



Western Systems Coordinating Council

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COUNCIL REPRESENTATIVES
WSCC STANDARDS CORRESPONDENTS
OPERATIONS COMMITTEE
OPERATING TRANSFER CAPABILITY POLICY GROUP
PLANNING COORDINATION COMMITTEE
WESTERN MARKET INTERFACE COMMITTEE

The Compliance Monitoring and Operating Practices Subcommittee (CMOPS) and Reserve Issues Task Force (RITF) have been considering revisions to the WSCC Operating Reserve criteria since August 2000. This assignment has involved a great deal of time and effort to date as a result of the meetings and technical studies that have been required. An overview presentation of the status of this assignment was presented at the joint meeting of the Operations Committee, Planning Coordination Committee and Western Market Interface Committee on February 22, 2001.

On March 7, a special meeting of CMOPS and RITF was held to review the work that has been completed. As a result of that meeting, CMOPS members agreed that the following documents are ready for posting in accordance with WSCC's Standards Development Process:

- Reserve Issues Task Force Report – March 7, 2001

The RITF report provides background and explains the rationale for recommending new Operating Reserve criteria. The report also includes conclusions, principles, and recommendations associated with the proposal to implement new reserve criteria.

- Requirements for Implementation of New Reserve Criteria

This document summarizes requirements and action items that CMOPS and RITF believe would have to be implemented before the new reserve criteria could be put in place.

- Timeline/Milestones to Implement New Reserve Criteria

This document identifies major milestone objectives that have to be achieved before new reserve criteria could be implemented.

The purpose of this letter is to notify you that the above documents are posted on the WSCC web site at http://www.wsccl.com/standards_undergoing_comment.htm and to request your review and comments regarding these documents and their contents.

Written comments are to be submitted by email to standards@wsccl.com no later than May 11, 2001. A response will be developed for each comment in accordance with the Standards Development Process.

Two workshops are being planned to provide an opportunity to discuss the proposed new reserve criteria, provide input, ask questions, and gain a better understanding of the proposal. Our plan is to have one workshop in the Northwest and one in the Southwest area of the WSCC region. Tentative dates for the workshops are April 10 and 11. A separate announcement will be distributed when we have more details regarding specific locations, start times, agenda, etc.

Please make a special effort to review the material described above and provide your written comments no later than May 11, 2001. If you have questions, please do not hesitate to contact me at 303-452-6111 ext. 6550 or you may contact Don Badley, RITF chair, at 503-464-2805. Your input is essential to ensure that WSCC's Standards Development Process is carried out as intended.

Sincerely,

Edward C Eakeley

Edward C. Eakeley

cc: CMOPS MEMBERS
RITF MEMBERS
TSS MEMBERS
SRWG MEMBERS

REQUIREMENTS FOR IMPLEMENTATION OF NEW RESERVE CRITERIA

Prior to implementation of new (revised) reserve requirements several recommendations and action items must be completed by all Control Areas/Reserve Sharing Groups and Security Coordinators (SC) as outlined below:

1. SC and Control Area Operators shall implement real-time monitoring of Operating Reserve, including the new Frequency Responsive Reserve (FRR) component.
 - a. Control Areas/Reserve Sharing Groups shall continuously monitor and provide available FRR data to the SC.
 - b. Control Areas/Reserve Sharing Groups shall review actual performance to ensure compliance with its pro rata share of FRR.
2. Control Areas/Reserve Sharing Groups shall review contracts/agreements to ensure FRR compliance.
3. Control Areas/Reserve Sharing Groups shall establish operating procedures for the dispatch of generating units critical to maintaining adequate reactive reserve in sensitive areas.
4. Control Areas/Reserve Sharing Groups shall establish operating procedures to provide additional FRR for RAS triggering outages of generation in excess of 1750 MW.
5. Final approval of changes to MORC to implement the new reserve criteria shall be obtained from the Compliance Monitoring and Operating Practices Subcommittee (CMOPS), the Operations Committee (OC), the Board of Trustees (BOT) and the WSCC membership.
6. Revisions to implement the new reserve criteria in the appropriate RMS agreements shall be obtained from the RMS Participants and FERC.
7. A base case shall be developed representing expected FRR levels for use by WSCC members and study groups to perform the necessary studies for the

applicable operating season.

