

FAC-001-0

Facility Connection Requirements

Matrix Document

The purpose of this document is to better clarify how PPL EU meets the requirements identified in FAC-001-0. As will be illustrated, PPL EU has several documents that address each requirement of the Standard. It should be understood, however, that such documents, although written for specific purposes, can apply to any and all facility connection requirements related to Generation, transmission or end-user facilities. Where applicable, the intent of this document is to identify the specific language relating to the appropriate sub-requirement. In addition, PPL EU has identified other PJM related documents that support or provide additional guidance for specific requirements.

The format used in this document is to identify the FAC-001 requirement and then discuss the specific internal or external language that supports the requirement. Specific sections, paragraphs or page numbers are referenced and those specific pages are included as attachments. Below is a listing of the reference documents identified in supporting this effort:

1. PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13.”
2. PPL EU Document “Reliability Principles and Practices – January 2004 Revision.”
3. PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1.”
4. PPL EU Document SPR-249, Harmonics Guidelines
5. PPL EU Document SPR-640, Flicker Guideline
6. PPL EU Document DPI 204, Enhanced Work Methods Policy
7. PPL EU Document "Guideline for Application of Regional Sectionalizing to Connect a Transmission Customer"
8. PPL EU Document “Currently Effective Tariff Electric Pa. P.U.C. No. 201”
9. PPL EU Document “Procedure 2-108 Ground Grid Design”
10. PPL EU Document “Clarifying Procedure - Development of Operating Instructions For Facilities Connected to the PPL EU Transmission System”
11. PJM Open Access Transmission Tariff (OATT)
12. PJM Manual 1
13. PJM Manual 3
14. PJM Manual 3A
15. PJM Manual 13
16. PJM Manual 14A
17. PJM Manual 14C
18. PJM Manual 14D
19. PJM Manual 14E
20. PJM document V.N (PJM Insulation Coordination and Surge Protection)

21. PJM Relay Subcommittee “Protective Relaying Philosophy and Design Standards”
22. PJM Relay Subcommittee "Process for Performing Relay Work (settings/design) for Interconnection Lines in the PJM System"

Requirement Matrix

R1. The Transmission Owner shall document, maintain, and publish facility connection requirements to ensure compliance with NERC Reliability Standards and applicable Regional Reliability Organization, subregional Power Pool and individual Transmission Owner planning criteria and facility connection requirements. The Transmission Owner’s facility connection requirements shall address connection requirements for:

R1.1 Generation Facilities – This is primarily addressed by **PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13, 12/11/2009.”** The PPL EU document is also supported by the PJM Open Access Transmission Tariff, part IV.

R1.2 Transmission Facilities – This is primarily addressed by **PPL EU Document “Reliability Principles and Practices – January 2004 Revision.”** In addition, the PJM Transmission Owner Guidelines, published by the PJM Transmission & Substation Design Committee, provide additional guidance.

R1.3 End-user Facilities – This is primarily addressed by **PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007.”** As above, the PJM Transmission Owner Guidelines, published by the PJM Transmission & Substation Design Committee, provide additional guidance.

R2. The Transmission Owner’s facility connection requirements shall address, but are not limited to, the following items:

R2.1 Provide a written summary of its plans to achieve the required system performance as described above throughout the planning horizon: – Refer to PPL EU document:

- (a) “Procedure for the Connection of Generation, Transmission, or End-user Facilities To Achieve Required System Performance”, dated June 24, 2010, (Attachment A)

Also, written summaries of plans to achieve required system performance objectives are:

- **Generation facility interconnection plans are summarized in the Feasibility, Impact and Facility study reports**, which are a joint undertaking between PPL EU and PJM through the PJM Interconnection queue. Refer to PJM Open Access Transmission Tariff (OATT), Part IV, Subpart A, Section 36, pp. 272-273 for the procedure. (Attachment B)

