NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Resources Subcommittee Meeting

October 27–29, 2004
Reno, Nevada

Minutes

A regular meeting of the North American Electric Reliability Council Resources Subcommittee (RS) was held on October 27–29, in Reno, Nevada. 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**.

Resources Subcommittee Chairman Carl Monroe presided. The secretary announced that a quorum was present. Chairman Monroe welcomed new member John Swez to the RS.

Minutes of the Previous Meeting

The subcommittee approved the July 28–30, 2004 Resources Subcommittee meeting minutes.

Resources Subcommittee Action Item List

The subcommittee reviewed and updated the action item list affixed as **Exhibit F**.

Task Force Reports

Frequency Task Force – Chairman Don McInnis

Frequency Response Standard White Paper

The Frequency Response Standard White Paper and SAR have been submitted but have not yet been posted. Don McInnis will contact the SAC chair for a status report on all submitted SARs.

Frequency Data Collection and Analysis System (FDCAS) Project 2003-11

The Frequency Data Collection and Analysis System (FDCAS) Project discussion was held on Friday morning to accommodate participation by WECC Operating Committee members Jerry Rust and Ed Riley. Subcommittee Chairman Carl Monroe chaired the discussion. Terry Bilke gave a presentation on the FDCAS Project, which covered the project background, the Operating Committee mandate (In 1995, the OC charged the RS to ensure that system frequency under CPS1 and CPS2 does not get any worse than it was at that time.), voluntary data gathering problems, proposed solutions, project benefits, and potential options to the proposed project.

Mr. Monroe suggested that before the subcommittee makes a recommendation to the OC regarding the FDCAS Project, it needs to address the subcommittee scope — what is the role of the Resources Subcommittee. If frequency is the responsibility of the RS, then the FDCAS will be a very useful tool. Messrs Badley, Rust, and Riley were strong proponents of letting the Interconnections perform the frequency data collection, monitoring, analysis, and evaluation. As far as WECC is concerned, the frequency is currently collected and analyzed. These individuals believe WECC is the best entity to address the frequency characteristics in the Western Interconnection. Mr. Rust interjected that WECC

does thorough analyses of its frequency data, and that the RS has the ability to ask WECC for the analysis.

Mr. Monroe again asked if the role of the RS was to analyze frequency independently within the Interconnection and across the Interconnections? Mr. Badley responded that it is very important to define analyze.

Raymond Vice **made a motion** to include within the RS scope the following statement: "Analyze frequency performance and characteristics independently across and within, in conjunction with, the interconnections of NERC." Mr. Vice's motion was approved. Mr. Badley said that he would submit a minority opinion on this motion.

After discussion, Mr. Vice **made a second motion**: The NERC RS requires that frequency data be stored and made available on request to the RS in a functionally equivalent quality as stated in the FDCAS RFP. The motion passed. Mr. Badley said that he would submit a minority opinion on this motion (refer to **Exhibit E**).

Mr. Monroe stated that the RS is only looking at the frequency characteristics and performance. The RS is not looking at the "how to." The RS will also need to identify who will be the responsible Interconnection contacts to attain the Interconnection frequency data, possibly the Interconnection time error monitors.

After determining the necessary RS Scope frequency requirement and insertion that the Interconnections' frequency data will be made available to the RS upon request, the subcommittee determined three FDCAS Project options or alternatives to present to the OC:

1. Proceed with FDCAS Project as currently scoped
2. Proceed with FDCAS Project as the analysis tool for all interconnections but with data supplied by others.
3. Proceed with FDCAS Project for just the Eastern Interconnection and ERCOT and attain commitment from the other interconnections to meet the requirements of the FDCAS with Ad-hoc queries based on requests from the RS.

Messrs. Rust and Riley thanked the RS and Chairman Monroe for allowing WECC to participate in the RS FDCAS Project discussion. In turn, Mr. Monroe thanked these gentlemen for their participation.

The RS will hold a conference call on Friday, November 5, to discuss and propose revisions to the RS scope and to discuss the FDCAS Project in preparation for the upcoming Operating Committee meeting.

Inadvertent Interchange Task Force – Chairman Don Badley

A joint NERC RS Inadvertent Interchange Task Force/NAESB WEQ Inadvertent Interchange Payback Task Force meeting and conference call were held on Wednesday afternoon. The joint meeting received status reports on the development of the proposed NAESB Business Practice Inadvertent Interchange Payback Standard; and the proposed NERC Reliability Inadvertent Interchange data collection standard.

NAESB WEQ Inadvertent Interchange Payback Task Force, Payback Proposals

NAESB IIPTF Co-chairmen Phil Cox and John Power gave a status report on developing an inadvertent interchange payback standard and the two Eastern Interconnection payback options that will be presented to the industry for comment. The Western Interconnection intends to use its current WECC WATEC procedure (Option Two). The two options are overviews with enough detail to allow the industry to

evaluate their merits. The specific detailed requirements will be incorporated when the industry reaches consensus on the preferred inadvertent interchange option.

Mr. Cox discussed inadvertent interchange payback Option 1, which has a frequency dead-band. Within the frequency dead-band the inadvertent interchange could be settled financially or with energy "in kind." Outside of the frequency dead-band, the inadvertent interchange would be settled financially. For more details see the RS meeting agenda attachments.