8. OTC study groups and individual member systems as appropriate shall identify all FRR impacts on OTC levels for the applicable operating season.
9. Control Areas/Reserve Sharing Groups shall ensure that under frequency load shedding remains coordinated with generator protection settings, in accordance with WSCC's Off-nominal Frequency Load Shedding and Restoration Plan, under the proposed FRR levels for system islanding scenarios.
10. The OTC Policy Group shall implement measures to ensure that OTC levels meet or exceed minimum operating reliability requirements when FRR is not evenly distributed and that a plan for the mitigation of OTC impacts associated with unevenly distributed FRR is in place.
11. Control Areas/Reserve Sharing Groups shall ensure that system operators are trained to operate the system in accordance with the new reserve criteria and associated operating procedures.
12. Security Coordinators shall have received the necessary training regarding the new reserve criteria and associated operating procedures.
13. All operating procedures necessary for implementation of the new reserve criteria shall be developed and in place.

Assuming approval of the proposed new operating reserve criteria, Self-Certification from all CA/Reserve Groups and Security Coordinators is required for final implementation by October 15, 2001.

Reserve Issues Task Force (RITF) Report

March 7, 2001

I. Introduction

The Reserve Issues Task Force (RITF) was formed at the August 2000 Compliance Monitoring and Operating Practices Subcommittee (CMOPS) meeting. The RITF was given the assignment to review WSCC's operating reserve criteria and develop revisions to the criteria as deemed appropriate to ensure that the criteria are technically sound, measurable, enforceable, proactive, and effective in preserving reliability.

The following is a list of the task force representatives:

Don E. Badley, Northwest Power Pool, Task Force Chair
Robert D. Smith, Arizona Public Service Company
Donald L. Gold, Bonneville Power Administration
William A. Mittelstadt, Bonneville Power Administration
Gregory Van Pelt, California Independent System Operator
Kevin Graves, California Independent System Operator
Ron Schellberg, Idaho Power Company
M. LeRoy Patterson, Montana Power Company
Deborah Martinez, Northwest Power Pool
Tom C. Petrich, Pacific Gas and Electric Company
Mike Ryan, Portland General Electric Company
Don Adair, Power Pool of Alberta
Robert K. Johnson, Public Service Company of Colorado
Thomas J. Botello, Southern California Edison Company
John Tolo, Tucson Electric Power Company
Edward C. Eakeley, Tri-State G&T Association
Mark E Fidrych, Rocky Desert Security Center
Nancy Bellows, Western Area Power Administration
Donald G Davies, Western Systems Coordinating Council
Bob Dintelman, Western Systems Coordinating Council
Douglas Larson, Western Interstate Energy Board
Prasad Potturi, New Mexico Public Utility Commission
Mark Ziering, California Public Utility Commission
Carson W. Taylor, Bonneville Power Administration
Warren L. Mc Reynolds, Bonneville Power Administration

The RITF held six meetings and one conference call. The RITF meeting notes, documenting the group's deliberations and activities, are posted on the WSCC web site. Support for the task force was provided by:

- The Spinning Reserve Studies Task Force, chaired by Ron Schellberg of Idaho Power Company.
- The Frequency Regulation Task Force, chaired by Bill Mittelstadt of the Bonneville Power Administration.

This report summarizes the work of the RITF in addressing its assignment.

II. Conclusions and Principles

Conclusions – The following conclusions were derived from the technical study results, RITF discussions, and historical data analyzed by the RITF:

1. Stability study results confirm the need to reduce specific existing transfer capabilities when the Frequency Responsive Reserve¹ (FRR) levels are reduced (from existing spinning reserve requirements) and they are not evenly distributed on a proportionate basis among control areas throughout the WSCC region. Uneven distribution of reserve is the current normal practice.
2. For existing transfer capabilities, stability study results (limited to generator outage cases) did not indicate any stability problems in cases representing reduced FRR levels (from existing spinning reserve requirements), providing they are evenly distributed throughout the region. The studies indicate that if reserve is evenly distributed, individual control area reserve responds in a proportionate manner following a contingency and consequently, power flows between control areas are not high enough to cause oscillations or stability problems.
3. Transient stability and post transient study results indicate that if FRR levels are reduced below existing requirements and the FRR is not evenly distributed throughout the region, reduced transfer capabilities on some paths (such as reducing the COI and PDCI total operating transfer capability by as much as 1300 MW²) are required to maintain system stability and to meet reactive reserve requirements.
4. A reduction in FRR requirements has the potential to result in more underfrequency load shedding following a system islanding condition than would result under the current spinning reserve requirements. The potential for underfrequency load shedding also is

¹ Frequency Responsive Reserve is that portion of spinning reserve deployed automatically within the first 60 seconds following a frequency disturbance.

