

**Linking the MAPP Planning Standards to the NERC Version 0 Reliability Standards**

- Prepared by: W. A. Guttormson Comments by Tom Mielnik

- For: Feb. 24 2005 MRO Standards Committee Meeting

MAPP Planning Standard

- as adopted by the MAPP RRC: Nov. 30, 2004

NERC Version 0 Reliability Standard

- as adopted by the NERC BOT: Feb. 8, 2005

I. System Adequacy & Security

A. Transmission Systems

I.A.MAPP-S1

Relevant Transmission Planning Standards:

- TPL-001-0: System Performance Under Normal (No Contingency) Conditions (Cat. A)

- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)

- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

- TPL-004-0: System Performance Following Extreme BES Events (Cat. D)

I.A.NERC-M1

NERC-M1 measurement should be linked into Requirement R1 or R1.3 of TPL-001-0, including MAPP Table I, and the MAPP Disturbance Performance Table.

- Responsible entities in NERC-M1 should refer to the Planning Authority and Transmission Planner.

I.A.NERC-M2

NERC-M2 measurement should be linked into Requirement R1 or R1.3 TPL-002-0, including MAPP Table I, and the MAPP Disturbance Performance Table.

- Responsible entities in NERC-M2 should refer to the Planning Authority and Transmission Planner.

I.A.NERC-M3

NERC-M3 measurement should be linked into Requirement R1 or R1.3 TPL-003-0, including MAPP Table I, and the MAPP Disturbance Performance Table.

- Responsible entities in NERC-M3 should refer to the Planning Authority and Transmission Planner.

I.A.MAPP-M1

MAPP-M1 measurement should be linked into Requirement R1 or R1.3 of TPL-002-0 and TPL-003-0, including MAPP Table I, and the MAPP Disturbance Performance Table.

- Responsible entities in MAPP-M1 should refer to the Planning Authority and Transmission Planner.

I.A.MAPP-S2 & MAPP-M2

MAPP-M2 measurement should be linked into Requirement R1 or R1.3 of TPL-002-0 and TPL-003-0, including MAPP Table I, and the MAPP Disturbance Performance Table.

- Responsible entities in MAPP-M2 should refer to the Planning Authority and Transmission Planner.

- As an alternative notes for event B2 & C7 in MAPP Table I could be added to account for reclosing if enabled.

I.A.MAPP-S3 & MAPP-M3

MAPP-M3 measurement should be linked into Requirement R1 or R1.3 of TPL-001-0, TPL-002-0, and TPL-003-0

- Transmission Provider in MAPP-M3 should refer to the Planning Authority and Transmission Planner.

MAPP a)

Note applies to Events C2, C6, C7, C8, and C9 of TPL-003-0.

Additional Comments:

MAPP Disturbance Performance Table Note 4a

References to NERC Standard III.D should probably refer to Protection & Control Standard PRC-007-0, Assuring Consistency with Regional UFLS Requirements

MAPP Disturbance Performance Table Note 4b

References to NERC Standard III.E should probably refer to Protection & Control Standard PRC-010-0, Assessment of the Design & Effectiveness of UVLS Program.

MAPP Disturbance Performance Table Note 6

References to MAPP Standard I.D should probably refer to Suspended MAPP Standard I.D.

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I. System Adequacy & Security

D. Voltage Support & Reactive Power

I.D.MAPP-S1

I.D.MAPP-M1

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Relevant Transmission Planning Standards:

- TPL-001-0: System Performance Under Normal (No Contingency) Conditions (Cat. A)

- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)

- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

MAPP-M1 measurement should be linked into Requirement R1.3.9 of TPL-001-0, TPL-002-0, and TPL-003-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- R1.3.9: Include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance.

- Transmission Provider should refer to the Planning Authority and Transmission Planner.