Nick Henerey presented inadvertent interchange payback Option 2, which is the current WECC Automatic Time Error Correction (WATEC) procedure. Inadvertent interchange frequency and energy would be paid back using a metric that has "X" number of hours. For example, if X equals three hours, then the next hour would pay back 33% of the inadvertent interchange balance; if X equals five hours, then the next hour would pay back 20% of the inadvertent interchange balance. For more details, review the RS meeting agenda attachments.

The NAESB IIPTF answered questions.

NERC Inadvertent Interchange White Paper and SAR

Don Badley, the IITF chairman, stated that he received comments on the current version of the Inadvertent Task Force Inadvertent Interchange White Paper and associated SAR. He will incorporate the valid comments and distribute both the white paper and SAR to both the RS and to the NAESB IIPTF for their initial review and comment. For more details, review the RS meeting agenda attachments.

The NERC Inadvertent Interchange Task Force answered questions.

NAESB IIPTF noted that they have a meeting on November 3–4, 2004 in Houston. Everyone is invited to participate in the meeting either in person or via conference call. The details are on the NAESB WEQ IIPTF web site.

Operating Reserves Task Force – Chairman Mike Potishnak

Review of Proposed NPCC Reserve Sharing Program

Mike Potishnak discussed the proposed NPCC Reserve Sharing Program with the Operating Reserves Task Force. The new program standardizes definitions for existing and new reserve products that give consideration to load participation and changes in governor response. This was an informational item to keep the task force apprised of changes to the NPCC Reserve Sharing Program.

Metrics for Operating Reserves Standards

The Compliance Template Task Force proposed standards and measures are needed to address operating reserves. While the current performance standards appear adequate to measure the application of reserves, there is a need to identify and measure how reserves are planned and carried to meet daily requirements. The Compliance Template Task Force recommended this task be assigned to the NERC Operating Committee. The Operating Reserves Task Force discussed the merits of developing such a standard.

The Operating Reserves Task Force had mixed comments and could not reach consensus on the need for an operating reserves standard. Mr. Potishnak stated that an operating reserve metric can be developed that states the requirements to have operating reserves without being prescriptive.

The Operating Reserve Task Force will review and evaluate Version 0 Standard "Operating Reserves" requirements. The ORTF will then recommend to the RS enhancements to the Version 0 requirements for consideration as a Version 0 SAR.

Practical Obstacles to Include Market Based Contingency Reserve from Other Control Areas

Mr. Potishnak posed the following questions for the Operating Reserves Task Force's consideration:

- How do you ensure that the reserves are deliverable?
- How do you determine that all reserves are available?

The general consensus of the ORTF was that everything mentioned falls into the scope of business practices and may be concerns for NAESB to address.

Automatic Generation Control Task Force – Chairman Raymond Vice

The Automatic Generation Control Task Force did not meet. However, the available AGC Task Force time slot on Wednesday was given to the Balance Resources and Demand Standard Drafting Team/Resources Subcommittee Joint Meeting.

Balance Resources and Demand Standard Drafting Team – RS Joint Meeting

The Balance Resources and Demand Standard Drafting Team (BRD SDT) and the Resources Subcommittee held a joint meeting and conference call on Wednesday. BRD SDT Chairman Raymond Vice led the discussion.

Review and Status Target Research

Carlos Martinez (CERTS), Nasser Jaleeli and Alex Podolski (PCE) gave an overview and status report on the BRD SDT Target Research. Mr. Jaleeli identified a potential issue regarding the BRD standard's BAAL limits violation time, T_v. The default BAAL T_v time (30 minutes) may be inappropriate based on the magnitude of ACE error. Mr. Podolski gave two examples: 1) ACE was just slightly under the BAAL limit but exceeded the T_v, by standard measures was a violation, and 2) ACE had wild swings with magnitudes of negative ACE significantly lower than the respective BAAL. However, the ACE recovered before the T_v and by standard measures was not a violation. The magnitude of the ACE deviation is significant. Mr. Podolski suggests that with a T_v of 30 minutes, the safety of the Interconnection frequency operation cannot be ensured. The BRD SDT needs to review and evaluate the finding. The BRD SDT and RS are requested to comment on PCE's BRD Target Research by November 5 and return responses to Raymond Vice.

Balance Resources and Demand Draft Standard Field Test

The BRD SDT continues drafting the field test/field trial plan. Doug Hils went through the field test/field trial plan. Mr. Martinez reported that CERTS's experience was that if data quality is not adequate it will nullify the quality of the test results. The BRD SDT may request a sample file of data from each volunteer Balancing Authority to ensure the format and data submittal is correct and complete. Other issues that need to be addressed are:

- Solicitation of field test participants,
- The coordination of waivers from current CPS2 compliance requirements,
- Letters of confidentiality,
- An early termination of the test plan,
- Field test conclusion and evaluation, and
- Restoration of CPS2 compliance requirements.

