

January 23, 1997

MEMORANDUM TO: Charles E. Rossi, Director  
Safety Programs Division  
Office for Analysis and Evaluation  
of Operational Data

FROM: Jack E. Rosenthal, Chief *Original signed by*  
Reactor Analysis Branch  
Safety Programs Division  
Office for Analysis and Evaluation  
of Operational Data

SUBJECT: MEETING REPORT: AEOD/NRR COORDINATION MEETING WITH  
DOE TO DISCUSS ELECTRICAL GRID RELIABILITY

Attached is the report from the January 15, 1997, meeting with DOE to explore issues related to the reliability of the electrical grid. AEOD attendees were Jack Rosenthal, George Lanik, and Mary Wegner of SPD. Meeting agenda, attendees list, and handouts are enclosed with the report.

Attachment: Meeting With the Response Division of  
the Department of Energy w/encl.

cc w/att.:  
J. Calvo, NRR  
D. Thatcher, NRR  
R. Jenkins, NRR  
N. Trehan, NRR

CONTACT: Mary S. Wegner, AEOD/SPD/RAB  
(301) 415-6369 (msw1@nrc.gov)

#### DOE ATTENDEES

Distribution via E-Mail w/o att.:

David McColloch	mccolloc@oem.doe.gov
Stephen M. Stern	stephen.stern@hq.doe.gov
Ken Schafer	jon.schafer@hq.doe.gov
Jim Brown	brownj@oem.doe.gov
John Young	youngj@oem.doe.gov
Kelly Pitt	pittk@oem.doe.gov
John Makens	jmakens@eia.doe.gov

Distribution w/att.: See attached list

270028  
DOCUMENT NAME: C:\WP51\WPDOCS\TRIPDOE.MSW

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure  
"N" = No copy

OFFICE	RAB	E	RAB	C	C:RAB	E
NAME	MWegner:mmk		GLanik		JRosenthal	
DATE	01/23/97		01/23/97		01/23/97	

9701270257 970123  
PDR ORG NRRRA  
PDR

*Drop*  
*1/1*  
*OEM-7 1203*  
*97-16 x OEM-7 DOE*  
*X OEM-6 meeting*

Distribution w/attachment:

Public

File Center

RAB R/F

SPD R/F

Distribution w/attachment — w/o attachment enclosures:

EJordan, DEDO

DRoss

FCongel

KRaglin

DHickman

PBaranowsky

JMitchell, OEDO

## Meeting With the Response Division of the Department of Energy

On Wednesday, January 15, 1997, representatives of the Safety Programs Division of AEOD and the Electrical Engineering Branch of NRR met with representatives of the Response Division of the Office of Emergency Management, DOE at the DOE Forrestal facility. The meeting was held to discuss DOE activities with regards to electrical grid reliability concerns raised by the restructuring of the electric industry. The agenda and list of attendees are Enclosures a and b.

Mr. David McCulloch, Director of the Response Division, introduced DOE personnel and gave a brief overview of DOE organizations, authorities, and the electrical energy emergency response program (Enclosure c). Mr. John Young, manager of the Emergency Operations Center, gave a description and demonstration of the Operations Center facility and responsibilities.

Mr. Jack Rosenthal of the Safety Programs Division of AEOD described NRC concerns with regards to nuclear safety. He stated that the reliability of the electric grid was assumed by safety analyses and a change in the reliability of the grid would impact those analyses. Operational concerns with grid reliability include the increase in reactor scrams and emergency diesel generator loadings. He mentioned the *Grid Performance Factors* study which has been released for comments and the succession of reports and studies leading up to it. Mr. Jose Calvo of the Electrical Engineering Branch, NRR expressed his concerns that potential for grid instabilities impact licensing actions. He talked about his trip to the Connecticut Valley Exchange (CONVEX), in 1996 to discuss the electrical situation in Connecticut as the result of the closure of all four nuclear plants there.

Mr. Jim Brown, an engineer in the Response Division, discussed current activities in the electrical industry with regards to restructuring. He mentioned that the Open Access Same-Time Information System (OASIS), Phase I was online as of January 3, 1997. He introduced the System Average Interruption Frequency Index (SAIFI), to show how reliability trends are tracked (Enclosure d).

He referred to the Code of Conduct guidelines which will make all utility information except for data which is deemed necessary for competition available for all parties. Exempting data could create a problem in determining actual generation available.

On the topic of the Independent System Operator (ISO), he stated that no definitive description of the ISO or its responsibilities currently exist. As states pass laws and regulations, each may define the ISO functions within that state. The need may arise for a national coordination of the ISO function.

DOE has established a transmission reliability panel to evaluate the reliability of the nation's electric power system. It is chaired by former Representative Philip Sharp and its members include representatives from a broad spectrum of groups concerned with the reliability of the electric industry (Enclosure e). He also mentioned that the Edison Electric Institute had formed a CEO committee on reliability (Enclosure f). Additional handouts from the meeting are in Enclosure g.

Based on these discussions, the participants agreed that the North American Electric Reliability Council (NERC) was the logical choice as the entity to oversee programs to monitor and improve the electrical grid reliability.



**Enclosure a**

AGENDA  
COORDINATION MEETING  
NUCLEAR REGULATORY COMMISSION ELECTRICAL BRANCH  
--U.S. DEPARTMENT OF ENERGY RESPONSE DIVISION

WEDNESDAY, JANUARY 15, 1997  
10:00 AM  
EXECUTIVE TEAM ROOM--DOE EMERGENCY OPERATIONS CENTER (GA-288)

10:00-10:05 AM-----INTRODUCTIONS

10:05-10:25 AM-----DOE ORGANIZATION, AUTHORITIES,  
AND ELECTRICAL ENERGY  
EMERGENCY RESPONSE PROGRAM-----DAVID MCCOLLOCH  
DIRECTOR, RESPONSE  
DIVISION

10:25-10:40 AM-----DOE EMERGENCY OPERATIONS  
CENTER CAPABILITIES-----JOHN YOUNG  
MANAGER, EOC

10:40-10:50 AM-----QUESTIONS, DISCUSSION

10:50-11:00 AM-----BREAK

11:00-11:20 AM-----NRC ORGANIZATION, ELECTRICAL  
BRANCH AUTHORITIES AND  
RESPONSIBILITIES-----JACK ROSENTHAL  
NRC

11:20-11:35 AM-----CURRENT ELECTRICAL INDUSTRY  
ACTIVITIES TO INCLUDE:  
RESTRUCTURING  
OASIS  
CODE OF CONDUCT  
INDEPENDENT SYSTEM OPERATOR  
DOE RELIABILITY ADVISORY COMMITTEE  
EEI RELIABILITY COMMITTEE-----JIM BROWN  
GENERAL ENGINEER

11:35-11:55 AM-----GENERAL DISCUSSION

**Enclosure b**

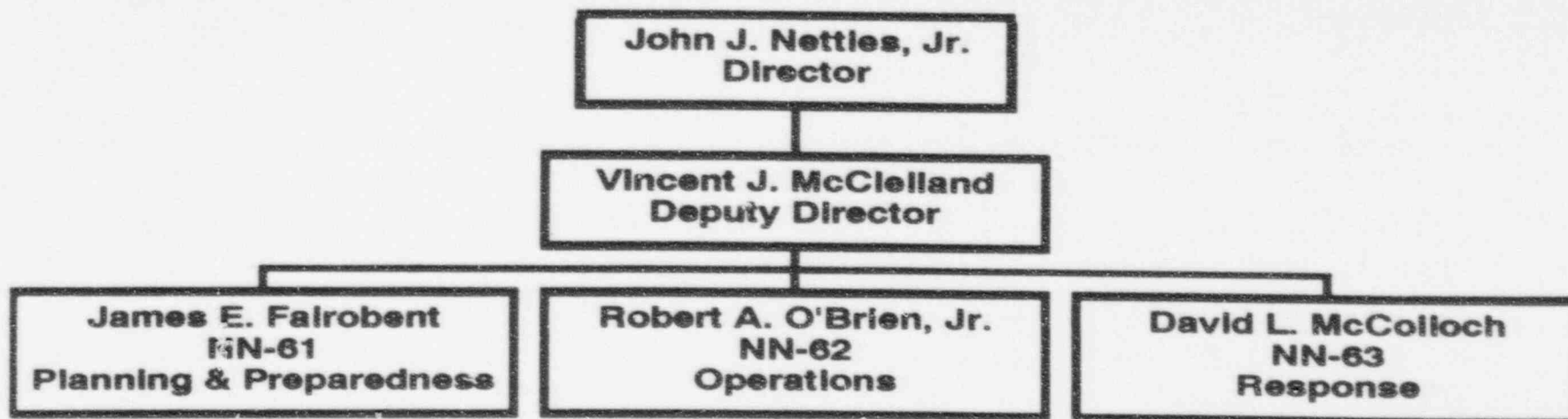
# DOE/ NN-60 BRIEFING Jan. 15 1997

<u>Name</u>	<u>Address</u>	<u>Email</u>
DAVID M. Colloch	DOE - EMERGENCY MGMT	mccollsc@oem.doe.gov
MARY S. WEGNER	NRC: AECD	MSW1@nrc.gov
Jack Rosenthal	USNRC: A205	JER1@NRC.GOV
George Lanik	USNRC/AEOD	GFL@NRC.GOV
Dale Pitcher	NRC/NRR	DFT@NRC.gov
Howard V. Jenkins	NRC/NRR	HVJ@NRC.gov
Narinder TREHAN	NRC/NRR	NKT@NRC.GOV
Jose A. <del>Calvo</del> <sup>CALVO</sup>	NRC/NRR	JACT@NRC.GOV
STEPHEN M. STERN	DOE-POLICY/PO-51	stephen.stern@hq.doe.gov
KEN SCHAFER	DOE/POLICY/PO-51	Ken.Schaffer@hq.doe.gov
JIM BROWN	DOE/NN-63	BROWNJ@OEM.DOE.GOV
John Young	DOE/NN-60 EDC	youngj@oem.doe.gov
Kelly Pitt	" " RPI	pittk@oem.doe.gov
John W. MAKENS	DOE/EIA ET-523	JWAKENS@CIA.DOE.gov

**Enclosure c**



# ***OFFICE OF EMERGENCY MANAGEMENT NN-60***



- Promulgates DOE requirements and implementing guidance
- Conducts appraisals and evaluations of emergency management programs
- Coordinates all DOE emergency management planning and preparedness activities

- Assesses hostile threats to DOE facilities
- Provides assessments of the credibility of nuclear threats worldwide
- Operates 24-hour watch office and communication function

- Coordinates DOE's diverse emergency response functions
- Provides support to Headquarters Emergency Management Teams
- Monitors energy supply and distribution networks and infrastructure

**Enclosure d**



To **JIM BROWN**  
Company **DOE**From **3** **11/18** **1:22**  
Company **CHERYL SPEER**  
Location **BPA - TO** Dept. ChargeFax # **202-586-3859** Telephone # **202-586-5320**Fax # **503-230-4295** Telephone # **503-230-4544**  
Original ☐ Destroy ☐ Return ☐ Call for pickup

NOV-06-1996 14:01

BPA OPERATIONS

3684182963 P. 01

**Reliability Assessment at Customer Points-of-Delivery: FY96**  
A summary of the "SAIFI" measure and recent results

Service reliability at BPA's customer points-of-delivery (PODs) is measured and assessed through the use of "SAIFI", the "System Average Interruption Frequency Index". This index is in common use throughout the utility industry as a means of measuring customer service and reliability. A recent report by the IEEE Task Force on Bulk Power System Reliability Reporting Guidelines, presented at the summer 1995 IEEE Power Engineering Society meetings in Portland, validated the use of SAIFI as an appropriate reporting measure for bulk power delivery systems such as BPA. Use of SAIFI has been refined at BPA over the past four years, with one agency-wide Critical Success Indicator (CSI), and one CSI of the Transmission Field Services group, now based upon the measure.

In simple terms, SAIFI measures the average number of automatic (unplanned) power delivery interruptions per POD, per year. To ensure that SAIFI adequately addresses interruptions over which BPA has operational or managerial responsibility, outages initiated by a customer are excluded from the calculations. Conversely, outages initiated by another utility which provides "transferor" services (wheeling) under contract to BPA, to a BPA customer, are included in the SAIFI calculations.

While the measurement method embodied in SAIFI is generally standard throughout the industry, there is no industry-standard target to indicate a reliability goal. Each utility chooses its own target level to meet its particular operational, financial, or managerial needs. BPA has chosen a CSI target based upon the percentage of points-of-delivery that achieve a SAIFI less than or equal to 4 (i.e., 4 or fewer interruptions per year). For Fiscal Year 1996, the CSI goal was that no more than 6% of all PODs should fail to achieve this performance level.

