regional Entity's Basis for Penalty

ReliabilityFirst assessed a total penalty of two hundred ninety thousand dollars (\$290,000) for the alleged violations addressed by the Settlement Agreement. ReliabilityFirst notes that the bulk of that penalty amount is attributable to the two violations of FAC-003-1 addressed in the Settlement Agreement. ReliabilityFirst determined that this penalty amount bears a reasonable relationship to the seriousness of the violations, specifically will serve to deter future violations of FAC-003-1 and enhance the reliability of the BPS by emphasizing the importance of implementing a comprehensive TVMP.

To determine what penalty would bear a reasonable relationship to the seriousness of the instant violations, ReliabilityFirst considered several factors. First, ReliabilityFirst considered the penalties assessed for similar violations of FAC-003-1, as recommended by the NERC BOTCC in its remand of the NOCV regarding RFC200700007. Second, ReliabilityFirst considered that RFC200900142 was a repeat violation of a very consequential Standard, as indicated by the "High" VRF assigned to FAC-003-1 R2. Third, ReliabilityFirst considered that the existence of

two violations indicated a deficiency with PPL EU's implementation of its TVMP. Fourth, relating to RFC200900142, although ReliabilityFirst determined that no efforts were made to conceal the alleged violation, ReliabilityFirst did consider the significant delay between the time at which PPL EU discovered its confirmed encroachment and the date that the encroachment was self-reported. This delay was considered as further evidence of a deficiency with PPL EU's implementation of its TVMP. Fifth, ReliabilityFirst determined that, with the exception of one of the FAC-003-1 R2 violation, the remaining alleged violations did not pose a serious or substantial risk to the BPS, as discussed above.

As a mitigating factor toward the determination of an appropriate penalty, ReliabilityFirst also considered that PPL EU committed to explore the efficacy of using LiDAR technology in its TVMP. PPL EU has agreed to share, at its own cost, at ReliabilityFirst's option and subject to ReliabilityFirst's review, its experiences with the use of LiDAR by preparing a technical paper or presentation to be given at an industry conference attended by Transmission Owners to share PPL EU's lessons learned using LiDAR.

Considering the foregoing, and given the actions taken to mitigate the captioned violations, as well as the actions taken that go beyond mere mitigation of the violations and contribute to the increased reliability of the BPS, the monetary penalty that PPL EU agreed to pay ReliabilityFirst bears a reasonable relation to the seriousness of the violations.

After consideration of this and the above factors, ReliabilityFirst determined that, in this instance, given the actions taken to mitigate the captioned violations, as well as the actions taken that go beyond mitigation of the violations and contribute to the increased reliability of the BPS, the penalty amount of two hundred ninety thousand dollars (\$290,000) is appropriate and bears a reasonable relation to the seriousness and duration of the alleged violations.

### **Status of Mitigation Plans<sup>17</sup>**

#### **FAC-003-1 R2**

##### **Violation #1 - RFC200700007**

PPL EU's Mitigation Plan to address its first alleged violation of FAC-003-1 R2 was submitted to ReliabilityFirst on October 8, 2007 with a proposed completion date of December 21, 2007. The Mitigation Plan was accepted by ReliabilityFirst on November 13, 2007 and approved by NERC on February 29, 2008. The Mitigation Plan for this alleged violation is designated as MIT-07-0216 and was submitted as non-public information to FERC on February 29, 2008 in accordance with FERC orders.

PPL EU's Mitigation Plan required it to put in place systems and procedures to ensure that work required by the PPL EU TVMP would be completed according to work specifications. PPL EU also committed to correct issues with the implementation of the PPL EU TVMP identified up to that point. Specifically PPL EU agreed to:

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<sup>17</sup> See 18 C.F.R. § 39.7(d)(7).

1. Complete second system-wide aerial patrols of all 200 kV and above transmission lines by or about October 12, 2007;
2. Develop and implement systems and procedures to ensure that work scheduled to complete in the annual work plan was completed according to work specification by or about October 19, 2007;
3. Complete ground-base inspections of potential encroachment locations identified by aerial patrols and schedule clearing work to remove any Clearance 2 encroachments by or about October 24, 2007;
4. Clear encroachments into the minimum clearance distance per IEEE 516-2003 by October 31, 2007; and
5. Complete additional clearing work to achieve Clearance 2 (PPL EU's Wire Security Zone) distances by November 30, 2007.

The entity agreed to implement certain additional mitigating actions as set forth in Section IV. B. of the Settlement Agreement, including the acquisition of a clinometer and other measures to bolster its compliance program.

To prevent recurrences of this violation, PPL EU's Mitigation Plan required it to clarify and enhance the PPL EU TVMP, and to train its vegetation management personnel and contractors on these revisions. PPL EU was also required to clear vegetation from its transmission corridors beyond Clearance 2 distances, with a completion date of December 21, 2007.

On November 8, 2007, as supplemented with additional evidence on March 24, 2008, PPL EU certified that the actions required in its Mitigation Plan had been completed as of November 3, 2007<sup>18</sup> and that PPL EU had achieved clearances that exceeded its Clearance 2 distances between vegetation and transmission infrastructure throughout its entire 230 kV and above system.

On June 5, 2008, at ReliabilityFirst's request, PPL EU provided evidence showing that its Mitigation Plan MIT-07-0216 was completed and submitted the following evidence supporting the certification of the Mitigation Plan's completion:

1. Records of aerial patrols of the 230 kV and 500 kV transmission system conducted by PPL EU's outside contractor on September 18-27, 2007 and on October 1-8, 2007;
2. Summary sheet listing information regarding the aerial patrols of the PPL EU lines that were inspected as a part of the Mitigation Plan to mitigate the alleged violation;
3. A spreadsheet detailing the removal, trimming and re-clearing work performed on the PPL EU transmission lines by various contractors from September 22, 2007 through December 1, 2007 and invoices from contractors for the work;
4. A spreadsheet providing follow-up data regarding all aerial inspections of the entire PPL EU 230 kV and 500 kV transmission system conducted between September 18, 2007 and October 8, 2007;

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<sup>18</sup> The Settlement Agreement, paragraphs 41 and 42, incorrectly states the Mitigation Plan was completed November 8, 2007.

5. Attendance lists from Vegetation Management Training sessions held at various locations and on various dates; and
6. PPL EU's revised TVMP.

On August 19, 2008, ReliabilityFirst analyzed this evidence and verified PPL EU had completed its Mitigation Plan on November 3, 2007.

Violation #2 - RFC200900142

PPL EU's proposed Mitigation Plan to address its second alleged violation of FAC-003-1 R2 was submitted to ReliabilityFirst on September 10, 2009. This Mitigation Plan was revised on September 23, 2009 and contained a proposed completion date of December 31, 2009. The Mitigation Plan was accepted by ReliabilityFirst on October 5, 2009 and approved by NERC on October 16, 2009. The Mitigation Plan for this alleged violation is designated as MIT-08-2044 and was submitted as non-public information to FERC on October 16, 2009 in accordance with FERC orders.

PPL EU's Mitigation Plan required it to:

1. Clear or Trim Clearance 2 vegetation encroachments -

PPL EU's Mitigation Plan also required it either clear or trim the Clearance 2 vegetation encroachments that were identified by LiDAR. According to its Mitigation Plan, PPL EU cleared vegetation at the site of the one confirmed, and the sites of the other suspected 230 kV Clearance 2 distance encroachments within the time frame required by the TVMP. This clearing work was completed as of March 25, 2009;

2. Develop training materials and identify roster to receive training by September 30, 2009;
3. Deliver and document training by October 30, 2009;
4. Revise its TVMP by December 31, 2009 -

PPL EU will revise the PPL EU TVMP to clarify several areas. First, the plan will be revised to make clear that field verified Clearance 2 distance encroachments must be reported through the PPL Corporation NERC Non-Conformance process. Second, the plan will make clear that field verified as-observed Clearance 2 distance encroachments must be treated as "imminent threats" as that term is used in the plan. Finally, third, the plan will require suspected Clearance 2 distance encroachments at maximum sag conditions to be assessed to determine whether they represent an "imminent threat;" and

5. Provide documentation of fall 2009 LiDAR results and remediation. An Interim Report through September was due by October 16, 2009 and a Final Report was due by December 31, 2009.

The Mitigation Plan also includes additional LiDAR work. Throughout the Fall of 2009, PPL EU has evaluated its transmission system using LiDAR to determine the efficacy of its clearing efforts and the results were reported to ReliabilityFirst.

PPL EU certified on December 31, 2009 that its Mitigation Plan was completed on December 23, 2009. As evidence of completion of its Mitigation Plan, PPL EU submitted the following:

1. Training Materials

These materials discuss in detail the processes described in PPL EU's TVMP for identifying vegetation that could cause an outage and the processes for clearing such vegetation. Furthermore, these materials discuss some examples of enforcement actions arising from other Registered Entities' failure to implement their respective TVMPs. PPL EU also submitted the attendance rosters for presentations of these materials given on September 25, 2009, October 6, 2009, October 8, 2009, October 19, 2009, October 21, 2009, October 22, 2009, and October 28, 2009.

2. Revision 3 of PPL EU TVMP, dated December 22, 2009 and made effective December 31, 2009

3. LiDAR Reports

PPL EU submitted a preliminary report of the LiDAR findings on October 16, 2009 and a final report dated December 31, 2009. This report details the results of a LiDAR survey conducted over 1,351 miles of transmission lines.

On January 20, 2010, after reviewing PPL EU's submitted evidence, PPL EU verified that PPL EU's Mitigation Plan was completed December 23, 2009 and that PPL EU was in compliance with FAC-003-1 R2.

EOP-004-1 R3.1

PPL EU's Mitigation Plan to address its alleged violation of EOP-004-1 R3.1 was submitted to RFC on January 23, 2009. This Mitigation Plan was revised on February 23, 2009 and contained a proposed completion date of April 24, 2009. ReliabilityFirst accepted the Mitigation Plan on February 25, 2009 and issued a letter of acceptance to PPL EU on March 2, 2009. RFC submitted the accepted Mitigation Plan to NERC and NERC approved the Mitigation Plan on March 9, 2009. The Mitigation Plan for this alleged violation is designated as MIT-07-1434 and was submitted as non-public information to FERC on March 9, 2009 in accordance with FERC orders.

PPL EU's Mitigation Plan required it to perform several actions to mitigate the violation of EOP-004-1 R3.1 and prevent future violations of the same:

1. PPL EU was to provide training, focused on reporting requirements, for its Storm Emergency Managers and Power System Dispatchers by February 13, 2009.
2. PPL EU was to authorize changes to the Automatic Paging function of PPL EU's Outage Management System (OMS) to send a page when the number of customers without power due to an event or disturbance exceeds 50,000 and to identify which PPL EU managers would receive this page by February 27, 2009.
3. PPL EU was to revise its procedures and instructions manuals that would make explicit the reporting requirements to comply with applicable DOE, NERC, ReliabilityFirst and PJM event or disturbance reporting requirements and which types of disturbances triggered which reporting requirements by February 27, 2009.



4. PPL EU was to identify all PPL EU employees who will require training on the revised Procedures and Instructions by February 27, 2009.
5. PPL EU was to implement an automatic paging system that would page certain PPL EU's managers when the number of customers without power as a result of a disturbance reached 50,000 by March 27, 2009. PPL EU requested an extension to May 4, 2009 for this milestone completion date when it was determined that Blackberry devices had to be included.
6. PPL EU was to complete training of all identified PPL EU employees in the new procedures and instructions by March 27, 2009.
7. PPL EU was to identify any remaining mitigation steps that are necessary to fully mitigate the alleged violation by March 27, 2009.
8. PPL EU was to complete any remaining mitigation steps and provide a final report to ReliabilityFirst by April 24, 2009.

PPL EU certified on April 20, 2009 that the above actions required by its Mitigation Plan were completed.<sup>19</sup> As evidence of completion of its Mitigation Plan, PPL EU submitted the following:

1. The two Form OE-417 documents relating to the disturbances in question submitted by PPL EU to the DOE, NERC and ReliabilityFirst on January 21, 2009.
2. ReliabilityFirst also reviewed PPL EU's reporting procedure, *PPL Electric Utilities' Operating Instruction 1611*, Revision 1, April 3, 2009, that makes explicit PPL EU's duty to disclose reportable events to DOE, NERC, and ReliabilityFirst, and a Training Documentation Sheet signed and dated by the Power System Dispatchers acknowledging that they reviewed the revised *Operating Instruction 1611*.
3. PPL EU's *Storm Room Manual*, Revision 2, April 6, 2009, which was revised to ensure that Storm Emergency Managers are aware of PPL EU's reporting obligations. E-mail acknowledgements were provided as evidence that PPL EU completed training of Storm Emergency Managers on reporting requirements as per the Mitigation Plan.
4. Finally, ReliabilityFirst reviewed screenshots of test e-mails demonstrating implementation of the automatic paging system described above.

On September 11, 2009, after reviewing PPL EU's submitted evidence, ReliabilityFirst verified that the Mitigation Plan was complete as of April 20, 2009 and that PPL EU was compliant with EOP-004-1 R3.1.

PRC-005-1 R2.1

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<sup>19</sup> PPL EU had requested an extension of its approved completion date to May 4, 2009, but completed its Mitigation Plan early.

PPL EU's Mitigation Plan to address its alleged violation of PRC-005-1 R2.1 was submitted to ReliabilityFirst on December 3, 2009 with a proposed completion date of June 30, 2010. The Mitigation Plan was accepted by ReliabilityFirst on December 10, 2009 and approved by NERC on December 18, 2009. The Mitigation Plan for this alleged violation is designated as MIT-07-2184 and was submitted as non-public information to FERC on December 18, 2009 in accordance with FERC orders.

PPL EU's Mitigation Plan requires it to amend its Protection System Maintenance and Testing Program to clarify which of its "sub-transmission" facilities must be tested in accordance with PRC-005-1, train employees on those amendments, and complete the required maintenance and testing of all the identified facilities by June 30, 2010. Specifically, PPL EU will:

1. Submit a request for interpretation of the ReliabilityFirst Bulk Electric System Definition to determine the applicability of PRC-005 to certain relays. This requirement was completed by October 22, 2009
2. Amend *PPL EU Transmission & Distribution Substation Protection System Testing and Maintenance Program and Practices* to clarify sub-transmission facilities identified as part of PRC-005 testing. This requirement was completed by December 15, 2009.
3. Develop training materials and identify roster of individuals to receive training; conduct training regarding the PRC-005 maintenance and testing program by January 29, 2010.
4. Identify facilities not currently subject to PPL EU's PRC-005 maintenance and testing program that should be subject to the program because they have an impact on the BPS by January 29, 2010.
5. Submit additional request(s) for interpretation to RFC (if required) by February 26, 2010.
6. Complete maintenance and testing of 40% of identified facilities by April 16, 2010.
7. Complete maintenance and testing of 100% of identified facilities by June 30, 2010.

ReliabilityFirst will monitor the timely completion of this Mitigation Plan and verify when completed.

## **Statement Describing the Proposed Penalty, Sanction or Enforcement Action Imposed<sup>20</sup>**

### **Basis for Determination**

Taking into consideration the Commission's direction in Orders No. 693, the NERC Sanction Guidelines and the Commission's July 3, 2008 Guidance Order,<sup>21</sup> the NERC BOTCC reviewed the Settlement Agreement and supporting documentation on February 10, 2010. The NERC BOTCC approved the Settlement Agreement, including ReliabilityFirst's imposition of a financial penalty, assessing a penalty of two hundred ninety thousand dollars (\$290,000) against PPL EU and other actions to facilitate future compliance required under the terms and conditions

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<sup>20</sup> See 18 C.F.R. § 39.7(d)(4).

<sup>21</sup> *North American Electric Reliability Corporation*, "Guidance Order on Reliability Notices of Penalty," 124 FERC ¶ 61,015 (2008).

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 alleged violations at issue.

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

- (1) PPL EU self-reported the FAC-003-1 and EOP-004-1 alleged violations;
- (2) ReliabilityFirst determined that PPL EU has a culture of compliance as discussed in greater detail in the Settlement Agreement;
- (3) RFC200900142 was PPL EU's second alleged violation of FAC-003-1;
- (4) Although ReliabilityFirst determined that no efforts were made to conceal the alleged violation, ReliabilityFirst did note and consider the significant delay between the time at which PPL EU discovered its confirmed encroachment and the date that the encroachment was self-reported; and
- (5) With one exception related to one of the violations of FAC-003-1 R2, ReliabilityFirst determined that the alleged violations did not pose a serious or substantial risk to the BPS, as discussed above.

For the foregoing reasons, the NERC BOTCC approves the Settlement Agreement and believes that the proposed penalty of two hundred ninety thousand dollars (\$290,000) is appropriate for the violations and circumstances, and consistent with NERC's goal to promote and ensure reliability of the BPS.