- **Transmission facility interconnection plans are summarized within the PJM RTEP Baseline reports, which describe the planning concern and the proposed remedy.** In addition, PPL EU maintains individual summary documents of all transmission related system upgrades required to maintain the level of reliability identified in the PPL EU “Reliability Principles and Practices” document mentioned above. Refer to PJM Open Access Transmission Tariff (OATT), Part IV, Subpart A, Section 36, pp. 273-275 for the procedure. (Attachment B)
- **End-user facility interconnections plans** are summarized in planning Method of Supply documents and other internal documents that review protection, coordination and equipment short circuit issues. Refer to PJM Open Access Transmission Tariff (OATT), Part IV, Subpart A, Section 36, pp. 273-275 for the procedure (Attachment B), and also the **Currently Effective Tariff Electric Pa. P.U.C. No. 201**, which includes the rules and rates schedules for electric service. (Attachment C)

R2.1.1 Procedures for coordinated joint studies of new facilities and their impacts on the interconnected transmission systems.

Refer to PPL EU documents:

- (a) “Procedure for the Connection of Generation To The PPL EU Transmission System”, dated June 10, 2009, (Attachment D.0a & D.0b) and,
- (b) “Procedure for the Connection of Transmission or End-user Facilities To The PPL EU Transmission System”, dated June 10, 2009. (Attachment D.0c, D.0d, D.0e & D.0f)

Both documents are available on the PPL Electric Utilities website.

- **For Generation Interconnection Studies, the procedures that are followed are documented in:**
 - PJM Open Access Transmission Tariff – Section IV, subpart A “Interconnection Procedures”, section 36.1.01, pp. 272-273 (Attachment D.1a).
 - PJM Manual 14A – Introduction to the Generation and Transmission Interconnection Process, Revision 9, Sections 2 and 3, pp. 9-20 (Attachment D.1b).
- **For Transmission Interconnection studies, the procedures that are followed are documented in:**
 - PJM Open Access Transmission Tariff – Section IV, subpart A “Interconnection Procedures”, section 36.1.03, pp. 273-275. (Attachment D.2a)
 - PJM Manual 14A – Introduction to the Generation and Transmission Interconnection Process, Revision 9, Section 2, pp. 9-16. (Attachment D.2b)

- **For End-user (customers) Interconnection studies, the procedures that are followed are documented in:**
 - PPL EU document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” p. 5, section 1.1 “Initiating a Request to Add or Modify Customer Connections.” (Attachment D.3a)
 - Also included is the typical information Form customers must complete to initiate the interconnection review. This Form is included in Attachment D.3a.

R2.1.2 Procedures for notification of new or modified facilities to others (those responsible for the reliability of the interconnected transmission systems) as soon as possible.

- **For Generation Interconnection, Transmission Interconnection, or End-user (customers) Studies, the procedures that are followed are documented in:**
 - Procedures for notification of new or modified facilities are identified in PJM Manual 3A – Energy Management System Model Updates and Quality Assurance, Revision 6, Section 3, pp. 18-22. (Attachment E.1a)
 - In addition, the PJM Relay Subcommittee has an internal three step procedure for interconnection of facilities between Transmission Owners. The procedure is documented in "Process for Performing Relay Work (settings/design) for Interconnection Lines in the PJM System", document # 627601, 8/19/10. The process is briefly described here -- The first step of this process is to have the necessary TO's agree on the scope of work involved in this project. The second step is to ensure that the TO's mutually agree on the protective relay settings at the remote terminals. Finally, the third step is to perform commissioning of the protective systems and declare the transmission facility in service. (Attachment E.2a)
 - Beyond this, PJM tracks the status of new or modified RTEP projects within the transmission system monthly. An example of that status report is included. (Attachment E.3a)

For the remainder of the requirements, PPL EU understands that it must show, in its connection requirement documentation, where each attribute is identified. With this understanding, please note the following:

R2.1.3 “Voltage Level and MW and MVAR Capacity or Demand at Point of Interconnection.”