Service reliability at customer PODs, as measured by SAIFI, is shown below for the past five fiscal years:

Fiscal Year	Annualized SAIFI (outages/POD)	% PODs with SAIFI > 4
1992	1.2	8.1%
1993	1.5	12.0%
1994	1.0	5.8%
1995	1.1	5.9%
1996	1.3	8.1%
5-YR AVG	1.2	8.1%

(LOWER values are BETTER)

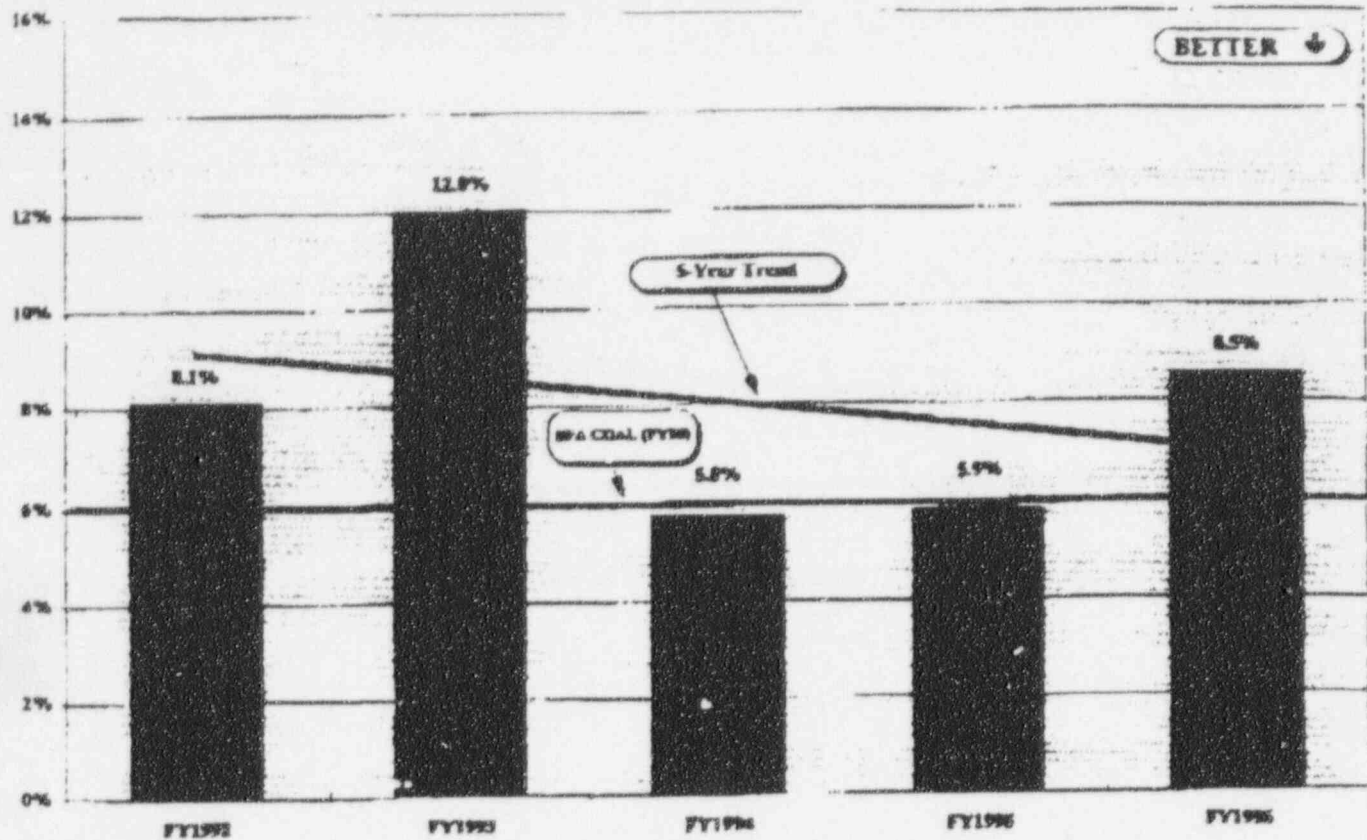
The windstorm of Dec 95, the flood effects of Feb 96, and the summer disturbances of Jul 96 and Aug 96 had an adverse impact on customer service reliability in FY96.

However, as the following graphic illustrates, the 5-year trend is still on a slightly improving track for the Percent of PODs that fail to meet the outage frequency target (SAIFI).

For further information: Roy Ellis  
BPA System Operations/Technical Operations group (TOON)  
29 October 1996

# PERCENT OF ALL BPA PODs WITH SAIFI > 4 OUTAGES: FY92 - FY96

(based on automatic point-of-delivery outages only, excluding those of customer origin)



BETTER ↓

"SAIFI" - System Average Interruption Frequency Index

SAIFI shows the avg. number of automatic outages per point-of-delivery (POD) per year, including temporary + sustained outages

## POD PERFORMANCE ANALYSIS (SAIFI/SAIDI): FY92- FY96

Source: BPA System Operations/TOON/R. ENW/x2964/18-Oct-96

Fiscal Year	POD Exposure	Number of Outages (Momentary)	Number of Outages (Sustained)	Number of Outages (Total)	Duration of Outages (Total)	Annualized SAIFI (Momentary)	Annualized SAIFI (Sustained)	Annualized SAIFI (Total)	Annualized SAIDI	% PODs with SAIFI > 4	% PODs with SAIDI > 150
FY1992	1025.1	808	392.5	1200.5	182803	0.8	0.4	1.2	178	8.1%	6.0%
FY1993	1027.3	1071	488.5	1559.5	110970	1.0	0.5	1.5	108	12.0%	9.1%
FY1994	1028.0	630	381	1011	54348	0.6	0.4	1.0	53	5.8%	7.2%
FY1995	967.1	642	417	1059	41290	0.7	0.4	1.1	43	5.9%	6.6%
FY1996	908.2	630	508	1138	89239	0.7	0.6	1.3	98	8.5%	14.9%

### NOTES:

SAIFI = System Average Interruption Frequency Index, and reflects the average number of automatic outages per POD per year

SAIDI = System Average Interruption Duration Index, and reflects the average accumulated duration, in minutes, of all automatic outages per POD per year

Momentary outages are those with a recorded duration of less than 1 minute (i.e., zero minutes)

Sustained outages are those with a recorded duration of 1 minute or more

For a single POD, the "POD Exposure" is 1.0 if the POD was available for service the entire year; it is less than 1.0 if the POD was energized or retired during the period

For the whole system, the "POD Exposure" reflects the total number of PODs (or parts) that were available for service during the year

**BPA Transmission Line Outage and SAIFI/SAIDI\* Performance Statistics: 1986-1995**  
**Summary by Voltage Class, Automatic Outages Only**

	<u>230-499kv</u>	<u>500kv and above</u>	<u>All Lines</u>
BPA SAIFI	1.59	2.8	2.195
BPA SAIDI	141.1	401.8	271.45

IEEE Survey of U.S. and Canadian Overhead Transmission Outages at 230kV and above (published 1993)  
 Primary Automatic and Forced Manual Outages by Voltage Class, 1965-1985:

	<u>230-499kv</u>	<u>500kv and above</u>	<u>All Lines</u>
National Average SAIFI	2.89	1.76	2.325
National Average SAIDI	1152.4	757.2	954.8

\*SAIFI (System Average Interruption Frequency Index) indicates average number of automatic outages per line per year

\*SAIDI (System Average Interruption Duration Index) indicates average accumulated minutes of automatic outage duration per line p

*For all line voltage classes, using the statistics above, the average frequency of automatic outages on BPA lines is only 94% of the national average, and the average duration of automatic outages on BPA lines is only 28% of the national average.*

*For 230-499kv lines only, the BPA average frequency is only 55% of the national average, and the BPA average duration is only 12% of the national average.*

(Note: comparing similar time periods may yield slightly different results)

Source: System Operations (TOT 2937) 15Jul96

**Enclosure e**

## DOE Establishes Transmission Reliability Panel

The Department of Energy Wednesday created a 21-member advisory panel to evaluate the reliability of the nation's electric power system. The panel, created in the wake of the major power outages in the western United States this summer, will be chaired by former Rep. Phillip Sharp (D-Ind.), who now is director of Harvard University's Institute of Politics.

The advisory panel will hold its first meeting in Washington, D.C., Jan. 16, 1997. The panel will report to the Secretary of Energy Advisory Board and will meet about six times a year.

Members of the panel are:

- Vikram Budhraj, senior vice president, Southern California Edison;
- Arnold Turner, vice president, New England Electric System;
- Charles Stormon, CEO and chief scientist, Coherent Research;
- Carol Cunningham, executive vice president, Consolidated Hydro;
- Alden Meyer, director of government relations, Union of Concerned Scientists;
- Ralph Cavanagh, senior attorney, Natural Resources Defense Council;
- Erle Nye, chairman and CEO, TU Electric;

- Jose Delgado, director, electric systems operations, Wisconsin Electric Power;

- Larry Papay, senior vice president and general manager, Bechtel;

- Roger Naill, vice president of planning, AES;

- Duncan Kincheloe, commissioner, Missouri Public Utility Commission;

- Theresa Flaim, vice president, corporate strategic planning, Niagara Mohawk Power Corporation;

- Karl Stahlkopf, vice president, power delivery group, Electric Power Research Institute;

- Walter Canney, administrator, Lincoln Electric Company;

- Bill Newman, senior vice president, Alabama Power;

- Mark Bonsall, associate general manager, Salt River Project;

- Matthew Holden, Jr., professor of government and foreign affairs, University of Virginia;

- Paul Dragomiris, president, PDA Inc.;

- Richard Sedano, commissioner, Vermont Department of Public Service; and

- Susan Tierney, Economic Resources Group.



## **Potential Areas for Investigation**

### **TASK FORCE ON ELECTRIC SYSTEM RELIABILITY**

#### **Secretary of Energy Advisory Board**

#### **POLICY**

- What is the appropriate federal role in ensuring electric system reliability versus the roles of the states and the electricity industry?
- To what extent is federal legislation needed to redefine existing roles and enhance authorities? Are there other reliability needs that should be addressed in federal legislation or regulations?
- What mechanisms ( market, operating standards, enforcement, etc.) need to be in place to ensure that restructuring of the electricity industry will provide sufficient incentives for ensuring the adequacy of electricity supplies and reliable operation of the bulk power system?
- What is the minimum level of reliability that should be achieved? Should several levels be available?

#### **INSTITUTIONS - HOW RELIABILITY IS EVALUATED, MONITORED, AND ENFORCED**

- What type of regional organizations (RTG, ISO, Security Coordinator, etc.) should coordinate transmission system operations?
- What type of oversight and governance is needed for regional organizations?
- Who should be responsible and accountable for long term planning for generation and transmission?
- Do current institutional entities have adequate authority to develop, monitor, and enforce compliance with standards and criteria for reliable electric system operations?
- What metrics are needed to measure reliability performance and hold violators accountable?
- Should reliability councils and operating standards be established at the regional or national level or both?



## TECHNICAL

- What advancements in data and information systems are needed to provide system operators with the capability to maintain system reliability and respond to system disturbances?
- What advancements in control systems are needed to provide system operators the ability to immediately recognize system disturbances and to plan a response and adjust operations in real time?
- What advancements are needed in transmission equipment to improve reliability?
- What new models and tools are needed for large system disturbance analysis?
- Can distributed generation and storage be used to mitigate disturbances?
- Given the trends in restructuring of the electricity industry, what policies and institutions are needed to ensure an adequate level of funding for electric reliability-related technologies?

**Enclosure f**



## News

The Association of Investor-Owned Electric Companies

201 Pennsylvania Avenue, N.W., Washington, D.C. 20006-4090

Wednesday, Oct. 16, 1996  
FOR FURTHER INFORMATION:  
MARY KENKEL or JIM OWEN,  
(202) 608-6662/(202) 608-6669

### ELECTRIC INDUSTRY GROUP FORMS CEO COMMITTEE ON RELIABILITY

WASHINGTON, D.C. (OCT. 16) – Edison Electric Institute, the trade group representing the investor-owned segment of the electric utility industry, today announced the formation of a CEO Steering Committee to look at the reliability of the transmission network.

The Steering Committee will work in concert with a U.S. Department of Energy task force on reliability, as well as the North American Electric Reliability Council. NERC has primary responsibility for transmission system reliability and the CEO Steering Committee will be providing additional input to them. This follows in the wake of significant multi-state outages occurring in the Western United States on July 2 and August 10.

The mission of the EEI committee is to develop and advocate policy guidance for its members which supports NERC's reliability mission, in light of greater competition in the electric industry and expanding use of the transmission system. Electric utilities have long advocated the need for careful review of the current system as we increase competition. The formation of this group and the DOE task force will help to ensure that our nation's electric highways remain reliable.

Among its tasks, the EEI steering committee will develop policies and recommendations to address:

- ☐ NERC operating standards that must be improved and clarified, and must be adhered to by all market participants.
- ☐ Performance measurement and enforcement of compliance with the standards.
- ☐ Correct pricing for the use of the transmission system and other appropriate incentives for maintaining, reinforcing, and expanding the transmission grid to accommodate both robust competition and system reliability.
- ☐ Wide area information exchange and maintenance of system security.
- ☐ Development and deployment of new technologies.

In setting up the CEO-level Steering Committee, EEI president Tom Kuhn said, "As competition increases in the electric utility industry, all market participants must work together to make sure that the goal of providing reliable electric service for everyone, and the desire to sell electricity in competitive markets, don't work against each other. Otherwise, one or the other loses."

"The electric utility industry has a long and successful history of information sharing, coordination and adhering to NERC's reliability rules," Kuhn said. "Competition means that all players now must adhere to those rules, and perhaps new ones, to ensure reliability for all consumers."

This steering committee is going to be working with the DOE task force, the Federal Energy Regulatory Commission, the North American Electric Reliability Council, and the Electric Power Research Institute. The committee also will seek advice from experts outside the industry.

The steering committee will be comprised of investor-owned utility company Chief Executive Officers from each of the NERC regions.

###

*The Edison Electric Institute is the association of investor-owned electric companies, international affiliate members and corporate associate members. Its domestic members generate and distribute more than three-quarters of the nation's electricity.*

**Enclosure g**



## North American Electric Reliability Council

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

### NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL BOARD OF TRUSTEES MEETING

January 6-7, 1997  
Litchfield Park, Arizona

#### MEETING HIGHLIGHTS

The North American Electric Reliability Council Board of Trustees met on January 6-7, 1997. Highlights of the meeting include:

#### **Bylaws**

The Board unanimously approved changes to the Membership Obligations section of the Bylaws, obligating the Regional Councils and their members to comply with NERC Policies.

#### **Options to Ensure Compliance**

The Board:

- Unanimously accepted the "Options to Ensure Compliance" report and committed to move forward in the direction suggested by the "Next Steps" section of the report,
- Directed the Future Role of NERC Task Force — II to oversee the implementation of these "Next Steps." The Task Force will provide direction to the Engineering Committee, Operating Committee, and staff, as appropriate, and regularly report progress to the Board, and,
- Directed the Future Role of NERC Task Force — II to report to the Board any projects and initiatives required to satisfy the "Next Steps" that have significant policy implications and/or that require major new funding.