Pursuant to Order No. 693, 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 and material:

- a) PPL EU's Self-Reports for FAC-003-1 R2 RFC200700007 dated September 24, 2007 and October 8, 2007, included as Attachment a;
- b) PPL EU's Self-Report for FAC-003-1 R2 RFC200900142 dated June 12, 2009, included as Attachment b;
- c) PPL EU's Self-Report for EOP-004-1 R3.1 RFC200900117 dated January 29, 2009, included as Attachment c;
- d) PPL EU's Self-Certification for PRC-005-1R 2.1 RFC200900185 September 30, 2009, included as Attachment d;
- e) Settlement Agreement by and between ReliabilityFirst and PPL EU executed December 22, 2009, included as Attachment e with included attachments listed below;

- i. PPL EU's Mitigation Plan designated as MIT-07-0216 for PPL EU's first alleged violation of FAC-003-1 R2 RFC200700007 submitted October 8, 2007, included in the Settlement Agreement as Attachment a;
  - ii. PPL EU's Certification of Completion of the Mitigation Plan for PPL EU's first alleged violation of FAC-003-1 R2 RFC200700007 dated November 8, 2007, included in the Settlement Agreement as Attachment b;
  - iii. ReliabilityFirst's Verification of Completion of the Mitigation Plan for PPL EU's first alleged violation of FAC-003-1 R2 RFC200700007 dated August 19, 2008, included in the Settlement Agreement as Attachment c.
  - iv. PPL EU's Mitigation Plan designated as MIT-08-2044 for PPL EU's second alleged violation of FAC-003-1 R2 RFC200900142 submitted September 23, 2009, included in the Settlement Agreement as Attachment d;
  - v. PPL EU's Mitigation Plan designated as MIT-07-1434 for PPL EU's alleged violation of EOP-004-1 R3.1 submitted February 23, 2009, included in the Settlement Agreement as Attachment e;
  - vi. PPL EU's Certification of Completion of the Mitigation Plan for PPL EU's first alleged violation of EOP-004-1 R3.1 dated April 20, 2009, included in the Settlement Agreement as Attachment f;
  - vii. ReliabilityFirst's Verification of Completion of the Mitigation Plan for PPL EU's first alleged violation of EOP-004-1 R3.1 dated September 11, 2009, included in the Settlement Agreement as Attachment g; and
  - viii. PPL EU's Mitigation Plan designated as MIT-07-2184 for PPL EU's alleged violation of PRC-005-1 R2.1 submitted December 3, 2009, included in the Settlement Agreement as Attachment h.
- f) PPL EU's Certification of Completion of the Mitigation Plan for PPL EU's second alleged violation of FAC-003-1 R2 RFC200900142 dated December 31, 2009, included as Attachment f;
- g) ReliabilityFirst's Verification of Completion of the Mitigation Plan for PPL EU's second alleged violation of FAC-003-1 R2 RFC200900142 dated January 20, 2010, included as Attachment g;

#### **A Form of Notice Suitable for Publication<sup>22</sup>**

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

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<sup>22</sup> 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  
David N. Cook\*  
Vice President and General Counsel  
North American Electric Reliability Corporation  
116-390 Village Boulevard  
Princeton, New Jersey 08540-5721  
(609)452-8060  
(609) 452-9550 – facsimile  
gerry.cauley@nerc.net  
david.cook@nerc.net

David E. Schleicher\*  
Vice President—Transmission  
PPL Electric Utilities  
2 North Ninth Street  
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Robert G. Grassi\*  
Senior Counsel  
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Sandra E. Rizzo\*  
Counsel for PPL EU  
Bracewell & Giuliani LLP  
2000 K Street NW  
Suite 500  
Washington, DC 20006  
sandra.rizzo@bglp.com

\*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.

Rebecca J. Michael\*  
Assistant General Counsel  
Holly A. Hawkins  
Attorney\*  
North American Electric Reliability Corporation  
1120 G Street, N.W.  
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ReliabilityFirst Corporation  
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tim.gallagher@rfirst.org

Raymond J. Palmieri\*  
Vice President and Director of Compliance  
ReliabilityFirst Corporation  
320 Springside Drive, Suite 300  
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mike.austin@rfirst.org

## Conclusion

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

Respectfully submitted,

Gerald W. Cauley  
David N. Cook  
Vice President and General Counsel  
North American Electric Reliability Corporation  
116-390 Village Boulevard  
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/s/ Rebecca J. Michael  
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rebecca.michael@nerc.net  
holly.hawkins@nerc.net

cc: PPL Electric Utilities Corporation  
ReliabilityFirst Corporation

Attachments

**Attachment a**

**PPL EU's Self-Reports for FAC-003-1 R2  
RFC200700007 dated September 24, 2007 and  
October 8, 2007**

**David G. DeCampi**  
President – PPL Electric Utilities



**PPL Electric Utilities**  
Two North Ninth Street, GENN5  
Allentown, PA 18101-1179  
Tel. 610.774.4247 Fax 610.774.2881  
[dgdecampi@pplweb.com](mailto:dgdecampi@pplweb.com)

**BY ELECTRONIC MAIL**

September 24, 2007

Raymond J. Palmieri  
Vice President and Director - Compliance  
ReliabilityFirst Corporation  
320 Springside Drive  
Suite 300  
Akron, OH 44333

Dear Mr. Palmieri:

PPL Electric Utilities Corporation ("PPL Electric"), which is registered as a Transmission Owner in the ReliabilityFirst Corporation ("RFC") region, is writing to inform RFC that PPL Electric has identified certain encroachments of vegetation within the Clearance 2 distances set forth in its Transmission Vegetation Management Plan ("TVMP"). The TVMP was implemented to comply with Reliability Standard FAC-003-1.

PPL Electric management first discovered the encroachments as a result of an internal investigation triggered by a momentary outage experienced on its Hosensack-Steel City 500 kV transmission line on August 8, 2007. In the course of that investigation, PPL Electric management discovered that removal of a number of Clearance 2 encroachments on its system, which had been identified by its annual May-June 2007 aerial inspections but were determined by its forestry professionals as not posing an immediate threat, had been scheduled for future vegetation management work rather than being redressed immediately, as stipulated in the TVMP. PPL Electric moved swiftly to re-establish the Clearance 2 distances between vegetation and its transmission lines subject to FAC-003-1 relating to those known encroachments.

In order to determine whether any additional encroachments into the Clearance 2 distances exist and to assure that any such encroachments are removed expeditiously, PPL Electric is following up with additional aerial inspections of its entire 200 kV and above transmission system. The additional aerial inspections,

September 24, 2007

which commenced last week, have identified additional vegetation within the Clearance 2 distances that PPL Electric is working expeditiously to remediate. PPL Electric expects that the additional system-wide aerial inspections will be completed by October 12, 2007. PPL Electric will immediately schedule any additional clearing work that may be required as a result of those inspections. Since the findings of the future aerial inspections are unknown, it is more difficult to predict when any additional remediation work to maintain Clearance 2 distances will be completed. However, PPL Electric estimates that all such work should be completed by the end of October 2007. PPL Electric will provide a further update to RFC once the aerial inspections are completed and it can establish a plan for remediation work. PPL Electric also will notify RFC when the additional remediation work has been completed and it has concluded that it is maintaining Clearance 2 distances throughout its system.

PPL Electric takes its responsibility to comply with all NERC Reliability Standards seriously. PPL Electric is voluntarily providing this communication to RFC to provide disclosure of the existence of encroachments and PPL Electric's efforts to assure their prompt elimination.

Should you have any questions regarding this communication, or require further information, please do not hesitate to contact me or David E. Schleicher, Vice President-Transmission, at 610-774-4411.

Regards,

A handwritten signature in black ink, appearing to read "David G. DeCampli". The signature is fluid and cursive, with the first name "David" and last name "DeCampli" clearly distinguishable.

David G. DeCampli  
President



**COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM**  
**VIOLATION SELF-REPORTING FORM**

*This Violation Self-Reporting Form can be used for submittals via e-mail or fax for violations of the Reliability Standards identified by a self-assessment.*

1. Reliability Standard (XXX-###-# or XXX-###-RFC-##) FAC-003-1
2. Violation(s): Check the appropriate box(s) to identify violation(s) of any of the applicable requirement(s) referenced in the standard.

**For violations of requirements with Levels of Non-Compliance or Violation Severity Levels (VSL) specified in the standard:**

- ☐ Entity is Level 1 Non-Compliance or has Lower VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_
- ☐ Entity is Level 2 Non-Compliance or has Moderate VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_
- ☒ Entity is Level 3 Non-Compliance or has High VSL for the following: requirement(s): R1.2 for function(s): TO
- ☐ Entity is Level 4 Non-Compliance or has Severe VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_

**For violations of requirements with no Levels of Non-Compliance or Violation Severity Levels specified in the standard:**

- ☒ Entity is in violation of requirement(s) not referenced in the Levels of Non-Compliance or Violation Severity Levels section of the standard:
- requirement(s): R2 for function(s): TO

3. Description of the violation: See attached. PPL Electric Utilities Corporation has disclosed the Reliability Requirements that it believes it may have violated. PPL Electric understands that RFC and/or NERC may or may not determine that a violation has occurred.

4. Additional information: See Attached

5. Mitigation Plan attached: ☒ Yes ☐ No

6. Officer Verification: I understand that this information is being provided as required by the ReliabilityFirst Compliance Monitoring and Enforcement Program. Any review of this violation will require all information certified on this form be supported by appropriate documentation.

Officer's Name: David G. DeCamp

Officer's Title: President - PPL Electric Utilities Corporation

Officer's e-mail address: dgdecamp@pplweb.com Phone: 610-774-4247

Registered Company Name: PPL Electric Utilities Corporation CDMS User ID: PAPL

Primary Compliance Contact (PCC)/Alternate: James Robinson/Elizabeth Davis

Email: jkrobinson@pplweb.com Phone: 610-774-4554 Date: 10/08/07

E-mail Submittals to: **compliance@rfirst.org** or Fax#: **330- 456-5408 – Attention Compliance Dept.**  
For any questions regarding compliance submittals, please e-mail: **compliance@rfirst.org**.



## **Attachment b**

**PPL EU's Self-Report for FAC-003-1 R2  
RFC200900142 dated June 12, 2009**



## COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM

### VIOLATION SELF-REPORTING FORM

*This Violation Self-Reporting Form can be used for submittals via e-mail or fax for violations of the Reliability Standards identified by a self- assessment.*

1. Date:
2. Registered Entity: PPL Electric Utilities Corporation
3. NERC Registry ID: NCR-00884 Joint Registration ID (JRO) (if applicable:)
4. Multiple Regional Registered Entity (MRRE) Regional Affiliates (if applicable:)
5. Reliability Standard  Requirement <sup>a</sup>:
6. Reporting for registered function(s):
7. Date Violation was Discovered:   
Beginning Date of Violation:   
End or Expected End Date of Violation:
8. Has this violation been previously reported: Yes ☐ or No ☒  
If yes, Provide NERC Violation ID number:
9. Has this violation been reported to another region(s): Yes ☐ or No ☒  
If yes, Provide Region(s):
10. Is the violation still occurring: Yes ☐ or No ☒
11. Detail description and cause of the violation:

PPL Electric Utilities Corporation ("PPL EU") contracted with a third party vendor in 2008 to conduct an overview of its Bulk Electric System using Light Detection and Ranging ("LIDAR") technology. The LIDAR technology identified one field verified Clearance 2 ("C2") encroachment on the 230 kV system that existed without adjustment for maximum sag. The encroachment was remediated within the time frame required by the PPL EU Transmission Vegetation Management Plan ("TVMP"). This encroachment had not been previously identified by helicopter patrols that were performed as scheduled

and as requested by PPL EU management, by foot patrols or by other means. No contact occurred, and there was no operating impact from this encroachment. Also see item 14 below.

The LIDAR results also identified a significant number of suspected C2 encroachments under computed maximum sag calculations. Following PPL EU Transmission Engineering review of LIDAR maximum sag profiles, these encroachments were also remediated within the time frames established within PPL EU's TVMP.

12. Violation Risk Factor: Lower ( ) – Medium ( ) – High (X) – Not Specified ( ) Select One

13. Violation Severity Level: Lower (X) – Moderate ( ) – High ( ) – Severe ( ) Select One

Provide justification for this determination:

Interpretation of the VRF & VSL matrices, considering we both have a plan and have implemented the plan.

14. Provide a determination of the Potential Impact to the Bulk Electric System:

PPL EU operates the system to first contingency limits. If this (or any other) line had tripped, the remainder of the system would have remained stable, secure, and all facilities operating within applicable voltage and thermal limits, and with no loss of supply to customers.

15. Mitigation Plan attached: Yes ☒ or No ☐

16. Additional Comments:

17. Officer Verification: I understand that this information is being provided as required by the Reliability *First* Compliance Monitoring and Enforcement Program. Any review of this violation will require all information certified on this form be supported by appropriate documentation.

Officer's Name: David G. DeCampli

Title: President PPL Electric Utilities

E-mail address : DGDeCampli@pplweb.com

Phone:

Primary Compliance Contact:

E-mail address: gjbast@pplweb.com

Phone:

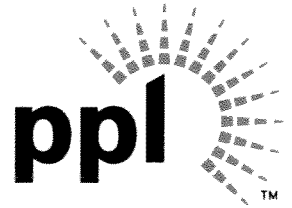
**E-mail Submittals to [compliance@rfirst.org](mailto:compliance@rfirst.org) Subject Line: Violation Self-Report**  
**For any questions regarding compliance submittals, please e-mail [compliance@rfirst.org](mailto:compliance@rfirst.org).**

<sup>a</sup>. Report on a requirement basis. If the violation is to a sub requirement, or multiple sub requirements, include all sub requirements relevant to this violation.

**Attachment c**

**PPL EU's Self-Report for EOP-004-1 R3.1  
RFC200900117 dated January 2; , 2009**

**David G. DeCampi**  
President



**PPL Electric Utilities**

Two North Ninth Street, GENN5  
Allentown, PA 18101-1179  
Tel. 610.774.4247 Fax 610.774.2881

**BY ELECTRONIC MAIL**

January 29, 2009

Raymond J. Palmieri  
Vice President and Director – Compliance  
ReliabilityFirst Corporation  
320 Springside Drive  
Suite 300  
Akron, OH 44333

RE: PPL Electric Utilities Corporation, Self-Report and Proposed Mitigation Plan, Reliability Standard EOP-004-1, R3.1.

Dear Mr. Palmieri:

PPL Electric Utilities Corporation ("PPL Electric Utilities"), which, among other things, is a registered Load Serving Entity, is writing to inform ReliabilityFirst Corporation ("ReliabilityFirst") of a potential violation of Reliability Standard EOP-004-1, Requirement R.3.1.

In preparing for an upcoming ReliabilityFirst audit next month, PPL Electric Utilities management became aware that two previous storm incidents (each of which resulted in the loss of more than 50,000 customers for more than one hour) had not been timely reported to the U.S. Department of Energy ("DOE") in accordance with DOE Form OE-417. Upon discovering that Form OE-417 had not been previously submitted in connection with storm-related outages on December 16, 2007, and June 10, 2008, PPL Electric Utilities promptly submitted such forms to DOE on January 21, 2009, with a copy to NERC and ReliabilityFirst, as set forth in EOP-004, R3.1. Both storm events were timely reported, however, to the Pennsylvania Public Utility Commission, which regulates PPL Electric Utilities' provision of retail electric service. The customer outages were associated with storm-related damage to the 69 kV and the 12 kV system, not the Bulk Electric System.

PPL Electric Utilities is filing this self-report and accompanying Mitigation Plan to help ensure that future outages affecting more than 50,000 customers for one hour or more will be timely reported in accordance with applicable DOE and



NERC requirements. Our proposed mitigation efforts include the following: First, PPL Electric Utilities will determine whether a change to its computer systems to proactively notify responsible reporting managers when more than 50,000 customers are out of service is feasible. If so, such modification will be made to the computer system. Second, PPL Electric Utilities will revise existing written reporting processes and procedures to assure compliance with applicable requirements of Reliability Standard EOP-004-1, including submitting Form OE-417 when a disturbance or an unusual event results in more than 50,000 customers being out of service for one hour or more. Third, PPL Electric Utilities will train all responsible managers relative to the submission of such reports to comply with the applicable requirements of Reliability Standard EOP-004. These revised procedures and additional training will help strengthen PPL Electric Utilities' compliance efforts with respect to required reporting under the reliability standard.

Should you have any questions or require further information regarding this matter, please do not hesitate to contact me or David E. Schleicher, Vice President-Transmission, at 610-774-4411.

Respectfully,

A handwritten signature in dark ink, appearing to read "David G. DeCamp", followed by a small, stylized flourish or mark.

David G. DeCamp  
President



**COMPLIANCE MONITORING AND ENFORCEMENT PROGRAM**  
**VIOLATION SELF-REPORTING FORM**

*This Violation Self-Reporting Form can be used for submittals via e-mail or fax for violations of the Reliability Standards identified by a self-assessment.*

1. **Reliability Standard** (XXX-###-# or XXX-###-RFC-##) EOP-004-1
2. **Violation(s):** Check the appropriate box(s) to identify violation(s) of any of the applicable requirement(s) referenced in the standard.

**For violations of requirements with Levels of Non-Compliance or Violation Severity Levels (VSL) specified in the standard:**

- ☒ Entity is Level 1 Non-Compliance or has Lower VSL for the following: requirement(s): R3.1 for function(s): LSE
- ☐ Entity is Level 2 Non-Compliance or has Moderate VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_
- ☐ Entity is Level 3 Non-Compliance or has High VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_
- ☐ Entity is Level 4 Non-Compliance or has Severe VSL for the following: requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_

**For violations of requirements with no Levels of Non-Compliance or Violation Severity Levels specified in the standard:**

- ☐ Entity is in violation of requirement(s) not referenced in the Levels of Non-Compliance or Violation Severity Levels section of the standard:

requirement(s): \_\_\_\_\_ for function(s): \_\_\_\_\_

3. **Description of the violation:** PPL Electric Utilities Corporation believes that it may have violated R.3.1 by not submitting US Department of Energy Form OE-417 within 24-hours of the loss of more than 50,000 customers for an hour or more in connection with two storm-related outages, as described in the attached Mitigation Plan. PPL Electric Utilities understands that ReliabilityFirst Corporation and/or North American Electric Reliability Corporation may or may not determine that a violation has occurred.

4. **Additional information:** See attached.

5. **Mitigation Plan attached:** ☒ Yes ☐ No

6. **Officer Verification:** I understand that this information is being provided as required by the ReliabilityFirst Compliance Monitoring and Enforcement Program. Any review of this violation will require all information certified on this form be supported by appropriate documentation.

**Enter NERC Registry ID#** 00884

Officer's Name: David G. DeCampli

Officer's Title: President - PPL Electric Utilities Corporation

Officer's e-mail address: dgdecampli@pplweb.com Phone: 610-774-4247

Registered Company Name: PPL Electric Utilities Corporation

Primary Compliance Contact/Secondary: David Schleicher / Elizabeth Davis

Email: deschleicher@pplweb.com

Phone: 610-774-4411

Date: 1/28/09

**E-mail Submittals to [compliance@rfirst.org](mailto:compliance@rfirst.org) Subject Line: Violation Self-Report**  
**For any questions regarding compliance submittals, please e-mail [compliance@rfirst.org](mailto:compliance@rfirst.org).**

## **Attachment d**

**PPL EU's Self-Certification for PRC-005-1R 2.1  
""""RFC200900185 September 30, 2009**

Logged in as:

Barry Skoras

Log Out

System Administration

Committees

Compliance

PRC-005-1 Self Certification (All Functions) - 2009

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New Mitigation Plan | Attachments (0)

This form was marked as ready to be added to a certification statement on 9/30/2009.

