NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Resources Subcommittee Meeting

July 18–19, 2007
Calgary, AB, Canada

Meeting Minutes

A regular meeting of the North American Electric Reliability Corporation's (NERC) Resources Subcommittee (RS) was held on July 18-19, 2007 in Calgary, AB, Canada. The meeting announcement, agenda, and attendance list are attached as **Exhibits A**, **B**, and **C**, respectively. Individual statements and minority opinions are affixed as **Exhibits D** and **E**. There were none.

Subcommittee Chairman Terry Bilke presided. The secretary announced that a quorum was present.

Antitrust Compliance Guidelines

Secretary Vandervort acknowledged the NERC Antitrust Compliance Guidelines.

Minutes of the Previous Meetings

The subcommittee approved the following meeting minutes:

April 25, 2007, Denver, CO

June 26, 2007, Indianapolis, IN

Task Force Reports

Control Criteria Task Force — Chairman Alan Oneal

Performance Standard Reference Document

The Control Criteria Task Force (CCTF) Chairman Alan Oneal led a discussion on the latest version of the Performance Standard Reference Document (PSRD). The focus of the discussion was to address the Disturbance Control Standard (DCS) section. It was emphasized that the PSRD is a reference guide to a number of NERC reliability standards including standard BAL-002, Disturbance Control Standard. The CCTF will continue to enhance the PSRD through conference calls, e-mail correspondence and possibly face to face meetings to attain consensus on the PSRD.

Some members suggested that the term "sudden" loss of generation should be instantaneous and in a time window of 15 seconds or less. The CCTF came to a consensus that the term "sudden" loss of generation as stated in the BAL-002 standard means the loss of generation in one minute or less.

The CCTF also discussed the BAL-002, R5 requirement that states if a balancing authority decides to respond to an event on its own without the aid of a reserve sharing group (RSG), then the BA is obligated to recover on its own. The discussion focused on the actual contingency criteria: whether the BA should use the 80% of the RSG's most severe single contingency (MSSC); or, if the BA should use the 80% of the BA's MSSC. The subcommittee will continue the discussion on this topic. The subcommittee also acknowledged that this requirement is ambiguous and needs clear and concise language to define the criteria.

Frequency Task Force — Chairman Raymond Vice

There was no Frequency Task Force Report

Inadvertent Interchange Task Force — Chairman Don Badley

There was no Inadvertent Interchange Task Force Report

Operating Reserves Task Force — Chairman Larry Akens

BAL-002-0, Disturbance Control Standard SAR

The Operating Reserves Task Force (ORTF) Chairman Larry Akens reported that the BAL-002 proposed SAR is part of the NERC BAL-002, 004, 005, 006 standards revision SAR, designated as the "Balancing Authority Controls" SAR. The SAR recommends revising BAL-002 to include recommendations from the FERC Reliability Standards Order 693, NERC's recommendations to address the BAL-002-0 requirements, and to revise the language to remove ambiguity and incorporate clear and accurate requirements and measures.

NERC Standards Review

The subcommittee agreed to devote the necessary time between meetings to work on subcommittee-sponsored SARs and to schedule monthly conference calls or face-to-face meetings to status the progress, request assistance, and determine any obstacles or road blocks that are impacting the progress of the subcommittee's interface with generating SARs or contributing support for the SARs.

Frequency Response SAR

Terry Bilke reported that the Frequency Response SAR has been posted for industry comment on the NERC Standards website. The NERC Standards Committee (SC) is soliciting individuals interested in self-nominating themselves for the Frequency Response SAR drafting team to self-nominate by July 30, 2007.

Balancing Authority Controls SAR (Balancing Standards BAL-002, 004, 005, and 006 Revisions)

Terry Bilke reported that the Balancing Authority Controls SAR (which was previously called the Balancing Standards BAL-002, 004, 005, and 006 Revisions SAR) has been posted for industry comment on the NERC Standards website. The NERC Standards Committee (SC) is soliciting individuals interested in self-nominating themselves for the Balancing Authority Controls SAR drafting team to self-nominate by July 30, 2007.

Reliability-based Control SAR

Raymond Vice reported that the first draft of the Reliability-based Control SAR has been posted, the Reliability-based Control field trial (continuation of the Balance Resources and Demand field trial) is continuing, and the SAR drafting team will meet next in Chicago on Thursday, July 26, 2007.

Time and Inadvertent Management SAR

Terry Bilke reported that the SC had delayed processing the Time and Inadvertent Management SAR until after the FERC Order 693 was published. Now that the Order is officially published, the SC may post the SAR or it may allow the Balancing Authority Controls SAR to incorporate the suggested enhancements found in the Time and Inadvertent Management SAR. The SAR's respective reliability standards are BAL-004, Time Error Correction; and BAL-006, Inadvertent Interchange.