The field test/field trial will be completed in two phases. Phase I requests the BA submit a year's worth of data. This data will be entered into the current CPS requirement metrics and compared to the new frequency performance metrics. Phase II will still require CPS2 data reporting, but will request a waiver from the current CPS2 compliance requirements, allow the volunteer BAs to operate under the proposed draft BRD standard, and allow the BRD SDT to evaluate the applicability and effectiveness of the field test. The BRD SDT requests BA volunteers to populate the small, medium, and large BA categories to properly test the Balance Resources and Demand draft standard.

Mr. Hils will present the BRD field test/field trial to the OC at its November 2004 meeting.

Compliance Report

Joe Willson and Raymond Vice gave an implementation timetable for the Version 0 Standards. After the NERC Board of Trustees approval of the Version 0 Standards, the implementation date for the standards will be April 1, 2005. Mr. Willson noted that there are only 18 Version 0 Standards that have measures. Minor changes were made in the wording of the standards when the Version 0 SDT had to make interpretations from the current policies to the draft standards. Language changes were also made to coincide with the Functional Model.

Resources Subcommittee Scope

The RS did not have time to address the OC Chairman's request for the subcommittees to review and recommend subcommittee structure changes and scope revisions. The RS will conduct a conference call on Friday, November 5, 2004 to address the OC Chairman's request. The intent of this call is to attain RS consensus on the future structure and scope in order for RS Chairman Carl Monroe to present the RS consensus to the OC at its meeting.

NAESB Business Practice Draft Standards

The RS reviewed three NAESB business practice standards that are currently posted for comment. Tom Vandervort captured the subcommittee comments and will complete and submit the comment forms to NAESB. The three draft standards are: NAESB Inadvertent Interchange; NAESB ACE Special Cases; and NAESB Time Error.

Projects

ACE Project 2000-03

Carlos Martinez, Consortium for Electricity Reliability Technology Solutions (CERTS) project manager, reported that version 3 will be released in the second quarter of 2005. The new version will include updated geographic jurisdiction boundaries; Frequency Alarm Monitoring improvements; ACE-frequency correlation display improvements; and improved User Guide Documents.

AIE Project 2000-04

CERTS Carlos Martinez demonstrated the AIE software to the subcommittee. CERTS requires subcommittee direction for trial-test and data acquisition of the AIE project. The Frequency Task Force, Don Badley, and Yuri Makarov will review and evaluate the functionality of the CERTS AIE system including an evaluation of the reconciled hourly AIE data and reconciled monthly inadvertent data.

Inadvertent Checkout Website (SPP Inadvertent Tool Migration) Project 2001-37

CERTS is currently migrating the SPP database to NERC and duplicating the user interface. The data for the AIE is so similar to the inadvertent project that it makes the most sense to combine the two projects. CERTS estimates completing the SPP Inadvertent Tool migration by the end of the second quarter of 2005.

CPS1 and CPS2 Displays Project 2001-38

The CPS1 and CPS2 database and functionality development are complete. Due to personnel changes at CERTS, the final factory test is not complete. CERTS will demonstrate the CPS1 and CPS2 displays at the next RS meeting in January 2005.

Frequency Data Collection and Analysis System Project 2003-11

See the discussion in the Frequency Task Force section.

DOE Synchronized Phasor Measurement (SPM) Network Project

Similar to the WAMS project in WECC, this project will evaluate and implement wide-area, high-speed grid measurement in the Eastern Interconnection to enhance the management of grid reliability. Initial Phasor Data Concentrators have been selected. The Department of Energy will fund the phasor project development but maintenance will be funded by NERC. Terry Bilke chairs one of the Phasor Subcommittees and will inform the subcommittee of future developments.

Frequency Performance

Eastern Interconnection Frequency Performance

Terry Bilke gave a presentation detailing the Eastern Interconnection frequency performance. The RS also reviewed the average monthly frequency error data and observed a significant decline in the on-peak average frequency error starting in April 2004. The RS will continue to monitor the average frequency error trend.

ERCOT Interconnection Frequency Performance

Sydney Niemeyer reviewed ERCOT frequency performance.

Control Performance Standard

The subcommittee did not have time to review the monthly CPS1 and CPS2 data. Chairman Monroe will review the data and conduct a conference call if necessary.

Disturbance Control Standard

The subcommittee did not have time to review the 2004 3rd-quarter DCS data. Chairman Monroe will review the data and conduct a conference call if necessary.

Time Error

Eastern Interconnection

The Eastern Interconnection called 345 time error corrections during 2003. Through the third quarter 2004, there have been 194 time error corrections, a significant improvement over last year.

ERCOT Interconnection

ERCOT continues to show a decrease in the number of time error corrections. There were no time error corrections called in August, 2004.

WECC Interconnection

WECC has had 55 time error corrections in 2004, 33 fast time error corrections, and 22 slow time error corrections.

Issues Requiring Resources Subcommittee Consideration

Dynamic Transfer Catalogue – Carl Monroe

The Interchange Subcommittee is preparing a letter to be issued to the control areas asking them to describe the methods they use for handling Dynamic Transfers. The RS will review and comment on the letter before it is sent out. The Interchange Subcommittee is not expected to devote time or resources to the development of the Dynamic Transfer Catalogue until first quarter of 2005.