- **For Generation facilities:**
 - PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13 identifies the need to review voltage level (p. 84, item 1.11 under Items To Be Discussed During the Project). (Attachment F.1a)
 - PJM Manual 14C – Generation and Transmission Interconnection Facility Construction, Revision 5, Section 3, pp. 36-39, which also references the OATT, Part IV, subpart E, section 50.6. (Attachment F.2d)
 - PJM Manual 14A – Generation and Transmission Interconnection Process, Revision 9, Attachments F & G, pp. 85-97. (Attachment F.1c)
- **For Transmission facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision at Section C, pp. 28-30, Part VIII, applies to voltage levels from 100 kV to 200 kV. (Attachment F.2a) For the Bulk Power system (200 kV and above), voltage / var control is documented in Section D, pp. 20-23, Part VI and Part VII. (Attachment F.2b)
 - Also reference PJM Manual 3 – Transmission Operations, Revision 38, Section 3, p. 31. (Attachment F.2c)
 - PJM Manual 14C – Generation and Transmission Interconnection Facility Construction, Revision 5, Section 3, pp. 36-39, which also references the OATT, Part IV, subpart E, section 50.6. (Attachment F.2d)
- **For End-user facilities:**
 - PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007” pp. 10-11, section 1.7. (Attachment F.3a)
 - It should be noted that PPL EU Tariff does not have a power factor clause. PPL EU is responsible for ensuring adequate reactive support exists at each voltage level. (Attachments F.2a and F.2b)

R2.1.4 “Breaker Duty and Surge Protection.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” pp. 24-25, sections 4.6.3, 4.6.4, and 4.6.5, indicate that breaker duty and surge protection must be considered at the interconnection substation. (Attachment G.1a) For generation only, also included is the reference from the generator requirements document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” p. 34, which cross references the above document.
 - For 200 kV and above, the PJM document V.N (PJM Insulation Coordination and Surge Protection) is also used as a guiding document. (Attachment G.1b)

R2.1.5 “System Protection and Coordination.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” Section H, p. 1, items 1 through 4 describes the protection criteria adhered in all situations; and also Section H, pp. 34-39 for generator facilities. Section H, pp. 6-17 and pp. 29-34 apply to transmission and end-user facilities. (Attachment H.1a)
 - In addition, the Point of Contact Requirements document (see pp. 5, 12-13, 90), sections 1.2, 2, and 8, supports the philosophy identified in the PPL EU Reliability Principles & Practices. (Attachment H.1b)
 - Another guiding document is the PJM Relay Subcommittee Protective Relaying Philosophy and Design Standards, Revision 3, dated 6/1/2003. (Attachment H.1c)
 - Also Reference PJM OATT, Appendix 2, Section 4.9.1, p. 1795 (Attachment H.1d)

R2.1.6 “Metering and Telecommunications.”

- **For Generation facilities and Transmission facilities:**
 - PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” section 1.5, p. 21; applicable to only generator installations. (Attachment I.1a).
 - The PJM OATT also discusses metering and telecommunications in Appendix 2, Section 8, pp. 1818-1822 (Attachment I.1b) and in Section 24, pp. 198-201 (Attachment I.1c),
 - PJM Manual 1 – Control Center and Data Exchange Requirements, Revision 19, Section 5, pp. 33-40 (Attachment I.1d)

- **For End-user (customer) facilities:**
 - Refer to PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” p. 6, section 1.3; applicable to only End-user installations. (Attachment I.2a)
 - In addition, for FERC jurisdictional customers (>100 kV), reference PJM Manual 1 – Control Center and Data Exchange Requirements, Revision 19, Section 5, pp. 33-40. (Attachment I.2b)

R2.1.7 “Grounding and Safety Issues.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” pp. 18-19 (generation, transmission, end-user), sections 4.3 and 4.4, and pp. 16-17, 90 (only transmission and end-user), sections 3.2, 3.6, and 8, identify PPL EU grounding requirements and ground grid testing requirements. (Attachment J.1a)
 - Another PPL EU document providing practices on grounding is “Procedure 2-108 Ground Grid Design” – dated 12/29/06. (Attachment J.1b)
 - The PJM OATT also discusses safety in Appendix 2, Section 7, pp. 1814-1816. (Attachment J.1c)

R2.1.8 “Insulation and Insulation Coordination.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” p. 10, section 1.6, and pp. 12-13, section 2.1, identify the PPL EU insulation requirements. (Attachment K.1a)
 - For 200 kV and above, the PJM document V.N (PJM Insulation Coordination and Surge Protection) is used as a guiding document. (Attachment K.1b)

R2.1.9 “Voltage, Reactive Power and Power Factor Control.”

