The LNP 1 and LNP 2 transmission lines are designed to meet or exceed the requirements of the ANSI C2 National Electrical Safety Code (DCD Section 8.2.6 Reference 1).

Galloping conductors are not anticipated at the LNP site and should not affect the reliability of the transmission lines. PEF has not experienced line outages resulting from galloping conductors most likely due to the lack of ice formation in the Central Florida Region. The proposed structure configuration further reduces the probability of flashover in the rare event that conductors should gallop.

The LNP 1 and LNP 2 common switchyard has multiple off-site power sources from the transmission network (refer to Table 8.2-201). Each of the off-site sources have sufficient capacity and capability to support start-up, normal running, generator/turbine trip, and normal shutdown for LNP 1 and LNP 2.

LNP CDI

A transformer area containing the main step-up transformers, unit auxiliary transformers (UAT), and reserve auxiliary transformers (RAT) is located next to each turbine building (DCD Figure 1.2-2).

8.2.1.1 Transmission Switchyard

Replace the information in the DCD Subsection 8.2.1.1 with the following information.

LNP COL 8.2-1

8.2.1.1.1 LNP 1 and LNP 2 Switchyard

LNP 1 and LNP 2 are served by a common 500 kV/230 kV switchyard. Each 500 kV and 230 kV switchyard has two full capacity main buses. Each bus is individually capable of supplying the entire load required for the 500 kV or 230 kV systems. Each of the four (4) incoming 500 kV transmission lines are normally connected to both buses. Two 500 kV to 230 kV step-down transformers, used to supply power to the RATs, are located in the 500 kV switchyard. Each transformer is capable of carrying the RAT's of both LNP 1 and LNP 2 and can be connected to both buses.

The 500 kV and 230 kV circuit breakers associated with the LNP 1 and LNP 2 switchyard are rated 3000A, 60 Hz, 3-pole gas type with interrupting capability of 50,000 amperes RMS.

The switchyard also has a number of disconnect switches, which are 3-pole and are rated on the same continuous current basis as the associated circuit breakers.

The various elements of the LNP1 and LNP 2 switchyard are connected via breaker-and-a-half and double breaker schemes as shown in Figure 8.2-201.

- In the event of loss of dc control power in one of the 500/230 kV autotransformers, the autotransformer primary relay is compensated for by redundant trip coils powered from a different source which allows the protective function to occur.

The analysis demonstrates that with a single event failure, one of the two 500 kV buses, one of the 230 kV buses, and one of the two autotransformers, at LNP 1 and LNP 2 switchyard, as a minimum, will be available to power the plant buses. A bus fault with a stuck breaker associated with either the LNP 1 or LNP 2 main step-up transformer output will cause the loss of normal and preferred power to the associated unit. The switchyard feeds to the reserve auxiliary transformers will still be available. A bus fault concurrent with any other stuck breaker will not cause a loss of power to either LNP 1 or LNP 2.

8.2.1.1.3 Transmission System Provider/Operator (TSP/TSO)

LNP SUP 8.2-2

The interfaces between LNP and PEF's Transmission Department are managed via a formal Interface Agreement. PEF conducts transmission system operations under a vertically integrated utility business model. Under this business model, the transmission system is not in an Regional Transmission Organization (RTO) or operated by an Independent System Operator (ISO). Instead, under a vertically integrated utility business model, the System Operators (Grid Operators) are the TSO, and operate both the transmission and generation systems (nuclear and non-nuclear) and work in the same company that will hold the license to operate LNP. LNP off-site power reliability is jointly managed by the system operators, transmission personnel, and licensed nuclear plant personnel through communications and actions governed and coordinated by the formal Interface Agreement.

The Interface Agreement specifies the responsibilities and lines of communication for the various organizations responsible for the operation, maintenance, and engineering of facilities associated with LNP, as well as the consideration of the impact their activities may have on the plant's facilities. The requirements for communication of planned activities and changes in plant structures, systems, and components (SSC) status, which may affect grid stability/reliability, are clearly defined. LNP operators are directed to notify the TSO of any plant activity that may impact generation capability. The TSO is also required to monitor system conditions to ensure adequate voltage is maintained to support LNP, and promptly notify the LNP operators of existing, or anticipated conditions, which would result in inadequate voltage support. The agreement, along with the operating procedures used by the TSOs, ensures that early notification of worsening grid conditions takes place.

The TSO and LNP plant operators coordinate operations to maintain the switchyard voltage such that the steady state voltage on the 26 kV isophase bus is within 0.95 – 1.05 pu of its nominal value.

systems, breaker failure protection schemes are also used. Transformer protection consists of two different high speed schemes.

LNP SUP 8.2-4 The protective devices controlling the switchyard breakers are set with consideration given to preserving the plant grid connection following a turbine trip.

LNP COL 8.2-1

8.2.1.3 Switchyard Control Building

A control building is included in the design to serve the needs of the LNP 1 and LNP 2 switchyard. The control building houses switchyard batteries (redundant battery systems are housed in separate battery rooms and appropriately ventilated) and accommodates a sufficient number of relay/control panels.

The 500 kV switchyard breakers associated with the main step-up transformers and all 230kV breakers are under the administrative control of the plant. Transmission line circuit breakers in the LNP1 and LNP2 500 kV switchyard are under the administrative control of TSO.