-Also perhaps reference should be made to Requirement 2 of VAR-001-0 and appropriate Phase IV Standard - VAR-XXX-0

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III. System Protection & Control

A. Transmission Protection Systems

III.A.MAPP-S1

Relevant Transmission Planning Standards:

- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)

- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

- TPL-004-0: System Performance Following Extreme BES Events (Cat. D)

III.A.MAPP-M1

MAPP-M1 measurement should be linked into Requirement R1.3.10 of TPL-002-0 and TPL-003-0, and R1.3.7 of TPL-004-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- R1.3.10: Include the effects of existing and planned protection systems, including any backup or redundant systems.

- Transmission Protection System Owners in MAPP-M1 should refer to the Planning Authority and Transmission Planner.

-Also possibly refer to Phase IV Standard - PRC-XXX-0.

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III. System Protection & Control

B. Transmission Control Devices

III.B.MAPP-S1

III.B.MAPP-M1

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Relevant Transmission Planning Standards:

- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)

- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

- TPL-004-0: System Performance Following Extreme BES Events (Cat. D)

MAPP-M1 measurement should be linked into Requirement R1.3.11 of TPL-002-0 and TPL-003-0, and R1.3.8 of TPL-004-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- R1.3.11: Include the effects of existing and planned control devices.

- Transmission Owners & Operators in MAPP-M1 should refer to the Planning Authority and Transmission Planner.

Also perhaps refer to Phase IV Standards - PRC-XXX-0

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### MAPP Planning Standard

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III. System Protection & Control  
C. Generation Control & Protection  
III.C.MAPP-S1 and S-2

III.C.MAPP-M1

III.C.MAPP-M2

### NERC Version 0 Reliability Standard

- as adopted by the NERC BOT: Feb. 8, 2005

#### Relevant Transmission Planning Standards:

- TPL-001-0: System Performance Under Normal (No Contingency) Conditions (Cat. A)
- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)
- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

#### Relevant Facility Connection Standards:

- FAC-001-0 Facility Connection Requirements
- FAC-002-0 Coordination of Plans for New Facilities

MAPP-M1 measurement should be linked into Requirement R1 or R1.3 of TPL-001-0, TPL-002-0, and TPL-003-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- Generation Owners & Transmission Providers in MAPP-M1 should refer to the Planning Authority and Transmission Planner.
- FAC-001-0 requires the Transmission Owner to list the facility connection requirements for generation facilities.

It may be necessary to link MAPP-M1 into this standard as well.

MAPP-M2 measurement should be linked into Requirement R1 or R1.3 of TPL-001-0, TPL-002-0, and TPL-003-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- Generation Owners & Transmission Providers in MAPP-M2 should refer to the Planning Authority and Transmission Planner.
- FAC-002-0 requires the Transmission Owner and Generation Owner to coordinate with the Transmission Planner and Planning Authority.

It may be necessary to link MAPP-M2 into this standard as well.

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III. System Protection & Control

F. Special Protection Systems

III.F.MAPP-S1

Relevant Transmission Planning Standards:

- TPL-002-0: System Performance Following Loss of a Single BES Element (Cat. B)

- TPL-003-0: System Performance Following Loss of Two or More BES Elements (Cat. C)

- TPL-004-0: System Performance Following Extreme BES Events (Cat. D)

Relevant Protection & Control Standards:

- PRC-012-0: Special Protection Review Procedure

III.F.MAPP-M1

MAPP-M1 measurement should be linked into Requirement R1.3.10 of TPL-002-0 and TPL-003-0, and R1.3.7 of TPL-004-0; including MAPP Table I, and the MAPP Disturbance Performance Table.

- R1.3.10: Include the effects of existing and planned protection systems, including any backup or redundant systems.

- SPS Owners in MAPP-M1 should refer to the Planning Authority and Transmission Planner.

- PRC-012-0 requires the RRO to list the requirements for the SPS Owner to meet.

It may be necessary to link MAPP-M1 into this standard as well.