BAL-001-0 through BAL-006-0 Reference Documents

- Refer to the Control Criteria Task Force for the Performance Standard Reference Document (PSRD) revision discussion.
- Reference documents for the BAL-002, 004, 005, 006 SARs will be identified during the Balancing Authority Controls standard drafting team process.

Resources Subcommittee Members Self-Nomination for RS-related SAR Drafting Teams

RS Chairman Terry Bilke encourages all subcommittee members to self-nominate to the RS-related SAR drafting teams that are currently seeking drafting team members. Please review the table below and check the NERC Standards website for more details and the self-nomination forms.

SAR Drafting Team Seeking Self-Nominations	**Self Nomination Window**	**Where to Find Self-Nomination Form**
Balancing Authority Controls (BAL-002, 004, 005, 006 Standards Revisions) (Proj 2007-05)	July 17-30, 2007	NERC Standards Website
Frequency Response (Project 2007-12)	July 17-30, 2007	NERC Standards Website
Generator Verification (Project 2007-09)	July 17-30, 2007	NERC Standards Website
Replace Levels of Noncompliance with Violation Severity Levels (Project 2007-23)	July 17-30, 2007	NERC Standards Website

Request for Interpretation of BAL-003-0, Requirements R2, 2.2, 5, 5.1

The RS reviewed the ERCOT request for interpretation of BAL-003-0, Requirements R2, 2.2, 5, 5.1, and drafted an interpretation of the requirements regarding fixed – variable bias. Alan Oneal moved that the RS accept the interpretation with the caveat that Raymond Vice, Frequency Task Force Chair (not present at the meeting) review and also approve the interpretation. The motion was approved.

Subsequently, Mr. Vice and the RS enhanced the interpretation, which the RS considered non-substantive changes. See **Exhibits F.**

Projects

The subcommittee agreed to devote the necessary time between meetings to work on subcommittee-sponsored projects and to schedule monthly conference calls or face-to-face meetings to status the progress, request assistance, and determine any obstacles or road blocks that are impacting the progress of the projects.

Real-Time Resource Adequacy (ACE-Frequency) Application, Project 2000-03

Real-time Resource Adequacy (ACE-Frequency) Application allows NERC Reliability Coordinators to immediately be alerted to electricity reliability threats originated by abnormal resource adequacy giving them time to work with out-of-compliance balancing authorities or other operational organizations to make operational corrections, thereby reducing the chances of unplanned blackouts.

ERCOT has agreed to submit data to be included in the Resource Adequacy Monitoring application. Brian Nolan, NERC projects manager, will coordinate the necessary infrastructure, hardware, and software modifications to include ERCOT into the Resource Adequacy Monitoring application.

All reliability coordinators, balancing authorities, and transmission operators that are signatory to the NERC confidentiality agreement are encouraged to subscribe to the Resources Adequacy Monitoring (ACE-Frequency) application by contacting Tom Vandervort at tom.vandervort@nerc.net or Carlos Martinez at martinez@electricpowergroup.org.

CPS1 & BAAL Monitoring Application, Project 2001-38

This application is being used by NERC Reliability-based Control SAR (RBC SAR) drafting team and the RBC SAR field test. The RBC SAR drafting team has the lead to recommend changes to this application in anticipation of when the standards will be approved. The RS will work with the RBC SAR drafting team as requested to ensure the production version of this application supports the approved RBC standards.

Action Required: Reliability-based Control SAR drafting team to determine the changes needed to transition this field test application to a production application.

AIE Monitoring Application, Project 2000-04

The AIE monitoring Application will initially be a balancing authority manual entry collection tool to identify balancing authorities that cause large or long-term frequency deviations, and help reliability coordinators and balancing authorities to assess the situation and recommend alternative actions. The application is intended to allow AIE surveys to be completed upon demand in a timely manner. BAs will submit the specified hourly data into an electronic Web-based data entry form. In the future, the RS hopes to automate the process to receive hourly data automatically to avoid the time delays associated with the manual entries.

Action Required: CERTS will deliver the AIE client application in the third quarter of 2007. The RS will request AIE surveys using the AIE web-based data entry application.

Inadvertent Interchange Application, Project 2001-37

The Inadvertent Interchange Application, release 1.2 is the NERC replacement for the SPP Inadvertent Interchange tool. The SPP Inadvertent Interchange tool will be retired during the third quarter of 2007. Currently 34 of 35 WECC balancing authorities and 63 of 94 Eastern Interconnection balancing authorities are submitting inadvertent interchange data to the new application. The RS will contact those balancing authorities that are not using the NERC Inadvertent Interchange application.

Action Required: The remaining balancing authorities need to start using the NERC Inadvertent Interchange application.

Intelligent Alarms

The NERC Intelligent Alarms have been expanded to two pages that have additional information and a trend line reflecting tie-line errors. Carlos Martinez will meet with the RCWG in September 2007 to attain their comments on the expanded Intelligent Alarms.