Impact of Wind Power Resources on Balancing Functions

Yuri Makarov gave a presentation on the Impact of Wind Power Resources on Balancing Functions. The presentation described a new method for evaluating the impact of wind and other intermittent generation resources on the regulation and load following reserve requirements. The method is based on a realistic model mimicking the hour-ahead scheduling process, real-time dispatch, and automatic generation control performed by a control area operator. The method allows quantifying the additional amount of regulation and supplemental energy that is needed each hour to accommodate intermittent resources into the grid. The presentation was for information only.

Dates and Locations of Future Meetings

1.	January 26–28, 2005	Gulfport, MS (primary), Savannah, GA (alternative)
2.	April 27–29, 2005	Salt Lake, UT (primary), Charlotte, NC, , Santa Fe, NM (alts)
3.	July 27–29, 2005	Ashville, NC (primary), Edmonton, AB (alternative)
4.	October 26–28, 2005	Location to be determined

Respectfully submitted,

Tom Vandervort

Thomas J. Vandervort
Resources Subcommittee Secretary

Exhibit A

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

August 31, 2004

TO: RESOURCES SUBCOMMITTEE

Resources Subcommittee October 2004 Meeting Announcement and Registration

YOU MUST COMPLETE THIS REGISTRATION FORM IF YOU PLAN TO ATTEND THIS MEETING SO WE CAN MAKE THE APPROPRIATE ARRANGEMENTS. ALL FORMS MUST BE RETURNED BY ***SUNDAY, OCTOBER 3, 2004***. PROXIES AND GUESTS MUST ALSO REGISTER.

Name:	**Email:**
Title:	**Please check one box:** **Voting Member** ☐ **Non-Voting Member** ☐ **Proxy** ☐ **– (Name of member)** **Guest** ☐
Organization:	

Location:
Harrah's Hotel Reno
219 North Center Street
Reno, Nevada 89501
Phone: 775-786-3232/800-427-7247
Fax: 775-788-2815

Schedule:
Wednesday, October 27, 2004 — 8 a.m.–5 p.m.
Thursday, October 28, 2004 — 8 a.m.–5 p.m.
Friday, October 29, 2004 — 8 a.m.–noon

The hotel is holding a block of rooms for the nights of October 25–26, 2004 for a rate of $49 single/double occupancy. The cutoff for sleeping rooms is ***Sunday, October 3, 2004***. Check in is 3 p.m., and checkout is noon.

Reno-Tahoe International Airport (RNO): Approximate driving time is ten minutes (3 miles).

Driving directions from Reno-Tahoe International Airport: Follow the signs to take Rte 395 north and take Exit 67 (Glendale Avenue). Turn left on Glendale, which becomes E. 2nd Street. Turn right on Giroux Street, then left on Kuenzli Street, which becomes E. 2nd St. Turn right on Center Street.

Getting there: Every half-hour from 5:30 AM to 11:30 PM, the hotel provides complimentary shuttle service from the airport, with service to the airport beginning at 5 a.m. and ending at 11 p.m.

When you make your hotel reservations, please be sure to mention the "North American Electric Reliability Council/NERC Meeting" so your reservation is credited to our room block and to receive the negotiated rate. NERC may be charged a penalty if the total rooms blocked for this event are not picked up. Also, if you are using an agency for your travel plans, make sure they mention NERC.

Sincerely,

Barbara S. Bogenrief

Barbara S. Bogenrief
Secretary to the Vice President

/bsb

Exhibit B

NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Resources Subcommittee Meeting

Wednesday, October 27, 2004 – 8 a.m.–5 p.m.
Thursday, October 28, 2004 – 8 a.m.–5 p.m.
Friday, October 29, 2004 – 8 a.m.–noon

Harrah's Hotel Reno
219 North Center Street
Reno, Nevada 89501
Phone: 775-786-3232 ■ 800-427-7247

Participation Via Phone
Phone: (816) 650-0669
Access Code: 831018#
Follow Instructions

Agenda

1. Administrative

a. Membership and Guests – Chair
b. Introductions – Chair
c. Organization, Roster, and Survey Contacts List – Secretary
d. Arrangements – Secretary
e. Approval of April 28–30, 2004, Meeting Minutes – Chair
f. Approval of Agenda – Chair
g. Procedures
   i) Parliamentary Procedures – Chair
   ii) Antitrust Compliance Guidelines – Chair
h. Resources Subcommittee Scope – Chair
i. Resources Subcommittee Action Items List – Chair

2. Task Force Reports

a. Automatic Generation Control Task Force – Raymond Vice
b. Frequency Task Force – Don McInnis
c. Inadvertent Task Force – Don Badley
d. Reserves Task Force – Mike Potishnak
e. OC Subcommittee Officers Meeting – Tom Vandervort

3. Compliance

a. Compliance and Certification Managers Committee Liaisons – Joe Willson, Raymond Vice

4. Policy 1, "Generation Control and Performance," NERC Reliability Standards, NAESB Business Practice Standards

a. NERC Reliability Standards Transition Process, Version 0 – Carl Monroe
b. NAESB Business Practices Standards, Version 0 – Carl Monroe
c. Inadvertent Interchange – Technical White Paper and Proposed SAR – Don Badley
d. NAESB Inadvertent Interchange Payback Business Practice Standard – Tom Vandervort
e. Frequency Response Standard White Paper and SAR – Don McInnis, Tom Vandervort
f. Data Quality SAR – Terry Bilke, Tom Vandervort
g. Operating Reserve Standard
h. Balance Resources and Demand Draft Standard Update – Raymond Vice
i. Proposal for Time Stamp Synchronization – Carl Monroe