² This number could go up or down depending upon system conditions. The 1300 MW reduction in OTC was based upon the two-unit Palo Verde outage and the difference between 4000 MW and 1500 MW uneven distribution cases. Further studies, which will be focused on adjusting the reserves in the most effective manner and varying the amounts in critical areas, will need to be performed. This will confirm the OTCs for minimum reserves in critical areas and the benefits of adjusting reserves above this level. Operating procedures will need to be implemented to take these factors into account.

greater for generation losses greater than the Most Severe Single Contingency (MSSC).

5. Due to modeling deficiencies, the actual frequency dips observed in actual system operation are 40 to 60% larger than the frequency dips that are observed in technical study results for equivalent contingencies.
6. Development of more accurate simulation models should not delay the work of the Reserve Issues Task Force in developing operating reserve criteria recommendations.

Principles – The following principles were established and agreed upon by RITF members:

1. To ensure that automatic underfrequency firm load shedding does not occur for the MSSC, sufficient FRR must be deployed to limit frequency dips to above 59.65 Hz.³
2. Sufficient FRR must be automatically deployed to ensure that system “settling frequency”⁴ achieves and maintains 59.825 Hz or higher within 60 seconds of the most severe single contingency.
3. Sufficient Contingency Reserve⁵ must be deployed to meet the NERC Disturbance Control Standard (DCS) requirements.
4. Operating Procedures, based on technical studies which model actual FRR amounts and distribution, must be developed and implemented to ensure Operating Transfer Capability⁶ limits are consistent with FRR distribution to maintain reliable operation in accordance with WSCC and NERC standards.

III. Recommendations

The following recommendations were developed and approved by the RITF

³ This principle is to coordinate reserve requirements to ensure that operation does not result in interruption to firm customer load in accordance with WSCC’s Coordinated Off-Nominal Frequency Load Shedding and Restoration Program. The 59.65 Hz value provides 0.15 Hz margin above the 59.5 Hz load shedding threshold for delayed tripping of firm load to correct underfrequency stalling. The 59.5 Hz value is also employed as a safety net to protect against an islanding event for the CA/AZ southern island.

⁴ System settling frequency is the frequency achieved primarily by governor action before Automatic Generator Control action is initiated. The 59.825 Hz is derived from historical data to preserve the ratio observed between historical frequency dips and settling frequencies.

⁵ Contingency Reserve is made up of two components: Spinning (which includes FRR) and Supplemental, and must be sufficient to cover the Control Area/Reserve Sharing Group’s Most Severe Single Contingency.

⁶ Operating Transfer Capability is the transfer capability limit for the specific operating season.

and CMOPS members and are based upon technical study results documented in the Report of the Spinning Reserve Studies Task Force and in the report of the Frequency Regulation Task Force. Both reports are posted on the WSCC web site.

1. A base level of FRR is required for the entire Western Interconnection to comply with principle 1 above, which states that frequency must not dip below 59.65 Hz for the most severe single contingencies. A value of 1750 MW⁷ is recommended for the base FRR. This value is based on historical generation outages, which include remedial action scheme (RAS) actions that have triggered generation loss of this magnitude. On the basis of the review of historical data, it is the conclusion of the RITF that if the actual Western Interconnection FRR had been 1750 MW there still would have been no relay action as part of WSCC’s Coordinated Off-Nominal Frequency Load Shedding and Restoration program for all single and multiple resource outages from 1997 through 2000.

This FRR is to be maintained at all times, must be fully deployable within 60 seconds following a triggering event, and must be sustained until other resources come into play to reduce the frequency error to pre-contingency levels within the NERC DCS recovery time period. Once deployed, FRR must be restored within 60 minutes of the triggering event.

It is recommended that this value be reevaluated after two years, or after a major disturbance triggering contingency reserve, or if there are compelling reasons to review the value sooner.