8.2.1.4 Switchyard and Transmission Lines Testing and Inspection

The Switchyard and Transmission Lines Testing and Inspection Program ensures that equipment, components, and systems are proactively maintained at intervals that promote safety and reliability. Results of an effective maintenance program include extended equipment life, lower total life cycle cost, enhanced system reliability, and improved customer satisfaction. Substation Maintenance, Transmission Line Maintenance, and Relay Maintenance procedures have been developed to achieve these goals.

An interface agreement between Transmission Department and LNP 1 and 2 for development, maintenance, calibration, testing, and modification of transmission lines, switchyards, transformer yards, and associated transmission equipment, provides the procedure, policy, and organization to carry out maintenance, calibration, testing, and inspection of transmission lines and switchyards.

An individual is assigned from the LNP engineering organization to serve as the Switchyard System Engineer (SSE) and an individual is assigned from the LNP maintenance organization to serve as the Plant Transmission Activities Coordinator (PTAC). The oversight responsibilities described below are coordinated and extend beyond the switchyard boundary to include the transmission lines, structures, and relaying from the nuclear plant out to and including the first remote circuit breakers at the opposite end of the transmission lines. The responsibilities include, but are not limited to the following:

- Serve as the single point of contact for transmission maintenance activities impacting LNP 1 and 2 . (PTAC)

- Interface with the local transmission area maintenance and Transmission Asset Management personnel. Monitor inspection schedules, results of inspections and tests, equipment material conditions, and maintenance backlogs to ensure that (SSE):
  - Appropriate inspections and testing are performed on schedule to ensure reliability.
  - Results are analyzed and appropriately prioritized actions are taken to resolve any negative findings.
  - Defective equipment is replaced or repaired before reliability is affected.
- Serve as the liaison regarding transmission maintenance interfaces between the nuclear plant organizations and other organizations. (PTAC)
- Coordinate transmission engineering activities requiring pre-planning and scheduling among various nuclear and non-nuclear organizations including, but not limited to (SSE):
  - Transmission Engineering
  - Power System Operations
- Provide system engineering oversight of the switchyard, off-site transmission lines through the next remote circuit breakers, and on-site equipment (transformers, circuit breakers, etc.) that Transmission services. (SSE)

PEF's transmission planning assessment practices are developed to test the ability of the planned system to meet criteria pursuant to comply with PEF, FRCC Regional Planning process and North American Electric Reliability Corporation (NERC) Reliability Standards TPL-001 through TPL-004. This involves the use of load flow and transient stability programs to model various contingency situations that may occur, and determining if the system response meets criteria.

NERC reliability standards used including, but not limited to the following:

- TPL-001-0 System Performance under Normal Conditions.
- TPL-002-0 System Performance Following Loss of a Single Bulk Electric System (BES) Element.
- TPL-003-0 System Performance Following loss of Two or More BES Elements.
- TPL-004-0 System Performance Following Extreme BES Events.

PEF's maintenance and testing program covers the following equipment as required by NERC Reliability Standards:

- Protective Relays
- Instrument Transformers
- Communications Systems
- Batteries

The protective relay maintenance program includes the necessary verification to ensure proper calibration of protective relays. Maintenance of protective relays is accomplished through procedures, which address visual and mechanical inspections, protective and auxiliary relays, and other relay protective schemes. The relay testing program includes the functional testing of the relay protection system to insure operations as designed. Functional testing of relays is performed periodically and in accordance with a functional guideline procedure.

Maintenance and testing interval schedules have been developed for maintenance of substation equipment. The equipment/programs included are as follows:

- Air break switches
- Structures
- Ground system
- Transformers
- Circuit breakers
- Neutral grounding equipment
- Batteries
- Infrared scan
- Instrument class transformers

Transmission verifies that these test results demonstrate compliance with design requirements and takes corrective actions as necessary. Transmission plans and schedules maintenance activities, notifying the plant and internal organizations in advance. Transmission also procures and stores necessary spare parts prior to the commencement of inspection, testing, and maintenance activities.

Transmission's surveillance and maintenance procedures include requirements for transmission line inspections through an aerial inspection program usually

8.3.2.2 Analysis

Replace the first sentence of the third paragraph of DCD Subsection 8.3.2.2 with the following:

STD DEP 8.3-1

The Class 1E battery chargers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side, however, the voltage regulating transformers do not have active components to limit current; therefore, the Class 1E voltage regulating transformer maximum current is determined by the impedance of the transformer.

8.3.3 COMBINED LICENSE INFORMATION FOR ONSITE ELECTRICAL POWER

LNP COL 8.3-1

This COL Item is addressed in Subsections 8.3.1.1.7 and 8.3.1.1.8.

STD COL 8.3-2

This COL Item is addressed in Subsections 8.3.1.1.2.4, 8.3.1.1.6 and 8.3.2.1.4.

8.3.4 REFERENCES

Add the following information at the end of DCD Subsection 8.3.4.

201. Not used.

202. Institute of Electrical and Electronics Engineers (IEEE), “IEEE Guide for Safety in AC Substation Grounding,” IEEE Std 80-2000. August 4, 2000.