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ACTION DATA SUMMARY REPORT

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WHITE HOUSE STAFFING MEMORANDUM

DATE: 11/6/93 ACTION/CONCURRENCE/COMMENT DUE BY: ----
 EXECUTIVE REPORT ON THE 15TH MEETING OF THE NATIONAL SECURITY
 SUBJECT: TELECOMMUNICATIONS ADVISORY COMMITTEE

	ACTION	FYI		ACTION	FYI
VICE PRESIDENT	☐	☐	PASTER	☐	☐
McLARTY	☐	☐	RASCO	☐	☐
NEEL	☐	☐	RUBIN	☐	☒
PANETTA	☐	☐	SEGAL	☐	☐
BAGGETT	☐	☐	SEIDMAN	☐	☐
EMANUEL	☐	☐	STEPHANOPOULOS	☐	☐
GEARAN	☐	☐	TYSON	☐	☐
GERGEN	☐	☐	VARNEY	☐	☐
GIBBONS	☐	☒	WATKINS	☐	☐
HALE	☐	☐	WILLIAMS	☐	☒
HERMAN	☐	☐	CLERK	☐	☒
LAKE	☐	☒		☐	☐
LINDSEY	☐	☐		☐	☐
McGINTY	☐	☐		☐	☐
MYERS	☐	☐		☐	☐
NUSSBAUM	☐	☐		☐	☐

REMARKS:

FYI.

RESPONSE:

JOHN D. PODESTA
 Assistant to the President
 and Staff Secretary
 Ext. 2702

*National Security
Telecommunications
Advisory Committee*

October 7, 1993

The President
The White House
Washington D.C. 20500

Dear Mr. President:

Enclosed is the executive report on the fifteenth meeting of your National Security Telecommunications Advisory Committee (NSTAC XV), held May 27, 1993. At the business session, we received reports from our Energy Task Force, Network Security Steering Committee, and National Security and Emergency Preparedness (NS/EP) Panel. Our recommendations to you, based on those reports, are enclosed. The Manager, National Communications System (NCS), reported on significant NCS and NSTAC activities supporting disaster planning and response, network security, network reliability, and information infrastructure initiatives. To culminate our morning session, your Science Advisor, Dr. Gibbons, spoke with us about your vision for the National Information Infrastructure (NII) and how we, as your NSTAC, will continue to be a valuable advisor regarding the NII evolution.

Our Energy Task Force emphasized continued Government support for the Department of Energy's Telecommunications Electric Service Priority initiative, emergency refueling of telecommunications industry electric power generators in disaster situations, coordinated emergency access to telecommunications resources in disaster areas, and enhancement of the National Energy Strategy through an emphasis on survivability of electric power. Our recommendation on network security involves changes in computer crime legislation which can directly enhance the security of the Nation's telecommunications infrastructure. Finally, our NS/EP recommendations center on updating the Federal Response Plan and increasing training among disaster response personnel at all levels, using lessons learned from 1992 experiences.

Prior to the luncheon and executive session that afternoon in the Old Executive Office Building, we were pleased that Vice President Gore could join us to pass on your appreciation and desire to continue the NSTAC process. We appreciate your concern for the national security implications of a healthy economy, international competitiveness, and a strong science and technology base. I am honored that you chose me to chair the NSTAC in the challenging months ahead. We look forward to providing advice to you on matters regarding NS/EP telecommunications and information systems in the coming years.

During our executive session, following lunch, we spoke with the Deputy Secretary of Defense, Dr. Perry, representing the Secretary of Defense and Executive Agent, NCS, the Honorable Les Aspin. While confirming the NSTAC's continued role of providing top-level

advice on telecommunications issues, Dr. Perry emphasized DoD's needs to ride the wave of advanced telecommunications technology while incorporating network security requirements. Similarly, he pointed to the Government's need to inject commercial off-the-shelf items into its planning while streamlining the acquisition process. Dr. Gibbons reemphasized that the Government is seeking ways to provide investment incentives to industry and to facilitate cooperative research and development. He also invited NSTAC advice regarding Government efforts to further examine the NII, an area in which we have already initiated action through the creation of our own task force.

On behalf of the NSTAC members, I would like to thank the Department of State for their interest and hospitality, and to commend the Executive Office of the President, and General Short, Manager, NCS, and his staff for their valuable and sustained support to the NSTAC process.

Finally I want to take this opportunity, Mr. President, to offer our support in your efforts to foster development of an enhanced National Information Infrastructure. As you know, we have a definite interest in assuring that the National Security and Emergency Preparedness aspects of the NII are integrated in its planning. Along with the National Communications System, the proven Government and industry partnership of the NSTAC can ensure an "emergency lane" is included in planning for our Information Highways. We are convinced that the success of Government programs based upon recommendations from your NSTAC will continue as you support the initiatives that we bring to you. We look forward to seeing you at your next NSTAC meeting on March 2, 1994.

Sincerely,



Norman R. Augustine
Chairman

Enc: NSTAC XV Report

EXECUTIVE REPORT
ON THE 15th MEETING OF
THE PRESIDENT'S
NATIONAL SECURITY TELECOMMUNICATIONS ADVISORY COMMITTEE
(NSTAC XV)
May 27, 1993

This executive report summarizes reports, briefings, and recommendations that the President's NSTAC received from its Energy Task Force, Network Security Steering Committee, National Security and Emergency Preparedness (NS/EP) Panel, and Industry Executive Subcommittee (IES). Attached to this executive report are: a summary of NSTAC XV recommendations to the President (Attachment 1), a list of NSTAC members in attendance (Attachment 2), a list of all NSTAC XV attendees (Attachment 3), and a copy of the Energy Task Force Report approved by the President's NSTAC (Attachment 4).

OPENING REMARKS

The NSTAC Chairman, Mr. Robert E. Allen, Chairman of the Board and Chief Executive Officer, AT&T, acknowledged the following new members, representing new member companies:

Mr. Lester M. Alberthal, Jr., Chairman of the Board, President and Chief Executive Officer, Electronic Data Systems (EDS)

Mr. Royce J. Holland, President and Chief Executive Officer, Metropolitan Fiber Systems Communications Company (MFSCC)

Mr. Roy Wilkens, President, Williams Telecommunications Inc. (WILTEL)

Mr. Joseph T. Gorman, Chairman and Chief Executive Officer, TRW, Inc. (not present)

Also welcomed was Mr. Alfred F. Zettlemoyer, President, Government Systems Group and Executive Vice President, Unisys Corporation, who has replaced the late Mr. Frederick Jenny.

The Honorable Patrick Kennedy, Assistant Secretary of State, provided welcoming remarks to the NSTAC on behalf of the Secretary of State, the Honorable Warren Christopher.

ENERGY TASK FORCE REPORT

Mr. Stan Welland, of General Electric, and the NSTAC's Energy Task Force Chairman, briefed the NSTAC on the task force's final report (see Attachment 5), and the NSTAC approved the following recommendations to the President:

- The Government should:
 - Continue to support the operation, administration, and management of DOE's TESP initiative.
 - Assign Federal responsibility for the establishment of a program to ensure priority availability of fuel supplies for telecommunication companies during emergencies.
 - Encourage the Nation's electric utilities to coordinate with telecommunication companies to provide safe access to disaster areas requiring Telecommunications Service Priority (TSP) provisioning or restoration.
 - Encourage State and local governments to modify their emergency plans to allow telecommunications, electric utility, and fuel supply companies access into impacted areas.
 - Modify the *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies*, to include TESP and to address emergency fuel resupply, access, and safety issues.
- To address the improvement of electric power survivability under disaster conditions, the President's National Energy Strategy should:
 - Increase R&D and incentives to reduce transmission and distribution vulnerabilities.
 - Evaluate locating dispersed power generation closer to customer loads as a possible means of further reducing transmission and distribution vulnerabilities.
 - Focus more R&D on alternative backup power technologies for the telecommunications industry by encouraging cooperative R&D agreements between the U. S. national laboratories and interested telecommunications companies.

In addition, the NSTAC charged its Industry Executive Subcommittee to:

- Deactivate the Energy Task Force.
- Request progress reports from the Government on the status of the recommendations.

NETWORK SECURITY STEERING COMMITTEE REPORT

Mr. Herb Benington, of UNISYS, and the NSTAC's Network Security Steering Committee Chairman, briefed the NSTAC on the status of their ongoing activities, and the NSTAC approved the following recommendation to the President:

- Correct the legislative deficiencies affecting the capability to gather evidence about computer crimes and to prosecute and convict computer criminals who target computers that support the national telecommunications infrastructure.

NATIONAL SECURITY and EMERGENCY PREPAREDNESS PANEL REPORT

Mr. Carl Ripa, of Bellcore, and the NSTAC's National Security and Emergency Preparedness Panel Chairman, briefed the NSTAC on the Panel's observations of the lessons learned from Hurricanes Andrew and Iniki, and the NSTAC approved the following recommendations to the President:

- The Federal Government should support continuing update of the *Federal Response Plan*, especially Emergency Support Function #2 (Communications), using 1992 experiences.
- To promote better understanding of the *Federal Response Plan*, the Federal Government should ensure that training of Federal, State, local and industry personnel remains a high priority.

INDUSTRY EXECUTIVE SUBCOMMITTEE REPORT

Mr. Richard Lombardi, of AT&T, and the NSTAC's Plans Working Group Chairman, briefed the NSTAC on activities of the Industry Executive Subcommittee and the following subordinate groups since the last NSTAC meeting in July 1992:

- The ENHANCED CALL COMPLETION AD HOC GROUP has been monitoring and assisting the Government's implementation of the NSTAC's Enhanced Call Completion (ECC) Task Force recommendations from NSTAC XIV. The Group is planning to demonstrate to the Government a number of ECC features that will illustrate how activating the High Probability of Completion (HPC) condition in the SS7 network can provide an NS/EP user call-by-call preferential treatment. In addition, the Group successfully championed approval of the HPC standard necessary to implement the HPC condition.

- The WIRELESS SERVICES TASK FORCE, in conjunction with the Office of the Manager, NCS (OMNCS) Wireless Services Program Office, has developed three focus areas for study:
 - Incorporating NS/EP priority access into wireless systems.
 - Determining the potential for emerging wireless technologies to complement existing communications support in the *Federal Response Plan* Emergency Support Function #2.
 - Developing methods for resolving wireless standards issues in conjunction with the NSTAC's recently established Standards Liaison Panel.
- The IES/OMNCS NSTAC ISSUES AD HOC GROUP added representatives to its membership from the NCS Committee of Principals (COP) to obtain a more balanced input into this planning process effort. The group reviewed a number of issues since the last NSTAC, and the Group determined that the National Information Infrastructure (NII) and Standards Liaison warranted further review.
- The PLANS WORKING GROUP, as a result of the above Ad Hoc Group recommendations, was tasked by the IES to:
 - Scope the NII issue to determine if task force study is required.
 - Study the national network architecture and its relation to the President's plan of February 22, 1993 (*Technology for America's Economic Growth, A New Direction to Build Economic Strength*), as well as the use of that national network architecture to serve as a national security telecommunications system for emergency preparedness (dual use).
- The OPERATIONS WORKING GROUP, as a result of the above Ad Hoc Group recommendation, was tasked by the IES to establish and oversee a Standards Liaison Panel to:
 - Address NS/EP telecommunication standards other than network security.
 - Focus identified standards issues.
 - Obtain assistance from industry standards experts.
 - Seek to influence national and international standards organizations to develop standards that meet NS/EP requirements.

- The COMMON CHANNEL SIGNALING TASK FORCE, as a result of a recommendation from the NS\EP Panel, was established by the IES to:
 - Determine if there are failure mechanisms that could potentially lead to widespread, long duration CCS outages among multiple interconnected carriers.
 - Evaluate the risk to NS/EP user telecommunications.
 - If significant risk exists, examine procedural or technological alternatives for mitigating it.
 - Present appropriate recommendations to NSTAC XVI.
- The FUNDING AND REGULATORY WORKING GROUP was reconvened by the IES to assess the regulatory concerns and issues associated with cellular priority access and ECC call-by-call priority treatment of NS/EP user calls on the public switched network. The FRWG will work with the Wireless Services Task Force to address the cellular issues.

REPORT FROM THE MANAGER, NATIONAL COMMUNICATIONS SYSTEM

LTG Alonzo E. Short, Manager of the National Communications System (NCS) and Director of the Defense Information Systems Agency (DISA), announced the June 1993 retirement of Mr. Ben Morriss, Deputy Manager, NCS, and recognized him for his faithful and dedicated career encompassing 30 years of Government service, including 10 years as Deputy Manager, NCS.

LTG Short then recapped the contributions made by the NCS and NSTAC in disaster planning and recovery efforts for Hurricanes Andrew and Iniki, the increased efforts in the Network Security Information Exchanges, and the substantial support provided to the Federal Communications Commission's Network Reliability Council. Special recognition was given to the National Coordinating Center for Telecommunications and to the Telecommunications Service Priority System, and it was noted that the National Telecommunications Transportable Capability was deployed in support of disaster medical assistance in southern Florida in the aftermath of Hurricane Andrew. LTG Short also suggested that the National Telecommunications Management Structure could be used in future disasters to assist in recovery efforts.

LTG Short acknowledged the Committee's establishment of the new Common Channel Signaling Task Force and the Standards Liaison Panel. He discussed the Administration's National Information Infrastructure initiative and the parallel Defense Information Infrastructure (DII) initiative in DISA. LTG Short explained that the DII initiative seeks to combine computers and communications into a global, seamless and secure information architecture that supports our National Security Strategy. He reinforced the NCS

commitment to support the President's initiative and encouraged the continued productive partnership of the NCS and the NSTAC. He also thanked the NSTAC Chairman, Mr. Allen, for his past service and leadership, and welcomed Mr. Augustine and Mr. Esrey to their new positions of NSTAC leadership as Chairman and Vice Chairman, respectively.