5. NERC Active Resources Subcommittee Projects – Status

a. Area Control Error (ACE) Project (Project 2000-03) – Carlos Martinez
b. Area Interchange Error (AIE) Project (Project 2000-4) – Carlos Martinez
c. CPS1 & CPS2 Displays (Project 2001-38) – Carlos Martinez
d. Frequency Data Collection and Analysis (Project 2003-11) – Don McInnis, Carl Monroe
e. DOE Synchronized Phasor Measurement (SPM) Network Project – Terry Bilke, Carlos Martinez, Bob Cummings
f. Inadvertent Project
g. Data Quality – Carlos Martinez

6. Frequency Performance

a. Western Interconnection Frequency Trends
b. Eastern Interconnection Frequency Trends
c. ERCOT Frequency Trends
d. CPS1 and CPS2 Data Trends
e. DCS Data Trends
f. Inadvertent Interchange Balances – Carl Monroe
g. AIE Surveys
    i) August 14, 2003 Resurvey – Tom Vandervort
    ii) January 8 and 12, 2004 – Joe Emde, Carl Monroe
    iii) July 22, 2004 Event
h. Generator Response on Aug 14 – and Governor Response Studies – Mike Potishnak
i. High Frequency Issue – Carl Monroe

7. Time Error

a. Eastern Interconnection – Joe Willson
b. Western Interconnection – Don Badley
c. ERCOT Interconnection – Wayne Kemper

8. Issues Requiring Resources Subcommittee Consideration

a. Dynamic Transfer Task Group Status Report – Raymond Vice
b. Dynamic Transfer Catalogue – Carl Monroe
c. Impacts of Wind Power Resources on Balancing Functions – Yuri Makarov
d. Wind Generation Control – Tom Vandervort
e. Flywheels for Regulation and Frequency Control – Yuri Makarov

9. Future Meetings

a. October 27–29, 2004 – Reno, NV
b. January 26–28, 2005 – Gulfport, FL; Savannah, GA (alternative)
c. April 27–29, 2005 – Salt Lake City; Charlotte, NC (alternative)
d. July 27–29, 2005 – Asheville, NC; Edmonton, AB, or Jackson Hole, WY (alternatives)
e. October 26-28, 2005 – Location to be Determined

Exhibit C

Resources Subcommittee Meeting
October 27–29, 2004
Reno, Nevada

RS Meeting Attendance Sheet	
Resources Subcommittee Member/Guest	**Organization**
Carl Monroe, Chairman	SPP
Randy Jones, Vice Chairman	Calpine
Larry Akens	TVA/SERC
Don Badley	NWPP
Gerry Beckerle	Ameren
Terry Bilke	MISO
Yuri Makarov	CAISO
Don McInnis	FPL
Sydney Niemeyer	Texas Genco, LP
Mike Potishnak	ISO-NE
John Swez	Cinergy
Raymond Vice	Southern Co.
Joe Willson	PJM
Tom Vandervort	NERC
Brian Nolan	NERC
Carlos Martinez	CERTS/EPG
Robert Rhodes	SPP
Robert Blohm	Economist/Consultant

Exhibit D

Individual Statements
Resources Subcommittee Meeting
October 27–29, 2004

None

Exhibit E

Minority Opinions
Resources Subcommittee Meeting
October 27–29, 2004

WECC
Objection to Resources Subcommittee Scope Statement
and
Objection to Providing Raw Frequency Data to Centralized Warehouse

1. The NERC Resources Subcommittee is seeking approval to add a statement to its scope of responsibilities with regard to frequency performance analysis. This Minority Report addresses the WECC concerns with this statement.

On October 29, 2004, in an attempt to clarify its responsibility regarding frequency performance analyses, the NERC Resources Subcommittee approved a motion to add the following words to its scope:

- Analyze frequency performance characteristics independently across and within, in conjunction with, the Interconnections of NERC.

The WECC opposes this statement for the reasons identified in the following paragraphs:

Resources Subcommittee Purview

The proposed statement is too open-ended and needs to address the issue of who, what, why, and how. We believe the Resources Subcommittee has the responsibility to assure the Interconnections provide the necessary analysis supporting the existing standards associated with frequency performance. The Subcommittee should define the common methodology to be employed in such analysis and define the reports it needs to carry out its responsibility.

Supporting Arguments

It is a responsibility of WECC members to comply with the reliability standards developed by NERC and WECC. At the same time, each Interconnection is ultimately responsible for the reliable operation of its synchronous network and, therefore, tends to focus on and identify Interconnection-specific problems that may degrade reliability within its synchronous network. The Western Interconnection spends a significant amount of time analyzing its compliance with the NERC reliability standards, frequency, and frequency response and using the study data to improve reliability.

The WECC is willing to share its analyses and results associated with its own or requested investigations of frequency within the Western Interconnection with the NERC RS. In addition, the WECC is willing to respond to requests by the NERC RS concerning frequency characteristics within the Western Interconnection.

