FPUC Facility Interconnection Requirements

Florida Public Utilities Company (FPUC)

Effective 8/7/2025
Revision 9

Approved By: P. Mark Cutshaw

P. Mark Cutshaw, Manager, Electric Operations — 8/7/25 Date

EOP-N-FAC-001-4 FPU Electric Operating Procedure for Facility Connection Requirements, Revision #9

A. Introduction

1. **Title: FPU Electric Operating Procedure for Facility Interconnection Requirements**

2. **Number: EOP-N-FAC-001-4**

3. **Purpose:** Procedure to avoid adverse impacts on the reliability of the Bulk Electric System, Transmission Owners and applicable Generator Owners must document and make Facility interconnection requirements available so that entities seeking to interconnect will have the necessary information.

4. **Applicability:** FPU as a Transmission Owner.

5. **Reference:** NERC Reliability Standard FAC-001-4 – Facility Interconnection Requirements.

6. **Effective Date:** 6/1/08; Rev 10/9/08, 4/7/10, 11/9/10**,** Rev 11/25/13, Rev 1/1/16, 5/30/18, Rev 1/1/19, 1/1/24, 8/7/25

B. Requirements

R1. Each Transmission Owner shall document Facility interconnection requirements, update them as needed, and make them available upon request. Each Transmission Owner's Facility interconnection requirements shall address interconnection requirements for:

1.1. Generation Facilities
1.2. Transmission Facilities, and
1.3. End-user facilities

R2. Each applicable Generator Owner shall document Facility interconnection requirements and make them available upon request within 45 calendar days of full execution of an Agreement to conduct a study on the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the Transmission system.

R3. Each Transmission Owner shall address the following items in its Facility interconnection requirements:

3.1. Procedures for coordinated studies for new interconnections or existing interconnections seeking to make a qualified change as defined by the Planning Coordinator and their impacts on affected system.

3.2. Procedures for notifying those responsible for the reliability of affected system(s) of new interconnections or existing interconnections seeking to make a qualified change.

3.3 Procedures for confirming with those responsible for the reliability of affected systems that new Facilities or existing Facilities seeking to make a qualified change are within a Balancing Authority Area.

R4. Each applicable Generator Owner shall address the following items in its Facility interconnection requirements:

4.1. Procedures for coordinated studies of new interconnections and their impacts on affected system(s).

4.2. Procedures for notifying those responsible for the reliability of affected system(s) of new interconnections

4.3. Procedures for confirming with those responsible for the reliability of affected systems that new Facilities or existing Facilities seeking to make a qualified change as defined by the Planning Coordinator are within a Balancing Authority Area.

C. Procedure

P1. Florida Public Utilities Company (FPU) has a facility connection requirements (FCR) document. The FCR is Attachment A to this Electric Operating Procedure. Additionally, FPL is the Balancing Authority and Transmission Operator for the FPU facilities interconnected with JEA and FPL. The operation of these facilities is governed by the NETWORK OPERATING AGREEMENT BETWEEN FLORIDA POWER AND LIGHT (FPL) AND FLORIDA PUBLIC UTILITIES COMPANY (NOA). The FCR is maintained by way of annual review to make sure it continues to be in compliance. The FCR is also made available upon request to any interested party. The FCR addresses connection requirements for:

P1.1 Generation Facilities (Ref: FCR section 3). FPU currently has no interconnected generation facilities that affect operation of the BES. FCR Section 3 is included to establish planning criteria for future potential interconnection of generation facilities.

P1.2 Transmission Facilities (Ref: FCR sections 1, 2, & 4).

P1.3 Load Serving Facilities (Ref: FCR sections 1, 2, & 5).

P2. FPU currently is not a generator owner

P3. The FCR (Attachment A) address procedures for the following items:

P3.1 Coordinated studies for new interconnections or existing interconnections seeking to make a qualified change as defined by the Planning Coordinator and their impacts on affected systems.

P3.2 Notifying those responsible for the reliability of affected system(s) of new interconnections or existing interconnection seeking to make a qualified change.

P.3.3 Procedures for confirming with those responsible for the reliability of affected systems that new or Facilities or existing Facilities seeking to make a qualified change are within a Balancing Authority Area.