GUEST SPEAKER: DR. JOHN GIBBONS

Dr. John Gibbons, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy, spoke with the NSTAC members on the Clinton Administration's technology strategy. Dr. Gibbons commended the NSTAC for its outstanding work, and noted the essential role the NSTAC would play in the rapidly changing international and technological environment. This dynamic environment, he said, would require extraordinary levels of cooperation between the public and private sectors. This type of cooperation, he observed, had been exemplified by the NSTAC's activities.

Dr. Gibbons then reviewed the main points of the administration's technology initiatives paper released in February. He said these initiatives were driven by an overarching concern regarding the national deficit, and asserted that economic growth could only be ensured through strategic investments in science and technology and deficit reduction. Dr. Gibbons then noted the administration's plans to shift defense-related research and development funds to the civilian sector, and the intention to promote greater access for small businesses into the national research laboratories. In addition to research and development programs and investments for human resources, education, training, and the NII, Dr. Gibbons also mentioned the Administration's efforts to fund seed projects and to bring about regulatory changes that would enable private industry to more easily invest in research and development.

Dr. Gibbons also reviewed the potential role of the NSTAC in the NII. He said the NSTAC's role in this area would be to ask if infrastructure development plans enhanced network reliability or detracted from it. To do this, he observed, the NSTAC would have to confront the dual challenges of a rapidly changing world and rapidly advancing technology. In his concluding remarks, Dr. Gibbons said that he would look forward to working with the NSTAC on these issues in the coming years, and thanked the NSTAC for its continuing service in ensuring the reliability and resilience of the Nation's telecommunications infrastructure.

In response to questions from NSTAC members, Dr. Gibbons assured the NSTAC that the Advanced Research Projects Agency and the National Institute for Standards and Technology were not biased in favor of the national laboratories, and that a recently issued request for proposal on dual-use technology had not been earmarked for them. The Administration believes in competition, he said, and that market competition should be introduced within the national laboratories. Responding to a related question regarding the privatization of the national laboratories, Dr. Gibbons said that privatization was an option, but had not been directly considered yet. The administration is, however, attempting to introduce a market culture into the national laboratories in the form of joint ventures with industry.

Answering a final question on the administration's telecommunications infrastructure initiatives, Dr. Gibbons said that the National Economic Council had just assembled a multi-agency task force to integrate the Federal effort. Mr. Allen thanked Dr. Gibbons for his presentation.

CLOSING REMARKS

Before adjourning, Mr. Allen thanked committee members and their staffs for contributing their resources in support of all NSTAC activities. Mr. Allen also thanked LTG Short and his NCS Joint Secretariat for planning and coordinating all the briefings, reports and meetings. He then acknowledged Mr. Ben Morriss, Deputy Manager, NCS, for his many years of support to the NSTAC, and extended his best wishes to Mr. Morriss upon his retirement in June. Mr. Allen reminded members that this was his last meeting as NSTAC Chairman and announced the next NSTAC meeting to be on March 2, 1994.

ATTACHMENT 1

NSTAC XV RECOMMENDATIONS TO THE PRESIDENT

Energy Task Force

- The Government should:
 - Continue to support the operation, administration, and management of DOE's TESP initiative.
 - Assign Federal responsibility for the establishment of a program to ensure priority availability of fuel supplies for telecommunication companies during emergencies.
 - Encourage the Nation's electric utilities to coordinate with telecommunication companies to provide safe access to disaster areas requiring Telecommunications Service Priority (TSP) provisioning or restoration.
 - Encourage State and local governments to modify their emergency plans to allow telecommunications, electric utility, and fuel supply companies access into impacted areas.
 - Modify the *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies*, to include TESP and to address emergency fuel resupply, access, and safety issues.
- To address the improvement of electric power survivability under disaster conditions, the President's National Energy Strategy should:
 - Increase R&D and incentives to reduce transmission and distribution vulnerabilities.
 - Evaluate locating dispersed power generation closer to customer loads as a possible means of further reducing transmission and distribution vulnerabilities.
 - Focus more R&D on alternative backup power technologies for the telecommunications industry by encouraging cooperative R&D agreements between the U. S. national laboratories and interested telecommunications companies.

ATTACHMENT 1 (Concluded)

NSTAC XV RECOMMENDATIONS TO THE PRESIDENT

Network Security Steering Committee

- Correct the legislative deficiencies affecting the capability to gather evidence about computer crimes and to prosecute and convict computer criminals who target computers that support the national telecommunications infrastructure.

National Security and Emergency Preparedness Panel

- The Federal Government should support continuing update of the Federal Response Plan, especially Emergency Support Function #2 (Communications), using 1992 experiences.
- To promote better understanding of the Federal Response Plan, the Federal Government should ensure that training of Federal, State, local and industry personnel remains a high priority.

ATTACHMENT 2

NSTAC XV

MEMBERS IN ATTENDANCE

Mr. Lester M. Alberthal	Electronic Data Systems (EDS)
Mr. Robert E. Allen	AT&T
Mr. Norman R. Augustine	Martin Marietta Corporation
Mr. Stanley C. Beckelman	The Boeing Company
Mr. Kent M. Black	Rockwell International Corporation
Mr. Bruce L. Crockett	Communications Satellite Corporation (COMSAT)
Mr. D. Travis Engen	ITT Corporation
Mr. William T. Esrey	Sprint Corporation
Mr. John T. Hartley	Harris Corporation
Dr. George H. Heilmeier	Bell Communications Research, Inc. (Bellcore)
Mr. William J. Hilsman	InterDigital Communications Corporation (InterDigital)
Mr. Royce J. Holland	Metropolitan Fiber Systems Communications Company (MFSCC)
Mr. William R. Hoover	Computer Sciences Corporation (CSC)
Mr. Charles R. Lee	GTE Corporation
Mr. Craig O. McCaw	McCaw Cellular Communications, Inc.
Mr. Richard D. McCormick	U S West, Inc.
Mr. John N. McMahon	Lockheed Corporation
Mr. Bert C. Roberts, Jr.	MCI Communications Corporation
Dr. Paul G. Stern	Northern Telecomm Inc. (NTI)
Mr. Roy A. Wilkens	Williams Telecommunications Group (WILTEL)
Mr. Albert F. Zettlemoyer	UNISYS/Paramax

ATTACHMENT 3

NSTAC XV MEETING ATTENDANCE

<u>Name</u>	<u>Organization</u>
Frank Adams	PTI
Lester M. Alberthal	EDS
Robert E. Allen	AT&T
J. Robert Anderson	DoD
Norman R. Augustine	MMC
Leo I. Barker	OMNCS-NP
Raymond S. Barrow	DOE
James B. Bean	GTE
Ronald R. Beaumont	MFSCC
Stanley C. Beckelman	Boeing
Robert G. Bell	NSC
Herbert D. Benington	UNISYS
Jerome Bevenour	AT&T
William E. Bischoff	DOS
James G. Bittner, Jr.	OMNCS-CPN
Kent M. Black	Rockwell
Charles D. Bodson	OMNCS-NT
Bruce J. Bohn	DISA
Victor W. Bowser	OMNCS-NAD
Howard D. Boyd	VA
Ira M. Brody	BA&H
Robert P. Brownfield	CSC
Henry Buchanan	USTA
Tom Burns	MITRE
Dave Bush	AT&T
Bruce J. Campbell	FEMA
Lucien Capone Jr.	BA&H
Carmin C. Caputo	OMNCS-NJ
Quentin C. Cassen	Rockwell
Deborah R. Castleman	DoD
Robert J. Catlin Sr.	OMNCS-NJ
Joanne Cavalcante	OMNCS-NA
Mark Centra	OMNCS-NJ
John E. Clark	DOS
Michael Cleary	OMNCS-NJ
Mike Cohen	MITRE
Nancy H. Correia	DOT
Michael L. Corrigan	GSA
Bruce L. Crockett	COMSAT

ATTACHMENT 3 (Continued)

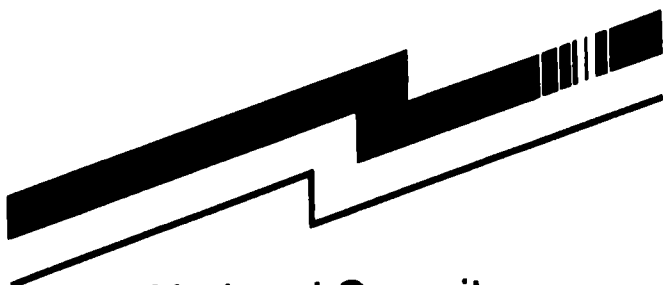
<u>Name</u>	<u>Organization</u>
Ms. Barbara Deitzer	BA&H
Julia Delpino	OMNCS-NJ
John De'Marco	OMNCS-NE
Arnold E. Donahue	OMB
Robert J. Donahue	EDS
Dr. John S. Edwards	NTI
D. Travis Engen	ITT
William T. Esrey	Sprint
Patricia A. Figliola	BA&H
George F. Flynn Jr.	GSA
Marlin G. Forbes	JS
Joseph P. Frizzell	OMNCS-NP
Joseph F. Fuechsel	NASA
R. Fruchterman	Wiltel
Joseph J. Gancie	ITT
Harvey Gannon	OMNCS-NJ
Jorome T. Gibbon	DOC
John H. Gibbons	OSTP
Charles J. Givans	BA&H
Peter Gness	OMNCS-NJ
Thomas Gooley	Hughes
Ernestine Gormsen	GTE
John G. Grimes	DoD
F. Traigh Groover	BA&H
Keith D. Hahn	NSC
Paul Hamilton	OMNCS-NP
Eleanor S. Harris	MITRE
John T. Hartley	Harris
Richard O. Hayden	DOE
George H. Heilmeier	Bellcore
William J. Hilsman	InterDigital
John R. Hocker	MMC
Royce J. Holland	MFS
Philip D. Hollar	MCI
William R. Hoover	CSC
Janet S. Jefferson	OMNCS-NJ
Robert D. Johnson	DOA
Terry D. Johnson	FCC
Donald E. Josephs	DOJ
Donald J. Jurenko	MITRE
Tom Kaliel	NEC
E. Lee Kaywork	McCaw

ATTACHMENT 3 (Continued)

<u>Name</u>	<u>Organization</u>
Patrick Kennedy	DOS
Bob S. Kite	MITRE
Frank J. Kozel	MCI
Charles R. Lee	GTE
Greta A. Lomas	DISA
Richard J. Lombardi	AT&T
Janet Lyman	BA&H
Paul Maison	FEMA
Craig O. McCaw	McCaw
Richard D. McCormick	US WEST
Berry McFarlin	OMNCS-NJ
John N. McMahon	Lockheed
Laramie McNamara	TRW
James W. Mehring	Hughes
Benham E. Morriss	OMNCS-NA
Sushil Munshi	Sprint
Sherman L. Naidorf	VA
Margaret A. Newland	OMNCS-NP
George C. Newstrom	EDS
Timothy J. Patterson	USPS
Martin Peavyhouse	OMNCS-NJ
James E. Peterson	Lockheed
Jack D. Phillips	CIA
Ted S. Phillips	BA&H
John B. Price	HHS
Myron C. Proefrock	McCaw
Tabatha Quinn	OMNCS-NJ
Cynthia Rand	DOT
Karen T. Randall	AT&T
Denise L. Reindollar	BA&H
Carl V. Ripa	Bellcore
Bert C. Roberts, Jr.	MCI
Richard E. Rudisill III	MITRE
Randy S. Schulz	Bellcore
Jerry Schumacher	DISA
Donald E. Scott	GSA
Thomas E. Sellers	OMNCS-NP
M. Wayne Shiveley	DOJ
Alonzo E. Short	OMNCS-AA
Arthur L. C. Sigust	NASA
Carl Wayne Smith	DISA
Edward J. Smith	AT&T

ATTACHMENT 3 (Concluded)

<u>Name</u>	<u>Organization</u>
Rebecca Sparks	BA&H
W. Ken Stanley	MITRE
Robert W. Steele	Boeing
Paul G. Stern	NTI
Neil J. Stillman	HHS
Nathan Stout	Sprint
Frank J. Suraci	OMNCS-NP
Joan Tahami	MITRE
Dennis K. Taillie	DOE
Jack T. Taylor	InterDigital
Lowell E. Thomas	GTE
David Toy	MITRE
Harry Underhill	Bellcore
Anthony M. Valletta	DoD
Sylvia Velle	DISA
Winston J. Wade	US WEST
G. Martin Wagner	GSA
Ernest L. Wallace	COMSAT
Kymry Watkin	BA&H
George T. Weathers	IBM
Stanley M. Welland	GE
Jaton' West	MITRE
J. Glenn Whited	Motorola
Roy A. Wilkens	Wiltel
Thomas S. Will	MCI
Robert Wilson	MCI
Randy Witt	USAF
William H. Wunderlich	TREAS
Phyllis Young	Gross (Stenographer)
Albert F. Zettlemoyer	UNISYS
Thomas W. Zetty	DOC



National Security
Telecommunications
Advisory Committee
(NSTAC)

**Report Submitted
for
NSTAC XV**

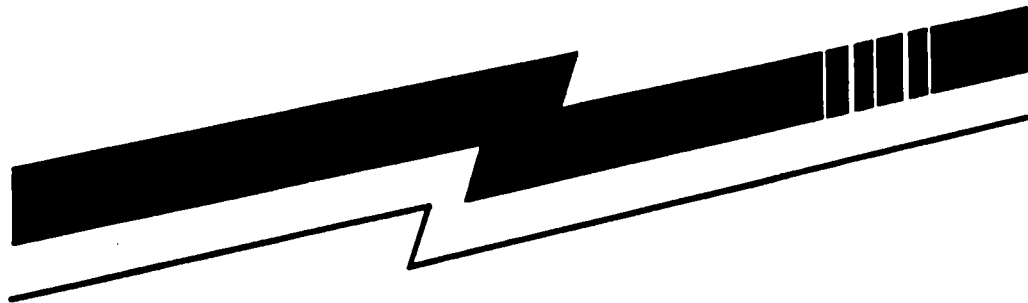
May 27, 1993

Report Submitted for the
Fifteenth Meeting of
Network Security Telecommunications
Advisory Committee (NSTAC)

May 27, 1993

- Energy Task Force Final Report–April 1993
 - Volume I-Telecommunications Electric Service Priority
 - Volume II-National Energy Strategy Review

FINAL



**NATIONAL SECURITY TELECOMMUNICATIONS
ADVISORY COMMITTEE (NSTAC)**

**ENERGY TASK FORCE
FINAL REPORT**

**TELECOMMUNICATIONS ELECTRIC SERVICE PRIORITY
AND
NATIONAL ENERGY STRATEGY REVIEW**

APRIL 1993

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EXECUTIVE SUMMARY

In October 1991, the National Security Telecommunications Advisory Committee (NSTAC) charged the Energy Task Force to assist Office of the Manager, National Communications System (OMNCS) efforts with energy initiatives in coordination with the Department of Energy (DOE) and the National Communications System (NCS). Specifically, the task force was charged to develop criteria for identifying critical industry national security and emergency preparedness (NS/EP) telecommunication facilities that qualify for electric service priority restoration and priority fuel distribution and to develop a process for applying the criteria to identify critical industry NS/EP telecommunication facilities. This review is included as Volume I of the report.