#### **Strategic Initiatives for NERC**

Security Process — The Board unanimously approved the scope and formation of a Security Coordinator Subcommittee of the Operating Committee to primarily oversee the implementation and maintenance of Regional and subregional security plans and processes. It also approved:

- Implementation of a Confidentiality Agreement for data sharing among control areas and security coordinators to allow these entities to perform security analyses;

Phone 609-452-8060 ■ Fax 609-452-9550 ■ BBS 609-452-7669

- Development of an Interregional Security Network (ISN), which is a telecommunications network to enable data sharing;
- Development of an Interchange Distribution Calculator (IDC) to *predetermine* the effects of interchange transactions on all transmission paths; and
- Implementation of a Transaction Information System (TIS) to provide a *uniform* method for "tagging" interchange transactions.

**Operating Standards** — The Board endorsed the Operating Committee's approach to developing new and revised Operating Standards. It also approved the Operating Committee's action plans to develop and implement a NERC-wide System Operator Certification Program and a NERC-wide Accreditation Program for System Operator Training Programs, and a new operator training tutorial on System Restoration.

**Planning Standards** — The Board approved the Engineering Committee proceeding with the implementation of its "Proposed Action Plan" to establish revised and new NERC Planning Standards and Guides.

**Transmission Reservation and Scheduling/Available Transfer Capability** — The Board agreed that the Engineering and Operating Committees should proceed with the development and testing of a *trial* flow-based transmission reservation and scheduling system as conceptually described in the Transmission Reservation and Scheduling Task Force's report.

### **Response to DOE Recommendations**

The Board approved proceeding with the programs and activities required to respond to the recommendations contained in DOE's August 2, 1996 report to the President, under the direction of the Future Role of NERC Task Force — II.

### **Additional Future Role of NERC Initiatives**

The Board approved the Future Role of NERC Task Force — II overseeing work on the following additional initiatives: development of an industry compact; defining reliability functions; development of a framework for enforcement measures; dispute resolution; review of NERC's administration.

### **New Operating Committee Organization and Procedures Document**

The Board approved the Operating Committee's new *Organization and Procedures Document*.

### **NERC Budget Revisited**

The Board approved a special assessment of its Members for 1997 of \$1,500,000 to provide NERC with the resources needed to implement the new and expanded projects approved by the Board.





Jim Brown

## NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

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

October 18, 1996

TO: BOARD OF TRUSTEES

Ladies and Gentlemen:

### Call for Support

As Chairman of the North American Electric Reliability Council (NERC), I am asking for your assistance and support in reshaping NERC to meet the changing needs of the electric industry and all its participants.

Last January I formed the Future Role of NERC Task Force — II to determine how NERC must grow to keep pace with changes in our industry to prevent any adverse impacts on reliability. Erle Nye, NERC Vice Chairman and Chairman of the Task Force, reported the Task Force's findings and recommendations at our September Board meeting. I subsequently asked the NERC Operating and Engineering Committees to develop specific programs, with budget estimates, to support and implement these recommendations. To ensure timeliness, I asked the Committees to report directly to the Task Force. In addition, I asked several individuals from our industry to be part of a special team to develop a report that defines various options for ensuring compliance with NERC Policies, including the pros and cons of each. This team has completed its assignment and I have forwarded its report to the Task Force for use in developing a complete plan for implementing the "new NERC." A copy of the team's report is enclosed (Attachment 1). I strongly encourage you to review it with an open mind, discuss it with others throughout your Region or organization, and provide your comments to the Task Force members, Task Force Chairman Erle Nye, or me.

We can expect to hear the recommendations of the Task Force and the Committees at our January 1997 Board meeting, and I intend to seek approval from the Board to move forward with those proposed programs. Please make a special effort to review the recommendations prior to the Board meeting, discuss them with the CEOs in your Regional Council, make any concerns you have known to the Task Force and Committees, develop the necessary support from your constituency, and be prepared to support the new programs and associated resource requirements. I will keep you informed as we progress.

I will also seek approval at that Board meeting to modify the NERC Bylaws such that the Members (Regional Councils) and the members of Regional Councils will be obligated to support, promote, and comply with NERC's Policies. These changes are crucial if NERC and its Members are to be viewed as credible and respected in their role of supporting, promoting, and ensuring "reliability excellence." The proposed changes to Section 2 of the Bylaws are shown in Attachment 2.



Board of Trustees  
October 18, 1996  
Page Two

I believe it is important for all sectors and participants in the industry to give 100% support to the programs that will be presented for approval in January and to the requested change in the Bylaws. Such a vote will send a strong message to all constituencies watching this process and to the industry we serve that NERC is ready to move forward quickly to define a new framework for ensuring reliability. As I stated at the last Board meeting, I would like 100% support, but I am committed to getting these approvals even if it means by a vote that simply meets the minimum requirements.

To give you all the high-level support you will need, I am sending next week an "open letter" to all electric industry executives (Attachment 3). I would like the Observers to our Board to alert the members of the organizations they represent that this letter is coming and encourage them to give it their personal attention.

NERC's officers need your support to prepare NERC for the changes before us. The timing is urgent. If you have any questions, please call me or Mike Gent.

Sincerely,



Richard J. Grossi  
Chairman  
North American Electric  
Reliability Council

/jmf  
Enclosures

cc: Board Observers  
Technical Steering Committee  
Regional Managers  
Future Role of NERC Task Force — II

## TABLE OF CONTENTS

I. EXECUTIVE SUMMARY .....	3
II. BACKGROUND .....	11
CHANGES IN THE INDUSTRY .....	11
IMPORTANCE OF RELIABILITY .....	11
NATURE OF ELECTRICITY .....	12
PREVIOUS RELIANCE ON VOLUNTARY COOPERATION AND COORDINATION .....	12
WILL VOLUNTARY COMPLIANCE CONTINUE TO WORK? .....	13
OTHER INFLUENCES .....	14
FUTURE ROLE OF NERC TASK FORCE II .....	14
III. SCOPE .....	16
IV. ASSUMPTIONS .....	17
V. ISSUES & ASSESSMENTS .....	19
WHO ESTABLISHES REQUIRED RELIABILITY PROTOCOLS? .....	19
WHO IS RESPONSIBLE FOR RELIABILITY? .....	19
IS MEMBERSHIP MANDATORY? .....	21
APPROACHES TO COMPLIANCE ENFORCEMENT .....	21
INCENTIVES AND SANCTIONS .....	22
WHO MONITORS FOR COMPLIANCE? .....	23
WHO ENFORCES COMPLIANCE? .....	24
DUE PROCESS .....	25
LIABILITIES .....	25
REGULATORY SUPPORT .....	25
RESOURCE REQUIREMENTS .....	26
VI. INDUSTRY OVERVIEW OF REGULATION AND SELF-REGULATION .....	27
VII. OPTIONS .....	30
VIII. ROLES OF INVOLVED ORGANIZATIONS .....	33
IX. RECOMMENDED NEXT STEPS .....	37
IMPLEMENTATION MANAGEMENT RESPONSIBILITY .....	37
INDUSTRY COMPACT .....	37
REGULATORY BACKSTOP .....	38
RELIABILITY FUNCTIONS .....	38
SECURITY COORDINATION .....	38
MEASURABLE PROTOCOLS .....	39
COMPLIANCE MONITORING .....	39
ENFORCEMENT MEASURES .....	39
DISPUTE RESOLUTION .....	40
CERTIFICATION, EDUCATION, AND TRAINING .....	40
NERC ADMINISTRATION .....	40

OPTIONS TO ENSURE COMPLIANCE  
WITH NERC AND REGIONAL RELIABILITY COUNCIL  
POLICIES, STANDARDS AND CRITERIA

Prepared By The NERC Reliability Compliance Team:

Paul Barber  
Vikram Budhraj  
Jim Byrd  
David Goulding  
Bill Newman  
Bill Phillips

October 12, 1996

## **I. EXECUTIVE SUMMARY**

### **Background**

The electric industry is transitioning from a regulated, vertically-integrated structure to a competitive structure with functional unbundling and disaggregation. In the new competitive structure, it is not clear who has responsibility for reliable operation of the Interconnections, who should pay for reliability, who enforces reliability protocols, and what obligations market participants have to ensure system reliability is not compromised. A transition period is occurring in which institutions are evolving into many different forms, driven largely by the economic and political influences in the various Regions, subregions, political jurisdictions, and individual institutions. Recently, customers, market participants, regulators, economists, legislators, and even the President have expressed concern that the reliability of one of the world's most dependable electric systems should not degrade in the new competitive market structure.

Why is there such universal concern for reliability? The answer has to do with the very nature of this unique service that clearly distinguishes it from most other commodities. Electricity cannot be inventoried at a level demanded by the consumer. It represents the ultimate in "just-in-time manufacturing," and any disparity between consumption and production shows up as a reliability or power quality problem: dimmed lights, burned motors, and, if the problem is severe, brownouts, blackouts, and system collapse. A failure to perform by only one participant can have disastrous consequences for all other participants and the entire delivery infrastructure. This is illustrated by the recent multi-state disturbances in the Western Systems Coordinating Council (WSCC).

In light of the rapidly changing electric industry environment and heightened focus on reliability, the Chairman of NERC established a reliability compliance team (Team), comprised of senior people in the electric industry, to make recommendations for reliability management. The Team was established in late August with a charge to provide recommendations by mid-October.

The Chairman of NERC directed the Team to develop options, with the pros and cons of each, to ensure compliance with NERC and Regional Reliability Council protocols in light of the rapidly changing electric industry environment. In addition, the Team was directed to provide a report to the Future Role of NERC Task Force II with the Team's recommended option(s) and suggested next steps for NERC.

### **Issues & Assessments**

The Team was instructed to be creative in its deliberations, seeking solutions that would provide a strong framework for reliability management and ensure compliance. In the course of its deliberations, issues were identified related to developing and ensuring

compliance with required reliability protocols. To develop positions on these issues, the Team largely relied upon the considerable experience of its members using brainstorming techniques and roundtable discussions. In addition, insights were obtained from a review of a few other industries, including the nuclear, health care, and securities and exchange industries.

The following represent consensus positions developed by the Team:

- With the transition of the electric industry to a competitive structure, it is critical to have a clear reliability management framework with focused responsibility and accountability.
- NERC and its member Regions should continue to be recognized as the preeminent authorities on reliability and should develop the mandatory protocols required to ensure reliability of the North American Electric Systems.
- The control area concept continues to be the industry basis for control of generation to match load. As such, the control area must continue to be the responsible entity for generation control, for ensuring balance between generation and load, and for effecting electricity interchange transactions between purchasing-selling entities.
- The Team supports the Future Role of NERC Task Force II white paper conclusion that "All organizations that form within or across the NERC Member boundaries that have some role, responsibility, or function related to the operation or planning of interconnected bulk electric systems in North America (RTGs, ISOs, IGOs, RPXs, POOLCOs, interregional coordination groups, etc.) must declare themselves to NERC and establish formal coordination agreements with the relevant NERC Member(s). These agreements must specifically state the intent of the organization and its members to comply with NERC and NERC Member reliability criteria. Copies of the agreements must be filed with NERC."
- Those entities performing the primary reliability functions of generation control (control areas) and system security coordination must be members of the Regional Reliability Councils in which they carry out their business.
- The traditional voluntary compliance approach taken by NERC and its member Regions will not serve the needs of the new industry.
- Due to the involvement of numerous international regulatory jurisdictions, the greatest uniformity in requirements and enforcement of requirements can be obtained through contractual agreements between industry participants. It will be essential that all regulatory jurisdictions approve such agreements and



support the terms and conditions, including sanctions. Legislation will be necessary if non-jurisdictional entities do not voluntarily submit themselves to contractual agreements for reliability.

- Mandatory sanctions and business incentives should be used to enforce compliance.
- The reliability management framework should comprise of control areas and security coordinators for real-time operation and network security, Regional Reliability Organizations to monitor real-time compliance, unified responsibility for each independent interconnected grid within NERC through Independent Interconnection Operators, and NERC to establish mandatory reliability protocols.
- Security Coordinators and control area operators are charged with responsibilities associated with reliability, up to and including requiring the reduction or disconnection of load or generation to protect overall network security. Contractual agreements that authorize them to impose sanctions to ensure compliance with mandatory protocols must exist with those under their operational control as well as with NERC and the Regions.
- The primary responsibility for real-time monitoring of compliance with operating protocols should reside with the Regional and Subregional Security Coordinators.
- A single real-time authority in the form of an Independent Interconnection Operator (IIO) should be established to provide oversight, coordination, and direction as necessary to maintain the health and security of the full network.
- It is critical to establish NERC's and the Region's authorities and enforcement powers in contractual agreements approved by the appropriate regulatory jurisdictions.
- NERC and each Region should have a standing dispute resolution mechanism to provide for timely resolution of any disagreement or dispute on reliability compliance.
- The Board should seek legal support to assess any liability issues created by a stronger role for NERC in compliance enforcement.
- A regulatory pact must be developed under which an equitable distribution of the costs of ensuring reliability may be ensured and under which fair recovery of those costs may be provided.

- All market participants should have a mandatory obligation to comply with reliability protocols.
- Regulatory authorities should include and require mandatory compliance with NERC reliability protocols as a condition for approval of tariffs, contracts, licenses, and other instruments.
- NERC should employ most of the resources required for this effort and some increase in permanent staffing must begin immediately to support the many transitional efforts that are required. Some portion of the required resources (particularly as required to support peak efforts) should be provided by contractors or from the industry through rotational assignments of two to three years. Expenses should be paid by NERC and the Regions and apportioned accordingly to all participants.