P4. FPU currently is not a generator owner

EOP-N-FAC-001-4
Attachment A

Florida Public Utilities Company
Facility Connection Requirements

1. Introduction

1.1 This Facility Connection Requirements document covers the requirements for connection, interconnection of new facilities or existing interconnections seeking to make a qualified changed as defined by the Planning Coordinator with, facilities owned by Florida Public Utilities Company. The document addresses generating, transmission, and load serving (end-user) facilities.

1.2 Florida Public Utilities Company (FPU) presently owns a 3.6 mile double circuit 138kV transmission line and a Step-down Substation which are the only Bulk Electric System (BES) facilities owned by FPU. The double circuit 138kV transmission line is interconnected with FPL at the Oneil substation and JEA at the JEA Nassau Switching Substation.

1.3 FPL is the Balancing Authority and Transmission Operator for the FPU facilities interconnected with FPL and JEA. The operation of these facilities is governed by the NETWORK OPERATING AGREEMENT BETWEEN FPL AND FLORIDA PUBLIC UTILITIES COMPANY (aka NOA).

1.4 Any request for interconnection of new generating, transmission, or load serving facilities by FPU, FPL, JEA, or any third party would first be evaluated by FPU and FPL. Plans for major additional facilities by FPU or FPL, as well as any interconnection request from an outside party, would be submitted to the FRCC for review under the FRCC Joint Planning Process. The interconnection study would address the impact of the facilities as initially connected and also throughout the planning horizon. The results of the study will be shared with the requestor and the interconnected entities as soon as results are available. The Reliability Coordinator and any other entities determined to be affected by the new facilities will be notified and confirmed to be within the Balancing Authority Area's metered boundaries.

1.5 New facilities interconnected by third parties must adhere to the requirements contained in the facility connection requirements documents of FPU, FPL and JEA.

1.6 This document will be updated from time to time as the requirements of FPU or JEA change or as NESC, IEEE, or ANSI Standards are revised. The document will be reviewed and revised anytime NERC Reliability Standard FAC-001-Current Revision, or any other applicable Reliability Standard, is revised and approved by the FERC. FPU shall make the FCR available to FPL, JEA, FRCC, and NERC on request (five business days).

2. Common Requirements

2.1 This section covers both general and technical requirements which are applicable to all three types of facilities, generation, transmission and load serving.

2.2 Facilities interconnected with the BES facilities of FPU, i.e. the FPU Transmission Lines or Step-down Substation, must be designed, constructed, operated, and maintained so that they will not adversely affect the reliability of the BES. The design, operation and maintenance of the facilities must at all times comply with NESC requirements, applicable ANSI and IEEE standards, and all NERC and FRCC Reliability Standards.

2.3 Common Technical Requirements

2.3.1 Voltage Level – The FPU BES facilities are 138kV. Any new facility connection (interconnection) will be at 138kV.

2.3.2 MW and MVAR capacity – The MW and MVAR capability of any proposed new generator, the MVA rating of any proposed transmission lines, or the MVA requirements of any proposed load serving facilities must be clearly specified in the facility connection request.

2.3.3 Breaker duty, breaker operating time, and surge protection must coordinate with existing equipment as well as projected fault current levels during the current planning horizon.

2.3.4 System protection equipment shall be equivalent to existing primary and back-up schemes of FPL, JEA and FPU and shall be designed to coordinate properly with the existing protection systems.

2.3.5 Metering equipment shall be of the configuration and accuracy as required for the specific type of facility and as detailed further below under the technical requirements for the individual types of facility connections. Telecommunications for data and/or voice communications shall be provided also as specified below.

2.3.6 Grounding shall be designed to meet the requirements of ANSI/IEEE 80, IEEE Guide for Safety in AC Substation Grounding, and ANSI/IEEE C2, National Electrical Safety Code. All facilities shall be adequately bonded and grounded to control step and touch potential in compliance with the NESC. New facilities may increase the fault current levels at existing substations. The interconnection studies will evaluate this effect and determine if existing facilities require upgrading.

2.3.7 Insulation design levels must be selected so as not to degrade the BIL or BSL of existing facilities. The facility connection request shall provide adequate details on the BSL, conductor spacing, transmission line insulation, surge arrestors, and lightning protection (shielding) needed for evaluation.

2.3.8 Voltage, Reactive Power, and Power Factor controls or devices shall be provided as detailed below under the technical requirements for the individual types of facility connections.