2. The NERC Resources Subcommittee has developed an RFP aiming to build a continent-wide frequency data warehouse to collect and store real-time, GPS time-stamped, sub-second frequency data from different locations of the North American Power grid. This Minority Report addresses the WECC concerns with this concept.

To support this project, on October 29, 2004, the NERC Resources Subcommittee approved the following requirement to have raw frequency data stored for analysis:

- The NERC RS requires that frequency data be stored and made available on request to the RS in a functionally equivalent quality as stated in the FDCAS RFP.

The WECC is not opposed to maintaining a database to store frequency data in a functionally equivalent quality as stated in the FDCAS RFP; however, the WECC opposes the idea that this must be accomplished in a centralized location outside the WECC.

Business Case

The WECC believes that the NERC RS has not succeeded to effectively develop a strong business case demonstrating the total cost and associated benefits of a common centralized, continent-wide project. The WECC has repeatedly requested to see details of how the proposed project's solutions are likely to affect the operational and business needs of the WECC, its members, and the energy consumers they serve. The WECC would like to see how the proposed solution and the total costs might compare to the expected benefits.

In addition, the WECC believes it currently has in place the necessary systems to accomplish the project proposed by the NERC RS; and, therefore, feels the WECC can accomplish any identified potential benefits through its own efforts.

Project Scope

The NERC RS has yet to define the entire scope of the project since it lacks the definition associated with who, what, how, and the desired outcome of any analysis to be performed with all of the associated costs. The project as defined is only a data warehouse. One must define the problem and the potential outcome to understand the total costs and associated benefits. Scope clarity is required if this project is more than a data warehouse.

Duplication of facilities

The WECC already collects sub-second frequency data from several locations throughout the Western Interconnection, and the data characteristics exceed the specifications identified in the FDCAS RFP. WECC intends to warehouse its own data. Storing identical data in two locations requires additional database maintenance and expense. The WECC members do not want to pay for something to be developed at NERC that duplicates what they have already paid for within the WECC. Since the WECC is ahead of NERC in this area, there is no reason for the WECC members to subsidize the other Interconnections in this project or any other duplicative project.

Inability to provide an accurate analysis

Since the FDCAS central data repository will only have frequency data, analytical experts seeking to draw conclusions from the data will have insufficient information from which to make accurate and meaningful analyses. The data needed for analysis may include all or parts of the following: Generation loss, Area Control Error, Actual Interchange, Scheduled Interchange, ramping characteristics, effects of automatic primary time error correction, frequency response, etc. The above demonstrates the lack of the Business Case to collect all of the associated costs of the project. This project is more than the costs of the data warehouse. There are no analysis parameters and it appears that we are authorizing the RS to spend money conducting an analysis anytime it seems like a good idea – we are not prepared to give anyone a blank check drawn on our member's accounts.

Interconnection characteristics

Each Interconnection exhibits unique operating characteristics; therefore, while an identical measurement methodology may be used for analysis, the parameters used to assess performance within these Interconnections should not be expected to be identical. For example, the frequency bandwidth accepted as tolerable in the Western Interconnection may be much broader than what is acceptable in the Eastern Interconnection because it is influenced by a much smaller MW value. Therefore, the impacts on transmission may be significantly different. Also, the Western Interconnection is stability limited whereas a majority of the Eastern Interconnection is thermally limited.

Additional workload without additional benefit

An "independent analysis" will only discover perceived problems, which will result in questions, additional analyses, and data requests for the Western Interconnection. These questions may or may not be significant. Nevertheless, a significant amount of effort and cost by the WECC, its members, and the energy consumers they serve will be required to answer every question – significant or not. At the same time WECC is willing to cooperate with the NERC RS and answer any legitimate questions that the RS might have. In addition, the WECC is ready to follow the frequency analysis methodology, if and when, suggested by NERC RS.

Exhibit F

Resources Subcommittee
October 30, 2003 Meeting
Open Action Item List

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
Carl Monroe	Complete RS Roster	RS openings need to be filled. Don Benjamin sent a letter to OC Chair Cowbourne regarding openings. Note: 12/11/2002, Don Benjamin sent subcommittee "candidate" letter to Transmission Customers – Further action is on hold until the future of the subcommittees is decided 2/28/2003, The RS is currently balanced: 7 – TP, 7 – TC, and 1 – Chair. The RS is short from a full roster by: 2 – TP, and 2 – TC. – ECAR nominated Gerry Mellinger to replace Bob Kissner (3/4/03) 7/14/03, OC will address future RS membership by 1/1/04	1/1/04	
Carl Monroe	SPP Inadvertent Tool	Carl to send a letter to FRCC (Linda Campbell) requesting FRCC to use the SPP Inadvertent tool. Ask for a way to automatically send data to NERC. 7/31/03, Carl to call Linda Campbell to discuss SPP Inadvertent Tool or converting FRCC Inadvertent data to a compatible data format for the SPP tool.	8/31/03	
Carl Monroe	DCS Survey	Carl to write letters to CAs that have disturbances larger than their largest contingencies (2002, first quarter through fourth quarter). The intent is to verify that each "largest single contingency " is accurate and correct. 7/31/03, Carl believes the results will give the subcommittee valuable data.	8/31/03	
Carl Monroe	Frequency Response White Paper (SAR)	8/1/03 – Carl to call or contact IOSS Chairman Scott Henry to discuss presenting the FRS white paper to the OC before a potential SAR is drafted. (Don McInnis will revise and send the revised FRS white paper draft to the RS for review.)	9/1/03	
Carl Monroe	Large Inadvertent Accounts	8/1/03 – Chairman Monroe was given authority by the RS to contact CAs and regions to resolve large inadvertent accounts. Carl may contact Joe Emde or other RS members as necessary to assist in resolving the inadvertent accounts.	9/1/03	
Terry Bilke	Frequency Data	Collect historical frequency data to create a database.	1/29/03	