### Options

Based on the insights gained from its discussions and its review of several other industries, the Team identified eight alternative approaches to the development and enforcement of required protocols, including a hybrid approach recommended for the "new" NERC. The recommended approach has as its foundation the following four principles:

1. Because NERC membership is made up of industry experts who understand the technically complicated interactions within the interconnected electric grids, the Team submits that mandatory reliability protocols are best developed and maintained by NERC.
2. Because universal participation is critical to insuring reliability, 100 per cent compliance should be achieved through regulatory pressure. This can be achieved through NERC certification as a requisite for a market license or through uniform contractual provisions written by NERC and required by FERC and other appropriate regulatory authorities to be included in all commercial contracts. Each market participant (including, but not limited to, generators, transmission owners, and power marketers) must enter into an "obligation to comply" with all NERC and Regional reliability protocols.
3. Because the Regional Reliability Organizations (Control Areas, Security Coordinators, ISO's, Regional Councils, etc.) will normally have access to real-time information on operating compliance to NERC reliability protocols, the Team submits that inspection and enforcement should be left to these Regional Reliability Organizations, with NERC providing oversight and audit of the Regional Reliability Organizations.



4. Regional Reliability Organizations (RROs) must refuse service if a participant does not abide by approved protocols. However, there should be an escalating scale of stipulated contractual penalties to address an escalating scale of contractual violations. For serious infractions, there could be additional regulatory sanctions to underscore the need for faithful compliance to reliability protocols. Regulators could condition market licensing on a market participant's renewed certification by NERC.

### **Roles of Involved Organizations**

An Industry Compact will be needed acknowledging the following:

- A voluntary approach to reliability in a restructured competitive industry is unworkable.
- The industry should advocate and all participants should voluntarily transition to a mandatory approach to compliance and enforcement, obviating the need for government prescriptive intervention.
- The industry should endorse functional separation of reliability management and commercial functions.

NERC should take the leadership role in developing the industry compact. NERC should petition all industry participants, including the FERC, DOE, NEB (Canada), and other appropriate regulatory bodies and policy makers for the support necessary to make the compact work.

### **Control Areas**

Until and unless another method of generation control is developed, Control Areas must continue to have the real-time responsibility and authority for generation adequacy and transaction schedule implementation.

### **Security Coordinators**

Security Coordinators should be independent of market participants (as is currently the case in some Regions) and should be responsible for the near real-time monitoring for compliance to NERC and Regional policies and criteria. In some cases, the Security Coordinators will actually be ISO's with the additional authority and responsibility for managing the real-time use of the interconnected network, a function historically performed by its member Control Areas.

## Independent Interconnection Operator (IIO)

A single independent operator must exist with the responsibility and authority to monitor the health of the Interconnections and to coordinate interregional security issues in real time with Regional and subregional Security Coordinators.

## NERC and Regional Reliability Councils

NERC and its member Regional Reliability Councils should continue to be the preeminent organizations responsible for the development of reliability protocols and the overall management of programs to monitor compliance and to penalize non-compliance. These protocols must be made more specific and measurable if compliance is to be accurately monitored and reported.

## FERC and Other Regulators

Regulators must support new approaches that are developed to ensure compliance with reliability rules, including financial penalties. Regulators must:

- Ensure all expenses of the Regional Reliability Organizations, incurred to meet the reliability criteria established by the NERC and the Regional Reliability Councils, are fully recoverable from customers and market participants.
- Provide regulatory backstop.
- Make mandatory reliability compliance part of Open Access Transmission Tariffs and conditions of marketing licenses.
- Include "obligation to comply" with reliability protocols in terms and conditions in tariffs, interconnection agreements, licenses, and agreements of ISOs, Power Exchanges, and RTAs.
- Authorize sanctions for non-compliance, including being "economically disconnected" from the grid or otherwise prohibited from conducting business.
- Support and encourage creation of Independent System Operators as a means to have focused and independent reliability responsibility.

## Policy Makers

Policy makers will provide an independent assessment of the industry and provide policy and legislative support, where required, to achieve the common goal of the regulators and the utility industry, i.e., to provide a framework for a competitive electricity market with non-discriminatory access to transmission such that economic efficiencies are maximized without jeopardizing reliability.

## Recommended Next Steps

Throughout the report, the consensus conclusions reached by the Team have been identified. The Team provides a number of recommended actions it believes the NERC Board of Trustees should initiate in order to effect the desired objectives:

**Recommendation:** The Future Role of NERC Task Force II should take implementation management and responsibility to develop details for and the process for implementation. The Task Force should have the details and process available for review and approval at the January 1997 Board of Trustees meeting.

**Recommendation:** NERC should take the lead in developing the industry compact. NERC should petition all industry participants, including appropriate regulatory authorities, for the support necessary to make the compact work. NERC should charge a group to visit FERC, the National Energy Board of Canada, DOE, and other appropriate regulatory organizations to explain NERC's approach and to seek comment. The group should consist of NERC's officers and senior industry representatives.

**Recommendation:** NERC should develop proposed means (including, if necessary, the pursuit of legislation) by which to ensure that all segments of the industry are subject to NERC's reliability requirements.

**Recommendation:** A group be assigned to develop a comprehensive list of responsibilities and reliability functions to be performed at each of the three levels of responsibility: policy, oversight and implementation.

**Recommendation:** A group be charged to develop a minimum set of expectations of those entities responsible for security coordination and evaluation. These expectations would include the entities' authority, span of control, responsibilities, capabilities, tools, etc. (A Security Coordinators Committee comprised of management personnel from each of the security coordination centers would serve this purpose well).

**Recommendation:** The Engineering and Operating Committees should perform a comprehensive review of the existing policies, standards, and criteria to ensure they

are specific, measurable, adequate and appropriate for the new industry environment.

**Recommendation:** The Engineering and Operating Committees should define how compliance monitoring will be accomplished.

**Recommendation:** A group should be formed to define enforcement measures. These measures are expected to be a hierarchical matrix of penalties for increasing impact of infractions of protocols. As the severity of violations increases, so should the penalties.

**Recommendation:** A group be formed to review and improve the existing NERC dispute resolution process.

**Recommendation:** NERC should develop certification policies, processes, practices and/or programs for use by the industry. These should include the certification of people, facilities and tools, and training programs. The certification should include reliability and economic aspects of the industry.

**Recommendation:** NERC should perform a complete review and evaluation of its management structure, administration processes, capabilities, membership and committee structure in light of the emerging competitive and disaggregated industry structure. It should organize to represent reliability interests, while recognizing commercial needs, and to be responsive to the reliability needs of the industry. Due to the difficulty associated with reinventing itself, the NERC Board should consider seeking outside support for this effort.

**Recommendation:** NERC should review how policies are created, approved and implemented. Its committee structure should be revamped or replaced with a new system to speed the overall process. The approval process for reliability protocols needs to be addressed to ensure timely implementation without getting blocked or vetoed due to commercial interests.

**Recommendation:** NERC should adopt a stronger "top-down" approach to reliability management and the development of mandatory reliability protocols.

## **II. BACKGROUND**

### **Changes in the Industry**

The issuance, by the Federal Energy Regulatory Commission (FERC), of Rules 888 and 889 signaled the definitive beginning of widespread open transmission access in the wholesale electric industry in the U.S. In some jurisdictions, retail access is also being pursued, even as problems with wholesale access are still being solved. The electric industry is transitioning from a regulated, vertically-integrated structure to a competitive structure with functional unbundling and disaggregation. In the new competitive structure, it is not clear who has responsibility for reliable operation of the Interconnections, who should pay for reliability, who enforces reliability protocols, and what obligations market participants have to ensure system reliability is not compromised. The institutions that have historically accepted the responsibility for reliability may exist only in unbundled forms, or they may be replaced altogether by new entities.

It is likely that control area operators of today will be directed by independent system operations (ISOs) and independent power exchanges of tomorrow. Separation of transmission operation and system security functions from merchant functions is important to ensure that all participants will have comparable and non-discriminatory access to the power grid. Independence will enhance conformance to reliability policies and criteria as it will uncouple the essential functions of control, coordination and management of the power grid from the competitive issues, and allow a proper balance between reliability and commercial interests.

In its rulemaking, however, the FERC has not required ISOs, or defined their responsibilities. A transition period is occurring in which institutions are evolving into many different forms, driven largely by the economic and political influences in the various Regions, subregions, political jurisdictions, and individual institutions. There will be ISOs, RTGs, RTAs, Security Coordinators, Control Areas, and System Operators, and the latter will, in some cases, be unbundled into separate transmission control and generation control entities. With this evolution and transition to a competitive market structure, specific reliability monitoring and enforcement capability must exist no matter what form evolves.

### **Importance of Reliability**

In the move toward a competitive industry, there has been little or no recognition of potential negative impacts to reliability; it appears to have been taken for granted. Only recently have customers, market participants, regulators, economists, legislators, and even the President expressed concern that the reliability of one of the world's most dependable electric systems should not degrade in the new competitive market structure. This is



exemplified in the principles adopted by the National Association of Regulatory Utility Commissioners (NARUC) at its 1996 summer meeting. One of those principles states:

"The safety, reliability, quality, and sustainability of electric service should be maintained or improved in a restructured electric industry."

In commentary, it was added that:

"No changes in the electric utility industry or the regulatory regime should be allowed to compromise reliability, even if the intention is to lower consumer prices, except where a lower level of reliability is freely chosen by a customer and does not impair service to other customers (e.g., interruptible service)."

In some arenas, the notion is being advocated that customers will choose a level of supply reliability based on their willingness to pay. Ultimately, the market may mature to a point that it provides all customers (not just large industrial customers) with timely price signals that allow for such customer choice, but, until it does, most customers will continue to expect the historical level of reliability to which they are accustomed.

It is also very important to distinguish between customer reliability on the distribution system and the reliability of the interconnected grid. The interconnected grid is a system of mutual interdependence, and all entities must abide by a common set of protocols to uphold the integrity of the grid. Even if full choice can be achieved at the customer level, the bulk transmission system must be totally reliable for that choice to be available.

### **Nature of Electricity**

Why is there such universal concern for reliability? The answer has to do with the very nature of this unique service that clearly distinguishes it from most other commodities. Electricity cannot be inventoried at a level demanded by the consumer. It represents the ultimate in "just-in-time manufacturing," and any disparity between consumption and production shows up as a reliability or power quality problem: dimmed lights, burned motors, and, if the problem is severe, brownouts, blackouts, and system collapse. A failure to perform by only one participant can have disastrous consequences for all other participants and the entire delivery infrastructure. This is illustrated by the recent multi-state disturbances in the Western Systems Coordinating Council (WSCC).

### **Previous Reliance on Voluntary Cooperation and Coordination**

Since the formation of the Interconnections, and especially since the formation of NERC and its member Regional Reliability Councils following the 1965 Northeast blackout, the



industry has maintained its reliability through the cooperative development of NERC and Regional policies, standards and criteria (reliability protocols) and voluntary compliance to those protocols. There has not been, and no need has existed for, legislation focused on reliability.

Compliance has not been perfect; there have been many cases of non-compliance. Some have been dealt with effectively through peer pressure, but quite a few have not. One only has to look at a monthly NERC Control Performance Criteria Survey to recognize the compliance disparity that exists. Reliability has been maintained only because there have been enough entities willing to do "more than their share" to offset the negative influence of those not in compliance. Such willingness existed on the part of many because required investments were covered in a regulated environment, a situation that is doubtful for the future where functions are unbundled and vertically-integrated utilities may not exist.

Until now, reliability has primarily been a responsibility of Control Areas. With a refunctionalization of the once vertically-integrated industry, and with an increase in the number and magnitude of transactions with wholesale open access, it is becoming increasingly more evident that coordination at the boundaries of Control Areas and Regions is insufficient, as are the protocols to deal with boundary issues. Such deficiencies are leading to the establishment of Host Control Areas, Area Security Coordinators, transaction identification systems, and other new concepts.

### **Will Voluntary Compliance Continue to Work?**

As competition increases, fewer participants will be willing to do "more than their share" for reliability. The view is widely shared in the industry that voluntary compliance will not work in a competitive environment. Competitors do not cooperate, and the existing cooperative and voluntary system for reliability management cannot survive the transition to a competitive market. The costs of cooperation are 100 percent incurred by individual utilities and recovered in customer rates, but the benefits accrue to all market participants, utilities or not.

In a competitive world, utilities alone cannot be saddled with the obligation for a reliability safety net and the associated costs of providing it. Eventually, ISOs may have mandatory protocols for all market participants to replace the existing cooperative arrangements, but, in the meantime, what mechanisms will NERC and the Reliability Councils depend upon to ensure compliance? And, even when ISOs have these protocols, there will be a need for some overall organization to make sure these protocols are coordinated, especially at the ISO boundaries.

## Other Influences

In addition to the already pressing influences on reliability brought about by deregulation and increased competition, new and immediate focus on reliability and compliance has been prompted by the recent widespread disturbances in the WSCC. As indicated previously, these events have reminded the industry, the government, and the public of the importance of electricity to the economy and well-being in North America.

President Clinton is known to be concerned about the reliability of the nation's privately managed electricity grid, and Energy Secretary Hazel O'Leary promised the President in her August 2 report on the 14-state July power outage in the West, that she would "take action to strengthen the system." According to "Electric Utility Business & Finance," the U. S. Department of Energy is now drafting its own legislative plan for deregulating the electric utility industry, and DOE's Deputy Secretary Charles B. Curtis was quoted in describing the latest outage in WSCC: "Outages of the type that occurred Aug. 10 are totally unacceptable. They are preventable; they should have been prevented." Curtis was also quoted as saying, "These safeguards will likely include an expanded role for the North American Electric Reliability Council and the (regional) reliability councils."