2.3.9 Power Quality must be maintained such that it will not impact the BES or the facilities of the other interconnected entities. Additional requirements are listed below under the Technical Requirements for Load Serving Facilities.

2.3.10 Equipment ratings shall be specified such that the ratings of existing facilities are not adversely affected. Ratings of equipment which becomes a part of the BES will not be the limiting element which lowers the overall capacity or capability of the BES facility (line, substation, etc.) or degrades critical clearing time, protection coordination, or the quality of any other feature.

2.3.11 Synchronizing and closing coordination controls shall be designed as specified further below under the technical requirements for the individual types of facility connections.

2.3.12 Facilities shall be maintained in accordance with good utility practices and in a manner which prevents any adverse impact on the BES. A detailed maintenance program and schedule shall be provided and approved by the FPU and JEA. Maintenance outages which involve elements of the BES shall be coordinated with the interconnected entities and with the FRCC Operations Planning Coordinator.

2.3.13 Operational issues pertaining to abnormal voltage and frequency conditions are unique to each type of facility and the requirements are listed below under the technical requirements for the individual types of facility connections.

2.3.14 Facilities interconnected with the FPU BES facilities shall be available for inspection with reasonable notice. If disconnecting devices or equipment owned by others are located on the premises of the interconnected facility, that equipment must be accessible at all times or on short notice in the event of an emergency operational condition.

2.3.15 Communications procedures and protocols during both normal and emergency operating conditions can vary according to the type of facility. Requirements are listed below under the technical requirements for the individual types of facility connections.

2.3.16 Inverted-Based Resources (IBR) – These types of facilities must comply with IEEE 2800 Standard.

3. Technical Requirements for Generator Interconnections

3.1 FPU currently has no interconnected generation facilities that affect operation of the BES. This section is included to establish planning criteria for future potential interconnection of generation facilities. The requirements listed in this section are particular to generator interconnections and are in addition to the requirements in Section 2, Common Requirements, above. The facility interconnection study and the requirements of the other interconnected entities may dictate additional requirements which must be complied with.

3.2 The following information shall be included with any generator interconnection request:

3.2.1 Generator Nameplate MVA Rating

3.2.2 Generator Maximum MW capability and Maximum Leading and Lagging MVAR at Maximum MW Output

3.2.3 Generator Step-Up Transformer MVA Rating, Voltage Ratings and Tap Settings.

3.3 Protection and control equipment for the prevention of damage to the generator and associated auxiliaries is the responsibility of the generator owner. Protection schemes for the facilities connected to the BES must be equivalent to existing facilities of FPU and JEA and must comply with NERC and FRCC requirements.

3.4 Full three element revenue class MW and MWh metering shall be installed for unit net output. Separate metering shall be provided to meter any demand and energy if drawing from the grid when offline. A separate agreement for offline auxiliary power may be required. All data required by Reliability Coordinator for real-time Contingency Analysis shall be provided via an acceptable data communications channel.

3.5 Generator voltage rating, reactive capability, voltage regulator, and transformer tap settings shall be designed and coordinated such that the generating unit is capable of helping to support the voltage and reactive requirements of the BES in the area.

3.6 The generator shall have automatic synchronizing equipment to synchronize the generator to the BES. Dead bus or other permissive closing shall not be permitted unless agreed to or requested in the interconnection agreement.

3.7 The generator shall comply with the requirements of the latest version of the FRCC Regional Reliability Standard for Regional Generator Performance during Frequency and Voltage Excursions.

3.8 Communications channels and protocols between the generator, its host Balancing Area, the Reliability Coordinator, and interconnected entities shall be established for use during normal and emergency conditions.

4. Technical Requirements for Transmission Interconnections

4.1 The requirements listed in this section are particular to transmission interconnections and are in addition to the requirements of Section 2, Common Requirements, above. The facility interconnection study and the requirements of the other interconnected entities may dictate additional requirements which must be complied with.

4.2 The following information shall be included with any transmission interconnection request:

4.2.1 Transmission line MVA rating based upon limiting element.

4.2.2 Specifications for all components, i.e. conductor, insulators, structures, terminal components, etc.

4.3 Line primary, back-up, and breaker failure protection equipment shall be high speed equivalent to existing equipment and must comply with NERC requirements for zone 3 tripping.