- **For Generation facilities:**
 - PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13 identifies the need to review voltage level on p. 84, item 1.11 under Items To Be Discussed During the Project (Attachment L.1a). Reactive Power is referenced in items 1.39 and 1.41 on p. 87.
 - PJM OATT, Appendix 2, Item 4.7, pp. 1792-1793 discusses Reactive Power issues for machines (Attachment L.1b) and Attachment O, Item 12, pp. 1753-1754 discusses Power Factor. (Attachment L.1c)

- **For Transmission facilities:**
 - PJM OATT, Section II, Item 24.3, p. 201 discusses Power Factor. (Attachment L.2a)
 - In addition, PJM Manual 3 – Transmission Operations, Revision 38, Section 3, pp. 31-34 discusses these issues. (Attachment L.2b)
- **For End-user facilities:**
 - Because the PPL EU tariff does not have a power factor clause, end-user customers are not responsible for control of voltage, reactive power or power factor. PPL EU is responsible for ensuring these attributes remain within acceptable limits.
 - Refer to PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007”, p. 10, section 1.7 (Attachment L.3a)
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section C, pp. 28-30, Paragraph VIII., addresses Reactive Power issues. (Attachment L.3b)

R2.1.10 “Power Quality Impacts.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section C, p. 3, item 19 indicates that such installation must adhere to PPL EU power quality standards. (Attachment M.1a)
 - Item 19 is addressed by PPL EU internal documents SPR-249, Harmonics Guidelines – Table 1, p. 1 (Attachment M.1b) and SPR-640, Flicker Guideline – Table V, p. 21 (Attachment M.1c) that describe, in detail, our power quality standards and analysis methods.
- **For only Generation facilities:**
 - Power Quality with respect to generating facilities is also referenced in PJM OATT, Appendix 2, Article 4.9.2, p. 1795. (Attachment M.1d)
- **For only Transmission facilities:**
 - Power Quality with respect to transmission facilities is also referenced in PJM Manual 14E – Merchant Transmission Specific Requirements, Revision 2, Section 2, pp. 20-23. (Attachment M.1e)

R2.1.11 “Equipment Ratings”

- **For Generation facilities:**
 - PPL EU does not own generating facilities. However, the PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” PPL EU does require the developer to provide information on ratings of all equipment for review. Such requirements are noted in several locations within the document, three are provided for reference; p. 15, section 1.41; p. 74, section 8.2.1; p. 86, section 1.25. (Attachment N.1a)

- **For Transmission facilities:**
 - For Transmission facilities, the PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section C, p. 2, items 2 and 7 and section D, pp. 1-2 (items highlighted) indicates that all equipment must be operated within normal limits with system normal and within emergency limits under abnormal conditions. (Attachment N.2a)

- **For End-user facilities:**
 - In a similar manner, End-user customers are responsible for ensuring their equipment has proper ratings. As with generator developers, PPL EU requires the end-user to provide information on equipment ratings for PPL EU review as noted in PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007.” Samples are provided for reference; p. 24, section 4.6.3; p. 85, section 7.2.1. (Attachment N.3a)

R2.1.12 “Synchronizing of Facilities”

- **For Generation facilities:**
 - Because PPL EU does not own Generation, it does not provide “synchronizing” equipment. However, PPL EU does require “synchrocheck” facilities be available to ensure proper closing angles are observed. This is documented in PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” p. 45, item 6 (Attachment O.1a) and p. 72, highlighted text. (Attachment O.1b)