2. Apportionment of FRR to control areas or reserve sharing groups –

It is recommended that the apportionment of the FRR component of contingency reserve be based on NERC operating policies as follows:

$$\text{FRR for a control area/ reserve sharing group} = 1750 \times \frac{\left(\begin{array}{c} \text{C} \\ \text{o} \\ \text{n} \\ \text{t} \\ \text{r} \\ \text{o} \\ \text{l} \end{array} \right) \left(\begin{array}{c} \text{Control area/reserve} \\ \text{sharing group} \\ \text{installed generation} \\ \text{as of December 31}^{\text{st}}. \end{array} \right)}{\left(\begin{array}{c} \text{Total sum of all control areas/reserve sharing} \\ \text{groups peak demands and installed generation} \end{array} \right)}$$

⁷ The Western Interconnection FRR level of 1750 MW was developed from the Frequency Regulation Task Force report.

Dynamically transferred generation from remote plants is to be included in the receiving control area/reserve sharing group in the above determination of FRR.

3. Distribution of reserve –

Distribution of FRR can impact OTCs as noted in principle 4 above. To the degree that OTCs are affected by the distribution of FRR, this issue needs to be carefully addressed to maintain reliable WSCC system operation. It is recommended that Control Area Operators/Transmission Path Operators be responsible for ensuring that operating procedures, accounting for reserve distribution and affect on OTCs, are in place to maintain reliable operation in accordance with WSCC and NERC standards.

4. A Control Area/Reserve Sharing Group may meet its FRR requirement through a number of options. Available options include:

- i. The Control Area/Reserve-Sharing Group must arm automatic load tripping to meet or achieve better performance than the minimum frequency dip requirement (59.65 Hz) in accordance with NERC specifications.
- ii. The Control Area/Reserve-Sharing Group must acquire FRR from other areas provided that any adverse impacts, such as reduced OTCs, are identified in technical studies and mitigated to achieve reliable system operation in accordance with NERC and WSCC standards.

5. Measuring and monitoring reserve

- i. Audits
- ii. Real-time monitoring
- iii. Performance

It is recommended that Control Area compliance with Minimum Operating Reserve requirements⁸ be measured as part of WSCC's Reliability Management System (RMS) using hourly-integrated data. It is recommended that monitoring and reporting of FRR and the remaining components of operating reserve be addressed separately.

Note: RMS reporting form requirements do not need to be part of the report but should be identified as an item in the project implementation plan.

⁸ Minimum Operating Reserve is defined in MORC Section 1.A

RMS reporting forms will have to be reviewed and updated and the necessary approvals obtained to implement this recommendation.

Further, it is recommended that Security Coordinators and Control Area Operators monitor Operating Reserve in real time to ensure that actions are implemented to comply with Operating Reserve requirements at all times. The necessary data must be available to Security Coordinators and Control Area Operators in sufficient detail to ensure compliance with NERC standards, including the FRR component, the contingency reserve component, and the remaining operating reserve components; and to ensure that the distribution of operating reserve meets all applicable reliability requirements, particularly the OTC requirements. The changes in Operating Reserve requirements, recommended within this report, shall not be implemented until the necessary changes are made to monitor the FRR component and operating reserve versus OTCs to ensure compliance.

6. Recovery of Reserve – time frame

- i. Contingency
- ii. Frequency response

It is recommended that the current 60-minute requirement for recovery of Operating Reserve following a single contingency loss be retained.

7. Increased Frequency Responsive Reserve requirement for single contingency Remedial Action Scheme (RAS) generation tripping –

There are some existing RAS that have the potential to trigger the outage of generation in excess of 1750 MW following a single contingency. It is recommended that the owners of any RAS which trips over 1750 MW of generation be responsible for carrying an additional amount of FRR to cover the incremental difference above the 1750 MW base FRR that is armed to be tripped by RAS following a single contingency. This requirement would only be applicable when the RAS is armed. Equivalent load dropping may be used as an option to cover the equivalent FRR requirement. Any RAS or multiple contingency generation outage, which has operated or occurred more than once during the previous three-year period, shall be treated as a single contingency for the purpose of applying this recommendation.

8. It is recommended that the OTC Policy Group (OTCPG) implement measures to ensure that system studies properly account for FRR amount and distribution and that operating procedures are in place to

ensure appropriate OTC levels when FRR is not evenly distributed.