Action Required: All reliability coordinators, balancing authorities, and transmission operators that are signatories to the NERC confidentiality agreement are encouraged to subscribe to the Intelligent Alarms by contacting Tom Vandervort at tom.vandervort@nerc.net or Carlos Martinez at martinez@electricpowergroup.org.

Projects Summary
Carlos Martinez summarized the above RS projects, see **Exhibits G** (sent under separate cover.)

Performance Monitoring

CPS1 Review

The subcommittee reviewed and discussed the monthly and 12-month rolling average CPS1 reports.

The NERC compliance program determines CPS1 violations, penalties, and monitors corrective actions. The RS reviews the CPS1 report for performance analysis purposes. The subcommittee reviews the data to identify generic problems, inform subcommittee regional representatives when balancing authorities' scores are close to violation, and to assess why balancing authorities have scores below or near the acceptable 100% score.

CPS2 Review

The Resources Subcommittee reviewed and discussed the monthly CPS2 reports.

The NERC compliance program determines CPS2 violations, penalties, and monitors corrective actions. The Resources Subcommittee reviews the CPS2 report for performance analysis purposes. The subcommittee reviews the data to identify generic problems, inform subcommittee regional representatives when balancing authorities' scores are close to violation, and to assess why balancing authorities have scores below or near the acceptable 90% score.

Time Error Corrections

The following interconnection time error corrections from January 1, 2007 were reported:

2007	Fast TEC	Slow TEC	Total TEC
Eastern Interconnection, January – June	114	0	114
Western Interconnection, January – May	12	25	37
ERCOT, January – December	30	0	30
Hydro-Québec (see details below)			

Hydro-Québec: Hydro-Quebec does not have a methodology to perform time error corrections. At the last meeting, Mr. Potishnak explained that Hydro-Québec does not have a time error correction practice that uses explicit scheduled frequencies that differ from 60 Hz. The scheduled frequency is always 60 Hz. However, a permissive strategy is used to conditionally offset the area control error by up to 50 MW. In this control strategy, if the normal variations of generation/load mismatch results in high frequency while the time error is negative, up to 50 MW less of lower control signals are sent, leaving the frequency a little high so the clocks can catch up. Conversely, if the frequency ends up low through normal variations while the time error is positive, up to 50 MW less of raise control signals are sent, leaving the frequency a little low so the clocks will slow down.

Resources Subcommittee Action Item List

Tom Vandervort reviewed and updated the action item list, which is affixed as **Exhibit H**.

Dates and Locations of Future Meetings

Tuesday, October 23, 2007 Wednesday, October 24, 2007	8 a.m.-5 p.m. 8 a.m.-noon	Portland, OR
Wednesday, January 30, 2008 Thursday, January 31, 2008	8 a.m.-5 p.m. 8 a.m.-noon	Phoenix, AZ Alt: Miami or Tampa
Wednesday, April 30, 2008 Thursday, May 1, 2008	8 a.m.-5 p.m. 8 a.m.-noon	Washington D.C. Alt: Miami/Ft. Lauderdale
Wednesday, July 30, 2008 Thursday, July 31, 2008	8 a.m.-5 p.m. 8 a.m.-noon	Victoria, BC Alt: Minneapolis
Wednesday, October 29, 2008 Thursday, October 30, 2008	8 a.m.-5 p.m. 8 a.m.-noon	San Antonio Alt: Albuquerque

Respectfully submitted,

Tom Vandervort

Thomas J. Vandervort
Resources Subcommittee Secretary

Meeting Group and Dates	
Group Name	Resources Subcommittee
Dates	7/18/2007 8:00:00 AM 5:30:00 PM 7/19/2007 8:00:00 AM 12:00:00 PM
Hotel	
Hotel	Hyatt Regency Calgary
Address	700 Centre St Se
City	Calgary, AB T2G5P6
State	Canada
Phone	403-717-1234
Fax	
Cut Off Date	
Attending Staff	
Staff	Tom Vandervort
Miscellaneous	
Notes	• Room Block Code: NERC- • Room rate: C$199 sinle/double occupancy. • Room block: Nights of July 17-19, 2007- (Limited amount of rooms are available) • Check-in: 3 p.m., Check-out: noon • Hotel cut off date: June 17, 2007 • NOTE: After the cut off date the hotel will release this block of rooms and only accept reservations on a space-available basis at the prevailing room rate • Calgary International Airport (YYC) Approximate driving time is 20 minutes and distance is 12 km (8 mi). • Rental cars are the most convenient way to get from the airport to the hotel, especially for guests who wish to explore the area. Car rentals are available online. Shuttle service costs $8.50 CAN per person one-way. Taxi fare costs $22-$27 CAN. Prices are subject to change. • Dress code: Business casual

Item 1.a Membership and Guests

Chairman Terry Bilke will welcome the Resources Subcommittee members and guests. The chair will ask members and guests to introduce themselves.

Each member is asked to check and review the current organization, roster, and survey contacts list for accuracy.