 - PJM Manual 14D – Generator Operational Requirements, Revision 19, Section 7, p. 62 also discusses synchronizing requirements for the generator. (Attachment O.1c)

- **For Transmission facilities:**
 - For Transmission facilities, the PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section H, pp. 8, 14-15 illustrate that all reclosing is through synchrocheck facilities. (Attachment O.2a)

- **For End-user facilities:**
 - For End-user facilities, synchronizing of facilities generally does not apply. However, if an end-user facility had to be modified to accommodate new generation, to avoid an “out of synchronism” condition, PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section H, p. 36, Paragraph III-B., addresses synchronization issues. (Attachment O.3a)

R2.1.13 “Maintenance Coordination.”

- **For Generation facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section C, p. 4. (Attachment P.1a)
 - PJM OATT, Appendix 2, Article 5.3.1, p. 1803 (Attachment P.1b) discusses this issue.
- **For Transmission facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section D, p. 6 (Attachment P.2a), section E, p. 1 (Attachment P.2b) that maintenance outages must be coordinated with external entities. This is also identified in section F, pp. 5-7 (Attachment P.2c), and
 - PJM Manual 3 – Transmission Operations, Revision 38, Section 1, p. 9. (Attachment P.2d)
- **For End-user (customer) facilities:**
 - End-user customer facilities, coordination of maintenance outages is described in DPI-204, Part 2 (Enhanced Work Methods), “Examples of Enhanced Work Method Applications,” paragraph 1, dated September 22, 2006. (Attachment P.3a)
 - See also PPL EU Document "Guideline for Application of Regional Sectionalizing to Connect a Transmission Customer", dated June 10, 2009, p. 1, paragraphs 4 and 5. (Attachment P.3b)

R2.1.14 “Operational Issues (Abnormal Frequency and Voltages).”

- **For Generation facilities:**
 - PJM Manual 14D – Generation Operational Requirements, Revision 19, Section 7, pp. 49-53. (Attachment Q.1a)
 - Beyond this, protection systems are utilized at generating facilities to ensure voltage and frequency remain within acceptable limits. This is described in PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” pp. 43-44. (Attachment Q.1b)
 - In addition, the PJM OATT, Attachment O, Appendix 2, Article 4.8, p. 1794 discusses requirements for an over- or under-frequency condition. (Attachment Q.1c)

- **For Transmission facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section F, p. 1 deals directly with operating principles and the steps that must be taken to ensure proper voltage. (Attachment Q.2a)
 - In addition, refer to PJM Manual 3 – Transmission Operations, Revision 38, Section 3, pp. 28-34 provides additional guidance. (Attachment Q.2b)
 - Also, refer to PJM Manual 14E – Merchant Transmission Specific Requirements, Revision 2, pp. 24-25. (Attachment Q.2c)
- **For End-user facilities:**
 - PPL EU Document “Reliability Principles and Practices – January 2004 Revision” section F, pp. 1-2 (see Attachment Q.3a) and section B, p. 51, part IX - Distribution Voltage Control. (Attachment Q.3b)
 - In addition, the PPL EU Tariff, Rule 4, Paragraph G, discusses emergency load control, which is an operational issue. (Attachment Q.3c)

R2.1.15 “Inspection Requirements for Existing or New Facilities.”

- **For Generation facilities:**
 - PPL EU documents identify the need for inspection of electrical equipment by qualified entities as noted in PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” pp. 32, 79, 84. (Attachment S.1a)
 - In addition, the PJM OATT, Attachment O, Appendix 2, Article 5.4, p. 1804 discusses the need for facility inspections. (Attachment S.1b)
- **For Transmission facilities:**
 - PJM OATT, Attachment O, Appendix 2, Article 5.4, p. 1804 discusses the need for facility inspections. (Attachment S.2a)
- **For End-user facilities:**
 - PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities – Revision 1, April 2007,” pp. 13, 89, sections 2 and 7.4. (Attachment S.3a)

R2.1.16 “Communications and Procedures During Normal and Emergency Operating Conditions.”