9. It is recommended that Operating procedures identify those generating units that are critical to maintaining adequate reactive reserve in sensitive areas of the WSCC region. On-line reactive reserve monitoring is recommended to ensure that FRR decisions do not impact system voltage stability. It is recommended that provisions addressing monitoring necessary reactive reserve be addressed in MORC and that control centers meet these requirements in conjunction with implementing a change in operating reserve requirements as outlined in this report.
10. It is recommended that the Modeling and Validation Work Group undertake efforts to identify effective tests, and improvements that can be made to generating unit governor models so they accurately reflect actual performance. Since transient stability has not been a primary limiting factor in the operating reserve studies, changes or modification to WSCC's Minimum Operating Reliability Criteria (MORC) are not dependent upon resolution of this recommendation. However, this recommendation does not address other requirements for coordination of underfrequency load shedding (UFLS) within islanding groups that depend on proper modeling of governor performance. Islanding group reserve requirements should not be reduced until it has been certified that UFLS will remain coordinated with generator protection relaying for the reduced reserve requirements.
11. It is recommended that operating cases be prepared for the 2001 summer operating period with FRR represented as closely as possible to how control areas expect to operate.
12. It is recommended that the value of FRR provided by a specific resource must be based on actual performance of the particular resource to a frequency deviation.
13. It is recommended that FRR operating study methodologies be discussed for implementation at an OTCPG sponsored workshop to expedite OTC studies.
14. Attached is recommended language to modify MORC to embody the applicable recommendations made above.

Proposed Revision to WSCC Minimum Operating Reliability Criteria

SECTION 1

A. Operating Reserve

The reliable operation of the WSCC interconnected power system requires that adequate Operating Reserve be available at all times to maintain scheduled frequency and avoid unplanned loss of load following transmission or generation contingencies. In accordance with NERC Policy 1C, it has been determined that the WSCC region will carry 1750 MW as the Frequency Responsive Reserve (FRR) with each control area responsible to carry the allotted Control Area Allocation (CAA). In the case of a Reserve Sharing Group (RSG), the RSG shall be responsible to ensure that each Control Area within the RSG has appropriate procedures in place to supply the Control Area FRR when required.

1. **Minimum Operating Reserve. Each Control Area/Reserve Sharing Group shall maintain a minimum operating reserve which is comprised of:**

- (a) **Regulating Reserve Obligation. A portion of Operating Reserve, immediately responsive to automatic generation control (AGC sufficient to allow the Control Area to meet NERC's *Control Performance Criteria* CPS 1 and CPS 2).**

Plus:

- (b) **Contingency Reserve Obligation.** An amount of Operating Reserve sufficient to cover the Control Area/Reserve-Sharing Group's Most Severe Single Contingency and allow it to meet NERC's *Disturbance Control Standard*. The components of the Contingency Reserve Obligation include:
 - (i) Operating Reserve – Spinning
 1. Control Area Allocation.
 2. Spinning Reserve in excess of the amounts dedicated to the Regulating Reserve Obligation and the Control Area Allocation.
 - (ii) Operating Reserve – Supplemental
 1. Off-line generation

2. On-demand rights from other entities or control area/reserve sharing groups.
 3. Interruptible exports.
 4. Customer loads that the System Operator has specifically designated as contingency reserve prior to an actual contingency.
2. **Control Area Allocation (CAA).** Sufficient FRR, immediately responsive to governor action, and/or automatic load tripping to meet the control area's required response to frequency deviations.
- (a) **Minimum amount.** Each Control Area/Reserve Sharing Group shall maintain a minimum amount of FRR (Frequency Responsive Reserve) equal to its prorated share of the total requirement for the Western Interconnection as calculated by the following relationship and in accordance with NERC Policy 1.

$$\begin{array}{l}
 \text{Control Area} \\
 \text{Allocation}
 \end{array}
 = 1750 \text{ MW X }
 \left(\frac{\begin{array}{l} \text{control area/reserve} \\ \text{sharing group's} \\ \text{annual peak demand} \end{array} + \begin{array}{l} \text{installed generating capability} \\ \text{as of December 31 of the} \\ \text{prior year} \end{array}}{\begin{array}{l} \text{sum of all WSCC control area/reserve sharing groups'} \\ \text{annual peak demands plus installed generating} \\ \text{capability as of December 31 of the prior year} \end{array}} \right)
 + \begin{array}{l} \text{RAS and} \\ \text{Generation} \\ \text{Outage} \\ \text{Component} \end{array}$$

RAS Component = Generation in excess of 1750 MW armed to be tripped by a remedial action scheme or generation in excess of 1750 MW armed to be tripped by a remedial action scheme that has operated more than once in a three-year period.

The owners of a remedial action scheme, which trips in excess of 1750 MW, are responsible for supplying the RAS Component in the above relationship in addition to Control Area Allocation for. If both generation and load are tripped by the RAS, the net resource loss must be covered.