4.4 Metering equipment is to be comparable to other existing interconnection metering equipment with telemetering of required data to the interconnected entities.

4.5 Synchronizing, synch-check, hot bus-dead line, or other permissive schemes shall be included as specified in the interconnection agreement.

4.6 The responsible Transmission Operator shall have the communications facilities and protocols for operation (switching) of the facility during normal and emergency conditions.

5. Technical Requirements for Load Serving Interconnections

5.1 The requirements listed in this section are particular to load serving interconnections and are in addition to the requirements of Section 2, Common Requirements, above. The facility interconnection study and the requirements of the other interconnected entities may dictate additional requirements which must be complied with.

5.2 The following information shall be included with any load serving facility interconnection request:

- 5.2.1 The initial projected MW load and a ten year forecast of the load to be served.
- 5.2.2 The MVA rating of the transformer to be installed and a ten year plan for transformer additions or change outs.
- 5.2.3 The initial and projected load power factor.

5.3 Revenue class metering shall be installed to record the demand and energy for the load. If the connection is also an interconnection, interconnection metering and associated telemetry as described above shall also be required.

5.4 Power factor correction (reactive devices) shall be installed if required to maintain the power factor requirements of the interconnected entities.

5.5 Power Quality shall be maintained at the interconnection such that harmonics are limited as prescribed in IEEE Standard 519 and harmonic currents should be limited as per ANSI/IEEE C57.12.00.

5.6 Details of auto reclosing to the BES shall be provided with the interconnection request.

5.7 The obligations of the LSE will determine if Underfrequency Load Shedding (UFLS) equipment is required to comply with latest version of the FRCC Reliability Standard for Automatic Load Shedding Program.

5.8 Communication equipment, procedures and protocol shall be established with the host Balancing Area for use during normal and emergency conditions.

REV.#	DATE	DESCRIPTIONS	REVIEWER	APVL (SME)
0	6/1/08	Original issue		
1	10/9/08	Revised Procedures, added Attachment B		
N/A	7/10/09	Semi-Annual Review, No Changes		
N/A	1/12/10	Semi-Annual Review, No Changes		
2	4/7/10	Revised P1, revised tracking log	Wilbi C. Grant	P. Mark Cutshaw
3	11/9/10	Revised P1 due to FCR published to FPU web	Wilbi C. Grant	P. Mark Cutshaw
N/A	8/4/11	Semi-Annual Review, No Changes	Wilbi C. Grant	P. Mark Cutshaw
N/A	10/28/11	Semi-Annual Review, No Changes	Wilbi C. Grant	P. Mark Cutshaw
N/A	4/19/12	Semi-Annual Review, No Changes	Wilbi C. Grant	P. Mark Cutshaw
N/A	10/29/12	Semi-Annual Review, Removed Attestation	Wilbi C. Grant	P. Mark Cutshaw
N/A	4/15/13	Semi-Annual Review, No Changes	Wilbi C. Grant	P. Mark Cutshaw
4	11/26/13	Revised procedure to add FAC-001-1	[illegible]	P. Mark Cutshaw
N/A	4/15/14	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	10/15/14	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	4/27/15	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	11/23/15	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
5	1/1/16	Revised procedure to add FAC-001-2	[illegible]	P. Mark Cutshaw
N/A	5/4/16	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	11/1/16	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	5/1/17	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	10/23/17	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
6	5/30/18	Revised procedure to indicate new NOA and delegating agreement with FPL.	[illegible]	P. Mark Cutshaw
7	1/1/19	Revised procedure to add FAC-001-3	[illegible]	P. Mark Cutshaw
N/A	5/15/19	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	10/31/19	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	4/13/20	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	10/15/20	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	4/15/21	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	10/21/21	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
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N/A	11/4/22	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
N/A	4/27/23	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw
8	1/1/24	Revised procedure to add FAC-001-4	[illegible]	P. Mark Cutshaw
N/A	5/23/24	Semi-Annual Review, No Changes	[illegible]	P. Mark Cutshaw

N/A	11/19/24	Semi-Annual Review, No Changes		P. Mark Cutshaw
N/A	5/13/25	Semi-Annual Review, No Changes		P. Mark Cutshaw
9	8/7/25	Clarified IBR interconnection requirements and removed NOA for public web posting		P. Mark Cutshaw