In December 1991, the Industry Executive Subcommittee (IES) modified the original task force charge to include an additional tasking. Specifically, the task force was charged to review the President's National Energy Strategy (NES) from the perspective of benefits to NS/EP telecommunication enhancements and to develop NS/EP telecommunication energy concerns/issues for incorporation into DOE's next issue/update of the NES. This review is included as Volume II of the report.

With respect to the original tasking, the ESP review, the task force concluded that telecommunication services are not often viewed by State entities and electric utilities as essential services that should be included in electric service priority restoration plans and provided priority access to fuel supplies. DOE and the telecommunications industry should work together to inform electric utilities, State public utility commissions (PUC), energy offices, and emergency management offices of the importance of telecommunications to disaster recovery.

Based on the above conclusions, the task force recommends that the Federal Government and the telecommunications industry continue to support the operation, administration, and management of DOE's Telecommunications Electric Service Priority (TESP) initiative using the criteria and process recommended by the task force. The task force recommends that the Government assign Federal responsibility for the establishment of a program to ensure priority availability of fuel supplies for telecommunication companies during emergencies. The task force also recommends the Government encourage the nation's electric utilities to coordinate with telecommunication companies to provide safe access to disaster areas requiring Telecommunications Service Priority (TSP) provisioning or restoration. The Government should encourage State and local governments to modify their emergency plans to allow telecommunications, electric utility, and fuel supply companies access into impacted areas. And finally, the Government should modify the *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies*, to include TESP and to address emergency fuel resupply, access, and safety issues.

Regarding the additional tasking, the NES review, the task force recommends that to address the improvements of electric power survivability under disaster conditions, the NES should increase R&D and incentives to reduce transmission and distribution vulnerabilities; evaluate locating dispersed power generation closer to customer loads as a possible means of further reducing transmission and distribution vulnerabilities; focus more R&D on alternative backup power technologies for the telecommunications industry by encouraging cooperative R&D agreements between U.S. national laboratories and interested telecommunication companies.

VOLUME I

TELECOMMUNICATIONS ELECTRIC SERVICE PRIORITY REVIEW

1.0 INTRODUCTION

1.1 PURPOSE AND ORGANIZATION OF THE REPORT

The Energy Task Force was charged at the October 3, 1991, National Security Telecommunications Advisory Committee (NSTAC) meeting to assist Office of the Manager, National Communications System (OMNCS) efforts with energy initiatives in coordination with the Department of Energy (DOE) and the National Communications System (NCS). Specifically, the task force was charged to develop criteria for identifying critical industry NS/EP telecommunication facilities that qualify for priority electric service restoration and priority fuel distribution and to develop a process for applying those criteria. This report documents the task force's efforts and is organized as follows:

- Section 1.0 presents an overview of the background.
- Section 2.0 reviews task force findings.
- Section 3.0 documents the criteria development and application process.
- Section 4.0 documents the conclusions.
- Section 5.0 identifies the task force's recommendations to the Government.

1.2 BACKGROUND

Since 1986 the NSTAC has been reviewing the vulnerability of telecommunications to the loss of commercial electric power. The NSTAC's first Energy Task Force investigated current electric power and telecommunications industry restoration procedures. It concluded that the severity of a power outage determines the electric utility's ability to rapidly restore power. Once the electric utility is able to begin service restoration, it follows a restoration plan to provide priority service restoration to critical State and local end users, e.g., hospitals, police, and fire-fighting facilities. Telecommunication facilities are usually not included in these plans.

In 1990, the NSTAC recommended that the Government establish a program to provide priority electric power restoration and fuel distribution to critical telecommunication users and providers. In response to this recommendation and other Government initiatives, DOE proposed the establishment of a nationwide Electric Service Priority (ESP) Restoration Program. As the ESP program evolved, DOE redefined its scope to address only telecommunications restoration; it is now referred to as the Telecommunications ESP or TESP initiative. This program would prioritize the restoration of critical telecommunication facilities within electric utilities' restoration plans. In October 1991, the NSTAC established a second Energy Task Force to advise the Government on the implementation of energy priority initiatives for national security and emergency preparedness (NS/EP) telecommunication facilities.

1.2.1 Original Energy Task Force

In August 1988, the NSTAC established an Energy Task Force to become the focal point of a joint electric power-telecommunications industry effort to examine the interdependency of

electric power and telecommunications. DOE, the NCS, and the North American Electric Reliability Council (NERC) actively participated in this effort.¹

The following recommendations were approved at NSTAC XI, March 29, 1990, and forwarded to the President. A brief statement on the status of each recommendation is included.

- Develop a program for assigning electric power restoration priorities to NS/EP telecommunication users and providers to provide the earliest possible service restoration.

This recommendation became the foundation for the development of a voluntary nationwide ESP restoration program applicable to telecommunication providers.

- Establish a program for assigning priorities for the supply, transport, and delivery of fuels to NS/EP telecommunication users and providers.

The current Energy Task Force addresses fuel resupply and access issues in this report.

- Grant a national security waiver from those subparts of the Government's underground storage tank regulation (40 C.F.R. Part 280) that affect NS/EP telecommunication providers.

This recommendation was later retracted by the NSTAC's Industry Executive Subcommittee (IES) Funding and Regulatory Working Group (FRWG) because industry was complying with the regulation.

- Ensure that NS/EP telecommunication users that need electric power to operate their customer premises equipment (CPE) have a backup power capability that can operate through at least a 7-day electric power outage.

The NCS developed NCS Directive 3-8, which recommended that NCS agencies ensure their telecommunication facilities have adequate backup power capabilities, contingent on each user's needs.

- Fund studies to examine the feasibility of the Government developing and supplying long-lasting, cost-effective backup power sources for critical telecommunication facilities.

The NCS is continuing to monitor DOE research on potential new sources of backup power.

¹For information on the original Energy Task Force, refer to the *National Security Telecommunications Advisory Committee (NSTAC) Energy Task Force Final Report*, National Communications System, February 1990.

- Fund the installation of the additional levels of backup power that the Government believes are appropriate for those network facilities key to the National Level NS/EP Telecommunications Program (NLP).

The NCS is reviewing this recommendation.

1.2.2 Department of Energy Telecommunications Electric Service Priority Initiative

Electric utilities use electric service restoration plans reflecting essential State and local requirements. The concept for modifying restoration programs to reflect essential requirements was considered before the original NSTAC Energy Task Force completed its study. The Federal Government considered the feasibility of electric utilities' voluntarily expanding their electric service priority restoration plans to include Federal NS/EP requirements. The NSTAC recommendations served as a further catalyst for Government (that is, DOE) action on the program regarding NS/EP telecommunication assets. On March 30, 1990, the Assistant to the President for National Security Affairs requested that DOE work with Government agencies and the electric power industry to develop a nationwide process for priority restoration of electric power and fuel distribution for critical end users (national defense and essential civilian customers). DOE then developed a program work plan applied to telecommunications and worked with the NCS to develop an initiative to test the feasibility of implementing the work plan. The TESP initiative is described further in Section 2.3.1.

1.2.3 New Energy Task Force

In reviewing DOE's plans for implementing the ESP program, the NSTAC recommended that the telecommunications industry continue to work with the Government to implement a priority electric service restoration and a priority fuel distribution program to support critical NS/EP telecommunication facilities. At NSTAC XIII in October 1991, a new Energy Task Force was established to:

Assist OMNCS efforts with energy initiatives in coordination with DOE and the NCS to:

- Develop criteria for identifying critical industry NS/EP telecommunication facilities that qualify for:
 - Priority electric service restoration
 - Priority fuel distribution
- Develop a process for applying the criteria to identify critical industry NS/EP telecommunication facilities
- Provide the OMNCS with the criteria and process within six months.

(Energy Task Force membership is listed in Volume I, Appendix A.)

1.3 APPROACH

The new Energy Task Force developed its findings based on briefings from the following organizations on the identified topics:

- DOE: TESP initiative, TESP assessment project, and TESP brochure
- Task force members: company energy management policies
- California Office of Emergency Services (OES): emergency operations
- California Utilities Policy Committee (UPC): coordination among utilities and telecommunication carriers
- Department of Transportation (DOT): Crisis Action Plan
- Federal Emergency Management Agency (FEMA): emergency response procedures and programs
- Federal Highway Administration (FHWA): regulations and waiver process
- NCS Telecommunications Service Priority (TSP) Program Office: coordination among utilities and telecommunication companies during post-disaster recovery efforts.

Information presented to the task force in these briefings is summarized in Section 2.0 and Appendices B and C.

2.0 FINDINGS

Section 2.0 summarizes information presented to the task force on current industry operating procedures, State/local energy priority restoration programs, and Federal energy programs.

2.1 INDUSTRY

The following subsections highlight information on current procedures for priority power restoration in the electric power and telecommunication industries.

2.1.1 Electric Power Industry

There are two components to the U.S. electric power system: the bulk power supply system that generates and transmits electric power, and the distribution system that provides the local distribution of power. DOE's previous studies concluded that most electric power outages affecting telecommunications occur in the local distribution systems.

The severity of a power outage will determine the electric utility's ability to rapidly restore power. Typically, the first priority is to restore and stabilize the bulk power supply system. Following a disruption of power in the distribution system, electric load is restored according to circuit priority. Circuits are assigned priority based on the needs of critical end users on the circuit receiving electric service. As load must be restored gradually following a disruption, not all critical end users will be restored at the same time.

When outages are experienced due to damage to the electric power distribution circuits, distribution feeder restoration priorities are based on the electric utility's priority plans. Customers with critical power requirements (e.g., fire, police, hospitals, residents on life-support systems) are given priority restoration. Typically, essential telecommunication facilities have not been given priority in electric utility restoration plans because those plans are based on essential State and local (not Federal) needs and the criticality of specific telecommunication facilities is not usually known by the utilities.

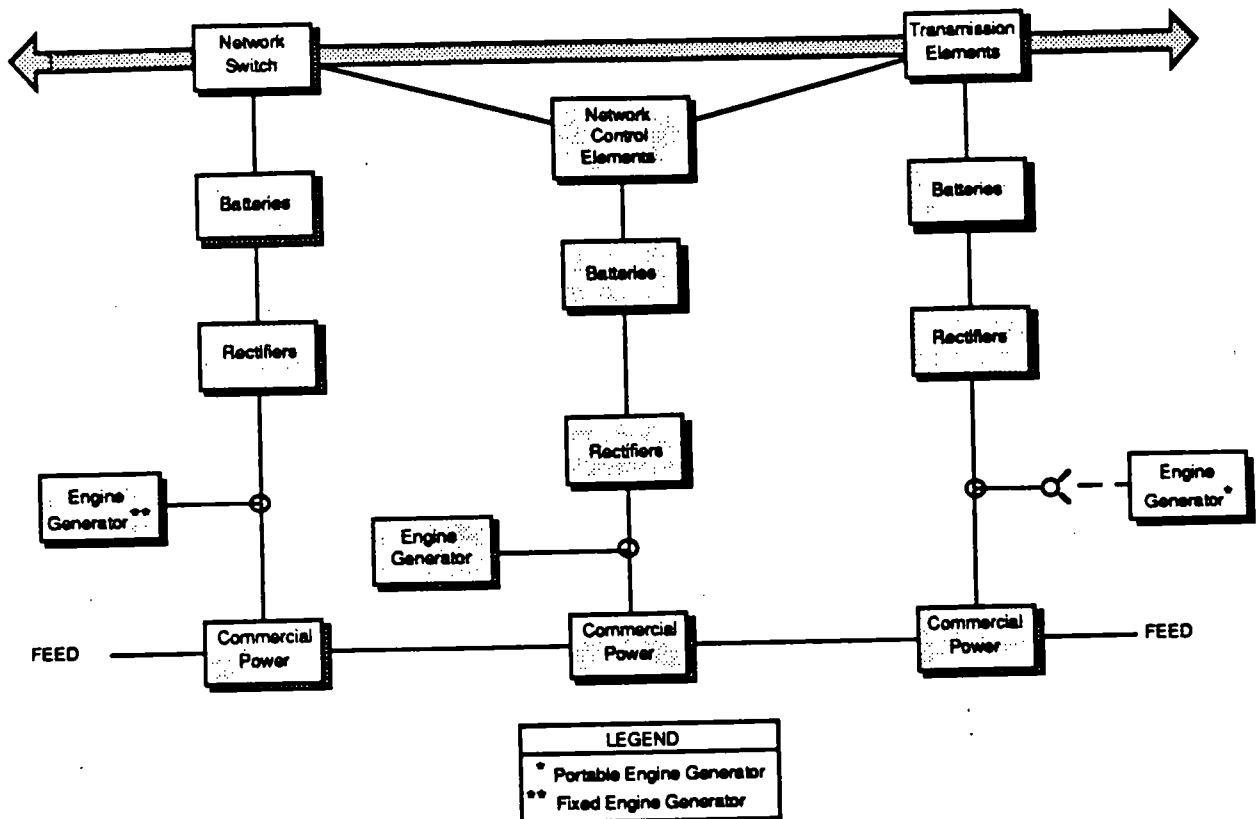
In situations when demand exceeds or strains available generating capacity, power curtailment may be required to balance generating capacity and demand. The electric utility typically attempts to avoid curtailing service to critical end users.