## Future Role of NERC Task Force II

In January 1996, the Board of Trustees formed a Board-level task force to expeditiously reexamine the Agreements in Principle that were the basis for *NERC 2000* and to reassess NERC's future role, responsibilities, and organizational structure in light of the rapidly changing electric industry environment. The Task Force developed a set of findings and recommendations presented in a "white paper" to the Board at its September 1996 meeting. Included in the report were specific policy recommendations in the areas of:

- Membership, Agreements, and Participation
- Reliability Criteria
- Performance Measurement
- Compliance

In addition to other recommendations contained throughout the report, specific Task Force recommendations contained in the August 30, 1996, letter to the Board are:

### *"Findings and Recommendations of the Task Force*

*NERC will carry out its mission in the future by:*

- *Establishing Reliability Policies, Standards, Principles and Guides*
- *Measuring Performance Relative to NERC Policies, Standards, Principles and Guides*
- *Ensuring Conformance to and Compliance with NERC Policies, Standards, Principles and Guides*

*To be effective in the changing electric industry environment, NERC must:*

- be the leader in coordinating the reliable operation of interconnected bulk electric systems.*
- fairly represent the reliability interests of all participants in bulk electricity markets, whether or not they own transmission or generation.*
- be recognized and accepted by legislative and regulatory bodies as the authority on the reliability of interconnected bulk electric systems in North America.*
- establish, monitor, and enforce compliance with NERC reliability Policies and Standards, in a fair, non-discriminatory manner; resolve its own technical disputes; and work together with all industry participants to ensure the continued reliability of interconnected bulk electric systems in North America, and*
- exercise initiative and independence with regard to performance measurement, reliability assessment, and compliance."*

The Report of the Task Force and its recommendations were approved in principle by the Board of Trustees at its September 1996 meeting. In addition, the Board directed the NERC Operating and Engineering Committees to develop, under the auspices of the Future Role of NERC Task Force II, implementation details necessary to effect the recommendations in the report and to present a plan to the Board at its January 1997 meeting.

### III. SCOPE

In light of the rapidly changing electric industry environment and heightened focus on reliability, the Chairman of NERC established a reliability compliance team (Team) to make recommendations for reliability management. The Team was comprised of senior people in the electric industry known for their breadth of knowledge and experience in system operations and what it takes to keep interconnected electric systems reliable. Members came from the power marketing segment of the industry and from three of the four Interconnections, but did not represent a particular Region or even their own companies. The Team was established in late August with a charge to provide recommendations by mid-October.

The Chairman of NERC directed the Team to develop options, with the pros and cons of each, to ensure compliance with NERC and Regional Reliability Council protocols in light of the rapidly changing electric industry environment. Also, the charge was to provide a report to the Future Role of NERC Task Force II with the Team's recommended option(s) and suggested next steps for NERC.

#### IV. ASSUMPTIONS

As indicated above, the primary directive to the Team was to develop alternative methods for ensuring compliance with approved reliability protocols. The Team was instructed to be creative in its deliberations, seeking solutions that would provide a strong framework for reliability management and ensure compliance. Although the Team did not assume it was constrained by any conclusions contained in the "white paper," it did recognize and accept as a starting point the following premises as "approved in principle" by the Board:

##### *"Membership, Agreements, and Participation"*

*All entities that are engaged directly in the generation, transmission, or interchange of electricity (electric utilities, independent power producers, electric power marketers, control areas, etc.) that can affect the interconnected bulk electric systems in North America must be members of the Regional Reliability Organization (NERC Member) in which they carry out their business or be otherwise recognized and certified by NERC as being accountable for compliance with applicable NERC Policies and Standards.*

*All organizations that form within or across the NERC Member boundaries that have some role, responsibility, or function related to the operation or planning of interconnected bulk electric systems in North America (RTGs, ISOs, IGOs, RPXs, POOLCOs, interregional coordination groups, etc.) must declare themselves to NERC and establish formal coordination agreements with the relevant NERC Member(s). These agreements must specifically state the intent of the organization and its members to comply with NERC and NERC Member reliability criteria. Copies of the agreements must be filed with NERC.*

*All entities that are accountable for complying with NERC Member reliability criteria and NERC Policies, Standards, Principles and Guides, as well as entities who are affected by the "state of reliability" of the interconnected bulk electric systems, must be afforded a fair, equitable, and non-discriminatory opportunity to participate in NERC Member and NERC processes.*

*Members of the NERC Board must continue to represent all ownership sectors of the electricity industry as well as those engaged directly in the generation, transmission, and interchange of electricity (electric utilities, independent power producers, electric power marketers, control areas, etc.) that can affect the interconnected bulk electric systems in North America. Board members should be representatives who can understand the issues and who have sufficient authority to directly influence policy in their respective organizations.*



## *Compliance*

*NERC and the NERC Members must establish and maintain formal mechanisms to ensure compliance with NERC Member reliability criteria and NERC Policies, Standards, Principles and Guides, regularly review and improve the effectiveness of these mechanisms, and report results, specifically by member, annually to the NERC committees and Board of Trustees. These mechanisms must clearly spell out compliance responsibilities and authorities and the consequences of non-compliance.*

*NERC must establish a formal tracking mechanism, in cooperation with the NERC Members, to track the state of implementation of all recommendations that appear in NERC reports.*

*NERC must continue to rely on self-regulation as its means of ensuring compliance with NERC Policies, Standards, Principles and Guides with respect to overall network integrity (Security). NERC's compliance process will be based on:*

- aggressive oversight, review and follow up of recommendations;*
- active training, support, encouragement, and assistance to Regional Councils and their members;*
- open, all-inclusive participation;*
- use of alternative dispute resolution in lieu of sanctions, court actions, or referrals to regulatory bodies; and*
- a demand for excellence in the operation and planning of interconnected bulk electric systems, up to and including direct CEO involvement.*

*Compliance processes with respect to electricity supply (Adequacy) must be based on the consistent and non-discriminatory application of market incentives to ensure compliance with technically-based Policies, Standards, Principles and Guides developed by NERC. (The Task Force was not comfortable in suggesting that NERC have a role in establishing and administering the market-based compliance processes for electricity supply (Adequacy).)"*



## V. ISSUES & ASSESSMENTS

In the course of its deliberations, issues were identified related to developing and ensuring compliance with mandatory reliability protocols. To develop positions on these issues, the Team largely relied upon the considerable experience of its members using brainstorming techniques and roundtable discussions. In addition, insights were obtained from a review of a few other industries. In the next Section, narrative is provided to describe how these other industries have organized to deal with a number of the same issues.

What follows are the identified issues with discussion and the Team's position on each of the issues:

### A. Who Establishes Required Reliability Protocols?

The bulk electric Interconnections in North America have experienced one of the highest levels of reliability found in the world, and are at least partially responsible for the economic prosperity and well-being enjoyed by the inhabitants of the U.S. and Canada.

**Team Position:** With the transition of the electric industry to a competitive structure, it is critical to have a clear reliability management framework with focused responsibility and accountability.

For 30 years, NERC and its member Regions have been the caretakers of that reliability through the development of, and voluntary compliance to, necessary reliability protocols. Although serious concerns exist over the need to improve and streamline the processes for their development and approval, there has been no reason to doubt the ability and appropriateness of NERC and its member Regions to continue to establish the required protocols. Indeed, it is by way of those organizations that the contributions of the best industry expertise has been and can continue to be made available. This view has been widely supported by the industry, as well as by the FERC and the DOE.

**Team Position:** NERC and its member Regions should continue to be recognized as the preeminent authorities on reliability and should develop the mandatory protocols required to ensure reliability of the North American Electric Systems.

### B. Who Is Responsible For Reliability?

Historically, control areas have been viewed as the predominant entities responsible for reliability. Indeed, the NERC Operating Policies have required that all generation and load be included within the metered boundaries of the established control areas, and those same Policies have predominantly been written to address control area responsibilities.

Industry and NERC responses to federal, state and provincial regulatory mandates are resulting in the creation of new Regional Reliability Organizations (ISOs, IPXs, RTGs, RTAs, Security Coordinators, etc.), many of which lack standard definition. The only consistent definition continues to be the control area, defined by the metered electrical ties that are continuously measured and used in the Area Control Error (ACE) computations of the automatic generation control (AGC) algorithm in an Energy Management System.

**Team Position:** The control area concept continues to be the industry basis for control of generation to match load. As such, the control area must continue to be the responsible entity for generation control, for ensuring balance between generation and load, and for effecting electricity interchange transactions between purchasing-selling entities.

In addition to maintaining a balance between generation and load, system reliability depends upon maintaining the security of the network by preventing unacceptable line loading, voltage levels, or potential instabilities that might lead to cascading failures. Previously, this "security" function was also predominantly performed by control areas. However, industry pressures are challenging this historical treatment.

With the changing use of the network resulting from an increase in the number of transactions, an increase in the number of involved parties, and an increase in the "distance" of the transactions, NERC has developed new requirements for Area Security Coordinators. The intent is to develop a broader perspective on the status of the network than has traditionally been available to individual control areas.

New entrants to the market are arguing that the decisions regarding the safe use of the network should be made by independent entities that do not stand to gain financially by their decisions. Such arguments have resulted in the FERC's Standards of Conduct (Order 889) and, in some jurisdictions, the establishment of Independent System Operators (ISO's).

**Team Position:** The Team supports the Future Role of NERC Task Force II white paper conclusion that "All organizations that form within or across the NERC Member boundaries that have some role, responsibility, or function related to the operation or planning of interconnected bulk electric systems in North America (RTGs, ISOs, IGOs, RPXs, POOLCOs, interregional coordination groups, etc.) must declare themselves to NERC and establish formal coordination agreements with the relevant NERC Member(s). These agreements must specifically state the intent of the organization and its members to comply with NERC and NERC Member reliability criteria. Copies of the agreements must be filed with NERC."

### **C. Is Membership Mandatory?**

The Future Role of NERC Task Force II "white paper" indicated that all entities "must be members of the Regional Reliability Organization (NERC Member) in which they carry out their business or be otherwise recognized and certified by NERC as being accountable for compliance with applicable NERC Policies and Standards." Since every generator and load must be included in a control area, this is a satisfactory condition of membership, provided the entity does not perform one of the primary reliability functions of generation control or system security. Those that perform these primary functions must take a leadership role in the industry by their active participation in reliability efforts.

**Team Position:** Those entities performing the primary reliability functions of generation control (control areas) and system security coordination must be members of the Regional Reliability Councils in which they carry out their business.

### **D. Approaches to Compliance Enforcement**

Compliance with required protocols can be encouraged in four ways:

1. Voluntary cooperation (peer pressure)
2. Contractual agreement
3. Contractual agreement with regulatory mandate (including, if required, legislative backstop for non-jurisdictional entities)
4. Legal mandate (legislation)

Although these methods ensure varying degrees of enforcement, none of them guarantees 100 per cent compliance by all parties at all times. In each case, parties will weigh the cost of compliance versus non-compliance and may willfully choose non-compliance.

**Team Position:** The traditional voluntary compliance approach taken by NERC and its member Regions will not serve the needs of the new industry.

Parties may agree contractually to meet certain reliability protocols. Party A may require Party B to meet or exceed a standard as a requisite for doing business or for obtaining certification. Regional members may contractually agree to meet regional reliability protocols.

There is no such thing as a fully self-regulating industry in America. Some aspect of virtually every business in America is governed by some federally-mandated regulations, especially when health or safety is concerned. Generally, however, regulation occurs as the result of a perception that a problem exists which will not be solved properly if left simply to market pressures.

Since the electric industry is and will continue to be a regulated industry, even contractual agreements carry with them an element of legislative backing in that such contracts require the approval of appropriate regulatory jurisdictions. Generally speaking, a regulatory body such as the FERC cannot delegate to NERC rule-making or rule-enforcing authority. However, the FERC and other regulators are in the position to approve contracts which stipulate performance requirements (compliance to NERC and Regional protocols) as a requisite to doing business. Another alternative could be that FERC and other appropriate regulators issue market certificates requiring conformance with industry-established protocols.

Legally-mandated protocols require the force and authority of the appropriate state, provincial, or federal body through the enactment of legislation. Legally-mandated sanctions may also include criminal fines and penalties. Under this form of enforcement, the appropriate body would adopt NERC reliability protocols as their own regulations. An analogous situation exists with the rules developed and promulgated by the industry-run Financial Accounting Standards Board. Those rules have historically been adopted by the Securities and Exchange Commission as their own regulations.

There are a number of policy makers and regulators on both sides of the border who will have an interest in reliability, particularly in terms of the enforcement of a mandatory set of protocols. There is currently no Canadian equivalent of the FERC mandate. In Canada, the provinces currently play major roles in policy and regulation of the industry; indeed, in most the province is currently the major owner as well as the key policy setter.

**Team Position:** Due to the involvement of numerous international regulatory jurisdictions, the greatest uniformity in requirements and enforcement of requirements can be obtained through contractual agreements between industry participants. It will be essential that all regulatory jurisdictions approve such agreements and support the terms and conditions, including sanctions. Legislation will be necessary if non-jurisdictional entities do not voluntarily submit themselves to contractual agreements for reliability.

#### **E. Incentives and Sanctions**

Incentives to ensure compliance usually take the form of certifications (market trade privileges or operators' licenses) to allow them to conduct business, or ratings that participants seek in order to reduce their costs. Such incentives are effective because they provide a financial incentive for the party to comply. For example, nuclear units that receive high ratings from the Institute for Nuclear Power Operations (INPO) also experience lower costs in the form of lower insurance premiums.

Where business incentives cannot be developed, NERC and the regional reliability councils must have the ability to impose sanctions in the form of fines or punitive prices on non-complying members so that one participant's noncompliance does not degrade



reliability or increase costs for other market participants. For example, a Control Area might be charged punitive prices for excessive energy taken from the Interconnection as inadvertent energy when due to its own failure to generate adequate amounts..

**Team Position:** Mandatory sanctions and business incentives should be used to enforce compliance.

#### **F. Who Monitors For Compliance?**

As discussed earlier, electricity differs from most commodities in that it must be manufactured on demand (it cannot be stored in quantities to meet consumer requirements), and it is transported over a delivery system (transmission network) that tightly couples and creates dependencies between all providers and all customers. Reliability must be maintained moment by moment and, therefore, compliance to reliability protocols must be monitored on a continuous basis.