Attachments

1. Resources Subcommittee Organization
2. Resources Subcommittee Roster
3. Resources Subcommittee Survey Contacts List

Item 1.b Arrangements

The Resources Subcommittee meeting will begin on Wednesday, July 18 at 8 a.m. and adjourn by noon on Thursday, July 19, 2007. Lunch will be served on Wednesday.

Item 1.c Approval of Meeting Minutes

The chair will ask for approval of the April 25-26, 2007 Resources Subcommittee meeting minutes and the June 26, 2007 Resources Subcommittee meeting minutes.

Attachment

April 25-26, 2007 Resources Subcommittee Meeting Minutes
June 26, 2007 Resources Subcommittee Meeting Minutes

Item 1.d Procedures

Item 1.d.i. Parliamentary Procedures

A summary of Parliamentary Procedures is attached for reference. The chair will answer questions regarding these procedures.

Item 1.d.ii. Antitrust Compliance Guidelines

On June 14, 2002, the NERC Board of Trustees adopted Antitrust Compliance Guidelines for NERC. In adopting the guidelines, the board passed the following resolution:

RESOLVED, that the Board of Trustees (1) adopts the Antitrust Compliance Guidelines draft attached hereto as Exhibit A and (2) instructs that these Antitrust Compliance Guidelines be included in the agenda package for each meeting of every NERC committee, subcommittee, task force, working group, and other NERC-sponsored activity.

The resolution also applies to workshops, training sessions, and any other NERC-sponsored event. A copy of the NERC Antitrust Compliance Guidelines will be included in the agenda package for each meeting of each group or event.

Attachments

1. Parliamentary Procedures
2. Antitrust Compliance Guidelines

Item 1.e Resources Subcommittee Action Items List

Discussion

The action items listed are attached for the subcommittee to review prior to the meeting. The action item list will not be reviewed during the meeting. However, the chairman or any member can discuss specific items or request assistance to close them.

Action

Between meetings, the subcommittee is to review the action item list on a periodic basis and perform necessary tasks to close the items. The subcommittee secretary will schedule meetings, conference calls, and webcasts to support efforts to address the action items. It is the responsibility of the action figures to address and close their items.

Attachment

Resources Subcommittee Action Items List

Item 2. Task Force Reports

Some or all of the subcommittee task forces may have met or conducted conference calls since the last meeting to discuss their respective issues and concerns.

Items 2.a–2.d Task Force Reports

Discussion and Action

The RS task forces' chairmen will report to the subcommittee regarding deliverables, significant investigations, action items, and concerns that are new or carry-over from the last meeting.

Task Force	Task Force Chairman
Control Criteria Task Force	Alan Oneal
Frequency Task Force	Raymond Vice
Inadvertent Interchange Task Force	Don Badley
Operating Reserves Task Force	Larry Akens

Item 3. NERC Reliability Standards

The Resources Subcommittee standards activity listed here may be addressed during the subcommittee meeting or during the RS Task Force meetings.

Item 3.a Frequency Response SAR — Terry Bilke

Terry Bilke submitted Frequency Response SAR responses to the industry for comments. Mr. Bilke will report on the status of the Frequency Response SAR.

Item 3.b Reliability-based Control SAR — Raymond Vice

The Reliability-based Control SAR drafting team (RBC SDT) is continuing the field trials that were initiated by the Balance Resources and Demand standard drafting team. A number of RS members are on the RBC SDT. Raymond Vice will report on the status of the Reliability-based Control SAR.

Item 3.c BAL-002, 004, 005, 006 Standards Revisions SAR — Terry Bilke

The BAL-002, 004, 005, 006 Standards Revisions SAR has been posted for industry comments. Terry Bilke will report on the status of the BAL-002, 004, 005, 006 Standards Revisions SAR.

Item 3.d Time and Inadvertent Management SAR — Terry Bilke

Terry Bilke submitted a Time and Inadvertent Management SAR to the NERC Standards Group for processing. Mr. Bilke will report on the status of the Time and Inadvertent Management SAR.

Item 3.e Performance Standard Reference Document — Terry Bilke, Alan Oneal

Alan Oneal has spent a significant amount of time revising the Performance Standard Reference Document. This effort is necessary since the Policy 1 reference documents are no longer valid. Terry Bilke requested the Standards Committee determine the fate of this reference document. Mr. Bilke will report on the status of the Performance Standard Reference Document.

Item 3.f Training Documents — Task Force Chairs

Reference Documents Discussion and Action

Training documents are needed for the industry for performance measures CPS1, CPS2, DCS, time error correction, inadvertent interchange, and especially BAAL (new). The Operating Manual which had associated training documents was superseded by the reliability standards and the old training documents no longer exist. The subcommittee task forces will work with the NERC Personnel Subcommittee to develop training material for the industry. The NERC Personnel Subcommittee needs draft documents for each parameter that the subcommittee wants developed into training documents.