2.1.2 Telecommunications Industry

The power for telecommunication assets is supplied by the electric utility's local distribution network. Most critical telecommunications industry facilities have battery and/or generator backup power that is automatically applied when commercial power fails. Exhibit 2-1 illustrates typical and backup sources of power. The reason for the widespread use of backup sources by the telecommunications industry is to ensure the viability of their network during even the shortest power outage. Telecommunication services are not often viewed by State entities and electric utilities as essential services that should be included in electric service priority restoration plans. DOE and the telecommunications industry can work together to inform the electric utilities, State public utility commissions (PUC), energy offices, and emergency

management offices of the importance of telecommunications to disaster recovery and the need for priority electric service restoration for critical telecommunication facilities.

Exhibit 2-1
Typical and Backup Sources of Power



When commercial power fails, facilities with only battery backup can usually continue to operate for 3 to 12 hours. These batteries can be recharged by telecommunication crews using portable generators if these crews are given access to the impacted area. For outages affecting critical locations, some telecommunication facilities rely on fixed engine generators to provide power (see Exhibit 2-1). Those telecommunication facilities with backup generators can operate for extended periods if fuel can be resupplied when needed. Telecommunication companies normally store fuel at sites with backup power generation and may have priority resupply contracts with fuel suppliers.

Telecommunication companies make their own arrangements for fuel resupply, including storage and priority delivery contracts. Fuel suppliers might not be able to honor priority resupply contracts during an emergency because States may appropriate existing supplies, including privately-owned supplies stored on telecommunication companies' premises, and redirect distribution as required. If adequate fuel supplies are not available during an emergency, it is advantageous for the telecommunications industry to be authorized access to the assets of existing State fuel set-aside programs (see Section 2.2.3 for further explanation). Even if telecommunication companies are able to obtain fuel, local security forces may prohibit fuel trucks and telecommunication repair crews from entering the disrupted area.

2.2 STATE AND LOCAL GOVERNMENT

Electric power restoration and fuel distribution priority programs vary among States. The task force reviewed the State of California's emergency response structure and determined that it might serve as a model for other States. The following subsections discuss task force findings on State electric service priority restoration plans and California's emergency response structure.

2.2.1 State Electric Service Priority Restoration Plans

Procedures for assigning responsibility for priority electric service restoration vary among States. In some States, the PUC must approve restoration plans. In others, the utilities develop the restoration plans and may file information copies with the PUCs. In a few States (e.g., California), telecommunication services are considered a priority function and therefore are included in utility priority restoration plans. In some States, telecommunications may be considered a priority, but only at the discretion of the electric utility. For example, the task force obtained a distribution feeder restoration priority classification system from a major electric utility in the Northeast United States (see Exhibit 2-2). The list indicates there are three priority groupings: Group I, Group II, and Group III. Group III facilities (hospitals, police, fire-fighting facilities, etc.) have the highest priority and include communications (telephone, radio, and television). However, the list does not specify telecommunication companies or systems as a priority category. Furthermore, the list indicates that this classification can be excluded at the discretion of the electric utility company. This exclusion can impact critical and essential NS/EP services during major power outages during an emergency.

In instances where electric utilities do not include telecommunications in restoration plans, restoration depends on formal or informal agreements and working relationships between the local telephone company and the electric utility. If agreements exist, the telephone company will coordinate directly with the electric utility emergency center to convey its electric service priority restoration concerns. Absent these agreements, electric utilities may be responsive to large companies such as telecommunication companies; but there is no guarantee of priority restoration during emergencies. To further compound the problem, some States do not even recognize telecommunications as a priority.

2.2.2 State of California

The California Office of Emergency Services (OES) plays a key role in emergency preparedness by planning, directing, and coordinating State agency responses, coordinating intergovernmental emergency activities, and representing the Governor during emergencies. The OES coordinates statewide responses and provides assistance to counties, as required. Authority within the State is largely decentralized to counties, and emergency response can be delegated to the local level. The OES provides coordination between the State and local level, and the Utilities Policy Committee (UPC) provides coordination among utilities and between utilities and the OES. Specifically, the UPC coordinates among public utilities (e.g., electric power, natural gas, and water) and telecommunication carriers to respond to emergencies. Its purpose is to enhance communications and coordination among utilities, local exchange carriers (LEC), and interexchange carriers (IC) at the State and local levels and to assist State and local government response to emergency conditions. The California UPC has recently identified petroleum suppliers

Exhibit 2-2
Sample Distribution Feeder Restoration Priority System

Criteria for Groups I, II, and III
Distribution Feeder Priority Classification

All distribution feeders (4 and 13 kv) shall be classified into priority groups as follows:

- | | |
|----------------------------------|---|
| Group I:
(lowest priority) | Residential, small commercial and light manufacturing customers supplied from radial feeders and balance of customers not falling in Groups II and III, including one circuit of two-circuit network areas. |
| Group II: | Large industrial customers that can be interrupted after notification, high-rise structures, large shopping centers and network areas supplied by three or more circuits. |
| Group III:
(highest priority) | <div style="padding-left: 20px;">Railroads
Local and suburban transit
Transportation by air
Pipeline transportation
Communications* (telephone, radio, and television)
Electric, gas and sanitary services (utilities)</div> <div style="padding-left: 20px;">Coal mining and related functions</div> <div style="padding-left: 20px;">Petroleum refining
Hospitals
Electric sales for resale under FPC jurisdiction</div> <div style="padding-left: 20px;">Prisons
Police and fire-fighting facilities*</div> <div style="padding-left: 20px;">Water supply*</div> <div style="padding-left: 20px;">Federal activities essential to national defense</div> <div style="padding-left: 20px;">Life support systems* (Consideration should be given to advance notification of customers with life support systems such as iron lungs, shaker beds, and dialysis machines.)</div> |

* These classifications are to be excluded at the discretion of the utility company.

as potential members in the UPC. This type of coordination may be useful in other States to assist with fuel resupply issues, such as State fuel set-aside programs.

The Utility Operation Center (UOC) (under the UPC) coordinates initial damage assessments by contacting utilities in the disrupted areas and identifying the number of customers out of service, projected outage durations, and the need for assistance. California State and local governments coordinate their response through the UOC. In situations where a problem may exist (e.g., inadequate fuel supplies for telecommunication companies' backup generators), the UOC is the primary point of contact. As the emergency escalates, the OES and ultimately the Governor, if warranted, becomes involved.

2.2.3 State Fuel Set-Aside Programs

Approximately forty-three States have established petroleum product set-aside programs to ensure priority access to scarce fuel supplies during emergencies. While each State has made its own determination of which classes of customers it considers critical, it is likely that only State and local emergency needs have been considered; that is, it is unlikely that national security concerns have been reflected in the priorities.

Regardless of whether State fuel set-aside programs exist, telecommunication companies are responsible for making their own arrangements for fuel storage and priority delivery contracts. If, in an emergency, some petroleum suppliers were unable to deliver on their contract commitments, their customers would have no alternative but to seek replacements from other suppliers with whom they had no previous contract dealings. These customers might have difficulty obtaining access to scarce supplies.

State fuel set-aside programs have been designed to deal with this situation. They typically comply with the following procedures:

- At the beginning of each month, prime suppliers of selected petroleum products (e.g., gasoline, home heating oil, jet fuel) are required to place a percentage of their estimated, total monthly supply for each product under the "control" of the State set-aside manager. The percentage varies among States, usually ranging from 2 to 5 percent.
- The State set-aside manager then has "control" over these volumes and may direct specific prime suppliers to sell (at market price) and deliver prescribed quantities to customers that the State considers to be critical and thus warrant priority access to fuel supplies.
- The State set-aside manager may so direct the suppliers to release these pre-established quantities at the beginning of each month until the volume under State control has been exhausted.
- If State set-aside volumes have not been exhausted by mid-month, the remaining amounts revert to the prime suppliers' control for delivery to established customers.

Telecommunication companies are responsible for making their own arrangements with fuel suppliers. In addition, telecommunication companies can contact the State to request that (1)

telecommunications companies be considered critical customers, and (2) States do not interfere with their priority resupply contracts with fuel suppliers during emergencies.

2.3 FEDERAL GOVERNMENT

The task force gathered information on several existing and proposed Federal programs such as DOE's TESP initiative, the NCS National Coordinating Center for Telecommunications (NCC) Regional Manager program, FEMA's State funding programs, DOT's crisis action plan, and FHWA regulations and waiver process. The task force examined how these programs relate to the restoration of critical NS/EP telecommunication facilities. The key findings of these programs and their relationship to the task force's efforts are discussed below.

2.3.1 Department of Energy Telecommunications Electric Service Priority Initiative

DOE's original ESP work plan described a system of priority restoration and curtailment of electric service for customers whose continued operation is deemed essential to NS/EP. The work plan was designed to reduce the need for intervention based on standby Federal authorities (i.e., Defense Production Act, Federal Power Act) to direct energy supplies in an emergency. It relied heavily on voluntary cooperation and proposed procedures that States and electric utilities would follow on their own during energy supply emergencies with minimal need for Federal Government intervention and with adequate flexibility for adjustments by Federal, State, and utility officials during an emergency.

Upon review, DOE concluded that it was not feasible to implement the entire ESP work plan, which covered all essential electric power end users (national defense and essential civilian customers). Including all NS/EP requirements in ESP plans would overwhelm the system and render it ineffectual. However, DOE is committed to implement the portion of the ESP plan applicable to telecommunications, the TESP initiative, to ensure that lack of electric power does not hamper the ability of important telecommunication companies to support NS/EP requirements. The purpose of this Federal initiative is to cause existing electric utility emergency priority restoration systems to be modified to include telecommunication facilities considered critical to NS/EP. Once this is accomplished, emergency procedures will be in place that can be implemented by each serving utility during electric supply emergencies.

During the task force deliberations, the telecommunications industry, DOE, and the OMNCS worked to develop an initiative that would provide an acceptable method for including critical industry telecommunication facilities in existing electric utility priority restoration plans. The TESP initiative is voluntary for State governments, electric utilities, and telecommunication companies. Because of the importance of this program supporting critical telecommunication assets, the task force believes it will be widely implemented. The task force identified the following process for the TESP initiative²

- **The OMNCS provides a list of critical industry telecommunication facilities supporting NS/EP users. Based on information received from the telecommunications industry and contained in its own database, the OMNCS generates critical facility lists by States.**

²For a more detailed description of the TESP implementation process recommended by the task force, refer to Section 3.2.

- **If a State requests, the OMNCS will determine the specific telecommunication facilities that serve critical State and local functions.** The State will need to provide the telephone numbers of such critical functions. The OMNCS will identify the additional telecommunication facilities serving critical State and local functions and add them to the State list.
- **The OMNCS forwards the State lists to DOE for dissemination to State governments.** Based on the State structure, the lists will be forwarded to the cognizant agency, such as the PUC, State emergency management office, or energy office.
- **Electric utilities add critical telecommunication facilities to existing electric service priority restoration plans.** The facilities added will be based on a narrow definition of critical facilities to ensure that the number of facilities needing priority restoration do not overwhelm utilities' ability to respond to electric service priority restoration requirements (i.e., the lists contain only high priority facilities as explained in Section 3.1).
- **During a disruption, telecommunication companies coordinate with electric utilities.** The electric utility should proceed with priority restoration of power to critical telecommunication facilities in the ESP plan only upon the request of the telecommunications company. Such a request would indicate that the facility was in jeopardy or inoperable. Some critical telecommunication facilities (i.e., Category III facilities) may not be included in the lists but may require priority electric power restoration to maintain network operation under some circumstances. Such restoration requirements will be identified by the telecommunications company to the electric utility as the need arises.
- **The OMNCS will review its lists of critical telecommunication facilities annually and advise DOE of needed modifications when appropriate.**

The task force also reviewed an NCS/DOE feasibility assessment of the TESP initiative. (Refer to Appendix B for those conclusions.) In addition, DOE has, during the course of task force efforts, begun implementing the TESP initiative. Refer to Appendix C for DOE's brochure, *Telecommunications Electric Service Priority (ESP) Restoration Initiative: An Introduction for Telecommunications Industry, Electric Utility Industry and State Officials*. Also, the task force developed a guide for industry personnel on the operational aspects of the TESP initiative, *Industry Guide to the Federal Government's Telecommunications Electric Service Priority Restoration Initiative*.

DOE's intent for the TESP initiative is to reduce the need for statutory authorities to direct energy supplies during an emergency. However, as a last resort during a national security emergency, DOE can rely on authorities provided under the Defense Production Act (DPA) of 1950 (50 U.S.C. App. 2061 *et seq.*), as amended. Section 101(a) of the DPA authorizes the President to require performance on a priority basis of contracts or orders that are deemed appropriate to ensure the national defense, and to allocate materials and facilities, including energy, as he shall deem necessary or appropriate to promote the national defense. In October 1992, the nonpermanent provisions of the act were extended until September 30, 1995.

DOE can also rely on the Federal Power Act (FPA) (P.L. 66-280), as amended, to provide statutory authority to direct power supplies. Section 202(c) of the FPA permits DOE to order temporary connections of facilities and such generation, delivery, interchange, transmission or power wheeling of electric energy as in its judgement will best meet the emergency.