Traditionally, compliance monitoring was conducted by control areas. As previously stated, the control area of the future may not have "network security" information due to issues of independence or standards of conduct. Security Coordinators are currently being formed in response to new NERC policies. These Security Coordinators will initially take a number of different forms including control areas, Regional or Subregional Security Centers, and even ISO's, but they will each continue to have all System information (generation, transmission, and interchange scheduling) available through the Interregional Security Network (ISN) being established by NERC and the Regions.

**Team Position:** The primary responsibility for real-time monitoring of compliance with operating protocols should reside with the Regional and Subregional Security Coordinators.

The above position statement indicates that the Security Coordinators will monitor compliance in real time, identifying any non-compliance on the part of control areas or industry participants. Who, then, monitors the performance of the Security Coordinators, and how does the industry ensure uniform enforcement of its reliability protocols across four Interconnections and ten Regions?

The Team concurs with the Future Role of NERC Task Force II recommendation that "NERC must monitor the performance of NERC Members and their control areas (or successor organizations) for compliance with NERC Policies, Standards, Principles and Guides and report results regularly to the NERC committees and Board of Trustees." In addition, it is important that a single entity exist to oversee the health of the Interconnections in real time.

Regional and Subregional Security Coordinators are being implemented to oversee the network security of broad geographic areas and, in many cases, multiple control areas. There will, however, still be border issues between Security Coordinators, there will be circumstances under which a multi-regional perspective will be necessary, and there will continue to be evaluations such as Area Interchange<sup>2</sup> or assessments that can only be performed on an Interconnection level. Sole dependence on coordination and cooperation between Security Coordinators will be inadequate since: they will probably not have the complete picture; they will be accountable to and influenced by their respective governing members; and they may hold different opinions on needed actions to correct a security problem. There has to be a single authority under such circumstances.

**Team Position:** A single real-time authority in the form of an Independent Interconnection Operator (IIO) should be established to provide oversight, coordination, and direction as necessary to maintain the health and security of the full network.

#### G. Who Enforces Compliance?

A basic premise of management is that authority must be commensurate with responsibility. During real-time operation, only the control areas and Security Coordinators that have been given reliability responsibilities can enforce compliance.

**Team Position:** Security Coordinators and control area operators are charged with responsibilities associated with reliability, up to and including requiring the reduction or disconnection of load or generation to protect overall network security. Contractual agreements that authorize them to impose sanctions to ensure compliance with mandatory protocols must exist with those under their operational control as well as with NERC and the Regions.

During other than real-time operation, the Future Role of NERC Task Force II has recommended that "NERC and the NERC Members must establish and maintain formal mechanisms to ensure compliance with NERC Member reliability criteria and NERC Policies, Standards, Principles and Guides, regularly review and improve the effectiveness of these mechanisms, and report results, specifically by member, annually to the NERC committees and Board of Trustees. These mechanisms must clearly spell out compliance responsibilities and authorities and the consequences of non-compliance."

**Team Position:** It is critical to establish NERC's and the Region's authorities and enforcement powers in contractual agreements approved by the appropriate regulatory jurisdictions.



## **H. Due Process**

In any arena in which a party's performance may be judged or a party may be subjected to fines or penalties, an opportunity for due process must exist, including the right to appeal the findings to a higher judge. NERC and many (if not all) of the Regions already have dispute resolution processes that may be used for such purpose.

**Team Position:** NERC and each Region should have a standing dispute resolution mechanism to provide for timely resolution of any disagreement or dispute on reliability compliance.

## **I. Liabilities**

Traditionally, NERC and its member Regions have performed coordination roles. If contractual arrangements are made to place these organizations into enforcement roles, new liabilities may exist. For example, if NERC certifies a control area operation, what liability may NERC have if the operation fails to perform properly?

**Team Position:** The Board should seek legal support to assess any liability issues created by a stronger role for NERC in compliance enforcement.

## **J. Regulatory Support**

Traditionally, the costs of reliability have been born by vertically-integrated entities and have been passed on to customers through rates. In the new industry, such vertically-integrated entities may not exist, and, even if they do, it would be inequitable to impose such costs exclusively on them. New methods must be developed, and regulatory support must be obtained, for the equitable allocation of such costs to all participants.

**Team Position:** A regulatory pact must be developed under which an equitable distribution of the costs of ensuring reliability may be ensured and under which fair recovery of those costs may be provided.

Reliability of the infrastructure can only be ensured if all participants are subject to mandatory compliance. As indicated earlier, significant non-compliance by only one participant can have dramatic effects on all others and the network.

**Team Position:** All market participants should have a mandatory obligation to comply with reliability protocols.

**Team Position:** Regulatory authorities should include and require mandatory compliance with NERC reliability protocols as a condition for approval of tariffs, contracts, licenses, and other instruments.

## K. Resource Requirements

In its report to the Board, the Future Role of NERC Task Force II indicated that "Staff or outside contractors will need to do more of the work." The Team concurs with this view, but a significant increase in resources will also be required if this industry is to truly provide self-regulation in the form of compliance monitoring and enforcement. To handle such resource requirements, several alternatives were discussed:

- 1) NERC and Regional Staffs could be augmented by committees and working groups populated by industry personnel. This is viewed as inefficient (management by committee) and is subject to part-time availability of personnel.
- 2) NERC and Regional Staffs could be augmented by industry personnel provided "on loan" for periods of two or more years. This "rotational" concept allows for dedicated staff, but also allows a continuous influx of new experience and ideas. In addition, the actions of personnel will be guided by a more complete understanding of the different views.
- 3) NERC and Regional Staffs could be increased permanently as required. Adequate resources would exist, but other advantages offered by option 2 would be lost.

**Team Position:** NERC should employ most of the resources required for this effort and some increase in permanent staffing must begin immediately to support the many transitional efforts that are required. Some portion of the required resources (particularly as required to support peak efforts) should be provided by contractors or from the industry through rotational assignments of two to three years. Expenses should be paid by NERC and the Regions and apportioned accordingly to all participants.

## VI. INDUSTRY OVERVIEW OF REGULATION AND SELF-REGULATION

The Team reviewed the processes used by other industries to ensure compliance with that industry's standards. The efforts of the Team included a review of the nuclear, health care, and securities and exchange industries.

In virtually every business, some aspects are regulated by the government and some aspects are not regulated. The self-regulated activities are left to the industry to set its own internal standards or to adopt standards developed by the industry. Figure 1 describes how information flows in the development of regulation and self-regulation.

There are over 6,000 voluntary industry organizations in the United States. Many of these organizations develop standards. For self-regulated activities, constituent businesses are free to reject or adopt these standards voluntarily. Sometimes the adoption of voluntary standards is widespread because it improves marketplace efficiency. An example of this is the voluntary adoption of the Uniform Commercial Code by all 50 state legislatures. Sometimes the standard becomes a recognizable benchmark of quality or safety which can be referenced in contracts. An example of this is the ASME Boiler Code, or the IEEE/ANSI National Electric Safety Code. In some cases, private organizations offer inspection and certification to attest that a given business meets an industry standard. An example of this is ISO-9000 quality assurance certification.

When government regulation first begins in a particular field of business, government regulators often look to existing standards to use as a basis for regulation. The regulatory agency is always free to write its own rules, or continue to review and adopt industry-made standards as they develop. In at least one example found, a regulatory agency has removed the procedural step of adoption and substantially delegated rulemaking authority to a private organization. The Securities and Exchange Commission proclaimed that "... principles, standards and practices promulgated by the [Financial Accounting Standards Board] in its statements and interpretations will be considered by the [SEC] as having substantial authoritative support, and those contrary to such FASB promulgations will be considered to have no such support." (SEC Docket January, 1974, p. 276.)

In most cases, inspection and enforcement of compliance with the regulations is done by the regulatory body. Depending on the scope of inspection and enforcement needed, this can require huge resources. One example is the Nuclear Regulatory Commission's large inspection and enforcement staff.

One way to shift some of the inspection/enforcement burden to industry is through the certification process. Regulators can require certification by an independent private organization before a company becomes eligible for government programs, subsidies, or entry into the market place. In 1965, Congress passed the Medicare Act which contained the provision that hospitals accredited by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) are deemed in compliance with the Medicare Conditions of Participation and can therefore participate in Medicare and Medicaid

programs. JCAHO performs the inspections and grants certification. Another example is testing and certification of nuclear operators by the National Academy for Nuclear Training, which operates under the auspices of the Institute of Nuclear Power Operations (INPO).

# Models of Regulation and Self-Regulation

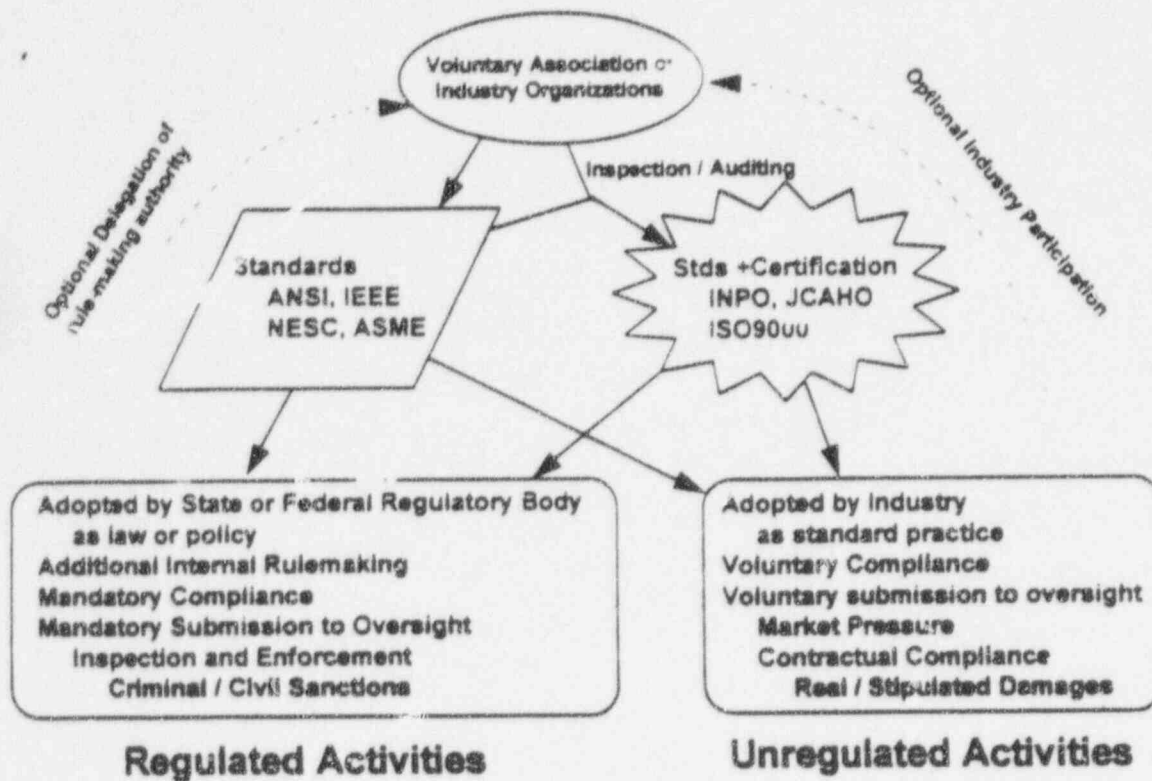


Figure 1.



## VII. OPTIONS

Figure 2 summarizes various paths through the regulation and self-regulation model shown in Figure 1. The first seven options were developed primarily as a result of the Team's review of other industries, and the Team could have chosen to recommend one of those for the future NERC. Instead, the Team chose to create a hybrid model (# 8). It is intended to emulate # 4, but recognizes that 100 per cent participation is required.

### Development of Protocols

Because NERC membership is made up of industry experts who understand the technically complicated interactions within the interconnected electric grids, the Team submits that mandatory reliability protocols are best developed and maintained by NERC.

### Nature of Compliance

In all of the examples studied where compliance was voluntary, there was never 100 per cent compliance. Eighty years after the formation of the parent organization to JCAHO, all hospitals are still not JCAHO certified.

Because universal participation is critical to insuring reliability, 100 per cent compliance should be achieved through regulatory pressure. This can be achieved through NERC certification as a requisite for a market license or through uniform contractual provisions written by NERC and required by FERC and other appropriate regulatory authorities to be included in all commercial contracts. Each market participant (including, but not limited to, generators, transmission owners, and power marketers) must enter into an "obligation to comply" with all NERC and Regional reliability protocols.

### Inspection and Enforcement

Because the Regional Reliability Organizations (Control Areas, Security Coordinators, ISO's, Regional Councils, etc.) will normally have access to real-time information on operating compliance to NERC reliability protocols, the Team submits that inspection and enforcement should be left to these Regional Reliability Organizations, with NERC providing oversight and audit of the Regional Reliability Organizations.

### Compliance Pressure

Regional Reliability Organizations (RROs) must refuse service if a participant does not abide by approved protocols. However, there should be an escalating scale of stipulated contractual penalties to address an escalating scale of contractual violations. These contractual penalties could range from escalating rates up to and including the right to refuse transmission service for continued and serious violations. For serious infractions, there could be additional regulatory sanctions to underscore the need for faithful

is NERC  
A relgion?



compliance to reliability protocols. Regulators could condition market licensing on a market participant's renewed certification by NERC.

NERC and the RROs should develop a mechanism for performing periodic audits of participants for conformance to approved protocols. These audit procedures must be responsive to participant-initiated complaints and other indications of potential non-compliance such as major system disturbances or significant near misses.

### Models of Regulation and Self-Regulation

	Standards/ Rulemaking	Nature of Compliance	Inspection/ enforcement	Compliance Pressure	Examples
1	Industry	Voluntary	Self	Peers, Market Economics	NERC Today
2	Industry	Contractual	Parties	Contractual terms of real/stipulated damages	Various
3	Industry	Voluntary Certification	Independent Industry Organization	Peers, Market Economics	ISO-9000
4	Industry	Mandatory Certification	Independent Industry Organization	Certification Required by Law	JCAHO for Medicaid Participation
5	Industry stds adopted by regulators	Mandatory	Regulators	Law	NRC & ASME Codes
6	Full delegation to Industry	Mandatory	Regulators	Law	SEC & FASB Statements
7	Regulators	Mandatory	Regulators	Law	<u>EPA</u>
8	Industry	Mandatory	NERC	Contractual Penalties, Regulatory Sanctions, Possible loss of license	Team Recommendation for Future NERC

Figure 2.