- **For Generation facilities, Transmission facilities, and End-user (customer) facilities:**
 - “Clarifying Procedure – Development of Operating Instructions For Facilities Connected to the PPL EU Transmission System,” dated June 10, 2009, describes the PPL EU internal procedure for creating a document that describes communications during normal and emergency operating conditions. By applying the procedure, a T&D Operations “Operating Instructions (OI)” for each specific facility is created. The resulting OI document describes normal and emergency procedures, responsibility for equipment, contact information, switching & blocking methods, and other information on the status of equipment. (Attachment T.0a)

- **For Generation facilities:**
 - PJM Manual 13 – Emergency Operations, Revision 44, Section 1, pp. 7-9 (Attachment T.1a),

 - PJM Manual 14D – Generator Operational Requirements, Revision 19, Section 7, pp. 50-55 (Attachment T.1b),

 - PJM OATT, Attachment O, Appendix 2, Article 6, pp. 1809-1813 (Attachment T.1c),

 - PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,” sections 1.12 and 1.13, pp. 27-30. (Attachment T.1d)

- **For Transmission facilities:**
 - PJM Manual 13 – Emergency Operations, Revision 44, Section 1, pp. 7-9 (Attachment T.2a),

 - PJM Manual 1 – Control Center & Data Exchange Requirements, Revision 19, Section 4, pp. 28-32. (Attachment T.2b)

- **For End-user facilities:**
 - PJM Manual 13 – Emergency Operations, Revision 44, Section 1, pp. 7-9. (Attachment T.2a)

 - PJM Manual 1 – Control Center & Data Exchange Requirements, Revision 19, Section 4, pp. 28-32. (Attachment T.2b)



R3. “The Transmission Owner shall maintain and update its facility connection requirements as required. The Transmission Owner shall make documentation of these requirements available to the users of the transmission system, the Regional Reliability Organization and NERC on request (five business days).

PPL EU has and will continue to maintain its facility connection requirements as necessary or required. Below is a revision history to document updates to the three major PPL EU references used in this matrix. PPL EU will make these documents available to users of the transmission system, the RRO and NERC upon request within five business days.

- For the **PPL EU Document “FAC-001-0 Facility Connection Requirements Matrix Document,”** below is a revision history:
 - Initial Publication 1/23/2009
 - Revision 1 6/10/2009
 - Revision 2 6/24/2010
 - Revision 3 6/09/2011

- For the **PPL EU Document “FAC-001-0 Facility Connection Requirements Matrix Spreadsheet,”** below is a revision history:
 - Initial Publication 1/23/2009
 - Revision 1 6/10/2009
 - Revision 2 6/24/2010
 - Revision 3 6/09/2011

- For the **PPL EU Document “Relay and Control Requirements for Parallel Operation of Generation – Revision 13,”** below is a revision history:
 - Initial Publication Prior to 1980
 - Revision 1 thru 4 Prior to 1988
 - Revision 5 6/20/1988
 - Revision 6 6/30/1995
 - Revision 7 Prior to 2002
 - Revision 8 9/30/2002
 - Revision 9 3/30/2003
 - Revision 10 7/30/2006
 - Revision 11 11/30/2007
 - Revision 12 12/4/2009
 - Revision 13 12/11/2009

- For the **PPL EU Document “Reliability Principles and Practices,”** below is a revision history:
 - Initial Publication 5/11/1971
 - Revision 1 11/24/1975
 - Revision 2 8/31/1984
 - Revision 3 2/10/1989
 - Revision 4 12/29/1995
 - Revision 5 1/31/2004



- For the **PPL EU Document “Point of Contact Requirements for High Voltage Customer-Owned Facilities”**, below is a revision history:

- Initial Publication *..... 12/29/2000
- Revision 1 4/27/2007

* Note – the initial publication of this document superseded an original three binder set called “Standards and Guidelines for Customer Owned Substations, Volume I, II an III last issued on 8/3/1989.