2.3.2 National Communications System Regional Manager Program

The NCS Regional Manager Program is managed through the NCC. The NCC Manager is a central coordination point for all NCS Regional Managers. General Services Administration (GSA) Regional Emergency Communications Planners (RECP) are located throughout the country and serve as NCS Regional Managers. When a Federal disaster is declared, the GSA/NCS Regional Manager for that area is typically appointed as the Federal Emergency Communications Coordinator (FECC). The FECC is responsible for coordinating all telecommunication response requirements among the appropriate bodies, such as the State telecommunications coordinator, the telecommunication carriers, and other Federal and State agencies. The FECC reports to the Federal Coordinating Officer (FCO), a Presidential appointee, who is responsible for managing all response requirements. If the FECC has a conflict that cannot be resolved, the FECC requests assistance from the FCO.

The task force raised several issues about Federal and State coordination during declared disasters. Examples include how industry personnel would cross security lines to reach telecommunications equipment in need of service or to refuel generators, and how to get waivers of travel curfews to allow technicians to continue repair efforts. The FECC is essentially the coordination hub for all telecommunication requirements during a federally declared disaster. Telecommunication carriers should contact the FECC first for any telecommunications requirement. If the carrier is not satisfied with the response it receives from the FECC, the carrier should contact the Manager of the NCC for further assistance; however, it was unclear to the task force that procedures were in place to support such scenarios.

2.3.3 Federal Emergency Management Agency

FEMA's role has been to provide emergency preparedness planning support to State governments and to coordinate Federal response after a disaster occurs to supplement, if needed, the response by State and local government. During a federally declared disaster, the GSA FECC is the telecommunications coordination point.

The *Federal Response Plan* "... establishes the basis for fulfilling the Federal government's role in providing response and recovery assistance to a State and its affected local governments impacted by a significant disaster of any kind which results in a requirement [for] Federal response assistance." It is based on the assumption that a significant disaster will overwhelm the capabilities of the State and local governments. Therefore, Federal departments and agencies will be assigned primary and support responsibilities for various Emergency Support Functions (ESF). ESF #12 is the energy annex, and the Department of Energy is the primary agency responsible for coordinating function response. The purpose of ESF #12 "... is to facilitate the restoration of energy systems following a catastrophic earthquake, significant natural disaster, or other events requiring Federal response assistance."

ESF #2 is the communications annex, and the NCS is the primary agency responsible for coordinating function response. The purpose of ESF #2 "... is to assure the provision of Federal telecommunications support to Federal, State, and local response efforts following a Presidentially declared Emergency, Major Disaster, Extraordinary Situation and other emergencies under the *Federal Response Plan*. This ESF supplements the provisions of the *National Plan for Telecommunications Support in Non-Wartime Emergencies*."

According to the *National Plan for Telecommunications Support in Non-wartime Emergencies*, a situation that has significant national impact or requires a significant Federal presence but does not merit a Federal disaster declaration is considered an extraordinary situation. In these situations, the appropriate Federal agency has the lead responsibility for most of the on-site initial response. FEMA has the lead in coordinating assistance to State and local governments and other responding Federal organizations. Telecommunication requirements are addressed by the FEMA Regional Communications Manager (FRCM). In this situation, telecommunication carriers coordinate requirements with the FRCM. If the scope of the requirements becomes more than the FRCM can address, an FECC will be appointed.

2.3.4 Department of Transportation

The task force was also concerned about transportation of emergency resupply fuel and emergency power equipment into impacted areas. Therefore, it reviewed DOT's *Crisis Action Plan* and Federal Motor Carrier Safety Regulations. The DOT *Crisis Action Plan* contains policy guidance on transportation priorities for telecommunications. Although attachment 6 of that plan specifically identifies a requirement for transportation priorities during domestic emergencies for "telecommunications personnel involved in emergency repair activities ...," it does not assign it a specific priority. Additionally, attachment 8 identifies "electric power, petroleum, gas, communication systems repair materials and equipment required for the continued supply of essential power and communications," as a priority during national security emergencies, but it does not assign it a specific priority. In January 1993, in response to an OMNCS request, DOT said it plans to revise attachment 8 by adding the following statement to the general transportation priority list, "public utilities and telecommunications personnel involved in emergency repair activities travelling on official company travel orders endorsed by the issuing office as 'Certified as Essential Travel,' and destined for the general distressed area." This allows utilities and telecommunications personnel movement precedence during emergencies.

According to DOT, the relative transportation priority for telecommunications compared to other critical goods and personnel is largely scenario dependent. Emergency transportation requirements vary considerably by location, cargo, the environment, and other factors. Specific requests for transportation priority for telecommunications should be referred to the appropriate DOT Regional Emergency Transportation Coordinator (RETCO). It was made clear to the task force that prior to contacting the RETCO, the telecommunications industry companies must work with State and local government transportation coordinators.

The task force reviewed DOT's FHWA Federal Motor Carrier Safety Regulations (FMCSR), which regulate matters such as drivers' maximum hours of service, and concluded that they could impede rapid emergency response by telecommunication companies and electric utilities. Under draft regulations, a gubernatorial or Presidential disaster declaration allowed a waiver of these regulations to be granted for essential service providers. However, telecommunication and electric utility industries' restoration efforts must begin immediately and

cannot await an official declaration of a disaster. The Manager, NCS, along with other telecommunications industry organizations, filed comments requesting that telecommunications be specifically included as an essential service, and that exemptions from FMCSR regulations should be applicable when the telecommunications carrier provides emergency response at the request of any Federal, State, or local authority.

In July 1992, the FHWA published its final rules amending Parts 390 to 399 of the FMCSRs. Under the amended rules, the President, a Governor, or their authorized representatives may declare a regional emergency. A local emergency may be declared by Federal, State, or local government officials. Such declared emergencies automatically waive hours of service, driver qualification, inspection, and certain other requirements for specified types of essential service personnel and vehicles. The amendment classifies "electricity" and "telecommunications" as examples of "essential services." The emergency exemption is effective for the duration of an electric utility/telecommunication company's direct assistance in the emergency relief effort, or for 30 days in regional emergencies, or for 5 days in local emergencies. When an emergency has not yet been declared, as above, the FHWA Regional Director may grant a waiver.

2.3.5 Telecommunications Service Priority System

During task force proceedings, two events, Hurricanes Andrew and Iniki, caused major electric power outages and tested the viability of emergency response. These real-world events pointed to the fact that the ESP list should be flexible to accommodate NS/EP needs as they arise. According to after action reports from TSP³ Oversight Committee members, telecommunication companies were delayed in responding to some priority services following Hurricane Andrew due to access problems. Telecommunications company personnel could not enter disaster areas, including those areas where priority services were located, until electric utility safety patrols inspected the areas to ensure that downed power lines were deenergized. The electric utility did not recognize the urgency of a TSP invocation, and instead followed its own electric service restoration plan to allocate repair resources.

³The TSP System is a Federal Communications Commission (FCC) program that authorizes priority installation of telecommunication services necessary to respond to an emergency. The TSP System also authorizes priority restoration of critical services that support NS/EP users. The NCS TSP Program Office manages and administers the TSP System on behalf of the Executive Office of the President. Telecommunication companies are required, by FCC TSP regulations, to install or restore services with TSP assignments before any other services.

3.0 CRITERIA DEVELOPMENT AND PROCESS

The new Energy Task Force worked with the OMNCS and DOE to develop criteria and a process for identifying critical industry NS/EP telecommunication facilities that qualify for priority electric service restoration. Based on its analysis of current telecommunications industry plans; State, local, and electric utility electric service restoration procedures; and Federal emergency preparedness activities, the task force designed criteria to identify critical industry facilities and a process for applying the criteria for priority electric service restoration. The following sections describe criteria development and the application process.

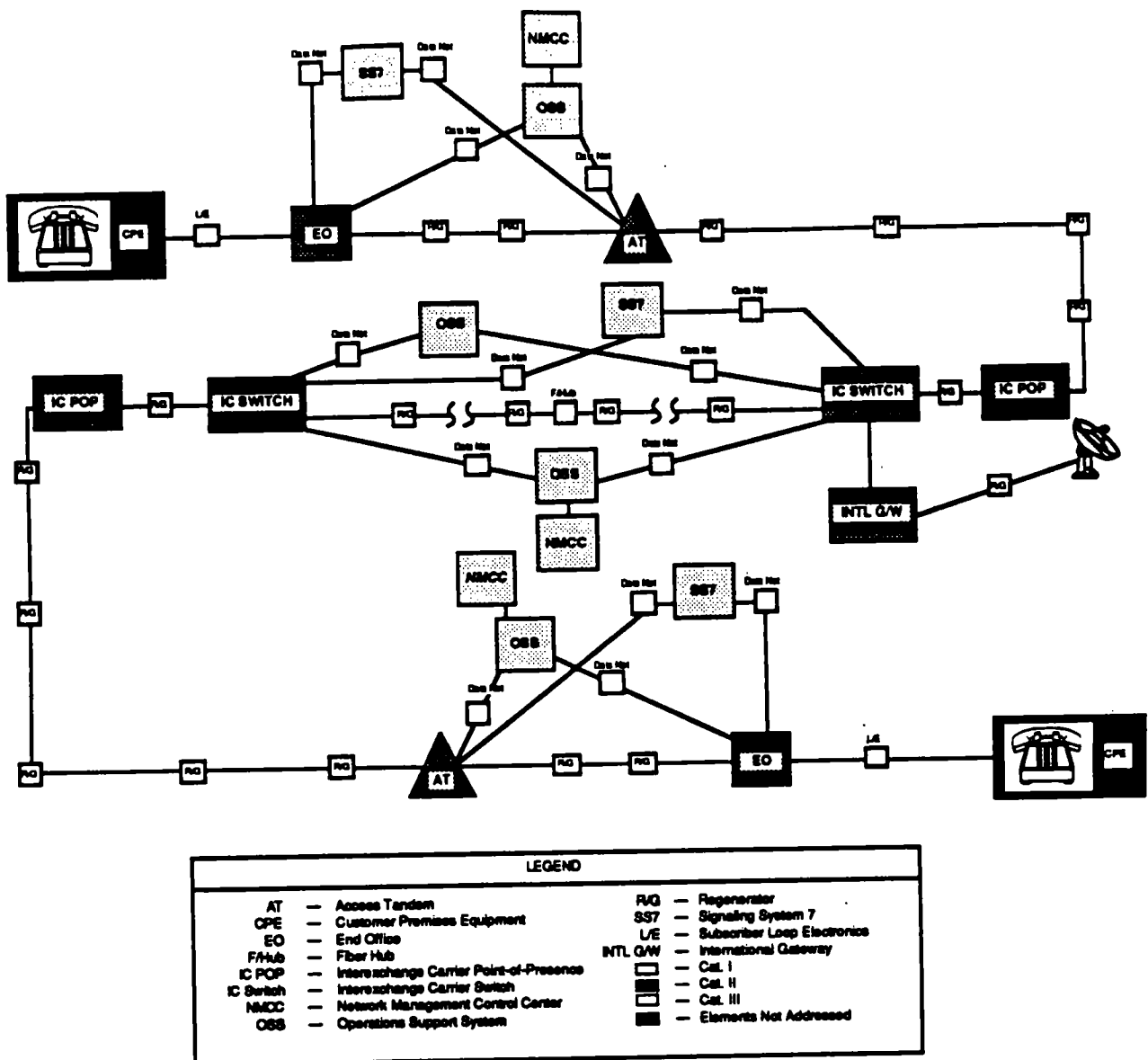
3.1 CRITERIA DEVELOPMENT

In accordance with its charge, the task force developed criteria for the OMNCS to use in developing a list of critical industry NS/EP telecommunication facilities that qualify for priority electric power restoration. The task force developed these criteria based on a narrow definition of critical industry NS/EP telecommunication facilities to ensure the development of a manageable list. The task force defined "critical facilities" as those facilities that perform functions critical to the monitoring, control, support, signaling, and switching of the voice telecommunications infrastructure (terrestrial and satellite). The task force divided the criteria into the following three categories:

- | | |
|---------------|---|
| Category I. | Network facilities or elements essential to monitoring, controlling, or supporting network operations, e.g., network management control centers, operations support systems, signaling network elements. |
| Category II. | All switching nodes identified by the OMNCS (or as modified by the carriers) that serve essential NS/EP end users in local exchange carrier (LEC) or interexchange carrier (IC) networks, e.g., end offices, access tandems, IC switches, international gateways. |
| Category III. | Other network elements (not identified in Categories I or II) essential to network operation for call completion, e.g., regenerators, identified by service vendors. |

Exhibit 3-1 illustrates the categorization of criteria and includes typical end-to-end call signaling and transmission components. Exhibit 3-1 also illustrates a typical telecommunications network. If any component of this path loses power, the call could be blocked or rerouted. Therefore, the task force concluded that industry must consider many components in the public switched network (PSN) to be critical. The shaded areas in the exhibit (Categories I and II facilities) have been identified on the critical lists provided under the TESP initiative. The white areas (Category III) are also part of the TESP initiative, but are too numerous and would overwhelm a critical facility list. Therefore, the telecommunications company will contact the electric utility during an outage to coordinate restoration of these facilities. The black areas (CPE) are those facilities not covered in this report. They are the responsibility of the NS/EP user.

Exhibit 3-1
Typical Network



3.2 PROCESS FOR APPLYING CRITERIA

On a voluntary basis, telecommunications industry representatives will assist the OMNCS in identifying facilities in Category I that are essential to the operation of their respective industry networks. Facilities in Category II that support NS/EP traffic in local exchange and interexchange networks were identified by the OMNCS and the telecommunications industry based on the location of NS/EP users. The OMNCS maintains a database of industry telecommunication facilities derived from the Local Exchange Routing Guide (LERG) and an existing IC database.

