ENSURING REAL-TIME OPERATING RELIABILITY OF TRANSMISSION ASSETS WITHIN A TRANSMISSION OPERATOR AREA

1. MONITORING SYSTEM STATUS

   a) Monitor all reliability-related parameters within the reliability area
   b) Monitor reactive resources to maintain transmission voltage within defined limits
   c) Monitor operations of the transmission facilities within the Transmission Operator Area control and as directed by the Reliability Coordinator
   d) Monitor the status and safe operating of facilities classed as transmission assets, which include: the transmission lines connecting a generating plant to the transmission system, associated protective relaying systems and Special Protection Systems
   e) Receive operating and availability status of generating units from Generation Operators including status of automatic voltage regulators

CONCEPTS

   a) Parameter limits
   b) Effects of parameter limits, violations, and outages
   c) Generation, load and voltage and the interaction between them
   d) Interconnection geography of BA area
   e) Power flow
   f) Effects of weather
   g) Knowledge of transmission equipment
   h) NERC Standards
   i) SPP Criteria
   j) Tools and tool functionality (e.g., EMS, SCADA, Relays, Alarms, SPS features, etc.)
   k) Consequences of tool failure
   l) Proper communication
   m) Safety guidelines
2. OPERATING TRANSMISSION SYSTEM

a) Deploy reactive resources from Transmission Owners and Generator Owners to maintain acceptable voltage profiles
b) Determine amount required and arrange for reliability-related services from Generator Operators to ensure voltage support (e.g., reactive supply from generation resources) in coordination with (or under the direction of) the Reliability Coordinator
c) Direct and/or control all transmission switching
d) Enter transmission facilities maintenance schedules into OPS1 outage scheduler
e) Operate within established Interconnection Reliability Operating Limits
f) Operate within system limitations such as System Operating Limits and Total Transfer Capabilities
g) Perform reliability analysis (actual and contingency) for the Transmission Operator Area
h) Provide real-time maintenance schedules to Reliability Coordinator and Transmission Planner
i) Provide real-time operations information to the Reliability Coordinator and Balancing Authority

CONCEPTS

a) Parameter limits
b) Effects of parameter limits, violations, and outages
c) Generation, load and voltage and the interaction between them
d) Knowledge of transmission equipment
e) NERC Standards
f) SPP Criteria
g) Communication
h) Tools and tool functionality (e.g., OPS1, RSS)
i) Voltage support
j) Reserves (e.g., reactive, operating, contingency)
k) Generator deployment
l) Transmission switching
m) Safety procedures
n) Interconnection Reliability Operating Limits
o) System Operating Limits
p) Total Transfer Capabilities
q) TLR
r) Interchange
s) Load forecasting
t) DOE reporting
u) Reliability analysis

The information, practices, processes and procedures outlined and contained in this publication are the intellectual property of Southwest Power Pool, Inc. and are protected by law. This publication or any part thereof, is for training purposes only and may not be reproduced or transmitted in any form or by any means without express written permission of Southwest Power Pool, Inc.
3. PREPARING FOR AND RESPONDING TO SYSTEM EMERGENCIES

a) Coordinate and implement load shedding with, or as directed by, the Reliability Coordinator
b) Direct Balancing Authorities and Distribution Providers to implement system restoration plans
c) Direct Distribution Providers to shed load if needed to ensure reliability within the Transmission Operator Area
d) Implement emergency procedures. [Entity can insert specific emergency tasks related to these procedures.]
e) Implement system restoration plans

CONCEPTS

a) Parameter limits
b) Effects of parameter limits, violations, and outages
c) Generation, load, voltage and frequency and the interaction between them
d) Knowledge of transmission equipment
e) NERC Standards
f) SPP Criteria
g) Communication
h) TLR
i) Reserves (e.g., reactive, operating, contingency)
j) Tools and tool functionality (e.g., OPS1, RSS)
k) Power flow
l) Reliability Analysis
m) Load shedding
n) System restoration
o) Cyber security

The information, practices, processes and procedures outlined and contained in this publication are the intellectual property of Southwest Power Pool, Inc. and are protected by law. This publication or any part thereof, is for training purposes only and may not be reproduced or transmitted in any form or by any means without express written permission of Southwest Power Pool, Inc.
4. PLANNING FOR TRANSMISSION SYSTEM MAINTENANCE AND OUTAGES

a) Coordinate transmission facilities maintenance with adjacent Transmission Operator and Reliability Coordinator
b) Determine amount required and arrange for reliability-related services from Generator Operators to ensure voltage support (e.g., reactive supply from generation resources) in coordination with (or under the direction of) the Reliability Coordinator
c) Develop transmission switching procedures
d) Enter transmission facilities maintenance schedules into OPS1 outage scheduler

CONCEPTS

a) Parameter limits
b) Effects of parameter limits, violations, and outages
c) Generation, load, voltage and frequency and the interaction between them
d) Interconnection geography of BA area
e) Effects of weather
f) Knowledge of transmission equipment
g) NERC Standards
h) SPP Criteria
i) Communication
j) Transmission switching
k) Safety guidelines
l) Voltage support
m) Reserves (e.g., reactive, operating)
n) Generation deployment
o) Tools and tool functionality (e.g., OPS1)
p) Power flow
q) Reliability Analysis
r) Load Forecasting
5. MITIGATING TRANSMISSION SYSTEM ISSUES

a) Direct Generator Operators to respond to transmission system problems (e.g., voltage limitations or equipment overloads that may affect generator operations)
b) Implement flow control device operations for those ties under the Transmission Operator’s purview as directed by the Balancing Authorities or Reliability Coordinator. [If this is applicable to your entity, ensure that your procedure is adequate to cover this job task.]
c) Notify Generator Operators of transmission system problems (e.g., voltage limitations or equipment overloads that may affect generator operations)
d) Receive and take necessary action in response to reliability alerts from Reliability Coordinator
e) Request Reliability Coordinator to assist in mitigating equipment overloads (e.g., redispatch, transmission loading relief)

CONCEPTS

a) Parameter limits
b) Effects of parameter limits, violations, and outages
c) Generation, load, voltage and frequency and the interaction between them
d) Interconnection geography of BA area
e) Effects of weather
f) Knowledge of transmission equipment
g) NERC Standards
h) SPP Criteria
i) Communication
j) Transmission switching
k) Safety guidelines
l) Voltage support
m) Reserves (e.g., reactive, operating)
n) Generation deployment
o) Tools and tool functionality (e.g., RSS)
p) Power flow
q) Reliability Analysis
r) TLR
s) Load shedding
t) System restoration

SUBTASKS (Supports All Job Tasks)

a) Utilize proper three-way communication when issuing and following directives

The information, practices, processes and procedures outlined and contained in this publication are the intellectual property of Southwest Power Pool, Inc. and are protected by law. This publication or any part thereof, is for training purposes only and may not be reproduced or transmitted in any form or by any means without express written permission of Southwest Power Pool, Inc.