\* Required Fields

Status: Saved

## Technical Contact

\* Barry Skoras (bjskoras@pplweb.com) Find | Clear | New Contact

Notice: Prior to submitting this self-certification form, you are directed to review the complete text of the applicable reliability standard (including interpretations) that is found at [www.nerc.com](http://www.nerc.com). Each registered entity should evaluate its compliance with the official standard in preparing this filing.

Evidence must be retained to support the responses to this Self-Certification, including any follow-up investigation, until the completion of the next scheduled audit, unless the NERC or Regional Entity advises otherwise.

ReliabilityFirst 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.

This self-certification covers the Reporting Period for 2009. The response to the certification should accurately reflect the entity's compliance status for the entire Reporting Period.

## Applicable Function(s): TO,DP

As an authorized representative of **PPL Electric Utilities Corporation**, I certify the following:

1. **PPL Electric Utilities Corporation** was in Compliance with the NERC Reliability Standard PRC-005-1 for the entire Reporting Period.
2. **PPL Electric Utilities Corporation** is Not in Compliance for a portion of or the entire Reporting Period with the following requirement(s) of NERC Reliability Standard PRC-005-1 (indicated by checkmark) but was in compliance with all other requirements of the standard for the entire Reporting Period.
  - ☒ **PPL Electric Utilities Corporation** is indicating a possible violation that has **not** been previously identified to ReliabilityFirst.
  - ☒ **PPL Electric Utilities Corporation** is indicating a possible violation that was **previously identified to ReliabilityFirst**. Provide issues tracking number, if known.

Check all requirements for which PPL Electric Utilities Corporation was Not in Compliance for a portion of or the entire Reporting Period:

- ☒ **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:

- ☒ **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

PPL Electric Utilities Corporation ("PPL EU") currently excludes 230/69 kV transformer protective relays and associated 69 kV breaker failure relays from the scope of its PRC-005 program. These relays are not tested in accordance with the 4-year testing interval defined by PPL EU for Bulk Electric System (BES) relays. In some recent RFC interpretations of PRC-005, RFC has indicated that some lower voltage facilities are included as part of the BES. Thus, erring on the side of caution, PPL EU is reporting non-compliant because of a possible violation of PRC-005.

Violation Severity Level

VSL - Lower

Enter date of alleged violation

6/18/2007

Enter time of alleged violation

hh:mm:ss

ê R1.2. Summary of maintenance and testing procedures.

ê 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:

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

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

jñ 3. The NERC Reliability Standard PRC-005-1 **does not** apply to **PPL Electric Utilities Corporation** because

Additional Comments:

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b Ready to Create Certification Statement

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**Attachment e**

**Settlement Agreement by and between  
ReliabilityFirst and PPL EU executed December  
22, 2009**





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In re PPL Electric Utilities Corporation	)	
NERC Registry ID: NCR00884	)	<b>DOCKET NUMBERS</b>
	)	<b>RFC200700007</b>
	)	<b>RFC200900117</b>
	)	<b>RFC200900142</b>
	)	<b>RFC200900185</b>

**SETTLEMENT AGREEMENT  
OF  
RELIABILITYFIRST CORPORATION  
AND  
PPL ELECTRIC UTILITIES CORPORATION**

**I. INTRODUCTION**

1. ReliabilityFirst Corporation (“ReliabilityFirst”) and PPL Electric Utilities Corporation (“PPL EU”) enter into this Settlement Agreement (the “Agreement”) to resolve all outstanding issues arising from a preliminary and non-public investigation resulting in ReliabilityFirst’s determination and findings, pursuant to the North American Electric Reliability Corporation (“NERC”) Rules of Procedure, of violations by PPL EU of NERC Reliability Standards FAC-003-1, Requirement 2 (RFC200700007 and RFC200900142), EOP-004-1, Requirement 3.1 (RFC200900117), and PRC-005-1, Requirement 2.1 (RFC200900185).

**II. STIPULATION OF FACTS**

2. The facts stipulated herein are stipulated solely for the purpose of resolving between PPL EU and ReliabilityFirst the matters discussed herein and do not constitute stipulations or admissions for any other purpose. PPL EU and ReliabilityFirst hereby stipulate and agree to the following:

**A. Background**

3. PPL EU is a subsidiary of PPL Corporation and is based in Allentown, Pennsylvania. Through various subsidiaries, PPL Corporation owns transmission and generation facilities within the ReliabilityFirst region. PPL EU manages approximately 1,400 miles of 200 kilovolt (“kV”) and above transmission lines. PPL EU is registered as a Transmission Owner (“TO”), Distribution Provider (“DP”), Load Serving Entity (“LSE”), and Purchasing Selling Entity (“PSE”) in the ReliabilityFirst region with the NERC Registry identification number

NCR00884. Therefore, PPL EU is subject to the Reliability Standards addressed herein.

**B. Alleged Violations**

4. This Settlement Agreement addresses four alleged violations of NERC Reliability Standards. First, this Settlement Agreement addresses two separate alleged violations of FAC-003-1, Requirement 2. Second, this Settlement Agreement addresses one alleged violation of EOP-004-1, Requirement 3.1. And third, this Settlement Agreement addresses one alleged violation of PRC-005-1, Requirement 2.1.

**i. RFC200700007 and RFC200900142: Alleged Violations of FAC-003-1, Requirement 2**

5. NERC Reliability Standard FAC-003-1, “Transmission Vegetation Management Program”, Requirement 2, states:

*The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.*

6. On September 24, 2007, PPL EU submitted to ReliabilityFirst a letter in which PPL EU informed ReliabilityFirst of vegetation encroachments within the “Clearance 2” distances set forth in the PPL EU Transmission Vegetation Management Plan (“PPL EU TVMP”). The PPL EU TVMP was created to comply with Reliability Standard FAC-003-1.
7. PPL EU explained that it first discovered these encroachments after a momentary outage on PPL EU’s Hosensack-Steel City 500 kV transmission line on August 8, 2007. That outage triggered an internal review of PPL EU’s vegetation management practices that revealed a number of Clearance 2 encroachments that were identified during annual aerial inspections in May or June of 2007 but not immediately scheduled for remediation. Instead, PPL EU forestry personnel deemed these encroachments not to be immediate threats and scheduled them for

future vegetation work. The momentary outage caused PPL EU management to determine that certain clearing work had been deferred rather than being conducted immediately. The deferred work was subsequently scheduled for clearing and completed in September 2007.

8. Additionally, PPL EU undertook another aerial inspection in September of 2007 to determine whether the previously-scheduled work was performed successfully and to assess whether more Clearance 2 encroachments existed. This aerial inspection revealed more instances of vegetation within the Clearance 2 distance on 230 kV and 500 kV transmission lines, two of which were determined to be within the IEEE minimum clearance distance. PPL EU conducted the requisite clearing work relating to the September 2007 aerial inspection findings by November 8, 2007.
9. PPL EU followed the September 24, 2007 letter by submitting a Compliance Monitoring and Enforcement Program (“CMEP”) Violation Self-Reporting Form, dated October 8, 2007 (the “2007 Self-Report”) in which PPL EU described possible non-compliance with FAC-003-1, Requirement 1.2 and Requirement 2. ReliabilityFirst, after reading the 2007 Self-Report in light of FAC-003-1, determined that dismissing the possible alleged violation of FAC-003-1, Requirement 1.2 was appropriate and proceeded accordingly. ReliabilityFirst assigned this alleged violation the violation identification number RFC200700007.
10. ReliabilityFirst issued its findings to PPL EU on February 27, 2008 in the form of a Notice of Alleged Violation and Proposed Penalty or Sanction (“NAVAPS”). Considering the momentary nature of the outage on the Hosensack-Steel City transmission line, as well as PPL EU’s swift action to mitigate the encroachments, ReliabilityFirst exercised its discretion and proposed a penalty of zero dollars.<sup>1</sup> On March 24, 2008, PPL EU issued its response to the NAVAPS via letter, informing ReliabilityFirst that PPL EU accepted the findings of the NAVAPS.
11. In accordance with the NERC Rules of Procedure, including Appendix 4C and the ReliabilityFirst CMEP, on September 18, 2008, ReliabilityFirst next issued a Notice of Confirmed Violation (“NOCV”), informing NERC of its determinations. On March 20, 2009, the NERC Board of Trustees Compliance Committee (“BOTCC”) remanded the NOCV to ReliabilityFirst for further proceedings.<sup>2</sup> In doing so, the BOTCC stated, “[T]he BOTCC hereby rejects the \$0 penalty financial penalty proposed by [ReliabilityFirst] for this violation and directs [ReliabilityFirst] to impose a financial penalty on PPL [EU] that, after

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<sup>1</sup> See Mandatory Reliability Standards for the Bulk-Power System, 118 FERC ¶ 61,218, P 223 (2007)(“By directing the ERO [NERC] and Regional Entities to focus their resources on the most serious violations through the end of 2007, the ERO and Regional Entities will have the discretion necessary to assess penalties for such violations, while also having discretion to calculate a penalty without collecting the penalty if circumstances warrant.”).

<sup>2</sup> See “Decision of the NERC Board of Trustees Compliance Committee to Remand the ReliabilityFirst Corporation’s Notice of Confirmed Violation for Further Proceedings,” March 20, 2009, NOC ID# NOC-074.

addressing the issues identified and discussed above, is proportionate to those financial penalties applied in other cases of the same Reliability Standard with similar facts and circumstances.”

12. Additionally, on June 12, 2009, PPL EU submitted to ReliabilityFirst a Compliance Monitoring and Enforcement Program Violation Self-Reporting Form in which PPL EU reported a Clearance 2 encroachment on its 230 kV Quarry-Northwood transmission line in potential violation of FAC-003-1, Requirement 2. ReliabilityFirst assigned this alleged violation the violation identification number RFC200900142.
13. PPL EU explained that in the wake of its previous alleged violation of FAC-003-1, Requirement 2 it had contracted with a third party vendor in 2008 to conduct an overview of its Bulk Electric System (“BES”) transmission lines using Light Detection and Ranging (“LIDAR”) technology. This technology was deployed on a trial basis to assess the efficacy of the technology and to compare its results with those yielded by the conventional annual aerial inspection of the BES dictated by the PPL EU TVMP that had been conducted in the spring of 2008. On September 10, 2008, the LIDAR vendor reported the aforementioned Clearance 2 encroachment on the Quarry-Northwood transmission line to PPL EU, and on the same day, PPL EU confirmed in the field that the vegetation was in fact encroaching within the Clearance 2 distance. The PPL EU TVMP requires that 230 kV transmission lines maintain a Clearance 2 distance of 5.2 feet. In this case, vegetation along the Quarry-Northwood transmission line had grown to within 3.84 feet of the as-observed position of the line.<sup>3</sup> On September 11, 2008, PPL EU cleared the vegetation according to the procedures in the PPL EU TVMP. LIDAR identified this encroachment that had not been detected by the conventional aerial patrols previously conducted.
14. PPL EU also informed ReliabilityFirst on March 26, 2009 via conference call that based on data provided by the LIDAR vendor, PPL EU calculated additional areas with possible Clearance 2 encroachments. Vegetation at the locations of these possible Clearance 2 encroachments was not observed to be encroaching within the Clearance 2 distances. The LIDAR vendor, however, calculated that if PPL EU were to operate its transmission system such that its transmission lines were at maximum sag conditions Clearance 2 encroachments would occur. Although PPL EU had not developed a mechanism for validating the accuracy of the maximum sag adjusted results provided by the LIDAR vendor, PPL EU cleared the vegetation at 230 areas near the LIDAR calculated maximum sag Clearance 2 encroachments in the timeframe established within the PPL EU TVMP prior to submitting a self-report. Accordingly, ReliabilityFirst was unable conclusively to determine whether any of these were in fact Clearance 2 encroachments at maximum sag conditions.

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<sup>3</sup> “As-observed” refers to the position of the line under current operating conditions regardless of the means used to make the observation.

15. Based upon its trial experience with LIDAR in 2008, PPL EU found it a very effective tool to measure as-observed vegetation to conductor conditions. PPL EU's experience was that LIDAR results are conservative when applied to assess maximum sag adjusted conditions. Nonetheless, because it found LIDAR to be superior to its traditional aerial patrols, PPL EU deployed LIDAR across its BES transmission lines again in the fall of 2009. At this time, PPL EU instituted a process to conduct an engineering review of the LIDAR maximum sag adjusted results, and initiated discourse with its vendor to seek improvements that would increase the utility of the technology in the maximum sag adjusted area. No as-observed Clearance 2 conditions were reported based upon the 2009 LIDAR survey.
16. ReliabilityFirst alleges that PPL EU failed to create and implement an annual plan for vegetation management work to ensure the reliability of its system in violation of FAC-003-1, Requirement 2.

**ii. RFC200900117: Alleged Violation of EOP-004-1, Requirement 3.1**

17. NERC Reliability Standard EOP-004-1, "*Disturbance Reporting*," Requirement 3, states, "*A Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity experiencing a reportable incident shall provide a preliminary written report to its Regional Reliability Organization and NERC.*" Furthermore, Sub-requirement 3.1 states:

*R.3.1. The affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity shall submit within 24 hours of the disturbance or unusual occurrence either a copy of the report submitted to [Department of Energy], or, if no DOE report is required, a copy of the NERC Interconnection Reliability Operating Limit and Preliminary Disturbance Report form. Events that are not identified until some time after they occur shall be reported within 24 hours of being recognized.*
18. On January 28, 2009, PPL EU submitted a self-report, in which it identified possible non-compliance with EOP-004-1, Requirement 3.1. In an accompanying letter, PPL EU explained that in the course of preparing for a ReliabilityFirst compliance audit, it discovered two reportable incidents which had not previously been reported to the Department of Energy ("DOE"), NERC, and ReliabilityFirst.
19. Specifically, PPL EU experienced two separate weather related outages on its system. The first outage occurred on December 16, 2007, as a result of an ice storm. The second outage occurred on June 10, 2008, as a result of a storm producing thunder and lightning. In each case, more than 50,000 PPL EU customers lost service for one hour or more, meaning that PPL EU was required to report these outages to the DOE.

20. PPL EU in fact reported each incident to the Pennsylvania Public Utility Commission (“Pennsylvania PUC”), as required by Pennsylvania law. The December 16, 2007 outage was reported to the Pennsylvania PUC on January 3, 2008, and the June 10, 2008 outage was reported on June 19, 2008.
21. Both events were limited to the PPL EU distribution system. No BES facilities were out of service during this time period.
22. Despite reporting both incidents to the Pennsylvania PUC, PPL EU failed to file a Form OE-417 with the DOE.<sup>4</sup> According to EOP-004-1, Requirement 3.1, when a report is filed with the DOE, the entity must submit a copy of the report submitted to DOE to ReliabilityFirst and NERC within 24 hours of the disturbance. In this case, PPL EU did not submit the required preliminary Schedule 1 of Form OE-417 to the DOE within 24 hours, and thus was unable to meet its obligation timely to provide a copy to ReliabilityFirst and NERC.
23. EOP-004-1, Requirement 3.1 provides a safe harbor for entities that do not discover disturbances until some time after they occur, allowing those entities to report those disturbances within 24 hours of their discovery. In this case, however, ReliabilityFirst reviewed PPL EU’s records from the days on which the respective storms occurred and determined that PPL EU was clearly aware of the events. Furthermore, PPL EU submitted its reports to the Pennsylvania PUC, which show that PPL EU was aware of both events months before reporting them to the DOE, NERC, and ReliabilityFirst.
24. ReliabilityFirst alleges that PPL EU failed to provide a copy of the report submitted to the DOE to NERC and ReliabilityFirst within 24 hours of the disturbances or unusual occurrences in question contrary to EOP-004-1, Requirement 3.1.

**iii. RFC200900185: Alleged Violation of PRC-005-1, Requirement 2.1**

25. NERC Reliability Standard PRC-005-1, Requirement 2 states, “*Each Transmission Owner and any Distribution Provider that owns a transmission 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:*

*R.2.1 Evidence Protection System devices were maintained and tested within the defined intervals.”*

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<sup>4</sup> Form OE-417, also called the “Electric Emergency Incident and Disturbance Report,” is a required filing when entities experience certain events. In this case, loss of electric service to more than 50,000 customers for one (1) hour or more, entities must file a preliminary Schedule 1 of Form OE-417 within six (6) hours of the incident.

26. On September 30, 2009, PPL EU self-certified non-compliance with PRC-005-1, Requirement 1. Subsequently on October 6, 2009, PPL EU submitted a Violation Self-Reporting Form to ReliabilityFirst which explained PPL EU's reasons for believing it was not compliant with that standard. Specifically, PPL EU explained that it has in place a "transmission and substation Protection System Testing and Maintenance Program for networked facilities 138 kV and above (transmission), for 69 kV and radial 138 kV facilities (sub-transmission), and for below 69 kV facilities (distribution)."
27. According to PPL EU, the three-tiered Testing and Maintenance Program described above had been developed under the mistaken belief that PRC-005-1 was inapplicable to all its sub-transmission and distribution facilities. Those facilities are below the ReliabilityFirst BES Definition voltage threshold of 100 kV. In fact, PRC-005-1 does apply to certain sub-transmission facilities because, according to the BES Definition, those facilities are "associate auxiliary and protection and control system equipment that could automatically trip a BES facility." This mistaken reasoning was brought to PPL EU's attention through an official interpretation performed by ReliabilityFirst at the request of another Registered Entity. PPL EU reviewed this interpretation in the course of preparing for its September 30, 2009 self-certification and, after doing so, determined that it should self-certify non-compliance with PRC-005-1.
28. There are approximately 5,800 protective relays included in the PPL EU transmission Protection System Maintenance and Testing Program for BES facilities. The facilities classified "transmission" are subject to testing on a four year testing interval, and the facilities classified "sub-transmission" are subject to testing on a six year testing interval.
29. ReliabilityFirst determined that in addition to the 5,800 devices currently included in PPL EU's PRC-005-1 Maintenance and Testing Program, 695 "sub-transmission" protective relays are also within the scope of PRC-005-1. Of these 695 devices, PPL EU produced testing records showing that 126 devices were beyond the six year testing interval but were recently tested and that 74 devices are currently beyond the six year testing interval and are awaiting testing. Therefore, a total of 200 devices are or were beyond the PPL EU Maintenance and Testing Program testing interval contrary to PRC-005-1.
30. Questions surrounding the BES Definition and its exclusions have caused much confusion in the electric utility industry. Since March of 2008, ReliabilityFirst has received nine requests for interpretations of its BES Definition. In most of these requests, the Registered Entity submitting the request seeks clarification as to precisely which of its facilities that are below 100 kV will be considered BES facilities, precisely the issue PPL EU faced. Given this, ReliabilityFirst and PPL EU expressly recognize that the confusion underlying this issue is not isolated to PPL EU.