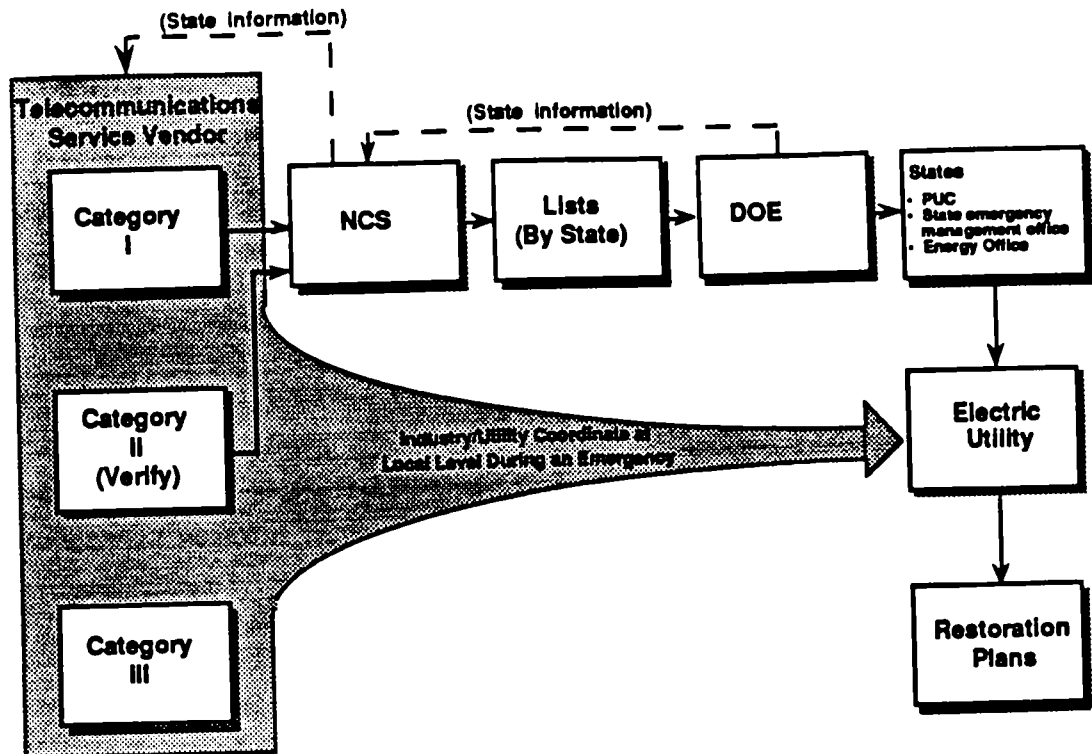
Category III includes those facilities essential to network operation, but difficult to identify in advance and too numerous to include in a critical industry NS/EP telecommunications facility list. The task force concluded that Category III facilities would be identified to the electric utility by telecommunication carriers during an outage only if backup power was expected to be depleted before normal restoration would occur, the batteries/fuel used for backup power could not be recharged/resupplied, and/or if they required priority restoration to maintain network operations. An electric utility representative contacted by the task force agreed that including Category III facilities in an initial list would create an administrative burden. The representative agreed with the task force's approach of coordinating restoration requirements for Category III facilities at the local level on an as-needed basis.

The task force agreed that the process illustrated in Exhibit 3-2 would be an effective way to implement the TESP initiative. The following process is an expanded version of the task force's recommended TESP implementation process, explained in Section 2.3.1. Specifically, the process for applying the criteria will include the following steps:

- Using the task force criteria, the OMNCS will identify Category II facilities qualifying for priority electric service restoration. To verify this information, the OMNCS will send a letter to carriers explaining the TESP initiative and industry data requirements.⁴ The OMNCS will request verification of data on Category II facilities and submission of Category I facility data. Specifically, the OMNCS will request the following data for each site to be included in the TESP initiative:
 - Name of site
 - Site address
 - Point-of-contact information (title of industry representative and telephone number)
 - Electric utility serving the site (if known)
 - Optional data (backup generator capability and site function).
- After receiving industry data, the OMNCS will compile critical industry facility lists by State, and will forward these lists to DOE. These lists will include facility locations for Categories I and II facilities and a notice stating that Category III facilities should be identified by the telecommunications company to electric utilities on an as-needed basis.
- If a State requests, the OMNCS will identify additional facilities serving essential State or local needs. The State will need to provide the telephone numbers of such critical functions. The OMNCS will identify the additional facilities and add them to the lists.
- The OMNCS will forward the lists, by State, to DOE for dissemination to the appropriate State entity, e.g., State emergency management office, energy office, or public utility commission.

⁴In November 1992, the OMNCS initiated this process.

Exhibit 3-2
Process for Applying Criteria



- The appropriate State entity will apprise electric utilities of critical facilities located in their service areas. The electric utilities will voluntarily add the sites to their existing electric service priority restoration plans. The electric utility should proceed with priority restoration of power to critical telecommunication facilities in the ESP plan only upon the request of the telecommunications company. Such a request would indicate that the facility was in jeopardy or inoperable. Telecommunication facilities other than those included in ESP plans are also essential to network operation, but are too numerous to include on a critical facility list. Some of these facilities (i.e., Category III facilities) may require priority electric power restoration to maintain network operation under some circumstances. Such restoration requirements will be coordinated by the telecommunications company with the electric utility as needed.
- The OMNCS will annually update the lists and forward modifications to DOE.

4.0 CONCLUSIONS

With respect to DOE's TESP initiative, the task force concluded:

- The electric power industry, in general, has not included the telecommunications industry in their priority service restoration plans.
- Electric utilities need to recognize the urgency of a TSP provisioning priority. Electric utilities should make their best efforts to coordinate safety patrol inspections and deenergization of downed power lines with telecommunication companies to ensure prompt response to critical NS/EP telecommunications service requirements following a disaster.
- The task force supports DOE's TESP initiative as a means for improving coordination between telecommunications and electric utility personnel at the local level, and facilitating faster and more effective electric power restoration response.

The implementation of DOE's TESP restoration initiative will help ensure that the telecommunications industry receives priority restoration from the electric power industry. However, the telecommunications industry also requires priority access to fuel for backup generators and priority access to industry facilities during an emergency in order to restore network operations. The following task force conclusions identify other Federal or State actions that could support industry in responding to NS/EP telecommunications requirements during emergencies:

- Existing Federal and State plans need to be considered further with respect to supporting telecommunications as a priority in disaster response and recovery in the following areas:
 - Access to disaster areas must be ensured. For example, telecommunications repair crews have sometimes not been allowed to cross security lines during emergencies. DOE has recommended that States review their emergency plans to ensure that such emergency response personnel are admitted to impacted areas on a priority basis, and provided with security protection when necessary and available security resources permit.
 - Priority access to fuel must be established. For example, telecommunication companies need to be authorized as recipients of State fuel set-aside supplies for the resupply of backup generators supporting critical NS/EP telecommunication facilities. Regardless of whether State set-aside programs exist, telecommunication companies are responsible for making their own arrangements for fuel storage and priority delivery contracts.
- The State of California's Utilities Policy Committee is an example of an effective emergency response structure for coordination between representatives of utility and telecommunication companies.
- The *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies* do not adequately address TESP, fuel resupply, access and safety issues.

- The Federal Highway Administration amendments of the Federal Motor Carrier Safety Regulations (FMCSR), published in July 1992, address the telecommunications industry's concerns.
- Special requests for transportation priority of telecommunication personnel/supplies during an emergency have not been coordinated with the appropriate Department of Transportation (DOT) Regional Emergency Transportation Coordinator (RETCO).

5.0 RECOMMENDATIONS

The task force proposes the following recommendations to the Government:

- Continue to support the operation, administration, and management of DOE's Telecommunications ESP (TESP) initiative.
- Assign Federal responsibility for the establishment of a program to ensure priority availability of fuel supplies for telecommunication companies during emergencies.
- Encourage the nation's electric utilities to coordinate with telecommunication companies to provide safe access to disaster areas requiring Telecommunications Service Priority (TSP) provisioning or restoration.
- Encourage State and local governments to modify their emergency plans to allow telecommunications, electric utility, and fuel supply companies access into impacted areas.
- Modify the *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies*, to include TESP and to address emergency fuel resupply, access, and safety issues.

VOLUME I

APPENDIX A

TASK FORCE MEMBERS

APPENDIX A
TASK FORCE MEMBERS

GE	Mr. Stan Welland, Chairman
AT&T	Mr. David Bush
Bellcore	Mr. Randall Schulz
COMSAT	Mr. Ernest Wallace
CSC	Mr. Robert Brownfield, Mr. Guy Copeland
GTE	Mr. James Bean
ITT	Mr. Joseph Gancie
MCI	Mr. Joseph Cassano, Mr. Tim Rodgers
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Government agency participant:	
DOE	Mr. Stan Trumbower, Mr. Glenn Coplon

VOLUME I

APPENDIX B

TELECOMMUNICATIONS ESP FEASIBILITY ASSESSMENT

APPENDIX B

TELECOMMUNICATIONS ESP INITIATIVE FEASIBILITY ASSESSMENT

DOE assessed the feasibility of the telecommunications ESP initiative in April 1992. The assessment was conducted in New Hampshire and Maryland. The following conclusions are based on the results of the meeting with State officials and electric utility and telecommunications industry representatives in those States:

- Specific telecommunication facilities are not currently included in electric utility restoration plans. However, electric utilities and telecommunication companies do coordinate during a disruption.
- The number of critical telecommunication facilities identified by the OMNCS is reasonable and could be incorporated into existing restoration plans without overloading the plans. However, restoration plans may become overloaded if facilities supporting other NS/EP functions, besides telecommunications, are added to existing electric service priority restoration plans. (Note: DOE's plans are to request that only essential telecommunication facilities be added to existing electric service priority restoration plans.)
- States can benefit from identifying telecommunication facilities that support their own emergency preparedness users. Both States expressed interest in providing the OMNCS with information to identify those facilities, but there was no clear commitment to do so from either State. State emergency management offices would likely coordinate this identification activity.
- Both States anticipate an informal process to implement the initiative. The State PUC or emergency management office would receive the State list of critical NS/EP telecommunication facilities from the Federal Government and distribute it to utilities. Electric utilities and telecommunication companies would voluntarily participate and the State would coordinate resolution of any difficulties that arise during the process.
- The implementation time required would be minimal after the State receives the facility list from DOE.
- Those telecommunication facilities determined by the OMNCS as serving NS/EP users should be known by both the serving electric utility and the telecommunications company.
- During actual disruptions, electric utilities need flexibility to use management judgement in restoration activities and will use pre-established priorities as a guide.
- Some components of the PSN will not be on the OMNCS list and could fail due to a lack of electric power. Examples are repeaters, regenerators, devices between end offices and user premises, and locations where backup equipment has failed to start and is not operational. Electric utilities and telecommunication companies would interact during disruptions to resolve these problems.

VOLUME I

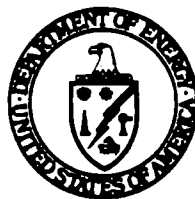
APPENDIX C

**TELECOMMUNICATIONS ELECTRIC SERVICE PRIORITY
RESTORATION INITIATIVE**

BROCHURE

TELECOMMUNICATIONS ELECTRIC SERVICE PRIORITY RESTORATION INITIATIVE

**An Introduction for Telecommunications Industry,
Electric Utility Industry and State Officials**



February 1993

**U.S. DEPARTMENT OF ENERGY
Office of Emergency
Planning and Operations
Washington, DC 20585**

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U.S. Department of Energy
Office of Emergency Planning and Operations
Washington, DC 20585

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EXECUTIVE SUMMARY

Telecommunications Electric Service Priority (ESP) Restoration Initiative

It is the policy of the United States Government to meet National Security and Emergency Preparedness (NS/EP) requirements, including adequate and secure electric energy supply to critical telecommunications facilities. If electric supplies to critical telecommunications facilities are disrupted for any reason (e.g., natural disaster, widespread technological breakdown, military attack), essential national defense requirements and essential civilian requirements may not be met.

Electric utilities have priority systems in place for restoring electric service to specific customers in the event of threatened or actual electric power supply emergencies. Existing priority restoration systems reflect primarily essential State and local needs.

The purpose of this Federal initiative is to promote modification of existing electric utility emergency priority restoration systems to include telecommunications facilities considered critical to NS/EP. Once this is accomplished by appropriate State officials and utilities, emergency procedures will be in place that can be implemented by each utility during electric supply emergencies.

To achieve this objective on a realistic and completely voluntary basis, the Office of Emergency Planning and Operations, U.S. Department of Energy (DOE), has developed and tested in two States (New Hampshire and Maryland) a pilot program entitled "Telecommunications Electric Service Priority (ESP) Restoration Initiative."

On the basis of the experience gained during the two-State test, the DOE Office

of Emergency Planning and Operations now wishes to expand the initiative to all other States (and U.S. territories and possessions).

The purpose of this brochure is to explain the origin and intent of the initiative in sufficient detail to serve as a reference for interested parties, which include representatives of government, electric utilities and telecommunications companies.

As described in more detail in this brochure, implementation of the initiative consists of the following steps:

- DOE obtains from the National Communications System (NCS) a list of critical telecommunications facilities, sorted by State, and provides each State with its list.
- Assistance is available if a State needs help in identifying telecommunications facilities that serve its critical users. In this case, the State should provide a list of telephone numbers of such users to DOE. DOE will obtain from NCS a list of any additional telecommunications facilities that may be involved and forward this supplemental information to the State.
- State officials, on a voluntary basis, determine how to best implement the initiative and distribute the list of critical facilities to electric utilities in their State;
- Electric utilities identify the critical telecommunications facilities on the list they serve and, on a voluntary basis, modify their ESP plans to include these facilities;

- During an electric power disruption, electric utilities normally proceed with priority restoration to critical telecommunications facilities only upon the request of the telecommunications company;
- Telecommunications facilities not on the critical facility list may also be essential in certain circumstances. Such restoration requirements will be coordinated by telecommunications companies and electric utilities on an "as needed" basis; and, lastly

- The NCS annually reviews the State lists of critical telecommunications facilities and advises DOE of any modification which may be needed. DOE forwards this information to the affected States.