Item 3.g BAL Standards Related Waivers or Interpretations

Item 3.g.i Request for Interpretation of BAL-003-0, R2, 2.2, 5, 5.1 — Terry Bilke

The RS received a request to respond to an interpretation from ERCOT on BAL-003, see attachment. The summary below is Terry Bilke's initial response.

To address the specific request, the two requirements do not conflict.

BAs analyze their response to frequency excursions as a first step in determining bias. The BA may then choose a fixed (constant through the year) or variable (varies with load, specific

generators, etc.) bias. R5 sets a floor, should natural response be less than 1% of peak/0.1Hz change in frequency.

One reason for the 1% floor is so all BAs contribute to stabilizing frequency. Even if a BA had below normal governor response, the 1% Bias setting calls on AGC to help stabilize frequency after a disturbance.

The 1% floor also ensures a consistent measure of control performance. If a BA was allowed to understate their bias, it would inflate their reported CPS1.

The reasoning for the 1% floor is most applicable to multi-BA Interconnections. The Bias term drops out of the CPS calculation in a single BA Interconnection such as ERCOT, so there is no possibility of overstating CPS1.

ERCOT correctly states that the Resources Subcommittee previously voted on a change to R5 that would allow average bias in a given month to be less than 1% of annual peak. The problem is the SAR intended to address such changes has not yet progressed through the standards process.

Another related issue the Resources Subcommittee has been trying to address through the standards process is that a common bias target for all Interconnections may not be appropriate, particularly in single-BA Interconnections. In ERCOT's case, using 1% bias during shoulder periods causes over-utilization of regulation (ACE oscillations) and reduced CPS1.

The Resources Subcommittee believes what ERCOT is doing for its bias calculation is superior to what is required in the standard; however, it does not appear that the interpretation process is the proper mechanism to achieve this goal.

Attachment

Request for Interpretation of NERC Standard BAL-003-0, R2, 2.2, 5, 5.1

Item 3.g.ii Reliability-based Control Waiver of CPS2 — Terry Bilke

In order to continue the Balance Resources and Demand field trials under the new Reliability-based Control SAR, David Hilt, NERC Vice President and Director of Compliance, confirmed the extension of the CPS2 waiver for the entities participating in the field test, see attachment.

Attachment

Balance Resources and Demand Draft Standard Continuation Field Test and Waiver of CPS2 Compliance letter from David Hilt, dated June 29, 2007

Item 3.h NERC Tool Vision — Tom Vandervort

NERC will only undertake projects and software development that supports reliability concepts or for special negotiated situations. The Resources Subcommittee needs to know and understand the parameters that the projects are governed by. Tom Vandervort will lead the discussion.

Item 4. NERC Active Resources Subcommittee Projects

Discussion

Terry Bilke and Carlos Martinez will provide a status report, lead a discussion, and detail action items for the specific Project Review Teams on the following RS projects. Resources Subcommittee teams have been formed that are assigned to address the needs of the respective projects. The team leader is noted with each project.

Attachment

NERC-CERTS-RS Projects Summary Table

Item 4.a Resources Adequacy (ACE-Frequency) Application System — Carlos Martinez, Terry Bilke

Resources Adequacy (ACE-Frequency) Application Review Team: Leader-Terry Bilke, Raymond Vice, Sydney Niemeyer, Robert Rhodes, Bill Herbsleb, John Tolo, Bart McManus, Tom Vandervort

The Resources Adequacy (ACE-Frequency) Application version 4.0 was released to the industry via NERC subscription and registration. Carlos Martinez will status the project and answer any questions of the subcommittee.

Important RS Considerations: 1) NERC IT Registry (currently being revised) is necessary; 2) Subscriber criteria must be established and documented; 3) Establish methodology to address BA name or footprint changes; 4) Other application issues the subcommittee and ACE-Frequency Application Review Team (see RS Action Item List) may have

The subcommittee is urged to contact all Balancing Authorities in their respective regions to subscribe to the Resources Adequacy application and Intelligent Alarms.

Item 4.b Intelligent Alarms — Carlos Martinez, Terry Bilke

The NERC Intelligent Alarms are now a two page alarm, distributed to subscribers via the e-mail/internet, that are initiated when specific thresholds are exceeded. Mr. Martinez and Mr. Bilke will report on the new Intelligent Alarms.

Item 4.c AIE Monitoring Applications Project — Carlos Martinez, Don Badley

AIE Monitoring Application Review Team: Leader-Don Badley, Raymond Vice, Bart McManus, John Tolo, Terry Bilke, Don McInnis, Mike Potishnak, Tom Vandervort, Brian Nolan

Messrs. Badley and Martinez will discuss AIE Monitoring Application field test, the next steps for full deployment, challenges and problems that have arisen, and the implementation plan.