31. Reliability*First* alleges that PPL EU failed to produce documentation that 200 of its Protection System devices were maintained and tested within the defined intervals for those devices.

### **III. PARTIES' SEPARATE REPRESENTATIONS**

#### **A. STATEMENT OF RELIABILITY*FIRST* AND SUMMARY OF FINDINGS**

32. Reliability*First* considers this Agreement as the resolution of all issues with regard to the above-captioned docket numbers.

33. Reliability*First* found commendable and noteworthy certain aspects of PPL EU's corporate compliance program, specifically the support of senior management and the PPL EU executive team, as evidenced by the following examples. PPL EU's senior management provides final approval of the annual internal compliance certification performed for each Reliability Standard applicable to PPL EU. Furthermore, the PPL EU NERC compliance program has effective and systematic preventive measures for reporting and handling conditions that do not conform to PPL EU's NERC compliance program. If these non-conforming conditions rise to the level of potential non-compliance with NERC Reliability Standards, PPL EU senior management is informed. Members of management participate in an internal Compliance Oversight Group, which meets regularly to address compliance-related matters. From time to time, these meetings include sessions to discuss NERC-related compliance matters with the Senior Director – NERC Compliance and other personnel responsible for NERC compliance. Members of the Compliance Oversight Group include PPL Corporation's Senior Director of Business Ethics/Compliance, the Executive Director of Corporate Audit Services, and the Chief Compliance Officer. The Senior Vice President, General Counsel and Secretary of PPL Corporation is the Chief Compliance Officer and has a direct line of communication with the Chief Executive Officer. PPL EU has trained personnel who are directly affected by the reliability requirements and has held special training sessions for members of senior management. Each of the alleged violations was reported to Reliability*First* by PPL EU. Based upon the information provided above, Reliability*First* has determined that the internal compliance program at PPL EU is excellent in strength and quality.

34. Reliability*First* agrees that this Agreement is in the best interest of the parties and in the best interest of BES reliability.

#### **B. STATEMENT OF PPL ELECTRIC UTILITIES CORPORATION**

35. For purposes of this Agreement, PPL EU neither admits nor denies that the facts set forth and agreed to by the parties for purposes of this Agreement constitute violations of the applicable Reliability Standards. PPL Corporation takes its compliance responsibilities seriously and has dedicated substantial resources to

developing and implementing its corporate compliance program. As a result of activities such as periodic internal compliance reviews and other efforts designed to identify possible areas of non-compliance, PPL EU discovered the issues discussed in this Agreement, each of which it self-reported. PPL EU continues to take steps to refine and improve its compliance program.

36. PPL EU is a member of the NERC Transmission Owners and Operators Forum. As noted on the Forum's website, "The Transmission Owners and Operators Forum's members include investor-owned, state-authorized, municipal, cooperative, U.S. federal, and Canadian provincial utilities. The forum promotes the highest levels of reliability in the operation of electric transmission systems." PPL EU participates in the Forum's Vegetation Management practice area, which was formed in 2008. Through discussions, web conferences, and in-person meetings, the Forum members share best and superior practices for Vegetation Management with the goal of reducing vegetation contact incidents and thereby improving transmission system reliability. PPL EU employees have also been active participants on peer review teams, assessing the operations of fellow members and identifying opportunities for improvement across a broad range of operations categories.
37. PPL EU agrees to enter into this Agreement with ReliabilityFirst 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. PPL EU agrees that this 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**

38. It is understood that ReliabilityFirst staff shall audit the progress of outstanding mitigation plans and any other remedies set forth in this Agreement, including, but not limited to, site inspection and interviews, and request other documentation to validate progress or completion of the outstanding mitigation plans and any other remedies of this Agreement. ReliabilityFirst shall reasonably coordinate audits and information requests related to this Agreement with PPL EU.

##### **A. MITIGATING ACTIONS**

39. PPL EU has taken or will take the following actions to mitigate the violations of FAC-003-1, Requirement 2, EOP-004-1, Requirement 3.1, and PRC-005-1, Requirement 2.1, respectively.

##### **i. FAC-003-1, Requirement 2; RFC200700007 and RFC200900142**

40. In order to completely mitigate the alleged violation of FAC-003-1, Requirement 2, captioned RFC200700007, PPL EU submitted a Mitigation Plan on October 8, 2007. See Attachment a, Mitigation Plan MIT-07-0216.

41. In this Mitigation Plan, PPL EU committed to put in place systems and procedures to ensure that work required by the PPL EU TVMP would be completed according to work specifications. PPL EU also committed to correct issues with the implementation of the PPL EU TVMP identified up to that point. To prevent recurrences of this alleged violation, PPL EU clarified and enhanced the PPL EU TVMP and trained its vegetation management personnel and contractors on these revisions. In order to pursue clearance of vegetation from its transmission corridors beyond Clearance 2 distances, PPL EU commissioned a second system-wide aerial patrol in the fall of 2007, followed by ground-based field reviews of locations identified by the aerial patrol for clearing work. PPL EU then cleared vegetation beyond Clearance 2 distances on its 230 and 500 kV BES as identified by the verified aerial report findings. This clearing work was completed by November 8, 2007.
42. PPL EU certified that this Mitigation Plan was complete on November 8, 2007. On June 5, 2008, at ReliabilityFirst's request, PPL EU submitted evidence supporting the certification of the Mitigation Plan's completion. ReliabilityFirst analyzed this evidence and verified the Mitigation Plan complete on August 19, 2008. *See* Attachment b, Certification of Mitigation Plan Completion; *see also* Attachment c, Summary and Review of Evidence of Mitigation Plan Completion.
43. Furthermore, in order to completely mitigate the alleged violation of FAC-003-1, Requirement 2, captioned RFC200900142, PPL EU submitted a Mitigation Plan on September 23, 2009. *See* Attachment d, Mitigation Plan MIT-08-2044. According to the September 23, 2009 Mitigation Plan, PPL EU cleared vegetation at the site of the one confirmed, and the sites of the other suspected, Clearance 2 encroachments. This clearing work was complete as of March 25, 2009.
44. PPL EU also committed to developing training materials and conducting training designed to better inform vegetation management personnel of the reporting requirements relating to Clearance 2 encroachments. This training was completed by October 30, 2009.
45. PPL EU will also revise the PPL EU TVMP to clarify several areas. First, the PPL EU TVMP will be revised to make clear that field verified Clearance 2 encroachments must be reported through the PPL Corporation NERC Non-Conformance process. Second, the PPL EU TVMP will make clear that field verified as-observed Clearance 2 encroachments must be treated as "imminent threats" as that term is used in the PPL EU TVMP. Finally, third, the PPL EU TVMP will require suspected Clearance 2 encroachments at maximum sag conditions to be assessed to determine whether they represent an "imminent threat." All such revisions to the PPL EU TVMP will be complete no later than December 31, 2009.
46. Also included in the proposed Mitigation Plan is additional LIDAR work. Throughout the Fall of 2009, PPL EU has evaluated its transmission system once

again using LIDAR to determine the efficacy of its clearing efforts. The results of the Fall 2009 LIDAR evaluation will be reported to ReliabilityFirst no later than December 31, 2009.

47. When this Mitigation Plan is completed according to its terms, PPL EU will be in full compliance with FAC-003-1 and will have implemented effective measures to promote future compliance with this standard.

**ii. EOP-004-1, Requirement 3.1; RFC200900117**

48. In order to completely mitigate the alleged violation of EOP-004-1, Requirement 3.1, captioned RFC200900117, PPL EU submitted a Mitigation Plan on January 28, 2009. See Attachment e, Mitigation Plan MIT-07-1434. ReliabilityFirst accepted the final Proposed Mitigation Plan on February 25, 2009 and submitted it for NERC approval on March 3, 2009. The Mitigation Plan was approved by NERC on March 9, 2009.
49. In the Mitigation Plan, PPL EU committed to perform several actions that it believed would completely mitigate the alleged violation of EOP-004-1, Requirement 3.1 and promote future compliance with the same. First, PPL EU proposed training, focused on reporting requirements, for its Storm Emergency Managers and Power System Dispatchers. Second, PPL EU proposed implementing an automatic paging system that would page certain of PPL EU's managers when the number of customers without power as a result of a disturbance reached 50,000. And third, PPL EU proposed revisions to its procedures and instruction manuals that would make explicit the reporting requirements and which types of disturbances triggered which reporting requirements.
50. On April 20, 2009, PPL EU, through a duly authorized officer, certified that the aforementioned Mitigation Plan was complete. See Attachment f, Certification of Mitigation Plan Completion. In order to verify the Mitigation Plan's completion, ReliabilityFirst reviewed the two Form OE-417 documents relating to the disturbances in question submitted by PPL EU to the DOE on January 21, 2009. ReliabilityFirst also reviewed PPL EU's reporting procedures, including a revision that makes explicit PPL EU's duty to disclose reportable events to DOE, NERC, and ReliabilityFirst. Furthermore, ReliabilityFirst reviewed PPL EU's Storm Room Manual, which was revised to ensure that Storm Emergency Managers are aware of PPL EU's reporting obligations. Finally, ReliabilityFirst reviewed screenshots of test emails demonstrating implementation of the automatic paging system described above.
51. On September 11, 2009, ReliabilityFirst verified that the Mitigation Plan was completed according to its terms. See Attachment g, Summary and Review of Evidence of Mitigation Plan Completion.

**iii. PRC-005-1, Requirement 2.1; RFC200900185**

52. On December 3, 2009 PPL EU submitted a Mitigation Plan that ReliabilityFirst accepted on December 10, 2009. See Attachment h, Mitigation Plan MIT-07-2184. NERC approved the Mitigation Plan on December 18, 2009 and submitted it to the Commission as non-public information.
53. In that Mitigation Plan, PPL EU committed to amend its Protection System Maintenance and Testing Program to clarify which of its “sub-transmission” facilities must be tested in accordance with PRC-005-1, train employees on those amendments, and complete the required maintenance and testing of all the identified facilities. PPL EU has committed to complete this work by June 30, 2010. When completed, this Mitigation Plan will have brought PPL EU into full compliance with PRC-005-1. ReliabilityFirst will verify as such when appropriate.

**B. REMEDIES**

54. Actions that would ordinarily be required by PPL EU as a part of an acceptable Mitigation Plan shall be insufficient as a sole basis for a substantial reduction in penalty. Any offer by PPL EU must be for actions and commitments that exceed those that would be expected to achieve baseline compliance. Actions that serve to enhance the reliability, within PPL EU alone or through the industry as a whole, of the BES may justify a penalty reduction. ReliabilityFirst will monitor PPL EU’s progress in accordance with ReliabilityFirst’s Compliance Monitoring and Enforcement Process, tracking all milestones, and evaluating all requested extensions as such. The following commitments enhance reliability of the BES beyond mere baseline compliance with the Reliability Standards.
55. In 2008, PPL EU commissioned the use of LIDAR technology on a trial basis as a supplement to the traditional means (aerial patrols and ground-based patrols) of assessing its BES. The expenditures associated with the introduction of LIDAR in 2008 included one-time set-up costs, the costs of conducting the LIDAR patrol and the cost of conducting remediation. Based upon its conclusion that the LIDAR tool provided greater accuracy in measuring distances between conductors and vegetation than other means historically employed, PPL EU again commissioned the use of LIDAR across its BES in 2009. LIDAR was deployed these years in addition to, rather than in lieu of, traditional aerial patrols. PPL EU has included the continued use of LIDAR in its future business plan over the next three years. PPL EU’s total LIDAR related expenditures from 2008 through 2012 are expected to exceed \$3.5 million. Cost estimates provided include only outlays to third parties and exclude future remediation work. Actual costs when considering internal resource commitments are higher.
56. PPL EU has concluded that LIDAR technology offers accuracy regarding as-observed distances between conductors and vegetation well beyond what can be expected by human ground-based observation and standard aerial patrols. It has

identified various areas in which LIDAR data may be improved, particularly its consideration of conductor age, mechanical fatigue history, and span length. PPL EU will work with its LIDAR provider to offer constructive feedback and collaborate on ways that LIDAR could be improved for use in transmission vegetation management efforts. To the extent PPL EU's feedback is incorporated into improved LIDAR products, the usefulness of LIDAR will be increased for those in the industry deploying the technology.

57. PPL EU has agreed to share its experiences with the use of LIDAR by preparing a technical paper or presentation to be given at an industry conference attended by Transmission Owners to share its lessons learned using LIDAR.
58. PPL EU outfitted its regional foresters with Tru-pulse laser clinometer devices for use in clearance validation at a cost of about \$10,000.
59. As set forth below, PPL EU plans to add to its future annual plans for transmission work additional right-of-way clearing above and beyond that required by its Transmission Vegetation Management Program. Specifically, PPL EU plans to institute a Wire Zone/Border Zone program where appropriate across its 230 and 500 kV BES. This program will permit selected low-growing, compatible species to remain in place in a right-of-way but will eliminate other vegetation that may grow into Clearance 2 distances. The PPL EU wire zone will be the area directly under the PPL EU BES transmission conductors and extending outward about 10 feet on each side. The wire zone will be managed to promote a low-growing plant community dominated by grasses and small shrubs. The border zone is the remainder of the right-of-way in which small trees and certain shrubs will be permitted. The wire and border zone is expected to permit diverse, tree-resistant plant communities to develop, which serve to protect the electric facilities from the threat of grow-ins. While suitable in many contexts, standard wire-border zone prescriptions may not be deployed by PPL EU where lines are above low valleys or canyons or otherwise high off the ground.
60. PPL EU will rely on LIDAR to prioritize the Wire Zone/Border Zone work that will be conducted. The expected cost of this program is approximately \$7 million, excluding ongoing maintenance. PPL EU plans on completing this program within 3 years, except to the extent delayed because PPL EU determines that additional Right of Way or clearing rights are needed and/or as a result of any legal challenges or complaints filed by landowners or any other parties. This additional right-of-way clearing work will help to mitigate the risk of future Clearance 2 encroachments and thereby enhance BES reliability.

### **C. SANCTIONS**

61. ReliabilityFirst determined the penalty associated with this alleged violation to be \$290,000. PPL EU shall pay \$290,000 to ReliabilityFirst within twenty (20) days of approval of this Agreement by the Commission, as discussed herein. However,

if PPL EU fails to complete the outstanding mitigating actions or remedies described above, ReliabilityFirst reserves the right to assess and collect a monetary penalty, to impose a sanction or otherwise to impose enforcement actions. PPL EU shall retain all rights to defend against such enforcement actions in accordance with NERC Rules of Procedure.

62. 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 Agreement, shall be deemed to be either the same alleged violations that initiated this Agreement and/or additional violation(s) and may subject PPL EU to new or additional enforcement, penalty or sanction actions in accordance with the NERC Rules of Procedure.
63. If PPL EU does not make the monetary penalty payment above at the times agreed by the parties, interest payable to ReliabilityFirst will begin to accrue pursuant to the Commission's regulations at 18 C.F.R. § 35.19a(a)(2)(iii) from the date that payment is due, in addition to the penalty specified above.

## **V. ADDITIONAL TERMS**

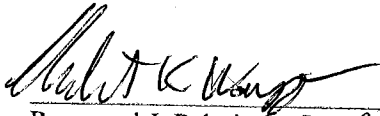
64. The signatories to the Agreement agree that they enter into the Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer or promise of any kind by any member, employee, officer, director, agent or representative of ReliabilityFirst or PPL EU has been made to induce the signatories or any other party to enter into the Agreement.
65. ReliabilityFirst shall report the terms of this Agreement to NERC. NERC will review the Agreement for the purpose of evaluating its consistency with other settlement agreements entered into for similar violations or under other, similar circumstances. Based on this review, NERC will either approve the Agreement, or reject the Agreement and notify ReliabilityFirst and PPL EU 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 ReliabilityFirst will attempt to negotiate a revised settlement agreement with PPL EU including any changes to the Agreement specified by NERC. If a revised 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 the alleged violation and the terms provided for in the settlement.
66. This Agreement shall become effective upon the Commission's approval of the Agreement by order or operation of law as submitted to it or as modified in a manner acceptable to the parties.
67. PPL EU agrees that this Agreement, when approved by NERC and the Commission, shall represent a final settlement of all matters set forth herein, and



PPL EU waives its right to further hearings and appeal, unless and only to the extent that PPL EU contends that any NERC or Commission action on the Agreement contains one or more material modifications to the Agreement. ReliabilityFirst reserves all rights to initiate enforcement, penalty, or sanction actions against PPL EU in accordance with the NERC Rules of Procedure in the event that PPL EU fails to comply with the outstanding Mitigation Plans agreed to in this Agreement. In the event PPL EU fails to comply with any of the stipulations, remedies, sanctions, or additional terms, as set forth in this Agreement, ReliabilityFirst will initiate enforcement, penalty, or sanction actions against PPL EU to the maximum extent allowed by the NERC Rules of Procedure, up to the maximum statutorily allowed penalty. PPL EU shall retain all rights to defend against such enforcement actions, also according to the NERC Rules of Procedure.

68. PPL EU consents to the use of ReliabilityFirst's determinations, findings, and conclusions set forth in this 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 PPL EU does not consent to the use of the specific acts set forth in this Agreement as the sole basis for any other action or proceeding brought by NERC and/or any Regional Entity, nor does PPL EU consent to the use of this Agreement by any other party in any other action or proceeding.
69. 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 Agreement on the entity's behalf.
70. The undersigned representative of each party affirms that he or she has read the Agreement, that all of the matters set forth in the Agreement are true and correct to the best of his or her knowledge, information and belief, and that he or she understands that the Agreement is entered into by such party in express reliance on those representations, provided, however, that such affirmation by each party's representative shall not apply to the other party's statements of position set forth in Section III of this Agreement.
71. The Agreement may be signed in counterparts.
72. The Agreement is executed in duplicate, each of which so executed shall be deemed to be an original.