Also described in this brochure are criteria used to identify critical telecommunication facilities and several other factors which may adversely affect the rapid restoration of telecommunications service.

Since this brochure is intended for use by several diverse groups, a glossary of acronyms and technical terms is included.

TELECOMMUNICATIONS ELECTRIC SERVICE PRIORITY (ESP) RESTORATION INITIATIVE:

An Introduction for Telecommunications Industry, Electric Utility Industry and State Officials

INTRODUCTION

Telecommunications services are essential for maintaining a state of readiness or responding to any event which could cause harm to the population, damage to property or a threat to the security of the United States.

Telecommunications facilities depend on commercial electric power. Most critical telecommunication industry facilities have either battery and/or generator power that is automatically applied when commercial power fails. When power fails, facilities with only battery backup can usually operate for 3 to 12 hours. These batteries can be recharged by telecommunication crews if they are allowed access to the impacted area. Facilities with backup generators can operate for extended periods if fuel can be resupplied when needed, assuming backup generators do not break down.

The primary purpose of this guide is to provide an overview of an initiative for emergency priority restoration of commercial electric power to critical telecommunications facilities: the Telecommunications Electric Service Priority (ESP) restoration initiative. The guide also discusses emergency fuel resupply for backup telecommunications generators and access to telecommunications and electric utility facilities and customers in disaster areas.

A glossary of acronyms and technical terms may be found at the end of this brochure.

UTILITY ESP SYSTEMS

Utilities have ESP systems for emergency restoration of service to categories of customers in the event of electric power supply disruptions. These ESP systems reflect primarily essential State and local needs during peacetime conditions and typically include:

- Life Support
- Medical Facilities
- Police and Fire Stations
- Public Transportation and Shipping
- Communications (Telephone, Telegraph, Radio, TV)
- Water Supply and Sewage
- State/Local Emergency Services

The purpose of this initiative is to request that States and electric utilities modify existing ESP systems by adding a limited number of **specific** telecommunications facilities that address National Security and Emergency Preparedness (NS/EP) requirements. NS/EP requirements are defined to include essential national defense requirements and essential civilian requirements as specified by the Federal government. Typical NS/EP functions are shown in Figure 1.

DEVELOPMENT OF THE TELECOMMUNICATIONS ESP INITIATIVE

The telecommunications ESP initiative was developed by the Department of Energy (DOE) in coordination with the National Communications System (NCS) and the Energy Task Force (ETF) of the

Figure 1
TYPICAL FUNCTIONS:
NATIONAL SECURITY AND EMERGENCY PREPAREDNESS

NATIONAL SECURITY LEADERSHIP

- CRITICAL ORDERWIRE OR CONTROL SERVICE
- THREAT ASSESSMENT AND ATTACK WARNING
- WORLDWIDE DIPLOMACY
- WORLDWIDE INTELLIGENCE
- COMMAND AND CONTROL OF MILITARY FORCES
- MILITARY MOBILIZATION
- CONTINUITY OF GOVERNMENT
- SPACE OPERATIONS
- RECOVERY

MAINTENANCE OF LAW AND ORDER

- LAW ENFORCEMENT
- MILITARY ASSISTANCE TO CIVIL AUTHORITIES
- PROTECTION OF INDUSTRY FACILITIES
- TRANSPORTATION

MAINTENANCE OF NATIONAL ECONOMY

- MAINTENANCE OF MONETARY SYSTEM
- RATIONING
- ENERGY/STRATEGIC MATERIALS
- TRANSPORTATION

PUBLIC HEALTH AND SAFETY

- POPULATION WARNING
- CONTINUITY OF STATE/LOCAL GOVERNMENT
- MEDICAL DISTRIBUTION
- UTILITY SERVICES
- CIVIL AIR TRAFFIC CONTROL
- WEATHER SERVICES
- TRANSPORTATION

PUBLIC WELFARE

- FOOD/ESSENTIALS DISTRIBUTION
- ENVIRONMENTAL HAZARDS
- TRANSPORTATION

President's National Security Telecommunications Advisory Committee (NSTAC). For this initiative, the pertinent roles of these organizations are as follows:

- **DOE:** The Secretary of Energy (and other members of the Cabinet) is tasked by Executive Order to be prepared to respond to emergencies that are international in scope, and to those that may occur within any region of the nation. The Office of Emergency Planning and Operations is the lead organization within DOE for energy emergency planning, preparedness and response activities.
- **NCS:** The NCS mission is to assist the President, the National Security Council (NSC), the Office of Science and Technology Policy (OSTP), and the Office of Management and Budget (OMB) in:
 - Exercise of wartime and nonwartime emergency functions, and

telecommunications planning and oversight responsibilities, and

- Coordination of the planning for and provision of NS/EP Telecommunications for the Federal government.

Figure 2 shows the NCS organization and its relationships to the NSTAC.

- **NSTAC:** The NSTAC was established by Executive Order in 1982 in response to increasing diversification of the telecommunications industry. The Committee is comprised of Chief Executive Officers, appointed by the President from companies identified in Figure 3, with knowledge and expertise in telecommunications. The Committee's objective is to provide sources of expertise, knowledge and insight not otherwise available within government on issues related to implementation of National Security Telecommunications Policy.

Figure 2
ORGANIZATION:
NATIONAL COMMUNICATIONS SYSTEM (NCS)

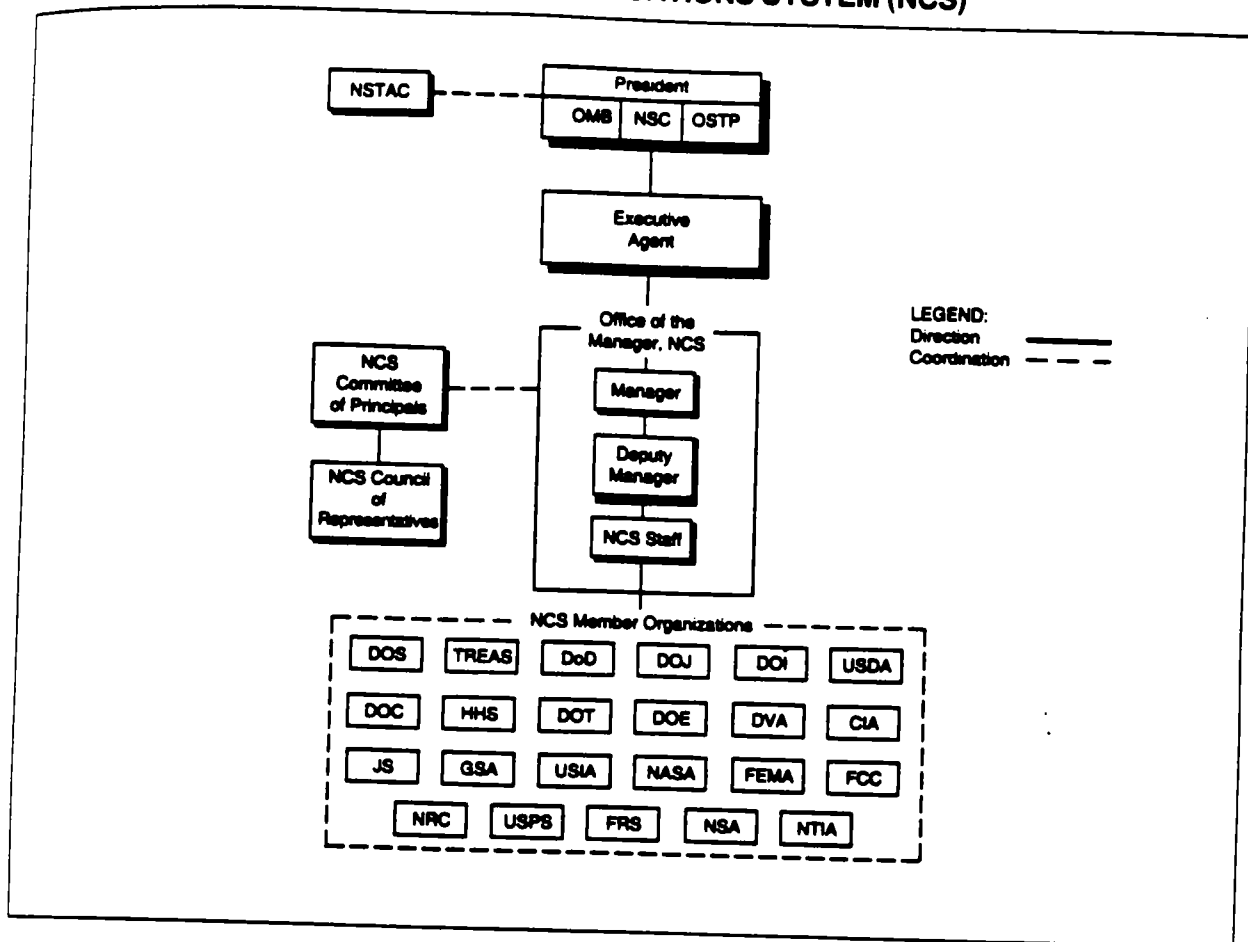
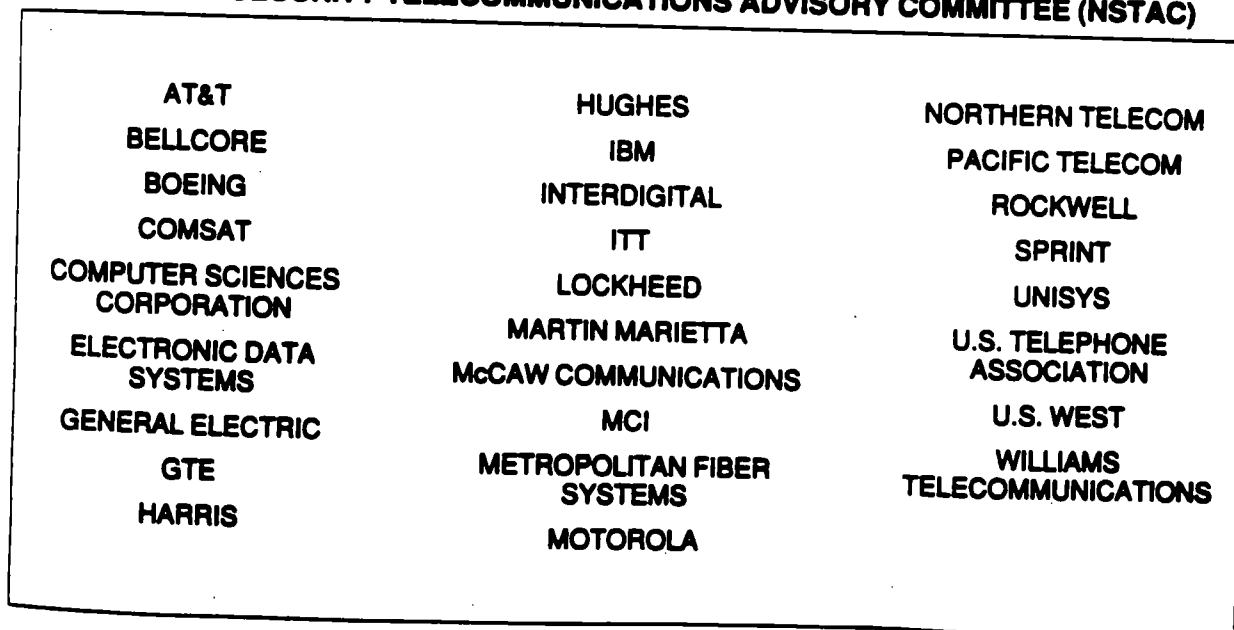


Figure 3
MEMBERS:
NATIONAL SECURITY TELECOMMUNICATIONS ADVISORY COMMITTEE (NSTAC)



The feasibility of the telecommunications ESP initiative was assessed at meetings in several States attended by representatives of DOE, NCS, the State (Emergency Management Office, Energy Office, and Public Utility Commission (PUC)), the telecommunications industry, and the electric utility industry. The meetings led to these conclusions:

- Specific telecommunication facilities are not currently included in electric utility restoration plans. However, electric utilities and telecommunications companies do coordinate during a disruption.
- The number of essential telecommunications facilities expected to qualify for inclusion in the ESP Restoration Initiative is reasonable and can be incorporated into existing electric utility restoration plans without overloading the restoration process. However, restoration plans may become unworkable if many NS/EP functions besides telecommunications are added later. (Note: DOE's plans are to request that only critical telecommunications facilities be added to existing ESP plans.)
- States may benefit by identifying telecommunications facilities that are essential to support their own emergency response activities. States expressed interest in providing the NCS, through DOE, with information to identify such facilities, but there was no clear commitment to do so from either State. State emergency management offices would be the likely agents to coordinate this identification activity.
- States anticipate an informal process to implement the telecommunications ESP initiative. The State Energy Office, PUC, or Emergency Management Office would receive a State list of essential NS/EP

telecommunications facilities from the DOE. States would distribute the list to utilities. Electric utilities and telecommunication companies would participate voluntarily, and the State would coordinate resolution of any difficulties that arise during the process.

- The implementation time required to incorporate NS/EP telecommunications facilities into utility restoration plans is expected to be minimal after the State receives the facility list from DOE.
- Both the serving electric utility and the telecommunications company should be aware of telecommunications facilities identified on the State lists as critical.
- During actual disruptions, electric utilities will use their own judgement in restoration activities and will use pre-established priorities as a guide.
- The list of critical telecommunications facilities is not necessarily all-inclusive; that is, other telecommunications network components could fail due to a lack of commercial electric power and disrupt the ability of NS/EP end-users to communicate. Examples are repeaters, regenerators, and some devices between end-offices and user premises. Local coordination by electric utilities and telecommunication companies during disruptions will address these problems.

The above conclusions guided the design of the telecommunications ESP restoration initiative.