Important RS Considerations: 1) Recap of AIE Monitoring Field Test; 2) AIE Project Review Team (see RS Action Item List) to review field test and determine next step; 3) NERC IT Registry (currently being revised) is necessary; 4) Subscriber criteria must be established and documented; 5) Establish methodology to address BA addition, deletion, or name change; 6) Other application issues the subcommittee and AIE Monitoring Application Review Team may have

Item 4.d CPS1 & BAAL Monitoring Project — Carlos Martinez, Raymond Vice

CPS1 & BAAL Monitoring Application Review Team: Leader-Raymond Vice, Doug Hils, Mark Henry, Sydney Niemeyer, Don Badley, John Tolo, Bart McManus, Tom Vandervort

The Resources Subcommittee is sponsoring the CPS1 & BAAL Monitoring Project, however, the **Reliability-based Control SAR drafting team has the lead**. The application has been used extensively for the Balance Resources and Demand standards field test and will require modification for a real-time production application when the standards are approved and implemented. Messrs. Vice and Martinez will discuss the current status of this project, the transition from the field test tool to a production application, and the expectations for this application.

Important RS Considerations: 1) CPS1 & BAAL Monitoring Application Review Team (see RS Action Item List) to work closely with the Reliability-based Control SAR drafting team to set a course of action for this application; 2) NERC IT Registry (currently being revised) is necessary; 3) Subscriber criteria must be established and documented; 4) Establish methodology to address BA addition, deletion, or name change; 5) Other application issues the subcommittee and CPS1 & BAAL Monitoring Application Review Team may have

Item 4.e Frequency Monitoring and Analysis System Project — Carlos Martinez, Raymond Vice, Terry Bilke

Frequency Monitoring and Analysis (FMA) System Project Review Team: Leader-Raymond Vice, Frequency Task Force, Tom Vandervort

Messrs. Vice, Bilke and Martinez will discuss the current status of this project and the actions necessary to move the project forward.

From the Operating Committee (OC) Subcommittee Organization and Procedures, approved by the Operating Committee on December 7-8, 2005:

Operating Committee Directive
Ref: Operating Committee Meeting Minutes, November 10-11, 2004
The following motions were approved by the Operating Committee on November 10-11, 2004:

1. The OC expects the Interconnections (Eastern, Western, ERCOT, and Hydro-Quebec) to analyze their frequency to determine if NERC's balancing standards are "safe and reliable."
2. The OC understands that the Interconnections' frequency profiles may be different.
3. The OC expects that these analyses be conducted according to a consistent set of analytical methodologies that the Resources Subcommittee establishes.
4. The OC expects the Interconnections to maintain this data and cooperate with the Resources Subcommittee's needs to perform its analyses. The RS members will agree upon a data retention requirement.

After further discussion, the Operating Committee approved the following motion:
"The Operating Committee's regional representatives, regional managers, and the Resources Subcommittee are directed to ensure that this resolution is implemented with consideration given to other wide-area data collection initiatives already underway."

Important RS Considerations: 1) The Frequency Task Force needs to review the CERTS functional specification and solidify the project scope; 2) Propose solutions to other application issues the subcommittee and the Frequency Task Force may have; 3) The process will have phasor transducers (PMUs) feed data into each interconnection's data concentrators (data warehouses). The RS needs to discuss and determine if the FMA software will reach into the interconnection's data warehouse to extract the necessary frequency data for analysis or if the FMA software will be linked to a dedicated NERC FMA server that will have frequency data extracted from the interconnections' data warehouses.
*** Is a dedicated NERC server necessary for the FMA software or not? ***

Item 4. f Inadvertent Interchange Applications Projects (SPP inadvertent interchange tool migration) — Carlos Martinez, Don Badley

Inadvertent Interchange Application Review Team: Leader-Don Badley, Inadvertent Interchange Task Force, Robert Rhodes is the point of contact for SPP, Tom Vandervort

Messrs. Badley and Martinez will give a summary of the NERC Inadvertent Interchange application deployment, and the implementation progress.

Item 4.g DOE Eastern Interconnection Phasor Project — Terry Bilke, Carlos Martinez, Raymond Vice

DOE Eastern Interconnection Review Team: Leader-Raymond Vice, Frequency Task Force, Tom Vandervort

Messrs. Bilke (who is also the EIPP Real-time Tools Working Group Chairman), Martinez, and Vice will lead a discussion on the DOE Eastern Interconnection Phasor Project's (EIPP) latest developments, tools, and applications which contains significant grid monitoring and analysis capabilities.

