A. Introduction

1. **Title:** FRCC Regional Generator Performance During, Frequency and Voltage Excursions.
2. **Number:** PRC-024-FRCC-01
3. **Purpose:** To ensure that generators remain connected to the electrical grid during voltage and frequency excursions.
4. **Applicability:**

   Owner of generation (Generator Owner (GO)), that is located within the FRCC Region, operates synchronously to the Bulk Electric System, and has a nameplate rating(s) > 20 MVA or a generating plant/facility > 75 MVA (gross aggregate nameplate rating).
5. **Effective Date:**

   TBD

B. Requirements:

R1. GOs shall ensure that synchronous generator protection and controls will not result in generator tripping or islanding, for conditions that are within the time durations specified in Appendix A of this standard.
[Risk Factor: High].

R2. GOs shall provide documentation of generator protection and control settings to the FRCC upon request.
[Risk Factor: Lower].

R3. Individual generators can be exempted from requirement R1 of this standard if an exemption is approved by the FRCC Operating Committee (OC), pursuant to a specific exemption request from the respective GO. An exemption shall be based on the following condition:
[Risk Factor: High].

R3.1. If an equal or greater amount of load is shed *, simultaneously with the generator trip.

* The load shed shall:

1) not be part of an FRCC Automatic Underfrequency Load Shedding (UFLS) program, step, load block, and
2) be located within the same FRCC Regional UFLS load shedding zone.

C. Measures:

M1. GO shall, maintain documentation that each generator meets the requirements defined in R1 of this standard.

M2. GO shall, within 30 calendar days of a request, provide the FRCC with documentation that it meets the requirements defined in R1.

M3. GO shall, within 30 calendar days of a request, provide the FRCC with documentation that it meets the requirements defined in R3, as appropriate.

M4. A GO claiming an exemption under R3 shall, within 30 calendar days of a request, provide documentation that the exemption has been approved by the FRCC OC and that the exemption complies with the load shedding requirements of R3.1.

D. Compliance:

1. Compliance Monitoring Process

1.1 Compliance Monitoring Responsibility: FRCC

1.2 Compliance Monitoring Period and Reset Timeframe: One calendar year

1.3 Data Retention:
The GO shall retain documentation required in M1 and M4 of this standard, for a minimum of three (3) years.
The Compliance Monitor shall retain any audit data for three years.

1.4 Additional Compliance Information:
GOs shall demonstrate compliance through self certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Monitor.

2. Levels of Non-Compliance

2.1 Level 1
Documentation of compliance is not provided to the FRCC in a timely manner (within thirty days of request) or is not available for inspection.

2.2 Level 2
Documentation of an FRCC OC, approved, exemption request as allowed in R3 of this standard is not provided to the FRCC in a timely manner (within thirty days of request) or is not available for inspection.

2.3 Level 3

A GO does not comply with the load shed amounts as stipulated in an approved exemption (as allowed in R3), and as defined in R3.1.

2.4 Level 4

Protection and control settings applicable to this standard do not comply with FRCC Regional Generator Coordination Requirements as specified in Appendix A of this Standard.

Appendix A:

FRCC Regional Generator Coordination Requirements:

Generators with nameplate ratings larger than, 20 MVA or a generating plant/facility > 75 MVA (gross aggregate nameplate rating**)** [1]	**Grid/Generator condition**	**Time duration**[3]
No generator tripping or islanding	Frequency between 59.5 and 60.5 hertz	steady state[2]
No generator tripping or islanding	Frequency between 60.5 and 61.8 hertz	10.0 seconds
No generator tripping or islanding	Frequency between 58.5 and 59.5 hertz	60.0 seconds
No generator tripping or islanding	Frequency between 58.0 and 58.5 hertz	10.0 seconds
No generator tripping or islanding	Frequency between 57.5 and 58.0 hertz	1.0 seconds
No generator tripping or islanding	Terminal voltage between 95% and 105% of the rated nominal design voltage	steady state[2]
No generator tripping or islanding	Terminal voltage between 90% and 95%, or 105% and 110% of the rated nominal design voltage	10.0 seconds
No generator tripping or islanding	Generator volts/hertz conditions that are less than 116% of generator nominal voltage and frequency	1.5 seconds
No generator tripping [4] or islanding	1. Generator overexcited stator current less than 150% of nameplate rating current when applying generator phase overcurrent relays. 2. Generator MVA less than 150% of nameplate at rated power factor when applying generator backup phase distance relays.	5.0 seconds

[1] These requirements apply only to generators in the FRCC Region with nameplate ratings larger than 20.0 MVA or a generating plant/facility > 75 MVA (gross aggregate nameplate rating).

[2] Tripping is not permitted for this condition regardless of time duration.

[3] The time durations specified are the minimum acceptable delays, longer durations are also acceptable.

[4] Condition with generator terminal voltage between 90% and 110% of the rated nominal design voltage and, without faulted conditions within the generator and GSU protection zones**.**