Generation Outage Component = Other generation outage events in excess of 1750 MW that have occurred more than once in a three-year period.

The Control Area/Generator Operator is responsible for supplying the Generation Outage Component in the above relationship in addition to the Control Area Allocation.

- (i) Response rate for Frequency Responsive Reserve. **Frequency Responsive Reserve must be automatically and fully responsive to frequency deviations of at least 0.175 hertz from the scheduled system frequency.**
 - (ii) Response time for Frequency Responsive Reserve. **Generation increases shall be completed within 60 seconds following a frequency deviation of 0.175 hertz from the scheduled system frequency. The generation Contingency Reserve response must continue to reduce frequency error to pre-contingency levels within the NERC DCS recovery time.**
 - (iii) Automatic load tripping used to meet Frequency Responsive Reserve shall comply with NERC requirements.
- (b) Additional Contingency Reserve Obligations
- (i) **The Control Area/Reserve-Sharing Group shall carry additional Operating Reserve at least equal to the sum of interruptible imports and on-demand obligations. The locations and amounts of this additional Operating Reserve shall be determined so that the Control Area/Reserve Sharing Group will still satisfy its Contingency Reserve Obligation even after this additional reserve is utilized in response to curtailment of interruptible imports or the request for on-demand rights.**
 - (ii) **Additional spinning reserve may be necessary for single contingency RAS, reactive reserve requirements, etc. This amount must be sufficient and deployed in a manner to ensure the control area/reserve-sharing group is operating within its transmission constraints and OTC limits are not violated. (See A.3).**
 - (c) Restoration of Frequency Response Obligation and Contingency Reserve Obligation. **The Control Area/Reserve-Sharing Group is expected to restore its operating reserve as promptly as possible following deployment. Following any single contingency loss, restoration of both Frequency Responsive Reserve Obligation and Contingency Reserve Obligation shall take no longer than sixty minutes.**
3. Review of single contingencies. **Control Areas/Reserve Sharing Groups shall review, at least annually, all single contingencies to quantify the loss of generation and/or energy imports that would occur, and to identify the Control Area/Reserve Sharing Group's most severe single contingency (resulting in its largest sudden loss of generation and/or energy imports).**

4. **Transmission constraints.** The Control Area/Reserve-Sharing Group shall carry Operating Reserve at locations and in amounts that allow the Control Area/Reserve-Sharing Group to meet the requirements in paragraph A.1 and all WSCC and NERC standards. Emergency equipment ratings may be used when determining transmission constraints provided that the Control Area/Reserve-Sharing Group has the ability to reduce equipment loadings within the emergency rating time limits. Carrying additional Operating Reserve can allow the Control Area/Reserve-Sharing Group to selectively activate reserve to remain within its transmission constraints.
5. **Operating Transfer Capabilities.** System studies shall account for the distribution of Frequency Responsive Reserve and operating procedures shall be in place to ensure reliable system operation. Operating reserve shall be distributed and deployed such that reliability criteria violations do not occur as a result, or OTC limits must be reduced to be compatible with operating reserve distribution among Control Areas/Reserve Sharing Groups.
6. **Knowledge of operating reserve.** The Control Area Operator shall have sufficient knowledge at all times of the amount and location of the operating reserve that is in place to meet his or her Control Area's/Reserve Sharing Group's requirements and to operate within OTCs.
7. **Sharing operating reserve.** Under written agreement, the operating reserve requirements of two or more Control Area/Reserve Sharing Groups may be combined or shared, providing that such combination, considered as a single Control Area/Reserve Sharing Group, meets the obligations of paragraph A.1. Similarly, arrangements may be made whereby one Control Area/Reserve Sharing Group supplies a portion of another's operating reserve, provided that such capacity can be made available in such a manner that both meet the requirements of paragraph A.1. A firm transmission path must be available and reserved for the transmission of such operating reserve from the Control Area/Reserve Sharing Group supplying the reserve to the Control Area/Reserve Sharing Group calling on it.

Definition of terms from NERC Policy 1 Generation Control and Performance (DRAFT October 12, 2000)

Appendix

Definitions:

Policy 1 - - Generation Control and Performance

CONTINGENCY.

The unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. A contingency also may include multiple components, which are related by situations leading to simultaneous component outages

CONTINGENCY RESERVE.