## VIII. ROLES OF INVOLVED ORGANIZATIONS

Figure 3 shows an outline of functional responsibilities and what organizations could be responsible for each function.

### OVERALL ORGANIZATIONAL INVOLVEMENT

There are two aspects to the electric power industry: commercial and reliability. The FERC has established the mandatory commercial protocols in the U.S., monitors use of the system, enforces commercial rules of the road through sanctions and determines how costs are recovered. NERC should establish the reliability protocols for the North American Interconnections and take steps to mandate and enforce those protocols.

In order to accomplish the above, an Industry Compact will be needed acknowledging the following:

- A voluntary approach to reliability in a restructured competitive industry is unworkable.
- The industry should advocate and all participants should voluntarily transition to a mandatory approach to compliance and enforcement, obviating the need for government prescriptive intervention.
- The industry should endorse functional separation of reliability management and commercial functions.

NERC should take the leadership role in developing the industry compact. NERC should petition all industry participants, including the FERC, DOE, NEB (Canada), and other appropriate regulatory bodies and policy makers for the support necessary to make the compact work.

### BASIC PREMISE

The recommendations to follow were formulated under the assumption that NERC would continue to be the preeminent organization responsible for the reliability of the electric industry. The NERC Board, through actions by the Executive Committee, the Technical Steering Committee, and the NERC and Regional Staffs, will need to be proactive with external political and regulatory entities in order to ensure that premise.

## **Control Areas**

Each Control Area is defined by the metered boundaries of it. Area Control Error (ACE) equation. Generation, load, and scheduled transactions are maintained in balance within each Control Area through the use of an automatic generation control system that responds to any error in the net flow across that boundary. Until and unless another method of generation control is developed, Control Areas must continue to have the real-time responsibility and authority for generation adequacy and transaction schedule implementation.

## **Security Coordinators**

Security Coordinators should be independent of market participants (as is currently the case in some Regions) and should be responsible for the near real-time monitoring for compliance to NERC and Regional policies and criteria. In some cases, the Security Coordinators will actually be ISO's with the additional authority and responsibility for managing the real-time use of the interconnected network, a function historically performed by its member Control Areas.

## **Independent Interconnection Operator**

Each Interconnection must have a single independent operator (IIO) with the responsibility and authority to monitor the health of the Interconnection and to coordinate interregional security issues in real time with Regional and subregional Security Coordinators.

## **NERC and Regional Reliability Councils**

NERC and its member Regional Reliability Councils should continue to be the preeminent organizations responsible for the development of reliability protocols and the overall management of programs to monitor compliance and to penalize non-compliance. These protocols must be made more specific and measurable if compliance is to be accurately monitored and reported.

## **FERC and Other Regulators**

Reliability has a cost. It includes the cost of personnel and equipment required to develop the rules and to monitor for compliance, as well as the cost incurred by participating entities to comply with the rules. It should be the function of federal, state, provincial, and local regulators to ensure that such costs, prudently incurred to ensure

reliable operation, are allowed to be recovered and do not become a competitive disadvantage to a segment of the players in the new, competitive industry.

Without economic principles, measurements, compensation and sanctions, it will be impossible to maintain the reliability of the electric system, not to mention the economic viability of the industry participants who have traditionally felt the responsibility for this reliability. Regulators must support new approaches that are developed to ensure compliance with reliability rules, including financial penalties.

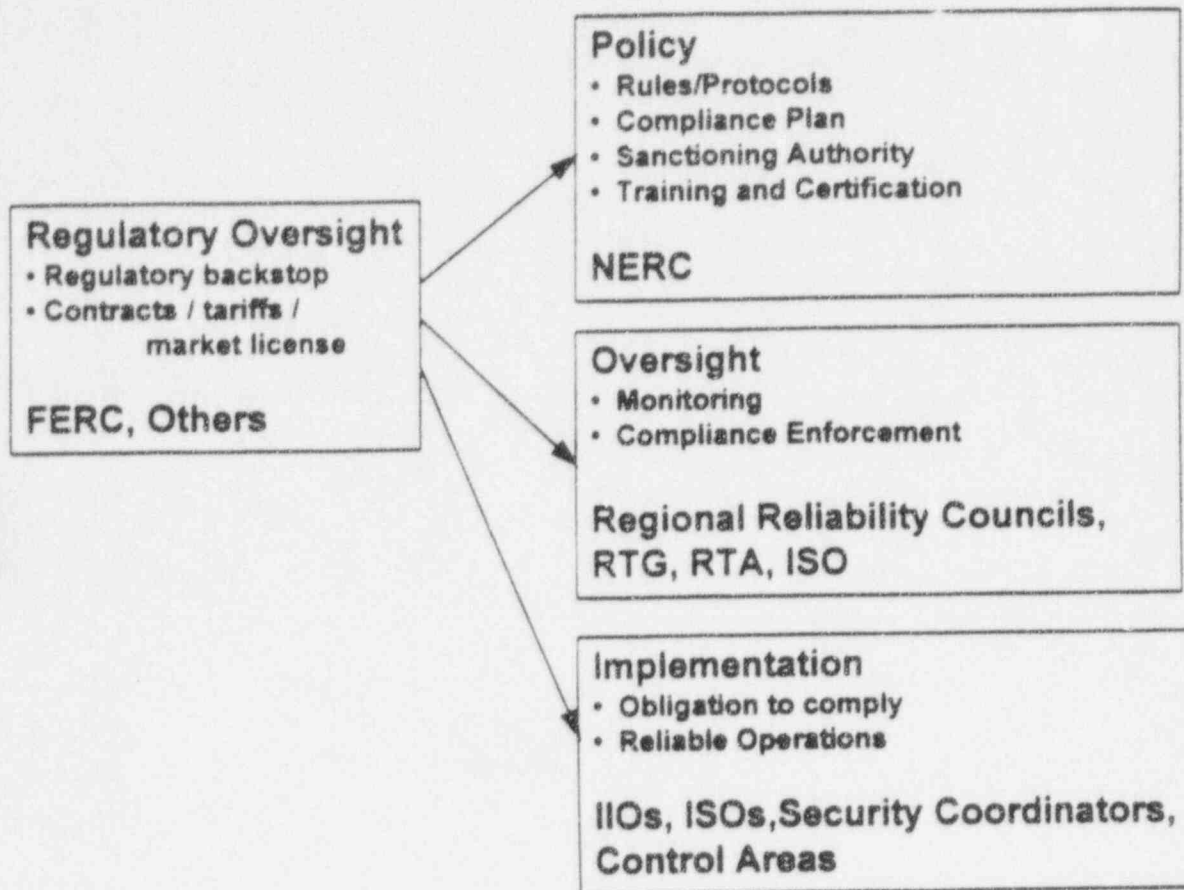
Regulators must:

- Ensure all expenses of the Regional Reliability Organizations, incurred to meet the reliability criteria established by the NERC and the Regional Reliability Councils, are fully recoverable from customers and market participants.
- Provide regulatory backstop.
- Make mandatory reliability compliance part of Open Access Transmission Tariffs and conditions of marketing licenses.
- Include "obligation to comply" with reliability protocols in terms and conditions in tariffs, interconnection agreements, licenses, and agreements of ISOs, Power Exchanges, and RTAs.
- Authorize sanctions for non-compliance, including being "economically disconnected" from the grid or otherwise prohibited from conducting business.
- Support and encourage creation of Independent System Operators as a means to have focused and independent reliability responsibility.

### **Policy Makers**

Policy makers will provide an independent assessment of the industry and provide policy and legislative support, where required, to achieve the common goal of the regulators and the utility industry, i.e., to provide a framework for a competitive electricity market with non-discriminatory access to transmission such that economic efficiencies are maximized without jeopardizing reliability.

# Reliability Management



3 Figure.



## IX. RECOMMENDED NEXT STEPS

The assigned scope of this effort included the development of recommended next steps for NERC. Throughout the report, the consensus conclusions reached by the Team have been identified. In this Section, the Team provides a number of recommended actions it believes the NERC Board of Trustees should initiate in order to effect the desired objectives.

Industry acceptance of a mandatory compliance paradigm will take significant effort. In addition, it will probably take several major steps to implement. The electric power industry is rapidly continuing its move to competition and open-access of the transmission system. Therefore, the Board of Trustees should act on these recommendations as soon as possible.

### A. Implementation Management Responsibility

NERC uses task forces and working groups to study issues and implement recommendations. The introduction of mandatory reliability compliance into the electric power industry will take significant effort in many arenas. Acceptance and implementation will require oversight by a group that has the big picture.

**Recommendation:** The Future Role of NERC Task Force II should take implementation management and responsibility to develop details for and the process for implementation. The Task Force should have the details and process available for review and approval at the January 1997 Board of Trustees meeting.

### B. Industry Compact

In order to accomplish the mandatory reliability compliance, an Industry Compact will be needed to acknowledge a voluntary transition to mandatory compliance and separation of reliability management and commercial functions.

**Recommendation:** NERC should take the lead in developing the industry compact. NERC should petition all industry participants, including appropriate regulatory authorities, for the support necessary to make the compact work. NERC should charge a group to visit FERC, the National Energy Board of Canada, DOE, and other appropriate regulatory organizations to explain NERC's approach and to seek comment. The group should consist of NERC's officers and senior industry representatives.

### C. Regulatory Backstop

Reliability of the system is of paramount importance and all users of the system must be required to comply with the rules. The Team has suggested that these rules be implemented through contracts, with the appropriate regulatory bodies approving and supporting those contracts. However, this scheme may not include all entities using the power system. Mandatory compliance requires 100 per cent accountability (obligation to comply) by all users of the power system.

**Recommendation:** NERC should develop proposed means (including, if necessary, the pursuit of legislation) by which to ensure that all segments of the industry are subject to NERC's reliability requirements.

### D. Reliability Functions

NERC protocols have been developed and implemented on a voluntary basis with the present structure. While it worked satisfactorily for the industry at the time, it will not be suitable for the future. The industry must review the overall responsibilities and functions for reliability policy-setting, oversight and implementation as we move toward mandatory compliance. NERC should take the lead in developing a comprehensive list of responsibilities and reliability functions for the future industry structure.

**Recommendation:** A group be assigned to develop a comprehensive list of responsibilities and reliability functions to be performed at each of the three levels of responsibility: policy, oversight and implementation.

### E. Security Coordination

Security coordination has historically been the responsibility of the control areas and vertically-integrated utilities. NERC has already started centralizing some of these functions through its Security Coordinator requirements. Each Region is developing its own approach to security coordination which could result in significant differences in Regional capability. Each entity responsible for security coordination must meet a minimum set of standards and capabilities.

**Recommendation:** A group be charged to develop a minimum set of expectations of those entities responsible for security coordination and evaluation. These expectations would include the entities' authority, span of control, responsibilities, capabilities, tools, etc. (A Security Coordinators Committee comprised of management personnel from each of the security coordination centers would serve this purpose well).

## **F. Measurable Protocols**

NERC and the industry have worked together to develop protocols and ways to measure and control the use of the system for conformance to those protocols. The protocols may change for an unregulated generation system. NERC should take the lead to ensure that existing and future protocols are appropriate, specific and measurable as we move to competition.

**Recommendation:** The Engineering and Operating Committees should perform a comprehensive review of the existing policies, standards, and criteria to ensure they are specific, measurable, adequate and appropriate for the new industry environment.

## **G. Compliance Monitoring**

Once reliability protocols are in place, monitoring is required to ensure compliance. It is clear that an effective enforcement program depends upon being able to identify cases of non-compliance. It will be sufficient to monitor compliance with some protocols through an audit process as has previously been conducted with the NERC and Regional Monitoring Working Groups. NERC might even consider a separate branch of its organization to address auditing, compliance, dispute resolution, and application of penalties for non-compliance. This organization would need the endorsement, if not approval, of FERC and other appropriate regulatory authorities in order to be effective.

Due to the issues of independence, standards of conduct and centralizing security functions, the industry needs to develop a system for monitoring compliance with mandatory reliability protocols. The expectation is that the entity responsible for security coordination will have all the information necessary for monitoring. How this entity will accomplish compliance monitoring should be reviewed and defined for implementation.

**Recommendation:** The Engineering and Operating Committees should define how compliance monitoring will be accomplished.

## **H. Enforcement Measures**

At this time the only mechanism for enforcement of NERC protocols is through peer pressure, but peer pressure will not be sufficient to enforce mandatory compliance in the future. With industry-accepted mandatory compliance, a system of enforcement measures needs to be developed. NERC should take the lead in developing these measures. It is expected the industry will review and approve this system of measures and they will be made a part of the contractual agreements.

**Recommendation:** A group should be formed to define enforcement measures. These measures are expected to be a hierarchical matrix of penalties for increasing impact of infractions of protocols. As the severity of violations increases, so should the penalties.

#### **I. Dispute Resolution**

Due to industry pressure, NERC and many Regions have implemented dispute resolution processes. NERC should consider improving and unifying its existing dispute resolution process along with the many procedures that could be adopted. The process that is developed should be one centralized process under NERC providing uniform and predictable resolutions and should be responsive to industry needs.

**Recommendation:** A group be formed to review and improve the existing NERC dispute resolution process.

#### **J. Certification, Education, and Training**

Industries as complex and sensitive as the electric power industry need to ensure that users of the system know the rules, obtain proper training and have the capability to operate the system within the protocols. There is no common base for training and operation of the system because of the diverse sources of training. New entrants into the industry have had a particularly hard time entering the electric business because of the lack of information and training.