Agreed to and accepted:



Raymond J. Palmieri (For Ray Palmieri)  
Vice President and Director of Compliance  
ReliabilityFirst Corporation

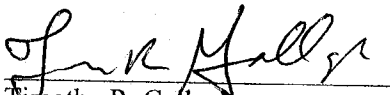
12/22/2009  
Date



David G. DeCampi  
President  
PPL Electric Utilities Corporation

12/21/09  
Date

Approved by:



Timothy R. Gallagher  
President and Chief Executive Officer  
ReliabilityFirst Corporation

12/22/09  
Date

# **Attachment a**

Mitigation Plan (MIT-07-0216)

Submitted October 8, 2007

MIT-07-0216



RFC200700007

## Proposed Mitigation Plan

Date Submitted

10/8/2007

Registered Entity Information

Company Name:

PPL Electric Utilities Corporation

Company Address:

2 N. 9<sup>th</sup> Street, Floor GenN5

Allentown, PA 18101

Mitigation Plan Contact Person & Phone Number:

David E. Schleicher – 610-774-4411

V.P. Transmission

Violation

Reliability Standard Number:

**FAC-003-1** Transmission Vegetation Management Program (TVMP)

Requirement Number

Violated:

PPL Electric believes that it may have violated one or more of the following requirements:

R1.2. PPL Electric did not maintain the Clearance 2 distances it established in its TVMP at all locations on its bulk transmission system.

R2. PPL Electric did not have sufficient systems and procedures for documenting and tracking the planned vegetation work and ensuring that the vegetation management work was completed according to work specifications.

Cause of the Violation:

R1.2. While PPL Electric established Clearance 2 distances in its TVMP, and the TVMP required that any identified encroachments be removed immediately, its forestry personnel exercised professional judgment to schedule tree trimming for future work if they determined the encroachment did not present an immediate threat.

R2. While PPL Electric created and implemented an annual plan for vegetation management work, it did not have sufficient systems and procedures to ensure that the work was completed according to work specifications.

# RELIABILITY FIRST

## Plan to Correct the Violation

R1.2. PPL Electric has eliminated most of the Clearance 2 encroachments it has identified to date and has additional clearing work underway to promptly eliminate remaining identified encroachments. In order to ensure that it identifies all Clearance 2 encroachments that may exist on its bulk electric system, it has commenced a second system-wide aerial inspection of all 200 kV and above lines as a supplement to those conducted in May and June of this year. It will conduct foot patrols to confirm the findings of the aerial patrols and schedule clearing work to remove any Clearance 2 encroachments that are found to exist. While FAC-003-1 indicates that the minimum Clearance 2 distance shall be that specified in IEEE Standard 516-2003, PPL Electric's plan to correct the violation is to clear vegetation beyond that stated minimum distance. It will clear vegetation to distances greater than those established as its Wire Security Zone. PPL Electric's TVMP establishes Clearance 2 distances (referred to as the Wire Security Zone) of 17 feet for 500 kV lines and 10 feet for 230 kV lines that are more conservative than the IEEE minimum clearances.

R2. PPL Electric is putting in place systems and procedures to ensure that the work set forth in the plan is completed according to work specifications. PPL Electric is also addressing and correcting certain implementation issues based on its experiences in implementing the TVMP to date.

## Plan to Prevent Recurrence of the Violation

The TVMP plan will be revised to enhance and clarify the TVMP. Detailed system-wide training of PPL Electric staff, aerial patrol contractors, and supervisors of ground based vegetation management contractors will be conducted on the revised TVMP and its implementation.

PPL Electric is pursuing system wide aggressive vegetation mitigation work to achieve clearances that exceed its Clearance 2 distances. The distances to be met through the clearing work will exceed the Wire Security Zone distances set forth in the PPL TVMP. These distances will be designed to anticipate vegetation growth and the next planned maintenance cycle so as to assure that sufficient clearance distances can be maintained until the annual cycle of vegetation clearance work for the applicable 230 and 500 kV transmission lines.

After all work to achieve clearances beyond the Wire Security Zone is accomplished, PPL Electric will, during the next major tree trimming cycles, clear to Clearance 1 distances consistent with its revised TVMP.

# RELIABILITY FIRST

## Mitigation Plan

### Anticipated Impact of the Mitigation Plan on the Bulk Power System Reliability:

The PPL Electric mitigation plan will eliminate all identified encroachments that currently exist on an expeditious basis and is designed to prevent future encroachments from occurring through grow-ins by conducting clearing work to achieve distances that sufficiently exceed Clearance 2 distances and take into account growth cycles and future work plans. While encroachments may exist on its system as all existing encroachments are being identified and removed, the plan will rectify the encroachments as soon as practicable, and eliminate encroachments in an orderly and high-priority fashion as discussed below.

### Action Plan to Mitigate Any Increased Risk to the Reliability of the Bulk Power-System while the Mitigation Plan is Being Implemented:

To the extent the aerial and/or foot patrols identify additional Clearance 2 encroachments, PPL Electric will prioritize and address first the encroachments most at risk of causing a flashover event. Immediately thereafter it will pursue clearance activity relating to vegetation less likely to result in flashover conditions. The proposed schedule for this work is discussed below.

## Mitigation Plan Schedule

### Anticipated Completion Date:

Second system-wide aerial patrols. Complete on or about October 12, 2007.  
 Develop and implement systems and procedures to ensure that work scheduled to be completed in the annual work plan was completed according to work specifications. Complete on or about October 19, 2007.  
 Ground-based inspections of potential encroachment locations identified by aerial patrols. Complete on or about October 24, 2007.  
 Clearance of encroachments into the minimum clearance distance per IEEE 516-2003 to occur by October 31, 2007.  
 Additional clearing work to achieve Clearance 2 (PPL Electric's Wire Security Zone ) distances. Complete by November 30, 2007.  
 PPL Electric will make efforts to accelerate these anticipated completion dates and will keep RFC informed of its progress.

### Implementation Milestones & Due Dates (no more than three (3) months apart):

# RELIABILITY FIRST

**Milestones:**

October 31, 2007 --- progress update to RFC.

November 30, 2007 --- progress update to RFC.

December 21, 2007 --- final update to RFC.

**Any Additional Information**

See attached September 24, 2007 letter.

Signature

David G. DeCampi

Date

10/08/07

Name:

David G. DeCampi

Title:

President – PPL Electric Utilities Corp.



# **Attachment b**

## **Certification of Mitigation Plan Completion**

**Submitted November 8, 2007**

**David E. Schleicher**  
Vice President-Transmission

**PPL Electric Utilities**  
Two North Ninth Street  
Allentown, PA 18101-1179  
Tel. 610.774.4411  
[www.deschleicher@pplweb.com](mailto:www.deschleicher@pplweb.com)



November 8, 2007

Mr. Raymond J. Palmieri  
Vice President and Director – Compliance  
ReliabilityFirst Corporation  
220 Market Avenue South Suite 501  
Canton, OH 44702

Dear Mr. Palmieri:

As a follow-up to my October 31, 2007 progress report, PPL Electric Utilities Corporation ("PPL Electric") hereby notifies ReliabilityFirst Corporation that as of November 3, 2007, PPL Electric has completed the mitigation work identified in its October 8, 2007 proposed Mitigation Plan concerning Reliability Standard FAC-003-1. In particular, PPL Electric has achieved clearances that exceed its Clearance 2 distances between vegetation and transmission infrastructure throughout its entire 230 kV and above system.

We had previously reported that a complaint had been filed with the Pennsylvania Public Utility Commission by one landowner who objected to the clearing work on his property. We are pleased to report that the complaint was withdrawn by the landowner and the clearing activity on his property has been satisfactorily completed.

If you have any questions or desire any additional information, please contact me. Thank you for your cooperation in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Schleicher", with a stylized flourish at the end.

David E. Schleicher, P.E.  
Vice President - Transmission

# **Attachment c**

## Summary and Review of Mitigation Plan Completion

Dated August 19, 2008



August 19, 2008

**Summary and Review of Evidence of Mitigation Plan Completion**

<b>NERC Violation ID #:</b>	<b>RFC20070007</b>
<b>NERC Plan ID:</b>	<b>MIT-07-0216</b>
<b>Registered Entity;</b>	<b>PPL Electric Utilities</b>
<b>NERC Registry ID:</b>	<b>NCR00884</b>
<b>Standard:</b>	<b>FAC-003-1</b>
<b>Requirement:</b>	<b>2</b>
<b>Status:</b>	<b>Complete</b>

**Review Process:**

On November 8, 2007 and again on March 24, 2008, PPL Electric certified that the Mitigation Plan associated with NERC Violation ID # RFC20070007 was successfully completed. ReliabilityFirst requested and received evidence of completion for actions taken by PPL Electric as specified in the Mitigation Plan. ReliabilityFirst performed an audit-like review to verify that all actions specified in the Mitigation Plans were successfully completed.

**Evidence Provided:**

PPL Electric submitted a table identifying the number of encroachment locations requiring mitigation and the dates, by circuit, on which all of the Clearance 2 encroachments that PPL identified as part of its Mitigation Plan were fully removed<sup>1</sup>. In order to ensure that it identified all Clearance 2 encroachments that existed on its bulk electric system, PPL Electric commenced a second system-wide aerial inspection of all 200 kV and above lines as a supplement to those conducted in May and June of 2007.

On June 5, 2008, PPL submitted a letter to RFC Contractor Richard Schneider detailing evidence of completion of PPL's mitigation plan. Included in this letter were four attachments of records including aerial patrol records, a spreadsheet detailing removal and trimming work, copies of the vegetation contractor invoices, and a spreadsheet providing follow-up data regarding aerial inspections.<sup>2</sup>

<sup>1</sup> Attachment to Letter addressed to Mr. Glenn Kaht dated November 30, 2007

<sup>2</sup> Letter to Richard Schneider including

Attachment A: Aerial Patrol Records

Attachment B: Spreadsheet with hourly expenses detailing information regarding removal, trimming and reclearing work performed on the PPL Electric transmission lines

Attachment C: Copies of the vegetation contractor invoices corresponding to the invoice numbers listed in Attachment B



Records of these aerial patrols of the 230 kV transmission system conducted by PPL's outside contractor between September 18, 2007 and October 8, 2007 were submitted by PPL Electric. For each aerial inspection report that identified a potential Clearance 2 encroachment, PPL Electric Vegetation Management personnel conducted a ground based inspection to verify the observed conditions as reported by the helicopter reports. PPL Electric submitted, as evidence, a spreadsheet providing the follow up data to the aerial inspections. The spreadsheet includes the date of such field review, the estimated distance between the vegetation and the transmission lines as field checked, the date any remediation work was assigned, and the actual date the work was completed to meet Clearance 2 distances. This spreadsheet format was implemented in October 2007.

Also submitted in a spreadsheet with the heading "Hourly Expense 230-500kV 9-22 thru 12-1-2007" which contains information regarding removal, trimming, and re-clearing work performed on the PPL Electric transmission lines by various contractors. The spreadsheet identifies the date the vegetation work was performed, the spans of transmission lines on which the work was done, the contractor who performed the work and the approximate amounts invoiced for the mitigation work. The actual invoices may include work performed that was not dictated by the Mitigation Plan, and therefore the total invoiced amounts generally will be greater than the amounts specified in Attachment B.

PPL Electric conducted training sessions for PPL Electric employees and contractors to strengthen NERC compliance and provide more specific training on its TVMP. As evidence of this, PPL Electric submitted attendance lists from Vegetation Management Training sessions held at various locations and on various dates.

PPL Electric also submitted its revised TVMP which was approved April 4, 2008. This detailed document covers among other topics, compliance criteria with regard to defining various clearances, approved procedures including annual scope of work for aerial and ground inspections, process for communicating vegetation concerns, clearing procedures, herbicide application, etc.

### **Review Results:**

The ReliabilityFirst Compliance Staff has reviewed the evidence discussed above that was provided by PPL Electric, and has determined, in their professional judgment, that PPL Electric has submitted sufficient evidence to conclude that PPL Electric has completed the Mitigation Plans that were accepted by ReliabilityFirst and approved by NERC.



Respectfully Submitted,

A handwritten signature in black ink that reads "Robert K. Wargo". The signature is written in a cursive, flowing style.

Robert K. Wargo  
Manager of Compliance Enforcement  
ReliabilityFirst Corporation

# **Attachment d**

**Mitigation Plan (MIT-08-2044)**

**Submitted September 23, 2009**



## Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: Revised September 23, 2009, supersedes plan submitted September 10, 2009.

### Section A: Compliance Notices & Mitigation Plan Requirements

- A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "Attachment A - Compliance Notices & Mitigation Plan Requirements."
- A.2 This form must be used to submit required Mitigation Plans for review and acceptance by ReliabilityFirst and approval by NERC.
- A.3 I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

### Section B: Registered Entity Information

- B.1 Identify your organization.

Company Name: PPL Electric Utilities Corporation  
(PPL EU)

Company Address: 2 North Ninth Street  
Allentown, PA 18101-1179

NERC Compliance Registry ID: NCR-00884

- B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name: Gary J Bast

Title: Compliance Program Manager

Email: gjbast@pplweb.com

Phone: 610-774-5224



FOR PUBLIC RELEASE - MARCH 31, 2010



## Section C: Identification of Alleged or Confirmed Violation(s) Associated with this Mitigation Plan

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

NERC Violation ID #	Reliability Standard	Requirement Number	Violation Risk Factor	Alleged or Confirmed Violation Date <sup>(*)</sup>	Method of Detection ( <i>e.g.</i> , Audit, Self-report, Investigation)
RFC200900 142	FAC-003-1	R2	High	9/10/2008	Self Report

(\*) Note: The Alleged or Confirmed Violation Date shall be expressly specified by the Registered Entity, and subject to modification by ReliabilityFirst, as: (i) the date the Alleged or Confirmed violation occurred; (ii) the date that the Alleged or Confirmed violation was self-reported; or (iii) the date that the Alleged or Confirmed violation has been deemed to have occurred on by ReliabilityFirst. Questions regarding the date to use should be directed to the ReliabilityFirst contact identified in Section G of this form.

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above. Additional detailed information may be provided as an attachment.

The cause of the alleged violation was vegetation growth proximate to a transmission line that was not discovered through standard technologies previously employed by PPL EU. Although PPL EU's TVMP provides for annual helicopter inspections of its Bulk Electric System ("BES"), and PPL EU employs vegetation ground surveys and other mechanisms to assess the need for unplanned, emergent vegetation clearance work, these methods did not discover the encroachment. PPL EU contracted with a third party vendor to assess its BES in the third quarter of 2008, using Light Detection and Ranging ("LiDAR") technology, a sophisticated technology that was expected to provide results superior to standard helicopter aerial patrols and to human observation during foot patrols. The LiDAR technology identified one C2 encroachment on an as-observed, not adjusted for maximum sag basis on a 230 kV line. PPL EU took

FOR PUBLIC RELEASE - MARCH 31, 2010



action swiftly to remove this as-observed C2 encroachment within the time period established in Appendix D "Emergent Work Remediation Time Table" of the TVMP. The C2 was not treated as an imminent threat for which the power system dispatcher was contacted, however.

Application of LiDAR also identified a significant number of suspected potential C2 vegetation encroachments under computed maximum sag conditions. Following PPL EU engineering review of line data, and review of the bulk of LiDAR maximum sag profiles, PPL EU received final clearance condition reports from GeoDigital, and these suspected encroachments were also addressed within the time frames established within PPL EU's TVMP.

Note: If a formal root cause analysis evaluation was performed, submit a copy of the summary report.

- C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan. Additional detailed information may be provided as an attachment.

After PPL EU's prior self report RFC200700007 on FAC-003, PPL EU applied LiDAR to its BES, starting in the fall of 2008. This new technology was applied for its potential ability to achieve increased accuracy of both "as observed" and calculated maximum sag conditions as related to existing vegetation conditions.

PPL EU recognizes a 230 kV C2 clearance requirement of 5.2 feet. A C2 encroachment of 3.84 feet from vegetation to a 230 kV line (line 414 Quarry Northwood) was reported by GeoDigital, the LIDAR vendor, to PPL EU 9/10/2008, field confirmed the same day, and remediated 9/11/2008. This remediation was one day in advance of the 9/12/2008 date required by the TVMP.

Past histories of surveillance on this line included a routine aerial patrol flown May 8, 2008, and another September 2007 patrol noted in the referenced prior mitigation plan. This encroachment was not identified in either of these reports. A May 2007 routine aerial patrol did identify one vegetation encroachment 6-10 feet from conductors on an opposing/adjacent line (single pole double circuit vertical construction), but PPL EU cannot definitively determine if this was the same tree of concern. This line is scheduled for vegetation ground survey every three years. A vegetation ground survey was performed in late 2008 (after the LiDAR flyover identified the offending vegetation and it was removed), and the previous foot patrol was in 2005.

PPL EU operates its BES to first contingency limits. If the Quarry-Northwood (or any other) line had tripped, the remainder of the system would have remained stable, secure, and all facilities operating within applicable voltage and thermal

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limits, and with no loss of supply to customers. Therefore, at no time was any facility at risk of exceeding applicable limits for loss of this line or any other facility. The line was loaded to 250 amps (less than 50% of the normal line rating) from September 9 through 11, 2009. A two year historical loading of this line shows this is typical, and that loading occasionally approached but did not exceed 400 amps. Moreover, the risk of contact was reduced as the encroachment was located relatively close to the pole (less than 25% of the span distance away – 89’ on a 401’ span).

The LiDAR results also identified a significant number of potential C2 vegetation encroachments under calculated maximum sag conditions. These were not all considered definitive by PPL EU because of conservative assumptions that PPL EU believes were employed in calculating maximum sag potential, as discussed further below. PPL EU has confirmed that the vendor calculation model contains assumptions that can yield results that are overly conservative in many cases. Following PPL EU Transmission Engineering review of LiDAR maximum sag profiles, clearance reports were received from the Vendor. Upon receipt of these reports, the identified potential C2 encroachments were also remediated within the time frames established within PPL EU’s TVMP.

While PPL EU initiated aggressive clearing activity based on the LiDAR maximum sag profiles upon receipt of the validated assumptions, it determined that in many cases this set of LiDAR results were overly conservative in identifying encroachment locations. In simplified terms, the LiDAR model assumed that the BES transmission lines could sag from their present location based upon the maximum sag potential for new lines; however, many of PPL EU’s lines are decades old and have already experienced sag due to creep and load stress factors over time. Thus, many of the maximum sag calculations from LiDAR yielded maximum sag distances that are not actually achievable.