Information on the EIPP can be found at: http://phasors.pnl.gov/EIPP_About.html

Item 5. Frequency and Control Performance

Items 5.a–5.g Western, Eastern, ERCOT, and Hydro Quebec Frequency Trends and Events; CPS1, CPS2, Data Trends; DCS Data Trends; and Inadvertent Interchange Balances

5.a. Western Interconnection Frequency Trends and Events – Bart McManus

5.b. Eastern Interconnection Frequency Trends and Events – Raymond Vice

5.c. ERCOT Interconnection Frequency Trends and Events – Sydney Niemeyer

5.d. Hydro Quebec Interconnection Frequency Trends and Events – Mike Potishnak

5.e. CPS1, CPS2, BAAL Data Trends – Terry Bilke

5.f. DCS Data Trends – Terry Bilke

5.g. Inadvertent Interchange Balances – Don Badley, Bill Herbsleb

Discussion

The subcommittee will discuss the frequency data, surveys, and trends in the Interconnections.

Attachments

To be sent under separate cover.

Item 5.h Reliability – based Control SAR SDT, Field Trial CPS2 scores Request – Terry Bilke

Doug Hils, Chair of the Reliability – based Control SAR drafting team requested the following: In looking at the CPS1 and CPS2 reports posted, I'd like to ask if it would be possible to not highlight BAs below 90% on CPS2 if they are under the BA-007 field test. There's an asterisk next to the number but it's already drawn attention to those BAs when that is not the focus of their operation. Perhaps we can add a sample BAL-007 compliance column for number of BAL-007 violations (0 unless the 30-minute limit is exceeded) - I can talk with the RBC SDT to see if they agree also.

Terry Bilke requested that Mr. Hils discuss the proposal with the RBC SDT and follow-up with a recommendation to the RS.

Item 5.i Intelligent Alarms – Terry Bilke, Carlos Martinez

The NERC Intelligent Alarms are now a two page alarm, distributed to subscribers via the e-mail/internet, that are initiated when specific thresholds are exceeded. Mr. Martinez and Mr. Bilke will report on the new Intelligent Alarms and how the reliability coordinators are utilizing the modified two page alarm. This item may be covered in the agenda 4 Projects.

Item 5.j Analysis of Eastern Interconnection Intelligent Alarms – Mike Potishnak, Sydney Niemeyer

Mike Potishnak and Sydney Niemeyer will lead a discussion on their analysis of the Eastern Interconnection Intelligent Alarms.

Attachments

Possible Coincidence Between PJM's and Intelligent Alarms
Intelligent Alarms Event Summary

Item 5.k Evaluating Transaction Schedule Ramps – Raymond Vice

Ramping up at the beginning of a schedule and ramping down at the end of a schedule (for example hour- ending 0600 and 2200, for the sixteen hour on-peak period energy products) significantly impacts the Interconnections frequency performance. There are numerous contributing factors to the ramping problem. Raymond Vice has identified many of the factors in his "Frequency Issues 2005" white paper. See attachments. (Load/Generation Mismatch, pages 3-6); and Ramp Resources Sources and Sinks.

Mr. Vice will lead a discussion on evaluating the schedule ramps problem and solutions the RS can propose to the industry, NERC, and NAESB.

Mr. Vice notes the following: Attached is Rev. 1 of the Ramp Resource Table. I have added non-conforming load and unit/load trips as per information supplied by Sydney N. I have also added some additional comments at the end, including a suggestion that an application be developed to provide BA operators (and the Resources Subcommittee) with a projection of his ramp resource balance across the next ramp period so that he may know how he is impacting the interconnection. This may be incorporated using existing standards (INT-007) or added to the consideration of the Reliability Based Control SAR. In either case, it is my opinion that this will go a long way toward solving the 0600/2200 hour frequency excursions.

To address the ramping issue Messrs. Vice and Bilke generated a letter on behalf of the RS to Mr. Richard Schneider, NERC Director of Reliability Readiness, requesting that each NERC Reliability Readiness Evaluation look at the tools and processes each Balancing Authority uses to control, monitor, and execute interchange ramps. Specifically, the RS would like to know what methodology the Balancing Authority uses to determine if ramp resources are sufficient to meet the total demand for ramp capacity across the hour.

Attachments

Frequency Issues 2005, White Paper by Raymond Vice, May 31, 2005
Ramp Resources Sources and Sinks
Ramping Criteria Review for Future Reliability Readiness Evaluations Letter

Item 6. Time Error

Item 6.a Eastern Interconnection — Bill Herbsleb
Item 6.b Western Interconnection — John Tolo
Item 6.c ERCOT Interconnection — Sydney Niemeyer
Item 6.d Hydro Quebec Interconnection — Mike Potishnak

The Discussion

The subcommittee will discuss the time error correction data and trends in the Interconnections.

Attachments

Time error reports to be sent under separate cover.

Item 6.e Time Error Efficiency in the FERC Order 693 – Terry Bilke, Gerry Beckerle

Gerry Beckerle and Terry Bilke had a conversation on the intent of FERC Order 693 regarding the reliability requirements for time error correction. Messrs. Bilke and Beckerle will lead a subcommittee discussion on the time error correction efficiency contained in the FERC Order 693.