Comprehensive training programs should be developed for all participants including control area operators, security operators, schedulers, marketers, etc., and all personnel and facilities that affect the reliability of the network should be certified to perform their respective functions.

**Recommendation:** NERC should develop certification policies, processes, practices and/or programs for use by the industry. These should include the certification of people, facilities and tools, and training programs. The certification should include reliability and economic aspects of the industry.

#### **K. NERC Administration**

The NERC administration process has served the industry needs for the last 30 years. New industry needs will require a "new" NERC if it is to continue to be recognized as the preeminent authority on reliability for the North American electric system. NERC needs to decide how it wants to contribute to the electric industry of the future and organize itself to be able to make that contribution in the most efficient way possible. The timely

use of bulletin board systems and the Internet have shown NERC is willing and capable of using the best tools available. This should continue.

The current "bottom-up" and consensus process for developing protocols will not survive in the future. This development process must become more efficient and streamlined.

The Team makes the following recommendations to ensure NERC remains the industry leader in reliability policy making and in monitoring, measuring and enforcing compliance.

**Recommendation:** NERC should perform a complete review and evaluation of its management structure, administration processes, capabilities, membership and committee structure in light of the emerging competitive and disaggregated industry structure. It should organize to represent reliability interests, while recognizing commercial needs, and to be responsive to the reliability needs of the industry. Due to the difficulty associated with reinventing itself, the NERC Board should consider seeking outside support for this effort.

**Recommendation:** NERC should review how policies are created, approved and implemented. Its committee structure should be revamped or replaced with a new system to speed the overall process. The approval process for reliability protocols needs to be addressed to ensure timely implementation without getting blocked or vetoed due to commercial interests.

**Recommendation:** NERC should adopt a stronger "top-down" approach to the reliability management and development of mandatory reliability protocols.



## NERC Bylaws

September 16, 1996

Section 4 — Obligations — A Member or Affiliate Member Regional Council, on behalf of its members, shall agree, in writing, to accept the responsibility to promote, support, and ~~use its best efforts to~~ comply with the purposes and policies of the Corporation as set forth in its Certificate of Incorporation, Bylaws, and Planning and Operating Policies, ~~Standards, Principles, and Guides, reference documents, and all other policies, procedures, and reports~~ that from time to time may be ~~amended~~, adopted, or approved. In addition, it shall provide for its share of the financial support of the Corporation in a timely manner.



# DRAFT

## An Open Letter to All Electric Industry Executives in North America

My Fellow Chief Executive:

### "A Call to Action"

As Chairman of the North American Electric Reliability Council (NERC), I am calling on you to actively and personally support a dramatic reshaping of NERC to keep pace with the changes taking place in our industry.

The events of recent months have given significant impetus to the reexamination of NERC's future role that I initiated last January. The implications to NERC and all of us are far-reaching and will require a significant change in the way we ensure reliability. It will mean moving away from the voluntary confederation of reliability groups that has worked so successfully, to a new "model" that is structured and equipped to deal with a very different industry than when NERC was formed nearly three decades ago. The details of this model are still being developed, but we know it must include universal participation, more detailed and uniform reliability standards that can be put in place quickly, independent monitoring of reliability performance, and mandatory compliance with standards. To make this happen in the narrow window of time we have will mean increasing the level of involvement in reliability issues by those who understand the "big picture" and can make decisions to get things done, and quickly!

At the January 1997 NERC Board meeting, I will seek approval to move ahead with some very aggressive programs. Some will be well-defined and others will still be concepts and frameworks. I am calling on you, as leaders from *all sectors* of our industry, to get personally involved in the discussions that will need to take place within your Regional Councils, your industry associations, and your own organizations. It is equally important that those who represent you in these and other forums clearly understand your resolve and commitment when it comes to reliability. Yes, there will be many challenges to face and hurdles to overcome. Change is never easy. But the time for unity and action is now!

Please join me and the NERC Board to develop and implement a "New NERC" that anticipates what the next century will look like and allows us to continue our tradition of *reliability excellence* throughout North America for years to come.

Thank you.

Sincerely,

Richard J. Grossi  
Chairman  
North American Electric  
Reliability Council



# Change in Electric Utility Industry Must Benefit All



By John J. Barry

Don't look for it, and never, age American, but your electricity may go the way of your telephone and airline service, that is to say: confusing, less reliable, and with uneven cost burdens.

The process of deregulating our nation's electric power supply has begun. Most consumers have not felt its effects yet because the changes have mainly affected the manner in which electric utility companies sell and transmit power among themselves. However, if proponents of changes brewing in Congress and in numerous state regulatory authorities hold sway, we could all find ourselves "mandated" into a brave new world of a wide-open, restructured electric power industry.

Change in the electric utility industry is inevitable in the modern world. Yet, those who work in this industry as well as all who rely on its safe, effective performance—i.e., everyone—have the right to ask: Where are we headed? Will change benefit everyone? Will a free market for electric power meet the needs of our economy and our society, as the current system of rules and regulations has largely done?

At the heart of the matter are proposals to bring deregulation from the wholesale level to the retail level. That is, there are those who want to open up the system so that users of electricity, from large industrial consumers to individual households, could receive their power from independent marketers or utilities other than the local company, much as they can currently choose their long distance telephone carrier (and will soon choose their local telephone carrier as well). In an open market, the argument goes, utilities will be forced to compete for business, thus requiring that they operate more efficiently, deliver cheaper electricity, and live under the same competitive pressures that other businesses do. Everyone will benefit, right?

Maybe, maybe not. Before we

turn such a basic and vital industry upside down, we as a nation need to ask a few questions and examine some critical issues.

The matter of reliability is one of the most important. Electric power companies have been overseen through careful local and federal control and regulation, developed over the past six decades of practical experience. They have operated and maintained a reliable, efficient electricity system. In a deregulated market, however, companies face different cost pressures.

Utilities cannot avoid certain fixed costs, such as fuel, so the areas that get squeezed is operations and maintenance. If utilities cut their work forces and scale back on regularly scheduled maintenance—as has been their response to change thus far—the reliability of the system suffers, especially in times of peak demand or during storms.

Is this pure conjecture? Not at all. We have a concrete example of this in California, where Pacific Gas & Electric, in preparing for the new competitive market to be instituted in that state, did just what I described. Then, Mother Nature took a hand and visited terrible storms on PG&E's service area. The system broke down because it had not been adequately maintained and there were not enough trained workers to do it. The effects on the public were devastating.

The utility later rehired some of its workers and instituted a more rigorous maintenance regimen.

This season, the system has held up well, despite another round of severe weather.

Another issue is cost to consumers. How do we increase competition so that all customers—large and small—benefit? Many educated observers claim that customer choice will be of little or no value when it comes to the price of electricity for residential consumers or small business. Large industrial consumers will command any or all lower-cost electricity, and utilities will rush to serve the big users. That leaves the rest of us to make up the difference.

Under deregulation, electric power companies may not ultimately be obligated, or have an incentive, to serve those customers who are considered a financial risk or who live in areas that are unprofitable to service. The current regulatory system recognizes that electricity is a necessity, and compensates utilities for the cost of providing universal service. What will happen to those guarantees in the open market?

No one can predict with certainty what will happen to the price of electricity in an open market. Supporters of rapid, radical deregulation speculate prices will fall, yet they don't take into account factors

peculiar to electric power. Electricity is not like durable goods; it cannot be warehoused and brought out when needed. The ability to meet peak demand and emergencies depends on maintaining reserve fuel supplies and generating capacity. The cost of doing so is built into the rate structure. If cost pressures reduce a company's ability to maintain such reserves and capacity, temporary shortages may become more frequent, causing prices to become volatile. We have also seen many mergers occur since the restructure and deregulation of the industry, with more expected. A recent industry survey revealed that 93% of surveyed power companies anticipated greater consolidation. A key concern for the consumer is the potential manipulation of prices by energy giants. With almost 90% of generating capacity provided by the largest 200 systems, can competition grow with deregulation, or will more mergers take place to gain an even higher percentage of the market? Perhaps, as in the airline industry, an unintended consequence of deregulation will be to squelch the very competition and openness that changes were meant to foster.

Proponents of rapid deregulation claim that introducing the values of the open market will benefit our electric power supply. Any problems, they assert, will be corrected by the market or by technological improvements that will be developed to meet them. Like most Americans, I am an optimist, but I am not naive. All of us need to ask the hard questions and urge legislators and regulatory authorities to do the same before we accept potentially disruptive and destructive changes in such a vital industry.

John J. Barry is the International President of the International Brotherhood of Electrical Workers. Some 230,000 IBEW members work in the electric utility industry in the United States and Canada.



## About This Page

This electricity and energy page is produced by the National Advertising Department of The Washington Times and did not involve the editorial staff of The Washington Times. The viewpoints expressed by the participants of this page are published as a public service. For more information about this page, please contact Richard Nordin, National Advocacy Manager, The Washington Times, 3600 New York Avenue, NE, Washington, DC 20002, (202) 636-3056.

ADVERTISEMENT

ADVERTISEMENT

ADVERTISEMENT

# THE AGENDA ELECTRICITY & GAS

## Competitively Priced Power - Let's Get On With It

services already have led to fundamental change in the structure and operations of American enterprise. Deregulation set in motion the positive consumer-oriented transformations already implemented in telecommunications, airlines and banking - the electric utility industry is only the latest to undergo this long-needed change.

For years, government regulation of utilities has perpetuated an energy monopoly because electric utilities originated as natural geographic monopolies. The local utility was the only local source of electricity, and regulation was needed to protect consumers and ensure access to basic energy needs.

As power plants and bulk transmission lines later proliferated across the country, that natural monopoly justification has largely disappeared, but the old regulatory system has hung around to protect utility monopolies as exclusive franchises.

Today, the generation and supply of power and related services can be competitive, giving customers the reduced costs and better service that arise as companies vie for business based on the merits of real world performance, rather than by hunkering down within a protected franchise.

Responding to market forces, federal legislators recently have taken action to reduce onerous regulation and allow for a more competitive industry environment. The Energy Policy Act of 1992 granted the Federal Energy Regulatory Commission (FERC) the ability to open utilities

remains regulated by the states.

The Energy Policy Act became truly meaningful with a subsequent FERC ruling which permitted utilities to sell energy beyond their traditional service areas; granted non-utility companies the right to generate and sell electricity; and enabled the sale of power production and transmission as separate services and at different rates. Local utilities can now shop for competitively priced electricity, but the consumer still cannot.

The FERC predicts that when full implementation in the wholesale market is completed, consumers will reap the harvest of electric rate reductions exceeding \$5 billion per year coupled with product and service innovations. Though such changes may initially benefit utilities, they serve as a starting point for changes in the energy market overall that will allow true choice and, ultimately, real-dollar benefits for individual consumers.

Similar changes to wholesale natural gas regulations launched in 1985 have produced dramatic results, with inflation-adjusted prices for natural gas having declined in the last decade for every category of consumer. For example, residential customers are paying less than 25% less now than they did in 1984. Larger customers are paying 30% to 50% less. Such cost reductions are solid good news for local, state, and national economies.

As for retail competition, comprehensive reform bills introduced last session by Reps. Dan Schaefer (R-PA) and Tom Luken (R-OH) have

free market, in retail electricity sales, including UtiliCorp, and are providing a blueprint for competition in the energy industry based on carefully crafted, fundamental principles:

- extension of the right to choose an electric supplier to all retail customers as rapidly as possible, while at the same time, reinforcing necessary customer protections;
- operation of generation and transmission systems to enhance, rather than impede, reliability and market efficiency;
- maintaining the industry's excellent record of environmental responsibility.

Although federal reform is necessary to bring about benefits to all consumers and create a level playing field for all energy providers, it is imperative that state regulators and legislators retain their ability to manage the details of the process in order to meet the needs and priorities specific to each state. Also, while delivery of electricity through the local utility's distribution wires to homes and offices should properly remain a regulated natural monopoly, power plants need not be a part of that monopoly.

Consumers deserve and are

demanding better and more cost-efficient energy products and services that come from a competitive market. This situation calls for real change — now. Both federal and state legislators have a responsibility to take early and effective action that best serves energy consumers as a whole.

Some utility executives are actively resisting change, and some industry employees may dislike the initial upheaval and uncertainties caused by such change. And shareholders, accustomed to the stability traditionally found in utility stocks, may shrink from the increased risk that comes from an open, competitive market.

It is indeed a difficult task to transition from crumbling natural monopolies to open competition; and perhaps our greatest challenge will be to make the process and its complexity transparent to the consumer as our industry adjusts to the demands of an open marketplace. We intend to do it right, and all constituencies — customers, shareholders, employees and communities — will ultimately benefit significantly from the enhanced efficiency and value generated by a competitive energy industry.

### Editor's Note:

Based in Kansas City, Missouri, UtiliCorp United (NYSE: UCU) is a \$4 billion international electric and gas company with energy customers and operations in 45 states across the U.S. and in Canada, Great Britain, New Zealand, Australia and Jamaica. UtiliCorp has grown rapidly over the past decade through utility mergers and acquisitions and by starting non-regulated energy related businesses.

In 1995, UtiliCorp launched EnergyOne™, the first nationally branded line of products and services for electric and gas utility customers. The EnergyOne portfolio of value-added services and tailored energy solutions is playing a key role in establishing UtiliCorp as America's first truly national utility company.

Richard C. Green, Jr. is the Chairman and Chief Executive Officer of UtiliCorp United

UTILICORP UNITED  
ENERGYONE

By Richard C. Green, Jr.

One of the key consumer benefit issues facing Congress in the upcoming session is restructuring of the electricity industry. Typically, it is common whenever any change to the status quo is proposed, a chorus of naysayers has surfaced with positions that range from "No, never!" to "Well, maybe later, but let's study it until the issue goes away."

In one sense, such views warrant some measure of consideration as utilities are complex businesses, critically important to the growth and economic health of our nation, and the process of introducing them to the free market must be undertaken with care and diligence.

But fortunately, Congress and the industry will not have to be pathfinders in getting it done successfully. Across a range of industries,