In addition to the general concerns regarding LiDAR results, PPL EU believes there was a particularly significant inaccuracy of the vendor calculated maximum sag profile model to PPL EU’s design plan and profile for one line: the Bushkill-Blooming Grove 230 kV line which is approximately 80 years old, and is unlikely to incur significant additional sag. PPL EU took a conservative and proactive approach to remediate potential vegetation encroachments under sag conditions on this line by clearing vegetation within the zone of 16 feet from the “as observed” conductor rather than the recognized 10 foot wire security zone noted in the TVMP. This work has been completed.

PPL EU did not previously report the confirmed C2 encroachment to RFC because at the time, a C2 encroachment was not universally understood to represent a per se violation when remediated within the time frames established in

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PPL EU's TVMP, nor was it universally understood as representing an imminent threat.

## **Section D: Details of Proposed Mitigation Plan**

### **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 Alleged or Confirmed violations identified above in Part C.1 of this form. Additional detailed information may be provided as an attachment.
1. Remediation of the confirmed C2 vegetation encroachment identified by LiDAR was performed within the time frame required by the TVMP and is already completed. The tree resulting in the confirmed C2 encroachment was removed.
  2. Remediation of the suspected C2 vegetation encroachments identified under calculated maximum sag conditions was performed within the time frames required by the TVMP once PPL EU received final clearance condition reports from GeoDigital, and is already completed. The vegetation resulting in the suspected maximum sag C2 encroachments was either removed or was trimmed to the C1 distance.
- The following actions will be taken to ensure proper response to any encroachments, and to reduce the likelihood of any future unacceptable encroachments
3. Additional training will be performed to reinforce the requirements of FAC-003-1 as well as the requirements of the TVMP, and PPL Corporation's PPL-NERC-CO-500 procedures which set forth PPL's nonconforming condition reporting process. The training will also identify lessons learned and will:
    - a. Provide information on the PPL Corporation corporate procedure for reporting suspected cases of non-conformances, reinforce that C2 encroachments must be handled as non-conformances/potential violations to the FAC-003-1 standard, and set expectations for employees. Audience will include both vegetation management personnel and transmission control center employees.

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- b. Clarify roles and responsibilities for reporting of vegetation encroachments relative to the imminent threat procedure. Audience will include both vegetation management personnel and transmission control center employees.
  - c. Provide information on the PPL Corporation corporate procedure for reporting suspected cases on non-conformances, and reinforce the importance of using the process to raise and investigate compliance related concerns. Audience will include EU compliance group personnel, standard matter experts and management that certify compliance to the applicable NERC standards.
4. PPL EU will revise its TVMP to clarify several areas. The TVMP will be revised to add context to the statement that "Encroachments into C2 are specifically not permitted." This discussion will be expanded to explain that the C2 distance is the minimum clearance that must be maintained between conductors and vegetation and that any field verified C2 encroachments must be reported through the PPL NERC non-conformance process and treated in accordance with the imminent threat process. As-observed C2 encroachments will be characterized as imminent threats; C2 encroachments under maximum sag conditions will be assessed to determine whether they represent an imminent threat.
5. PPL EU will perform an additional LiDAR assessment of its 230kV and 500kV bulk power system as a validation of the annual spring aerial patrol and remediation, to confirm there are presently no C2 encroachments and to identify any additional potential areas of concern. The 2009 LiDAR survey is planned to be flown commencing in August, 2009. Data processing and validation, and required field remediation in accordance with the TVMP is scheduled for completion by December 31, 2009.

### **Mitigation Plan Timeline and Milestones**

- D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented, and/or whether the actions necessary to assure the entity has returned to full compliance have been completed.

Remediation of the confirmed and suspected C2 vegetation encroachments identified in the 2008 LIDAR survey has been completed.

The following mitigation plan activities remain to be completed.

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Additional training in handling of C2 vegetation encroachments and non-conformance process:

Develop training materials and identify roster of individuals to receive training

Deliver and document training

Perform fall 2009 LIDAR assessment and remediation, and provide documentation.

Revise TVMP

- D.3 Enter Key Milestone Activities (with due dates) that can be used to track and indicate progress towards timely and successful completion of this Mitigation Plan.

Key Milestone Activity	Proposed/Actual Completion Date* (shall not be more than 3 months apart)
Develop training materials and identify roster to receive training	September 30, 2009
Deliver & document training	October 30, 2009
Revise TVMP	December 31, 2009
Provide documentation of fall 2009 LIDAR results and remediation.	
Interim Report through September	October 16, 2009
Final Report	December 31, 2009

(\*) Note: Additional violations could be determined for not completing work associated with accepted milestones.





## **Section E: Interim and Future Reliability Risk**

### **Abatement of Interim BPS Reliability Risk**

- E.1 While your organization is implementing this Mitigation Plan the reliability of the Bulk Power System (BPS) 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 to mitigate this increased risk to the reliability of the BPS. Additional detailed information may be provided as an attachment.

Since the remediation of the confirmed C2 condition has been completed, there is no interim increased risk to be mitigated.

### **Prevention of Future BPS Reliability Risk**

- E.2 Describe how successful completion of this Mitigation Plan by your organization will prevent or minimize the probability that the reliability of the BPS incurs further risk of similar violations in the future. Additional detailed information may be provided as an attachment.

PPL EU has taken aggressive steps to minimize the risk of C2 vegetation encroachments well in advance of the institution of this Mitigation Plan. It has tested and is testing the use of LiDAR technology to assess its entire 230 and 500 kV bulk power system in 2008 and 2009, which was expected to result in comprehensive identification and clearance of vegetation adjacent to PPL's BES. This, in turn, would facilitate clearance of vegetation within the distances prescribed for clearing by the PPL EU TVMP while minimizing inaccuracies associated with aerial and ground surveys. PPL EU has also budgeted for LiDAR application in 2010.

The Mitigation Plan includes comprehensive training on the TVMP and NERC requirements that is intended to reinforce knowledge of the procedures that vegetation personnel should follow in addressing any future encroachment findings. This will reinforce appropriate use of the imminent threat procedure and corporate non-conformance processes.

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**Section F: Authorization**

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

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am Vice President, Transmission of PPL Electric Utilities Corporation.
  - 2. I am qualified to sign this Mitigation Plan on behalf of PPL Electric Utilities Corporation.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. PPL Electric Utilities Corporation agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature**

A handwritten signature in black ink, appearing to read "David E. Schleicher", written over a horizontal line.

Name (Print): David E. Schleicher

Title: VP Transmission

Date: 9-23-09

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.





## Attachment A – Compliance Notices & Mitigation Plan Requirements

- I. Section 6.2 of the CMEP<sup>1</sup> 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.
  - (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) Key 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.
- II. This submittal form must be used to provide a required Mitigation Plan for review and acceptance by ReliabilityFirst and approval by NERC.
- III. This Mitigation Plan is submitted to ReliabilityFirst and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.
- IV. This Mitigation Plan Submittal Form may be used to address one or more related Alleged or Confirmed violations of one Reliability Standard. A separate

<sup>1</sup> "Compliance Monitoring and Enforcement Program" of the ReliabilityFirst Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on the ReliabilityFirst website.

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mitigation plan is required to address Alleged or Confirmed violations with respect to each additional Reliability Standard, as applicable.

- V. If the Mitigation Plan is accepted by ReliabilityFirst and approved by 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.
- VI. ReliabilityFirst or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- VII. Remedial action directives also may be issued as necessary to ensure reliability of the BPS.

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## DOCUMENT CONTROL

**Title:** Mitigation Plan Submittal Form  
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## DOCUMENT APPROVAL

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo	Raymond J. Palmieri		
Senior Consultant Compliance	Vice President and Director Compliance	<i>Raymond J. Palmieri</i>	1/2/08

## DOCUMENT CHANGE/REVISION HISTORY

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue – Replaces “Proposed Mitigation Plan” Form	1/2/08
2.0	Tony Purgar	Revised email address from <a href="mailto:compliance@rfirst.org">compliance@rfirst.org</a> to <a href="mailto:mitigationplan@rfirst.org">mitigationplan@rfirst.org</a>	7/11/08

# **Attachment e**

Mitigation Plan (MIT-07-1434)

Submitted February 23, 2009

MIT-07-1434



RFC200900117

## Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted:

Revised February 23, 2009.Revised February 3, 2009.Original dated January 23, 2009

### Section A: Compliance Notices & Mitigation Plan Requirements

- A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "Attachment A - Compliance Notices & Mitigation Plan Requirements."
- A.2 This form must be used to submit required Mitigation Plans for review and acceptance by ReliabilityFirst and approval by NERC.
- A.3 ☒ I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

### Section B: Registered Entity Information

- B.1 Identify your organization.

Company Name: PPL Electric Utilities Corporation  
(PPL Electric Utilities)

Company Address: Two North Ninth Street GENN5  
Allentown, PA 18101

NERC Compliance Registry ID: 00884

- B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name: David E. Schleicher

Title: VP - Transmission

Email: deschleicher@pplweb.com

Phone: 610-774-4411

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**Section C: Identification of Alleged or Confirmed Violation(s)**  
**Associated with this Mitigation Plan**

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

NERC Violation ID #	Reliability Standard	Requirement Number	Violation Risk Factor	Alleged or Confirmed Violation Date <sup>(*)</sup>	Method of Detection (e.g., Audit, Self-report, Investigation)
	EOP-004-1	R3.1	Lower	12/16/07 and 6/10/08	Self-Report

(\*) Note: The Alleged or Confirmed Violation Date shall be expressly specified by the Registered Entity, and subject to modification by ReliabilityFirst, as: (i) the date the Alleged or Confirmed violation occurred; (ii) the date that the Alleged or Confirmed violation was self-reported; or (iii) the date that the Alleged or Confirmed violation has been deemed to have occurred on by ReliabilityFirst. Questions regarding the date to use should be directed to the ReliabilityFirst contact identified in Section G of this form.

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above. Additional detailed information may be provided as an attachment.

PPL Electric Utilities believes that it may have violated EOP-004-1, R.3.1 by not timely submitting U.S. Department of Energy ("DOE") Form OE-417 in connection with two storm-related outages, as described below. PPL Electric Utilities understands that ReliabilityFirst and/or NERC may or may not determine that a violation has occurred.

PPL Electric Utilities did not submit to DOE, NERC or ReliabilityFirst a copy of the report, U. S. Department of Energy Form OE-417, within 24 hours of two prior storm related events where more than 50,000 customers were out of service for one hour or more. The storm damage occurred on PPL Electric Utilities 69 kV and 12 kV system.



- i) Event 1 – Between 0520 and 2102 on December 16, 2007, PPL Electric Utilities exceeded 50,000 customers out of service for one hour or more across its service territory due to an ice related storm.
- ii) Event 2 – Between 1921 and 2223 on June 10, 2008 PPL Electric Utilities exceeded 50,000 customers out of service for one hour or more across its service territory due to a thunder and lightning storm.

No single incident or case of trouble in either storm exceeded the 50,000 customer threshold; however, the aggregate customer impact from hundreds of small outage events exceeded the threshold.

Both storm outage events were reported to the Pennsylvania Public Utility Commission by letters dated January 3, 2008, and June 19, 2008, respectively.

Note: If a formal root cause analysis evaluation was performed, submit a copy of the summary report.

- C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan. Additional detailed information may be provided as an attachment.

## **Section D: Details of Proposed Mitigation Plan**

### **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 Alleged or Confirmed violations identified above in Part C.1 of this form. Additional detailed information may be provided as an attachment.

PPL Electric Utilities submitted copies of OE-417 to DOE, NERC, and ReliabilityFirst on January 21, 2009, for two prior storm related events occurring over the past 3 years, referenced in C2 above. Please see attachments.

By February 13, 2009:

- Complete training of all key PPL Electric Utilities Storm Emergency Managers and Power System Dispatchers on Reporting Requirements.



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- Storm Emergency managers will have review sessions focused on their roles and responsibilities with respect to events and disturbances that cause more than 50,000 customers to be without power for at least one hour.
- Power System Dispatchers will have a review focused on all events and disturbances for which DOE Form OE-417 is required, including time frames and reporting requirements.
- Lists of attendees and instruction materials will be kept and sent to RFC.
- Report to RFC.

## By February 27, 2009:

- Authorize changes to the Automatic Paging function of PPL Electric Utilities's Outage Management System (OMS) to send a page when the number of customers without power due to an event or disturbance exceeds 50,000. Identify which PPL Electric Utilities managers will receive the page.
- Have new Procedures and Instructions written and approved (both Operating Instructions for Transmission & Distribution Operations and System Storm Manual) to ensure compliance with applicable DOE, NERC, RFC, and PJM event or disturbance reporting requirements.
  - The Operating Instruction revision will be all-encompassing of events and disturbances for which PPL Electric Utilities is required to file Form OE-417.
  - The revision will also lay out those events for which PJM has primary responsibility for report filings.
  - It will also include reporting of disturbances that are required by NERC, but not the DOE.
  - Revisions to the PPL Electric Utilities System Storm manual will focus on the specific event of more than 50,000 customers without power for at least one hour.
- Identify all PPL Electric Utilities employees who will require training on the revised Procedures and Instructions.
- Report to ReliabilityFirst.

## By March 27, 2009:

- Implement automatic page function, as described.
  - Document notifications from the OMS team that the change was made
  - Document test pages.
- Complete training of all identified PPL Electric Utilities employees in new Procedures and Instructions.
  - Document training materials used for the appropriate audiences.
  - Maintain lists of attendance for these sessions.



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- Identify any "close out" items necessary to fully mitigate the potential non-compliance.
  - These may include any training or process changes identified during the training/review process.
- Report to ReliabilityFirst.

By April 24, 2009:

- Complete remaining "close out" mitigation steps ,if any .
- Final Report to ReliabilityFirst.

## Mitigation Plan Timeline and Milestones

- D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented, and/or whether the actions necessary to assure the entity has returned to full compliance have been completed.

The Mitigation Plan will be completed on or before April 24, 2009

- D.3 Enter Key Milestone Activities (with due dates) that can be used to track and indicate progress towards timely and successful completion of this Mitigation Plan.

Key Milestone Activity	Proposed/Actual Completion Date* (shall not be more than 3 months apart)
Progress Update to ReliabilityFirst reflecting specific tasks outlined in the Plan (above)	February 13, 2009
Progress Update to ReliabilityFirst reflecting specific tasks outlined in the Plan (above)	February 27, 2009
Progress Update to ReliabilityFirst reflecting specific tasks outlined in the Plan (above)	March 27, 2009
Final Update to ReliabilityFirst	April 24, 2009

(\*) Note: Additional violations could be determined for not completing work associated with accepted milestones

# RELIABILITY FIRST

## **Section E: Interim and Future Reliability Risk**

### **Abatement of Interim BPS Reliability Risk**

- E.1 While your organization is implementing this Mitigation Plan the reliability of the Bulk Power System (BPS) 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 to mitigate this increased risk to the reliability of the BPS. Additional detailed information may be provided as an attachment.
- i. There were no risks or impacts to the BPS. The failure to submit DOE Form 417 contemporaneously with the two storms relate to reporting issues for loss of power to PPL Electric Utilities customers connected the 12 kV and 69 kV system. The failure to timely submit the form did not affect the reliability of the BPS.
  - ii. Storm outages affecting more than 50,000 customers for more than an hour do not occur often. We are communicating with all appropriate PPL Electric Utilities managers who have responsibilities to respond to, and report on, storm events, and reinforcing the requirements and procedures for reporting to DOE, NERC and ReliabilityFirst.

### **Prevention of Future BPS Reliability Risk**

- E.2 Describe how successful completion of this Mitigation Plan by your organization will prevent or minimize the probability that the reliability of the BPS incurs further risk of similar violations in the future. Additional detailed information may be provided as an attachment.

The adoption of revised procedures and additional training described in the Mitigation Plan will help to ensure that future outages affecting more than 50,000 customers for more than an hour will be timely reported in accordance with applicable DOE and NERC requirements.

**Section F: Authorization**

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

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am President of PPL Electric Utilities Corporation.
  - 2. I am qualified to sign this Mitigation Plan on behalf of PPL Electric Utilities Corporation
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. PPL Electric Utilities Corporation agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature**

A handwritten signature in dark ink, appearing to read "David G. DeCamp", written over a horizontal line.

Name (Print): *for* David G. DeCamp

Title: President

Date: February 23, 2009

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.



## **Attachment A – Compliance Notices & Mitigation Plan Requirements**

- I. Section 6.2 of the CMEP<sup>1</sup> 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.
  - (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) Key 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.
- II. This submittal form must be used to provide a required Mitigation Plan for review and acceptance by ReliabilityFirst and approval by NERC.
- III. This Mitigation Plan is submitted to ReliabilityFirst and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.
- IV. This Mitigation Plan Submittal Form may be used to address one or more related Alleged or Confirmed violations of one Reliability Standard. A separate

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<sup>1</sup> "Compliance Monitoring and Enforcement Program" of the ReliabilityFirst Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on the ReliabilityFirst website.

# RELIABILITY *FIRST*

mitigation plan is required to address Alleged or Confirmed violations with respect to each additional Reliability Standard, as applicable.

- V. If the Mitigation Plan is accepted by Reliability*First* and approved by 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.
- VI. Reliability*First* or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- VII. Remedial action directives also may be issued as necessary to ensure reliability of the BPS.





## DOCUMENT CONTROL

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## DOCUMENT APPROVAL

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo Senior Consultant Compliance	Raymond J. Palmieri Vice President and Director Compliance	<i>Raymond J. Palmieri</i>	1/2/08

## DOCUMENT CHANGE/REVISION HISTORY

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue – Replaces “Proposed Mitigation Plan” Form	1/2/08
2.0	Tony Purgar	Revised email address from <a href="mailto:compliance@rfirst.org">compliance@rfirst.org</a> to <a href="mailto:mitigationplan@rfirst.org">mitigationplan@rfirst.org</a>	7/11/08

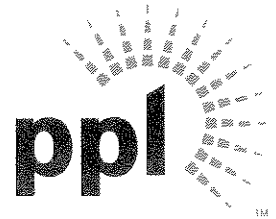
# **Attachment f**

## **Certification of Mitigation Plan Completion**

Submitted April 20, 2009

**David E. Schleicher**  
Vice President-Transmission

**PPL Electric Utilities**  
Two North Ninth Street, GENN5  
Allentown, PA 18101-1179



**VIA ELECTRONIC MAIL**

April 20, 2009

Mr. Robert Wargo  
Manager of Compliance Enforcement  
ReliabilityFirst Corporation  
220 Market Avenue South, Suite 501  
Canton, OH 44702

**RE: Self-Report of Potential Violation of EOP-004-1, R3.1**  
**NERC Registry ID# NCR00884, NERC Violation ID# RFC200700115**

Dear Mr. Wargo:

On January 29, 2009, as revised on February 23, 2009, PPL Electric Utilities Corporation ("PPL Electric") submitted a Self Report and Proposed Mitigation Plan on EOP-004-1 R3.1 Disturbance Reporting. This correspondence is our fourth and final update report pursuant to the Mitigation Plan.