The portion of OPERATING RESERVE – SPINNING and SUPPLEMENTAL that is allocated to respond to DISTURBANCES

CONTINGENCY RESERVE RESTORATION PERIOD.

The time after the end of the DISTURBANCE RECOVERY PERIOD in which CONTINGENCY RESERVES must be re-established fully

DISTURBANCE RECOVERY CRITERION.

The ACE (or its equivalent) behavior that must be observed within the DISTURBANCE RECOVERY PERIOD to be compliant with the Disturbance Control Standard

DISTURBANCE RECOVERY PERIOD.

The time after the start of a DISTURBANCE in which the DISTURBANCE RECOVERY CRITERION shall be met for compliance with the NERC Disturbance Control Standard

DYNAMIC TRANSFER.

The provision of the real-time monitoring, telemetering, computer software, hardware, communications, engineering, energy accounting (including inadvertent interchange), and administration required to implement a DYNAMIC SCHEDULE, PSEUDO-TIE or SUPPLEMENTAL REGULATION SERVICE

FREQUENCY DEVIATION.

A change in system frequency from one moment to the next

FREQUENCY ERROR.

The difference between the actual and scheduled Interconnection frequency

FREQUENCY RESPONSIVE RESERVE.

The portion of OPERATING RESERVE that is expected to respond to FREQUENCY DEVIATIONS within the FREQUENCY RESPONSIVE RESERVE ACTIVATION PERIOD

FREQUENCY RESPONSIVE RESERVE ACTIVATION PERIOD.

The period after a large frequency deviation in which FREQUENCY RESPONSIVE RESERVE must be provided

MOST SEVERE SINGLE CONTINGENCY.

A CONTROL AREA's single credible event that would cause the greatest change in the CONTROL AREA's ACE (Performance Standard Training Document, Section D, 4.1.1)

OPERATING RESERVE – SPINNING.

The provision of RESOURCE CAPACITY in excess of current and anticipated demand that is synchronized to the system and deployable

OPERATING RESERVE – SUPPLEMENTAL.

The provision of RESOURCE CAPACITY in excess of current and anticipated demand and OPERATING RESERVE - SPINNING that is: (1) synchronized, or is capable of being synchronized to the system, or, (2) load that can be removed from the system, or (3) interchange that can be recalled

REGULATING RESERVE.

The portion of OPERATING RESERVE that is allocated to respond to AGC requirements

REPORTABLE DISTURBANCE.

80% of the MOST SEVERE SINGLE CONTINGENCY loss of a CONTROL AREA or RESERVE SHARING GROUP, or some lower threshold selected on a regional basis

RESOURCE CAPACITY.

Generation, LOAD, INTERCHANGE, or any system component that can be used to modify the CONTROL AREA's ACE

TIMELINE/MILESTONES TO IMPLEMENT NEW RESERVE CRITERIA

- March 8 – CMOPS coordinates with OTC Policy Group
- March 12 – Post Recommendations for Due Process
- March 22 – Test/monitoring plan to be distributed for review and comment by CMOPS and RITF
- March 29 – MORC Work Group to modify wording in proposed Criteria and cross-check wording with other parts of criteria
- April 6 – CMOPS approval of test/monitoring plan
- April 10 – WSCC-wide workshop to explain proposed criteria
- April 11 – WSCC-wide workshop to explain proposed criteria
- May 1 – Modeling WG/TSS to coordinate light load test
- May 1 – RITF meeting to prepare responses to comments and review results of Performance Work Group survey
- May 3 – Coordinate with OTC Policy Group
- May 11 – Comments due from 60-day Due Process posting
- May 9-11 – CMOPS review of RITF responses to comments and approval of new criteria
- May 14 – 30-day posting of revised criteria for OC approval
- June 4 – Modeling and Validation Work Group/Performance Work Group to coordinate heavy load test
- June 7 – Coordinate with OTC Policy Group
- June 27 – OC approval of revised criteria
- July 2 – 30-day posting of revised criteria for BOT and Council Rep approval
- July 19 – MORC WG meeting
- August 6 – BOT approval and Council Rep approval of revised criteria
- August 10 – FERC filing for RMS implementation of revised criteria
- September 14 – OTC winter studies posted
- October 1 – Posting of operating procedures reflecting FRR requirements
- October 15 – Operator training completed
- October 15 – Self-certification documents due to confirm readiness to operate in accordance with revised criteria
- November 1 – Effective implementation date