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
	Collection	Note: Status – Terry has Eastern and Western Interconnections data, ERCOT needs to support the effort (Action Item for Wayne created) 7/14/03 – Data has been collected. This should become an ongoing or periodic task (until frequency collection project is in place). This is a duplicate of an item for Joe Emde. Recommend compiling the three as an ongoing task. TB *** Develop separate on-going task force with Terry as Chair. *** When TF is in place this item can be closed.		
Terry Bilke	Policy 1, RS Review Data Quality	Appendix 1H, Minimum data collection requirements for use in monitoring NERC Performance Standards Comment: Need a standard on data quality – a Data SAR Comment: There appear to be two options – one for an all-encompassing data quality SAR. Second – have data quality SAR for each individual standard Erry volunteered to write a data quality SAR and bring it back to the RS for review and possible endorsement.	1/28/04	
Tom Vandervort	Inadvertent Checkout Website	Inadvertent Checkout Website (SPP Project 2001-37): Investigate if a formal project has been submitted. If not, generate a request to get the ball rolling. Need to move this project forward.	12/1/03	
Tom Vandervort	Generator Governor Response	Contact BIT leader, Dave Hilt to determine if the BIT or the RS should send letter asking CAs to self-check their generator governor responses and to request to regions and control areas for their response data on Aug 14.	12/15/03	
Tom Vandervort	Frequency Response Survey for April 23, 13:50 CST	Frequency Task Force to discuss “hour-ending accuracy” issue and identify correct HH:MM:SS. Designate an official minute as “0 – 59 seconds” or “1 to 60 seconds.” 10/28 – TJV action – see RS 7/03 minutes	10/27/03	
Don McInnis & Freq Task Force	Frequency Response Survey for April 23, 13:50 CST	The Subcommittee could not evaluate the results of the survey because of the data quality issues associated with the results. The Frequency Task Force is to glean whatever information it can from the survey and generate lessons learned. Lessons learned will be posted with the Frequency Response Survey. 8/1/03 - Don McInnis to forward “lessons learned” to Tom Vandervort , who will post them on the RS web page “Related Files” page.	4/9/03	

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
		10/28 – TJV to follow up on lessons learned		
Don McInnis & Freq Task Force	Frequency Data Collection and Analysis Project	Frequency Task Force to develop "benefits" justification for the project. Work with Bob Cummings to prepare "cost – benefits analysis" for the project to submit to the OC in July. See related Bob Cummings Action Item. Rename "Frequency Warehouse" to "Frequency Data Collection and Analysis" Project Status: FTF Conf call scheduled for May 1 7/16/03, Carl and Bob Cummings to present the "Frequency Data Collection and Analysis" Project Cost – Benefits Analysis to the Regional Managers and the OC. 7/31/03 – FTF to work with Bob Cummings to develop and distribute RFP (request for proposal) in order to attain cost estimates to present to the OC in November, 03. 10/29/03 – Wayne Kemper to validate the three ERCOT transducer sites by 11/5/03. 11/7/03 - Frequency Warehouse RFP to be issued.	8/15/03	
Don McInnis & Freq Task Force	Generator Governor Response	Don to write generator governor response letter to Regional Managers / Control Areas in response to NPCC request to analyze August 14 generator governor response in the Eastern Interconnection. Don to distribute to RS for review.	11/15/03	
Don McInnis	Generator Control Requirements	Don to determine if this issue should be retired, acted upon, etc., Don McInnis, Chairman of Freq Task Force and Scott Henry, Chairman of IOSS to determine the significance of "Generator Control Requirements" discussed during the May 1, joint meeting. What is the priority of this issue? What should be done? In view of the SAR process, what is their take on the issue: retire or joint discussions o address the item? 8/1/03 – Don McInnis to contact Scott Henry, Chairman of IOSS. An option may be to generate a "Generator Control" SAR.	4/9/03	
Don McInnis	Frequency Response White Paper (SAR)	Terry Bilke to coordinate the draft of the "Frequency Response White Paper." Freq TF to review, comment and enhance until satisfied, then present to the RS for their review, comment, enhancement and approval. The final step will be to decide to submit this document with a new SAR or alternate action. 5/23/03, IOSS felt sufficiently justified on the basis of the arguments in the paper and previous work by the IOSS to approve a motion to proceed with submitting a SAR for a frequency response standard. The IOSS, along with the RS, would like to jointly	9/1/03	