PPL Electric committed to address in this final report any "close out" items necessary to fully mitigate the potential non-compliance. In our third update report provided on March 27, 2009, we identified a gap in our automatic notification for storm room personnel who use BlackBerry devices. We were able to complete this work in advance of the May 4 extension we requested. Attached you will find:

- OMS to BlackBerry Device Test Plan
- Results of the testing
- Validation of production

Since that update, PPL Electric revised the Operating Instruction and Storm Manual to correct and clarify its procedures regarding the timing of submission of preliminary and final reports, provided notification to the affected personnel, and documented their review. Attached you will find:

- Power System Dispatcher
  - Revised Operating Instruction
  - Signed Roster
- Storm Room Personnel
  - Revised Storm Room Manual
  - Roster
  - e-Mail attestations

We believe we have fully met our obligations committed to in the RFC-approved Mitigation Plan.

If you have any questions or require additional information, please let us know.

Sincerely,

David E. Schleicher, P.E.

Attachment

Copy to: Stephanie Davis  
ReliabilityFirst Corporation



# **Attachment g**

## **Summary and Review of Mitigation Plan Completion**

**Dated September 11, 2009**

September 11, 2009

**Summary and Review of Evidence of Mitigation Plan Completion**

<b>NERC Violation ID #:</b>	<b>RFC200900117</b>
<b>NERC Plan ID:</b>	<b>MIT-07-1434</b>
<b>Registered Entity;</b>	<b>PPL Electric Utilities Corporation</b>
<b>NERC Registry ID:</b>	<b>NCR00884</b>
<b>Standard:</b>	<b>EOP-004-1</b>
<b>Requirement:</b>	<b>3.1</b>
<b>Status:</b>	<b>Complete</b>

PPL Electric Utilities Corporation (“PPL EU”) submitted a self-report of noncompliance with NERC Reliability Standard EOP-004-1, Requirement 3.1, on January 29, 2009. PPL EU submitted a Proposed Mitigation Plan to *ReliabilityFirst* on February 23, 2009, whereby stating PPL EU would complete all mitigating actions on or before April 24, 2009. This Mitigation Plan, designated MIT-07-1434, was accepted by *ReliabilityFirst* on February 25, 2009 and approved by NERC on March 9, 2009.

**Review Process:**

On April 20, 2009 PPL EU certified that Mitigation Plan for Reliability Standard EOP-004-1, Requirement 3.1 was complete. *ReliabilityFirst* requested and received evidence of completion for actions taken by PPL EU as specified in the Mitigation Plan and performed an in-depth review of the information provided to verify that all actions specified in the Mitigation Plan were successfully completed.

**EOP-004-1, Requirement 3.1** states: “The affected Reliability Coordinator, Balancing Authority, Transmission Operator, Generator Operator or Load Serving Entity shall submit within 24 hours of the disturbance or unusual occurrence either a copy of the report submitted to DOE, or, if no report is required, a copy of the NERC Interconnection Reliability Operating Limit and Preliminary Disturbance Report form. Events that are not identified until some time after they occur shall be reported within 24 hours of being recognized.”

**Evidence Submitted:**

**REQUIREMENT #3.1:**

*ReliabilityFirst* reviewed 2 separate U.S. Department of Energy OE-417 forms submitted by PPL EU. These forms were submitted for reportable events that occurred on 12/16/2007 and 06/10/2008, but were not previously submitted within the required timeframe. The forms submitted provide *ReliabilityFirst* and NERC with reports for the record of the reportable events experienced by PPL EU.

Summary and Review of Mitigation Plan Completion  
PPL Electric Utilities Corporation  
September 11, 2009  
Page 2 of 2

ReliabilityFirst reviewed PPL Electric Utilities' Operating Instruction 1611 (Revision 1, April 3, 2009). This procedure outlines the reporting procedures for reportable events. Revisions to the procedure include a rewrite to reflect new requirements, regulations and relationships for reportable events, and make it explicit that the clock for submitting certain reports starts from the beginning of the event. ReliabilityFirst also reviewed a Training Documentation Sheet signed and dated by the Power System Dispatchers acknowledging that they reviewed the revised Operating Instruction 1611. The revised Operating Instruction 1611 and the Training Documentation Sheet provided evidence that PPL EU completed training of Power System Dispatchers on Reporting Requirements as per the Mitigation Plan.

ReliabilityFirst reviewed PPL Electric Utilities' revised Storm Room Manual (Revision 2, April 6, 2009). The revised Storm Room Manual includes background information, responsibilities, and procedures for the recognition and reporting of events that include the loss of more than 50,000 customers. ReliabilityFirst also reviewed email acknowledgement from PPL EU storm room personnel of the changes in timing related to the event. The revised Storm Room Manual and the email acknowledgements provided evidence that PPL EU completed training of Storm Emergency Managers on Reporting Requirements as per the Mitigation Plan.

ReliabilityFirst reviewed screenshots of test emails that were sent to PPL EU key managers via an automatic paging function of PPL EUs Outage Management System when the number of customers without power exceeded 50,000. This provided evidence that the automatic paging function was revised as per the Mitigation Plan.

### **Review Results:**

ReliabilityFirst Corporation reviewed the evidence PPL Electric Utilities Corporation submitted in support of its Certification of Completion. On 09/11/2009 ReliabilityFirst verified that the Mitigation Plan was completed in accordance with its terms and has therefore deemed PPL Electric Utilities Corporation compliant to the aforementioned NERC Reliability Standard.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Robert K. Wargo", with a stylized flourish at the end.

Robert K. Wargo  
Manager of Compliance Enforcement  
ReliabilityFirst Corporation

# **Attachment h**

Mitigation Plan (MIT-07-2184)

Submitted December 3, 2009



## Mitigation Plan Submittal Form

Date this Mitigation Plan is being submitted: December 3, 2009

### Section A: Compliance Notices & Mitigation Plan Requirements

- A.1 Notices and requirements applicable to Mitigation Plans and this Submittal Form are set forth in "Attachment A - Compliance Notices & Mitigation Plan Requirements."
- A.2 This form must be used to submit required Mitigation Plans for review and acceptance by ReliabilityFirst and approval by NERC.
- A.3 I have reviewed Attachment A and understand that this Mitigation Plan Submittal Form will not be accepted unless this box is checked.

### Section B: Registered Entity Information

- B.1 Identify your organization.

Company Name: PPL Electric Utilities Corporation

Company Address: 2 North Ninth St.  
Allentown, PA 18101

NERC Compliance Registry ID: NCR00884

- B.2 Identify the individual in your organization who will be the Entity Contact regarding this Mitigation Plan.

Name: Barry J. Skoras

Title: Compliance Specialist

Email: bjskoras@pplweb.com

Phone: 610-774-5164

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## Section C: Identification of Alleged or Confirmed Violation(s) Associated with this Mitigation Plan

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

NERC Violation ID #	Reliability Standard	Requirement Number	Violation Risk Factor	Alleged or Confirmed Violation Date <sup>(*)</sup>	Method of Detection ( <i>e.g.</i> , Audit, Self-report, Investigation)
RFC2009 00185	PRC-005	R2.1	High	9/30/2009	Self-Certification

(\*) Note: The Alleged or Confirmed Violation Date shall be expressly specified by the Registered Entity, and subject to modification by ReliabilityFirst, as: (i) the date the Alleged or Confirmed violation occurred; (ii) the date that the Alleged or Confirmed violation was self-reported; or (iii) the date that the Alleged or Confirmed violation has been deemed to have occurred on by ReliabilityFirst. Questions regarding the date to use should be directed to the ReliabilityFirst contact identified in Section G of this form.

C.2 Identify the cause of the Alleged or Confirmed violation(s) identified above. Additional detailed information may be provided as an attachment.

PPL Electric Utilities Corporation ("PPL EU") has a transmission and distribution substation Protection System Testing and Maintenance Program, which establishes a six year testing interval for Sub-Transmission devices. As discussed below, certain Protection System devices were not tested within the six year testing interval.

PPL EU previously concluded that its 230/69kV transformer protection relays, and associated 69kV circuit breaker failure relays were not part of the Bulk Electric System ("BES") for purposes of being subject to Reliability Standard PRC-005.

Regional Entity responses to recent Requests for Interpretation have led PPL EU to believe that lower voltage facilities may in fact be considered as having an impact on the BES and be subject to PRC-005. PPL EU has in place a

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transmission and distribution substation Protection System Testing and Maintenance Program for networked facilities 138 kV and above (transmission), for 69 kV and radial 138 kV facilities (sub-transmission), and for below 69 kV facilities (distribution). The Protection Systems identified to date that PPL EU did not consider part of the BES include relay schemes related with 230/69kV transformer connections and related 69kV breaker failure schemes. Thus, while tested from time to time, such facilities were not tested with the frequency and regularity of PPL EU's testing program established for BES facilities (four year cycle). PPL EU's program generally provides for a six-year cycle for non-BES 69 kV and radial 138 kV facilities, though some of the tests had been deferred and not performed within the six year cycle. As of November 18, 2009, approximately 74 of the subject relays have not been tested in accordance with the six year cycle, per PPL EU's procedures (including auxiliary relays). PPL EU's maintenance and testing program includes both BES equipment, subject to the NERC reliability standards, and non-BES equipment. PPL EU gave priority to the BES portion subject to mandatory reliability standards.

With regard to PPL EU tapped 230/69kV transformer connections and associated 69kV breaker failure schemes, the PPL EU system is designed such that the BES transmission line will be momentarily interrupted allowing the transformer high side disconnecting device to isolate the failed equipment. The PPL EU design effectively isolates the faulted equipment and allows for continued network operation of the BES following a momentary interruption. PPL EU previously believed this momentary event did not adversely affect the reliable steady state operation of the BES.

Note: If a formal root cause analysis evaluation was performed, submit a copy of the summary report.

- C.3 Provide any additional relevant information regarding the Alleged or Confirmed violations associated with this Mitigation Plan. Additional detailed information may be provided as an attachment.

PPL EU self-certified non-compliance on September 30, 2009, and additional information was provided on a Violation Self-Reporting Form submitted on October 6, 2009. The self-report indicated that the Protection Systems that PPL EU did not consider part of the BES are relay schemes associated with transformers connected to the BES that supply load, as well as related 69kV breaker failure schemes. As part of this Mitigation Plan, PPL EU will conduct a review to determine if any of its Protection System facilities other than these relay schemes may affect the steady state operation of the BES. If any additional relays are identified, testing will be completed in accordance with the actions identified in this Mitigation Plan. These relays will be included as part of the PRC-005 testing program to the extent not already included.



## Section D: Details of Proposed Mitigation Plan

### 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 Alleged or Confirmed violations identified above in Part C.1 of this form. Additional detailed information may be provided as an attachment.

PPL EU plans to take the following steps as part of its Mitigation Plan:

- D.1.1 Submit request for interpretation of the Reliability*First* Bulk Electric System Definition to determine the applicability of PRC-005 to certain relays.
- D.1.2 Identify the universe of Protection System facilities not currently subject to PPL EU's PRC-005 maintenance and testing program that should be subject to the program because they have an impact on the BES (the "Identified Facilities").
- D.1.3 Amend PPL EU Transmission & Distribution Substation Protection System Testing and Maintenance Program and Practices to clarify sub-transmission facilities identified as part of PRC-005 testing. PPL EU's amended program document will address how new facilities or changes to existing facilities will be classified and included in its testing program.
- D.1.4 Submit additional request(s) for interpretation to RFC (if required) to the extent PPL EU desires clarification as to whether additional facilities should be included in its PRC-005 testing program ("Additional Identified Facilities").
- D.1.5 Develop training materials and identify roster of individuals to receive training; and conduct training regarding the PRC-005 maintenance and testing program.
- D.1.6 Initiate testing of Identified Facilities and conduct any maintenance dictated by test results (already in progress). PPL EU is generally prioritizing the testing so that the most out of date tests are being performed as soon as reasonably practicable, considering the need for equipment outages.



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### D.1.7 Complete maintenance and testing of Identified Facilities

## Mitigation Plan Timeline and Milestones

- D.2 Provide the date by which full implementation of the Mitigation Plan will be, or has been, completed with respect to the Alleged or Confirmed violations identified above. State whether the Mitigation Plan has been fully implemented, and/or whether the actions necessary to assure the entity has returned to full compliance have been completed.

The Mitigation Plan will be completed by June 30, 2010. On or before this date, PPL EU will be fully compliant with Protection System testing and maintenance requirements of Reliability Standard PRC-005. Mitigation Plan steps D.1.3 and D.1.5 will prevent or minimize the risk of future violations. The remaining steps of the Mitigation Plan will bring PPL EU into full compliance.

- D.3 Enter Key Milestone Activities (with due dates) that can be used to track and indicate progress towards timely and successful completion of this Mitigation Plan.

Key Milestone Activity	Proposed/Actual Completion Date* (shall not be more than 3 months apart)
D.1.1 - Submit a request for interpretation of the ReliabilityFirst Bulk Electric System Definition to determine the applicability of PRC-005 to certain relays.	Completed (October 22, 2009)
D.1.3 - Amend PPL EU Transmission & Distribution Substation Protection System Testing and Maintenance Program and Practices to clarify sub-transmission facilities identified as part of PRC-005 testing.	December 15, 2009
D.1.5 - Develop training materials and identify roster of individuals to receive training; Conduct training regarding the PRC-005 maintenance and testing program.	January 29, 2010
D.1.2 - Identify universe of facilities not currently subject to PPL EU's PRC-005 maintenance and testing program that should be subject to the program because they have an impact on the BES.	January 29, 2010

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D.1.4 - Submit additional request(s) for interpretation to RFC (if required).	February 26, 2010
D.1.7.i - Complete maintenance and testing of 40% of Identified Facilities.	April 16, 2010
D.1.7.ii - Complete maintenance and testing of 100% of Identified Facilities.	June 30, 2010

(\*) Note: Additional violations could be determined for not completing work associated with accepted milestones.

As a prerequisite to completing testing and maintenance, certain outages must be approved by PJM. To the extent PJM denies an outage request or delays a scheduled outage, additional time may be required to complete testing and maintenance. This is a factor outside of PPL EU's control. PPL EU will promptly inform RFC if PJM's outage scheduling causes any delays to the proposed completion date of this Mitigation Plan. A further prerequisite to completing testing and maintenance may include making one or more requests for clarification to RFC, as discussed above. If PPL EU, acting in good faith, will be unable to complete the Mitigation Plan or any of the milestones included therein, PPL EU will request an extension pursuant to Section 6.3 of the ReliabilityFirst Compliance Monitoring and Enforcement Program.



## **Section E: Interim and Future Reliability Risk**

### **Abatement of Interim BPS Reliability Risk**

E.1 While your organization is implementing this Mitigation Plan the reliability of the Bulk Power System (BPS) 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 to mitigate this increased risk to the reliability of the BPS. Additional detailed information may be provided as an attachment.

(i) A sustained outage on the BES may occur as a result of a failure of the relay schemes related with 230/69kV transformer connections. The risk to the BES is considered low based on the following:

- There is a relatively low probability of a 230/69kV transformer failure based on PPL EU experience;
- The 230/69kV transformer protection scheme uses both primary and backup relays; and
- Relatively low failure rate of the transformer relays based on PPL EU experience.

In addition, PPL EU operates its BES to first contingency limits. If a 230kV line tripped, the remainder of the system would have remained stable, secure and remaining facilities operating within applicable voltage and thermal limits.

Regarding the 69kV breaker failure scheme, other equipment must fail to operate as intended to cause a sustained outage on the BES, resulting in low risk to the BES. The probability of a 69kV breaker failing to operate is relatively low since routine maintenance is performed on this equipment.

(ii) As indicated previously, these lower voltage facilities are subject to testing but currently are not subjected to the testing frequency and regularity that PPL EU's program and procedures impose on BES facilities. As noted above, PPL EU is seeking to prioritize testing, to the extent practicable, based on the time of the last test. In order to conduct detailed testing of the Identified Facilities, outages of the electrical system, which take time to coordinate and execute, may need to be scheduled. PPL EU is making efforts to expedite the date by which the Mitigation Plan work will be completed.



## **Prevention of Future BPS Reliability Risk**

- E.2 Describe how successful completion of this Mitigation Plan by your organization will prevent or minimize the probability that the reliability of the BPS incurs further risk of similar violations in the future. Additional detailed information may be provided as an attachment.

Once this Mitigation Plan is completed, PPL EU's facilities with an impact on the BES will be fully tested and will be tested on the regular schedule prescribed for facilities that have an impact on the BES pursuant to PPL EU's modified testing program. PPL EU's amended program document will address how new facilities or changes to existing facilities will be classified and included in its testing program. PPL EU's training on the identification of such facilities will be designed to ensure that any additional facilities that should be subject to the BES testing program are identified and included in the testing schedule for such program.

Successful completion of this mitigation plan will not only promote compliance with PRC-005, but will also help to promote compliance with other Standards; e.g., PRC-004, Analysis and Mitigation of Transmission and Generation Protection System Misoperations, PRC-008, Underfrequency Load Shedding Equipment Maintenance Programs, and PRC-017, Special Protection System Maintenance and Testing.

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**Section F: Authorization**

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

- a) Submits this Mitigation Plan for acceptance by ReliabilityFirst and approval by NERC, and
- b) If applicable, certifies that this Mitigation Plan was completed on or before the date provided as the 'Date of Completion of the Mitigation Plan' on this form, and
- c) Acknowledges:
  - 1. I am Vice President of PPL Electric Utilities Corporation.
  - 2. I am qualified to sign this Mitigation Plan on behalf of PPL Electric Utilities Corporation.
  - 3. I have read and am familiar with the contents of this Mitigation Plan.
  - 4. PPL Electric Utilities Corporation agrees to comply with, this Mitigation Plan, including the timetable completion date, as accepted by ReliabilityFirst and approved by NERC.