Item 7. Future Meetings

Tuesday, October 23, 2007 Wednesday, October 24, 2007	8 a.m.–5 p.m. 8 a.m.– noon	Portland, OR
Wednesday, January 30, 2008 Thursday, January 31, 2008	8 a.m.–5 p.m. 8 a.m.– noon	Phoenix, AZ Alt: Miami or Tampa
Wednesday, April 30, 2008 Thursday, May 1, 2008	8 a.m.–5 p.m. 8 a.m.– noon	Washington D.C. Alt: Miami/Ft. Lauderdale
Wednesday, July 30, 2008 Thursday, July 31, 2008	8 a.m.–5 p.m. 8 a.m.– noon	To Be Determined (location and alternate)
Wednesday, October 29, 2008 Thursday, October 30, 2008	8 a.m.–5 p.m. 8 a.m.– noon	To Be Determined (location and alternate)

Notes:

1. Schedule meetings before the Operating Committee and Planning Committee meetings, whenever possible.
2. Avoid scheduling meetings 30 days before NERC Board of Trustees meetings.
3. Additional meetings, conference calls, or web casts will be scheduled as deemed necessary to address and accomplish subcommittee or task force business.
4. The subcommittee will conduct future meetings only as necessary: 1) to facilitate necessary face-to-face discussions; 2) to focus on deliverables that cannot be achieved by conference calls or web casts; and 3) to initiate consensus building or decision-making forums.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Resources Subcommittee Meeting

Hyatt Regency Calgary
700 Centre St Se
Calgary, AB, Canada T2G5P6
Phone: (403) 717-1234

Wednesday, July 18, 2007 — 8 a.m.–5 p.m.
Thursday, July 19, 2007 — 8 a.m.–noon

Conference Bridge Participation (Phone Call In)
Phone Number: (732) 694-2061
Access Code: 1123071807#

Attendance

Attendance:

Name	E-Mail	Hotel Nights
Terry Bilke	tbilke@midwestiso.org	2
Don Badley	don@nwpp.org	0 *
Sydney Niemeyer	Sydney.niemeyer@nrgenergy.com	2
Alan Oneal	aroneal@midamerican.com	2
Michael Potishnak	mpotishnak@iso-ne.com	0 *
William Herbsleb	herbslhw@pjm.com	3
Jim Eckstein Proxy for John Swez	jim.eckstein@nuke-energy.com	2
Larry Akens	lgakens@tva.gov	3
Robert Rhodes	rrhodes@spp.org	0 *
Gerald Beckerle	gbeckerle@ameren.com	2
Bart McManus	bamcmanus@bpa.gov	0 *
John Tolo	jtolo@tep.com	0 *
Tom Vandervort	tom.vandervort@nerc.net	3
Carlos Martinez	martinez@electricpowergroup.com	3
Mahmood Mirheydar	Mahmood.mirheydar@ferc.gov	2
David Lemmons	david.f.lemmons@xcelenergy.com	2
Howard Illian		via phone
Raymond Vice		via phone

* Could not book a room because the room block was sold out and hotel was sold out.

Thomas J. Vandervort
Reliability Assessment and
Performance Analysis Coordinator

July 23, 2007

Gerry Adamski
Director of Reliability Standards
NERC
116-390 Village Boulevard
Princeton, New Jersey 08540

Dear Gerry:

NERC Standard BAL-003-0 Requirement R2, R2.2, R5, and R5.1, Interpretation

The Resources Subcommittee (RS) has evaluated the NERC Standard BAL-003-0 Requirements R2, R2.2, R5, and R5.1, and ERCOT's interpretation request. The consensus of the RS is that the R2 and R5 requirements do not conflict.

Requirement R2 requires a Balancing Authority (BA) to analyze its response to frequency excursions as a first step in determining its frequency bias setting. The BA may then choose a fixed bias (constant through the year) per Requirement R2.1, or variable (varies with load, specific generators, etc.) bias per Requirement R2.2.

Requirement R5 sets a minimum contribution for all BAs toward stabilizing Interconnection frequency. The 1% bias setting establishes a minimum level of AGC action to help stabilize frequency following a disturbance. By setting a floor on bias, Requirement 5 also helps ensure a consistent measure of control performance among all BAs within a multi-BA interconnection. However, ERCOT is a single BA Interconnection. The bias settings ERCOT uses do produce, on average, the best level of AGC action to meet control performance metrics. The bias value in a single BA Interconnection does not impact the measure of control performance.

ERCOT correctly stated that the RS previously considered a change to R5 that would allow a BA using a variable bias setting to set its average Frequency Bias Setting for a month to be at least 1% of the Balancing Authority's estimated peak load for that month. It was the intention of the RS to address this decision in the development of the Frequency Response SAR. This SAR has not yet progressed through the standards process.

Sincerely,

Terry Bilke
Terry Bilke
Resources Subcommittee Chair

Raymond Vice
Raymond Vice
RS Frequency Task Force Chair

cc: Resources Subcommittee
David Hilt
David Nevius

David Whiteley
Maureen Long