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
		submit a FRS SAR. 5/30/03, Carl has reservations about submitting the SAR without industry support. 7/14/03 – Terry presented the whitepaper at the April RS meeting. Terry thought it was revised at that meeting. Need to find the latest revision of the whitepaper for the Jul 30 – Aug 1 meeting. 8/1/03 – Don McInnis will revise and send the revised FRS white paper draft to the RS for review. 8/1/03 – Carl to call IOSS Chairman Scott Henry to discuss presenting the FRS white paper to the OC before a potential SAR is drafted. 10/28 – Latest version of white paper to be sent out by the end of this week. Conference call scheduled for 11/12/03		
Don McInnis & Freq Task Force	Policy 1, RS Review Bias	FTF to evaluate and determine if current Policy 1, Appendix on Bias and Overlap Regulation need to be captured in a technical paper, a SAR, or how to address these parameters in order to retire Policy 1. A stand alone SAR may be necessary that states the technical requirements, accuracy of metering, and capturing the required data.	1/28/04	
Don McInnis & Freq Task Force	Policy 1, RS Review Governors	FTF to evaluate and determine the future of Gov Installation, Gov Droop, Gov Limits, etc., - Is a SAR necessary? Include the governor response requirements within the FRS SAR?	1/28/04	
Don McInnis & Freq Task Force	Policy 1, RS Review Time Error Correction	Frequency Task Force to recommend to the RS the following: 1) Poll / survey the industries to identify the need for TEC. 2) Survey support commercial industries consensus (i.e. NTSB, traffic association, NIST, etc.) for their input. 3) Basedon the survey results, the RS to consider recommending to the OC that a 3 month suspension trial period of TEC.	1/28/04	
Raymond Vice	Policy 1, RS Review Metered Boundaries of a Control Area	Consider incorporating adding a statement to the Balance Resources and Demand draft standard regarding a BA's resources. Reference Policy 1, Sect E, Introduction Requirement #1, "Control Area Components. All load, generation, and transmission operating in an Interconnection	1/28/04	

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
		must be included within the metered boundaries of a Control Area (BA)."		
Raymond Vice & AGC Task Force	Policy 1, RS Review Dynamic Schedules and Pseudo Ties	The RS questioned what should be done with Dynamic Schedules and Pseudo Ties in the future. Raymond as Chair of the Balance Resources and Demand SDT, and a member of the Dynamic Transfer Task Group, to give the intent of the DTTG Whitepaper and what is to become of it (i.e. SAR, reference document, inclusion as a reference doc to the Balance Standard, etc.)	1/28/04	
Don Badley & Inadvertent Task Force	Policy 1, RS Review Inadvertent Interchange	Inadvertent Task Force to develop the process for the following: 1) Develop technical paper that supports reliability aspects of Inadvertent 2) Define hourly Inadvertent data that we propose to collect 3) Develop the methodology to collect the data 4) Determine what we plan to do with the data (i.e. repository, archive, uses, etc.,) 5) Settlement process (including NAESB payback business practices) 6) Generate SAR	1/28/04	
Don Badley or Mirek Horenovsky	WECC FRS Data	Don or Mirek to supply Western Interconnection frequency FRS data to Don McInnis to support and include in FRS white paper. 10/28 – Don and Mirek to supply data to Don M	9/1/03	
Mike Potishnak	Generator Frequency Response	Provide input form for collection of generator frequency response data (and disseminate). RC to benchmark frequency response. Possibly Roll into the FRS White Paper. 8/1/03 – Mike is looking for others to submit data to run more trial tests. 10/28 – Anybody that has generator response should enter it into Mike's spreadsheet – action item for the RS. 10/28 – Mike to post data and tool somewhere for the subcommittee to view.	Open-ended	

Action Figure	Subject	Action Item/Assignment	Due Date	Completion Date
Joe Emde	SPP Inadvertent Tool	Contact Shon Austin (SPP) to identify who is using and who is not using the SPP Inadvertent tool – include any known problems such as ECAR's firewalls. Pass on information to Carl. (See Carl Monroe Action Items.)	7/30/03	
Joe Emde and Tom Vandervort	Inadvertent Balances	Bring Eastern and Western Interconnections monthly inadvertent balances to only a couple of months lag. The current lags are unacceptable to the RS. Possibly: 1) contact the regional representatives more frequently; 2) send out inadvertent summaries each month	12/01/03	
Carlos Martinez	Data Quality	Write an initial definition of "data quality" for the RS to review. (In conjunction with Terry Bilke's "why" data accuracy and quality are necessary.) 7/14/03 – Terry received and commented on Carlos's data quality draft. 8/1/03 – Carlos to send data quality summary to the subcommittee. 10/28/03 – Carlos to send "completed" summary to the subcommittee	2/28/03	
Carlos Martinez and Joe Emde	ACE and AIE – "Unavailability" for CERTS	During the last April RS meeting, Carlos Martinez asked the RS to give CERTS feedback on the frequency desired for data output. The discussion led to an action item for the Frequency Task Force to give CERTS the frequency parameters on "unavailability." To determine what and when frequency is considered to be "unavailable." 8/1/03 – Both NERC and CERTS to identify why CERTS is not receiving all CA data. Carlos to work with Joe Emde and Paul Baratelli and correct discrepancies. 10/28 – CAs not reporting; CAs reporting but not reliable; CAs reporting and reliable; ready to send to subcommittee.	8/15/03	