**Authorized Individual Signature**

A handwritten signature in black ink, appearing to read "David E. Schleicher", written over a horizontal line.

Name (Print): David E. Schleicher

Title: VP Transmission

Date: 12-3-09

**Section G: Regional Entity Contact**

Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.





## Attachment A – Compliance Notices & Mitigation Plan Requirements

- I. Section 6.2 of the CMEP<sup>1</sup> 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.
  - (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) Key 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.
- II. This submittal form must be used to provide a required Mitigation Plan for review and acceptance by ReliabilityFirst and approval by NERC.
- III. This Mitigation Plan is submitted to ReliabilityFirst and NERC as confidential information in accordance with Section 1500 of the NERC Rules of Procedure.
- IV. This Mitigation Plan Submittal Form may be used to address one or more related Alleged or Confirmed violations of one Reliability Standard. A separate

<sup>1</sup> "Compliance Monitoring and Enforcement Program" of the ReliabilityFirst Corporation;" a copy of the current version approved by the Federal Energy Regulatory Commission is posted on the ReliabilityFirst website.

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mitigation plan is required to address Alleged or Confirmed violations with respect to each additional Reliability Standard, as applicable.

- V. If the Mitigation Plan is accepted by ReliabilityFirst and approved by 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.
- VI. ReliabilityFirst or NERC may reject Mitigation Plans that they determine to be incomplete or inadequate.
- VII. Remedial action directives also may be issued as necessary to ensure reliability of the BPS.

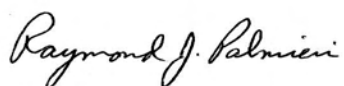
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## DOCUMENT CONTROL

**Title:** Mitigation Plan Submittal Form  
**Issue:** Version 2.0  
**Date:** 11 July 2008  
**Distribution:** Public  
**Filename:** ReliabilityFirst Mitigation Plan Submittal Form - Ver 2.DOC  
**Control:** Reissue as complete document only

## DOCUMENT APPROVAL

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo	Raymond J. Palmieri		
Senior Consultant	Vice President and		1/2/08
Compliance	Director		
	Compliance		

## DOCUMENT CHANGE/REVISION HISTORY

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue – Replaces “Proposed Mitigation Plan” Form	1/2/08
2.0	Tony Purgar	Revised email address from <a href="mailto:compliance@rfirst.org">compliance@rfirst.org</a> to <a href="mailto:mitigationplan@rfirst.org">mitigationplan@rfirst.org</a>	7/11/08



## **Attachment f**

**PPL EU's Certification of Completion of the  
Mitigation Plan for PPL EU's second alleged  
violation of FAC-003-1 R2 RFC200900142 dated  
December 31, 2009**



## **Certification of Mitigation Plan Completion**

Submittal of a Certification of Mitigation Plan Completion shall include data or information sufficient for ReliabilityFirst Corporation to verify completion of the Mitigation Plan. ReliabilityFirst Corporation 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)

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Registered Entity Name: PPL Electric Utilities Corporation (PPL EU)

NERC Registry ID: NCR-00884

Date of Submittal of Certification: December 31, 2009

NERC Violation ID No(s): RFC200900142

Reliability Standard and the Requirement(s) of which a violation was mitigated: FAC-003-1, R2.

Date Mitigation Plan was scheduled to be completed per accepted Mitigation Plan: December 31, 2009

Date Mitigation Plan was actually completed: December 23, 2009

Additional Comments (or List of Documents Attached):

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

Name: David E. Schleicher

Title: VP Transmission

Email: deschleicher@pplweb.com

Phone: 610-774-4411

Authorized Signature

A handwritten signature in black ink, appearing to read "D. Schleicher", written over a horizontal line.

Date 12.31.09



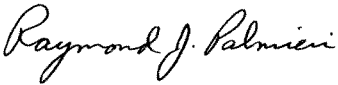
Please direct completed forms or any questions regarding completion of this form to the ReliabilityFirst Compliance e-mail address [mitigationplan@rfirst.org](mailto:mitigationplan@rfirst.org).

Please indicate the company name and reference the NERC Violation ID # (if known) in the subject line of the e-mail. Additionally, any ReliabilityFirst Compliance Staff member is available for questions regarding the use of this form. Please see the contact list posted on the ReliabilityFirst Compliance web page.

## DOCUMENT CONTROL

**Title:** Certification of Mitigation Plan Completion  
**Issue:** Version 1  
**Date:** 5 January 2008  
**Distribution:** Public  
**Filename:** Certification of a Completed Mitigation Plan\_\_Ver1.doc  
**Control:** Reissue as complete document only

## DOCUMENT APPROVAL

Prepared By	Approved By	Approval Signature	Date
Robert K. Wargo Manager of Compliance Enforcement	Raymond J. Palmieri Vice President and Director Compliance		1/5/2009

## DOCUMENT CHANGE/REVISION HISTORY

Version	Prepared By	Summary of Changes	Date
1.0	Robert K. Wargo	Original Issue	1/5/2009

## **Attachment g**

### **ReliabilityFirst's Verification of Completion of the Mitigation Plan for PPL EU's second alleged violation of FAC-003-1 R2 RFC200900142 dated January 20, 2010**

January 20, 2010

**Summary and Review of Evidence of Mitigation Plan Completion**

<b>NERC Violation ID #:</b>	<b>RFC200900142</b>
<b>NERC Plan ID:</b>	<b>MIT-08-2044</b>
<b>Registered Entity;</b>	<b>PPL Electric Utilities Corporation</b>
<b>NERC Registry ID:</b>	<b>NCR00884</b>
<b>Standard:</b>	<b>FAC-003-1</b>
<b>Requirement:</b>	<b>2</b>
<b>Status:</b>	<b>Compliant</b>

PPL Electric Utilities Corporation (“PPL EU”) submitted a Self Report of noncompliance with NERC Reliability Standard FAC-003-1, Requirement 2, on June 12, 2009. PPL EU submitted a Proposed Mitigation Plan to ReliabilityFirst Corporation (“ReliabilityFirst”) on September 23, 2009, stating PPL EU would complete all mitigating actions on December 31, 2009. This Mitigation Plan, designated MIT-08-2044, was accepted by ReliabilityFirst on October 5, 2009 and approved by NERC on October 16, 2009.

**Review Process:**

On December 31, 2009, PPL EU certified that the Mitigation Plan for FAC-003-1, Requirement 2 was completed as of December 23, 2009. ReliabilityFirst requested and received evidence of completion for actions taken by PPL EU as specified in the Mitigation Plan. ReliabilityFirst performed an in depth review of the information provided to verify that all actions specified in the Mitigation Plan were successfully completed. These actions, and the evidence showing their completion, are set out below.

**FAC-003-1, Requirement 2** states: “The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.”

**Evidence Submitted:**

In the Mitigation Plan, PPL EU committed to develop and present to PPL EU employees training materials to reinforce the requirements FAC-003-1 as well as the requirements of the PPL EU Transmission Vegetation Management Plan (“TVMP”). These training materials were created to ensure proper implementation of PPL EU’s TVMP.

In order to show completion of these actions, PPL EU submitted the training materials it developed. These materials discuss in detail the processes described in PPL EU's TVMP for identifying vegetation that could cause an outage and the processes for clearing such vegetation. Furthermore, these materials discuss some examples of enforcement actions arising from other Registered Entities' failure to implement their respective TVMPs. PPL EU also submitted the attendance rosters for presentations of these materials given on September 25, 2009, October 6, 2009, October 8, 2009, October 19, 2009, October 21, 2009, October 22, 2009, and October 28, 2009.

#### **Evidence Submitted:**

In the Mitigation Plan, PPL EU also committed to revise its PPL Transmission Vegetation Management Program ("TVMP") to explain that the Clearance 2 distance defined therein is the minimum clearance that must be maintained at all times and that verified Clearance 2 encroachments must be reported through PPL EU's NERC non-conformance reporting process.

In order to show completion of this action, PPL EU submitted Revision 3 of its TVMP, dated December 22, 2009 and made effective December 31, 2009. This revised TVMP amended certain sections of the previous PPL EU TVMP regarding the identification of vegetation encroachments that could cause outages and the clearing of that vegetation.

Section I - Introduction was amended to reflect more accurate BES mileage as determined from LiDAR. PPL Transmission Line Miles (200kV and above) identifies that PPL EU manages vegetation on or adjacent to 1,351 circuit miles of transmission line (200 kV and above) by region.<sup>1</sup>

Section IV – Compliance Criteria was amended to clarify procedural requirements in the event of vegetation encroachment of defined compliance criteria. "PPL Electric Utilities' goal is that vegetation should never encroach into Clearance 2 distances. PPL Electric Utilities recognizes Clearance 2 as the minimum distance that must be maintained between conductors and vegetation under all rated electrical operating conditions to prevent flashover occurrence. Encroachments within Clearance 2, whether on an as-observed or maximum sag adjusted basis, are not permitted. As further discussed herein, an as-observed Clearance 2 encroachment must be treated as an imminent threat. Vegetation Management ("VM") will contact the Power System Dispatcher (PSD) by telephone to provide the location of the Clearance 2 encroachment. All maximum sag adjusted Clearance 2 encroachments must be assessed to determine if they represent an imminent threat. This assessment is provided from both field observation of the reported condition and from the PSD assessment of the BES system. The PSD, in consultation with VM staff, will determine whether the encroachment presents an imminent threat. Any field-verified Clearance 2 encroachment, whether reported to PPL Electric Utilities on an as-observed

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<sup>1</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;3.

or maximum sag adjusted basis, must be reported through PPL Corporation's NERC non-conformance process.”<sup>2</sup>

Section IV - Compliance Criteria, part A was amended to define maximum determination. “PPL Electric Utilities has defined, based on the Institute of Electrical and Electronics Engineers ("IEEE") Standard, the 500 kV & 230 kV Clearance 2 requirement to be 8.9 feet and 5.2 feet, respectively. This PPL Electric Utilities Clearance 2 requirement definition is based on IEEE Standard 516-2003.”<sup>3</sup>

Section IV – Compliance Criteria, part C amended PPL EU’s Wire Security Zone (“WSZ”) to define required remediation actions in the event of a WSZ encroachment by desirable vegetation and to clarify WSZ distance to be applied to PPL EU Line # 128. “The WSZ warning approach and three step process above are intended to permit PPL Electric Utilities Vegetation Management personnel to systematically and efficiently handle vegetation before it encroaches on the minimum required IEEE Clearance 2 distances. Note again that the WSZ distances in PPL Electric Utilities specification LA-79827-7 provided to vegetation management contractors are purposely greater than the minimum distances for Clearance 2 (per the IEEE Standard).”<sup>4</sup>

Section V – Identification of Transmission Clearing incorporated the use of LiDAR technology and responsibilities of VM personnel in relation to reported conditions and the process for PPL EU engineering reviews of data to determine validity of reported conditions. “Light Detection and Ranging is a remote sensing system used to collect topographic data by air. PPL Electric Utilities may from time to time utilize LiDAR technology in its vegetation management monitoring, as a supplement to or in lieu of, the aerial inspection system discussed above. During flight, LiDAR-equipped aircraft pulses a high frequency laser beam toward the earth. The LiDAR sensor records the time difference between the emission of the laser beam and the return of the reflected laser signal to the aircraft. LiDAR is generally employed in tandem with Global Positioning Service (GPS) sensors. As the LiDAR sensor collects data points, the location of the data are simultaneously recorded by the GPS sensor. After the flight, the data are downloaded and processed using specially designed computer software. The end product is expected to be accurate, geographically registered longitude, latitude, and elevation positions for every data point. As Surveyed/Observed LiDAR results generally would reflect actual distance readings between data points, such as transmission lines and vegetation, at the point in time the flight is made. PPL Electric Utilities' LiDAR contractor employs an algorithm to adjust the asobserved readings to reflect the potential for deterioration in conditions, such as conditions that may cause the transmission line to approach or reach maximum sag. To the extent maximum sag conditions as reflected in the contractor's data exceed those that are expected to occur due to existing operational limitations on a transmission line that vary from its design limits or other factors, PPL Electric Utilities may determine that actual distances that may be reached between transmission lines and vegetation vary from the LiDAR results provided by its contractor (i.e., limitations preclude maximum sag on the line from reaching the design parameter maximum

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<sup>2</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;7.

<sup>3</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;7.

<sup>4</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;8.



sag). The LiDAR vendor will provide to PPL Electric Utilities VM representatives copies of LiDAR reports for various transmission line spans after the spans are surveyed. These reports provide information regarding the identification of the transmission line by PPL Electric Utilities name and number, distance between vegetation and conductor and type of vegetation concern, among other data points.<sup>5</sup>

Section VI – Transmission Vegetation Management Approved Procedures, part A incorporated the LiDAR tool for inspection process. “The annual transmission scope of work may be derived by aerial inspections, ground patrols and/or LiDAR patrols as follows:

- ♦ All transmission lines on the Company's system are routinely surveyed by helicopter once a year unless an alternate technology such as LiDAR is employed. These routine aerial surveys generally are initiated in May and completed by August of each calendar year. LiDAR is generally conducted during the late summer or fall timeframe.”<sup>6</sup>

Section VI - Transmission Vegetation Management Approved Procedures, part C was amended to strengthen Imminent Threat Procedure for expectations and requirements of when to declare vegetation related imminent threats. “VM personnel shall report C2 encroachments identified under all operating conditions to the PSD as an actual or potential imminent threat. All as-observed C2 conditions shall be treated as imminent threats. Any maximum sag adjusted C2 condition that is reported to the PSD shall be assessed to determine if it constitutes an imminent threat or shall be treated as an imminent threat. Other conditions may be deemed imminent threats depending on the circumstances. Any condition that is likely to cause a sustained outage at any moment should be identified as an imminent threat. When an imminent threat exists, the PPL Electric Utilities employee (e.g., Vegetation Management or Distribution Operations personnel) is required to notify the PSD of the concern; providing the PSD with all pertinent details regarding line designation, location and extent of the concern.”<sup>7</sup>

Section VI - Transmission Vegetation Management Approved Procedures, part D was amended to incorporate LiDAR and use of new software used to track work audit data. “The VM audit procedure enables PPL Electric Utilities to monitor and verify compliance with NERC FAC 003-1 through the proper execution of its Transmission Vegetation Management Program requirements. The object of the audit process is to ensure proper completion of work tasks and scope of work as defined below. A standard audit report is completed and maintained in the appropriate regional office.”<sup>8</sup>

Appendix A – Specifications For Initial Clearing And Control Maintenance Of Vegetation On Or Adjacent to Electric Line Right-of-Way Through Use Of Herbicides, Mechanical, And Hand-Clearing Techniques, LA-79827-7, was amended to reflect specification update as approved July 16, 2009.

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<sup>5</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;11-13.

<sup>6</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;14.

<sup>7</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;15.

<sup>8</sup> PPL EU, TVMP, Version 3, December 31, 2009, p;15.

Appendix B – Contract For Line Clearing Services, \_\_\_\_\_ Region, Between PPL Electric Utilities And \_\_\_\_\_ was amended to reflect the new contract format.

Appendix D – Emergent Work Remediation Time Table was amended to reflect LiDAR data considerations and incorporate PPL EU engineering review timelines.

Appendix F – Aerial Line Inspection Process was omitted.

Appendix H – Work Actions Flow Charts was added for vegetation encroachments on As Observed and At max-Sag adjusted conductor conditions as reported from LiDAR and other sources.

Finally, in the Mitigation Plan, PPL EU committed to perform an assessment of its 230 kV and 300 kV bulk power system using LiDAR technology. As discussed more fully in the Settlement Agreement, PPL EU discovered the encroachments resulting in the instant violation using LiDAR, and it determined that a LiDAR assessment was the most appropriate method of evaluating the vegetation clearing work performed to remediate those encroachments.

In order to show completion of this action, PPL EU submitted a preliminary report of the LiDAR findings on October 16, 2009 and a final report dated December 31, 2009. This report details the results of a LiDAR survey conducted over 1,351 miles of transmission lines.

PPL EU confirmed the existence of six (6) locations at which maximum sag adjusted C2 encroachments existed. These conditions were reported on PPL EU's Northwood-Quarry Line # 414 with one (1) validated maximum sag adjusted C2 encroachment, Alburtis-Branchburg Line # 401 with one (1) validated maximum sag adjusted C2 encroachment, Hosensack-Steel City Line # 407 with one (1) validated maximum sag adjusted C2 encroachment, and Hosensack-Buxmont #3 Line 406 with three (3) validated maximum sag adjusted C2 encroachments. Additionally, the GDI Clearance Condition Reports identified one hundred eighty-eight (188) other potential C2 encroachments under maximum sag adjusted conditions. However, PPL EU's engineering review has concluded none of these reported conditions were valid, as discussed below. These encroachment conditions have been remediated as required by PPL EU's TVMP and its Supplement dated September 16, 2009. Details of the field verification and remediation, and results of engineering assessments are included Attachment 2 – PPL EU Compliance Condition Reports.

**Review Results:**

ReliabilityFirst reviewed the evidence the PPL EU submitted in support of its Certification of Completion. On January 20, 2010, ReliabilityFirst verified that the Mitigation Plan was completed in accordance with its terms and has therefore deemed PPL EU compliant to the aforementioned NERC Reliability Standard.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Robert K. Wargo", with a long horizontal flourish extending to the right.

Robert K. Wargo  
Manager of Compliance Enforcement  
ReliabilityFirst Corporation

**Attachment h**

**Notice of Filing**

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

PPL Electric Utilities Corporation

Docket No. NP10-\_\_\_\_-000

NOTICE OF FILING  
March 31, 2010

Take notice that on March 31, 2010, the North American Electric Reliability Corporation (NERC) filed a Notice of Penalty regarding PPL Electric Utilities Corporation in the Reliability *First* Corporation 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](mailto:FERCOnlineSupport@ferc.gov), or call (866) 208-3676 (toll free). For TTY, call (202) 502-8659.

Comment Date: [BLANK]

Kimberly D. Bose,  
Secretary