CRITERIA FOR IDENTIFYING CATEGORIES OF CRITICAL TELECOMMUNICATIONS FACILITIES

The Energy Task Force of the NSTAC developed criteria for identifying categories of critical telecommunications facilities. The criteria were based on a

narrow definition of critical facilities to ensure that the ESP plans of electric utilities would not be overwhelmed by the number of qualifying telecommunications facilities.

The Task Force defined "critical facilities" to be those that perform functions critical to the monitoring, control, support, signaling, and switching of the voice telecommunications infrastructure (terrestrial and satellite) and divided the facilities into the following three categories:

Category I.

Network facilities or elements essential to monitoring, controlling, or supporting network operations (e.g., network management control centers, operations support systems, signaling network elements).

Category II.

All switching nodes identified by the NCS as serving essential NS/EP end users in local exchange carrier (LEC) or interexchange carrier (IC) networks, (e.g., end offices, access tandems, IC switches, international gateways).

Category III.

Other network elements (not identified in Categories I or II) essential to network operation for call completion, (e.g., regenerators) and identified by service vendors.

APPLICATION OF CRITICALITY CRITERIA

Telecommunications industry representatives assisted the NCS in identifying facilities in Category I which were considered essential to the operation of their respective networks.

Facilities in Category II that support NS/EP traffic were identified by the NCS based on data identifying the location of critical Federal NS/EP users.

The NCS will initially compile a list of specific critical facilities in Categories I and II by State. Changes in the NCS list will be tabulated annually to keep the list current.

Category III includes those facilities essential to network operation, but difficult to identify in advance and too numerous to include in a critical industry NS/EP telecommunications facility list. Therefore, the Task Force concluded that Category III facilities should be identified to the serving electric utility by telecommunication carriers at the actual time of an outage only if: backup power is expected to be depleted before normal restoration would occur and batteries used for backup power would not be able to be recharged; and/or priority restoration is required to maintain network operations.

TELECOMMUNICATIONS ESP IMPLEMENTATION PROCESS

The telecommunications ESP implementation process is illustrated in Figure 4 and includes the following steps:

A. List Preparation

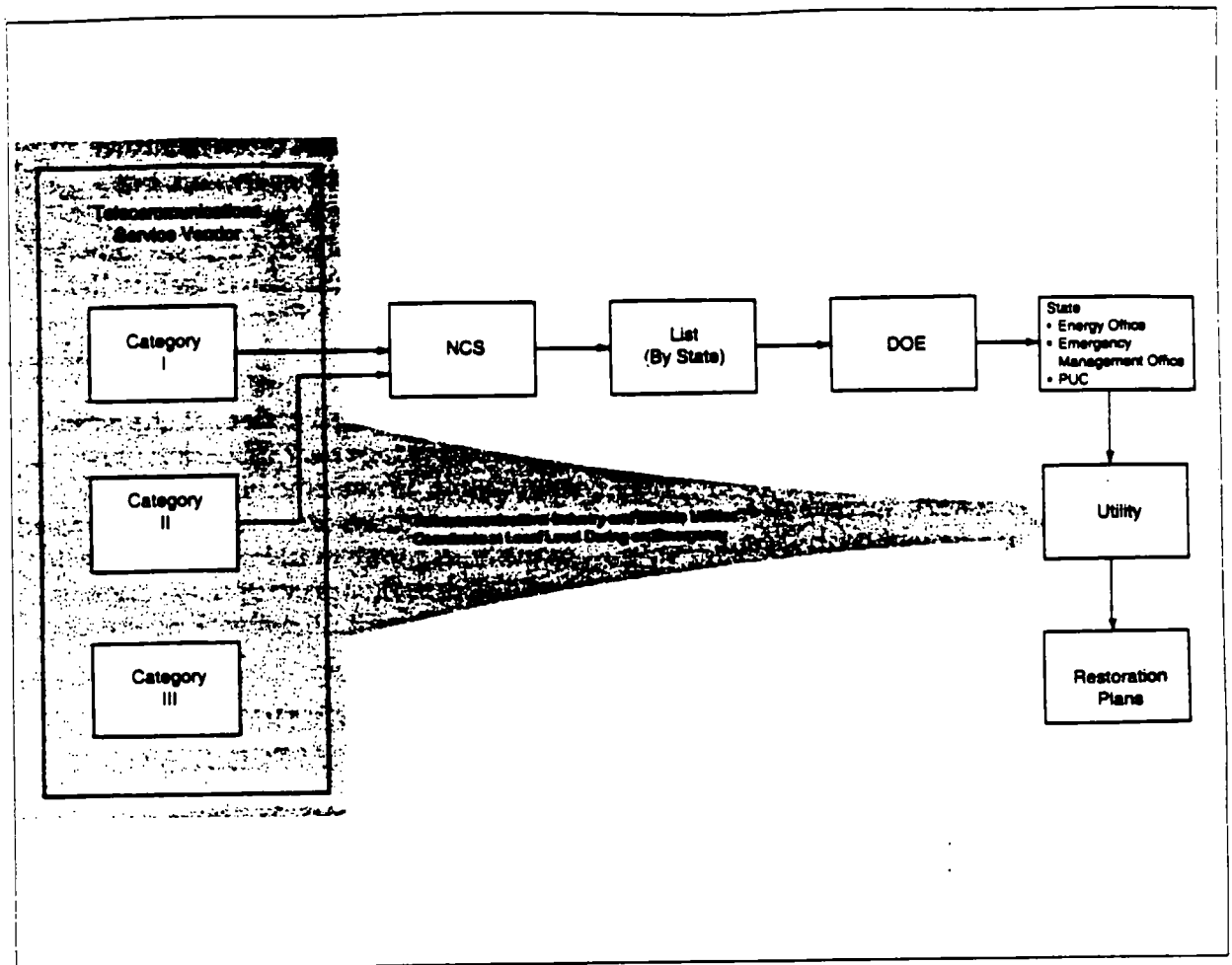
The NCS compiles critical telecommunication facility lists by State and forwards them to DOE. (The complete national list of critical telecommunications facilities in all States is highly sensitive and will not be available beyond the Federal level).

The NCS annually updates these lists and provides the information to DOE. Any modifications identified in the update also are processed as described below.

B. Distribution To States

DOE distributes the facility lists to the appropriate entity in each State (e.g., Emergency Management Office, Energy Office, or Public Utility Commission) and requests that the

Figure 4
TELECOMMUNICATIONS ESP IMPLEMENTATION PROCESS



facilities be added to utilities' ESP plans. (The individual State lists are less sensitive than the national list but should be treated as sensitive).

If a State needs help in identifying telecommunications facilities that serve its critical users, it should provide a list of telephone numbers of such users to DOE. DOE will obtain from NCS a list of any additional telecommunications facilities that may be involved and forward the supplemental information to the State.

C. Notification of Electric Utilities and Telecommunications Companies

The appropriate State entity distributes the critical

telecommunications facility list to electric utilities in its area.

Telecommunication companies need to track the progress electric utilities are making in modifying ESP plans to include their telecommunications facilities in emergency restoration plans. For this purpose, DOE will compile and provide to the NCS a list of persons in each State government with lead responsibilities for implementing the ESP initiative.

The NCS will forward this personnel list to telecommunications companies, which can use these contacts to identify utility personnel involved in modifying restoration plans.

D. Modification of Electric Utility ESP Plans

Electric utilities identify the critical telecommunications facilities they serve, using the State critical facility list. Electric utilities modify their ESP plans to include the critical facilities they serve among the highest priority categories.

E. Electric Utility Response During a Disruption

Electric utilities should normally proceed with priority restoration of power to critical telecommunications facilities only upon the request of the telecommunications company.¹

Such a request would indicate that the facility was inoperable because the back-up generator had failed or could not be refueled, or the backup batteries were being exhausted and could not be recharged.

Other telecommunications facilities, in addition to those included in ESP plans, also may be essential to communications network operation but are too numerous to include on a critical facility list. Some of these facilities (i.e., Category III facilities) may require priority electric power restoration to maintain telecommunications network operation under some circumstances. Such restoration requirements will be coordinated by telephone companies and electric utilities on an "as needed" basis.

EMERGENCY FUEL RESUPPLY FOR TELECOMMUNICATIONS COMPANIES' BACKUP GENERATORS

Telecommunications companies normally store fuel at sites with back-up generation. Additionally, they may have priority resupply contracts with local fuel suppliers or actually own fuel commingled with other storage held in suppliers' tanks.

To simplify their emergency response activities, some electric utilities may elect to proceed automatically with priority restoration of critical telecommunications facilities without requiring requests from telecommunications companies.

Since telecommunications services are considered essential, DOE, NCS and telecommunications companies believe it would be counterproductive for States to take fuel supplies intended for backup generators during an emergency.

ACCESS TO DISASTER AREAS

Electric utility repair crews, telecommunications repair crews and fuel resupply personnel for back-up telecommunications generators may be prohibited from entering a disrupted area by security personnel. It is recommended that States review their emergency plans to ensure that such emergency response personnel are admitted to impacted areas on a priority basis, and provided with security protection when necessary and available security resources permit.

1. To simplify their emergency response activities, some electric utilities may elect to proceed automatically with priority restoration of critical telecommunications facilities without requiring requests from telecommunications companies.

GLOSSARY

ACRONYMS AND TECHNICAL TERMS

Access Tandem	A type of phone company central office specifically designed to provide equal access for all long distance/interexchange carriers.
CIA	Central Intelligence Agency
DOC	Department of Commerce
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOJ	Department of Justice
DOS	Department of State
DOT	Department of Transportation
DVA	Department of Veterans Affairs
End Office	The switching office where a customer is connected to receive dial tone.
ESP	Electric Service Priority
ETF	Energy Task Force
FEMA	Federal Emergency Management Agency
FCC	Federal Communications Commission
FRS	Federal Reserve System
GSA	General Services Administration
HHS	Department of Health and Human Services
IC	Interexchange Carrier
IC Switch	Switching entity that connects and determines the routing of calls within the IC network.
International Gateway	Entrance and exit point between a domestic interexchange carrier network and an international carrier network.
JS	Joint Staff of the Department of Defense
LEC	Local Exchange Carrier
NASA	National Aeronautics and Space Administration
NCS	National Communications System

NRC	Nuclear Regulatory Commission
NS/EP	National Security and Emergency Preparedness
NSA	National Security Agency
NSC	National Security Council
NSTAC	National Security Telecommunications Advisory Committee
NTIA	National Telecommunications and Information Administration
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
PUC	Public Utility Commission
Regenerator	Equipment that takes a digital signal that has been distorted by transmission and produces from it a new signal in which the shape, timing and amplitude of pulses have been restored.
Repeater	A device inserted at intervals along a circuit to boost, amplify and/or regenerate the signal being transmitted.
TREAS	Department of the Treasury
USDA	U.S. Department of Agriculture
USIA	U.S. Information Agency
USPS	U.S. Postal Service

VOLUME II

NATIONAL ENERGY STRATEGY REVIEW

1.0 INTRODUCTION

1.1 PURPOSE AND ORGANIZATION OF THE REPORT

In December 1991, the Industry Executive Subcommittee (IES) modified the original charge to the Energy Task Force. Specifically, in addition to the original charge, the task force was tasked to review the President's National Energy Strategy (NES) from the perspective of benefits to national security and emergency preparedness (NS/EP) telecommunication enhancements, and develop NS/EP telecommunication energy concerns/issues for incorporation in the Department of Energy's (DOE) next issue/update of the NES. This report documents the task force's efforts and is organized as follows:

- Section 1.0 presents an overview of the background.
- Section 2.0 reviews task force findings.
- Section 3.0 documents the conclusions.
- Section 4.0 identifies the task force's recommendations to the Government.

(Energy Task Force membership is listed in Volume II, Appendix A.)

1.2 BACKGROUND

In May 1991, the National Security Telecommunications Advisory Committee's (NSTAC) NS/EP Panel, as part of their review of potential NS/EP telecommunication issues, received briefings on the NES from the Office of the Manager, National Communications System (OMNCS) and the DOE. The objective of the NES, as established by President Bush in July 1989, is to achieve "... balance among our increasing need for energy at reasonable prices, our commitment to a safer, healthier environment, our determination to maintain an economy second to none, and our goal to reduce dependence by ourselves and our friends and allies on potentially unreliable energy suppliers." The purpose of the NES is twofold: (1) to reinforce current energy policy measures ensuring progress is achieved, and (2) to accommodate even greater improvements in energy efficiency, security, and reduction of environmental impact than would be achieved by current policies alone.

The NS/EP Panel and the Plans Working Group (PWG) recommended to the IES that further review of the NES and its bearing on NS/EP telecommunications was warranted. Subsequently, in December 1991, the IES modified the charge to the Energy Task Force to include an analysis of the NES.

1.3 APPROACH

The task force reviewed the NES to determine to what extent the following items were addressed:

- (1) Survivability of the commercial energy infrastructure with particular focus on electric power survivability. The task force identified the elements of the U.S. power system

that are most vulnerable to power outages, and reviewed current and proposed NES initiatives that could improve telecommunications power survivability.

- (2) Research and development (R&D) in support of longer lasting alternative energy sources and power generation technologies that could be applied to telecommunications. The task force developed recommendations for areas where it perceived omissions in the NES with respect to NS/EP telecommunication concerns.
- (3) Alternative energy resources promoted by the NES that are currently used or planned for use by NSTAC member companies.

The task force applied the following working definitions in its review of the NES:

- Electric power survivability: the ability to continue to generate, transmit, and distribute electric power to customers under disaster or emergency conditions (e.g., hurricanes, tornadoes, earthquakes)
- Electric power reliability: the ability to continue to generate, transmit, and distribute electric power to customers under normal conditions.

The task force received two key briefings during its review of the NES from DOE and OMNCS staff. First, Mr. David Meyer, DOE Office of Policy (publisher of the NES), briefed the Energy Task Force on the legislative actions and implementation status of the Secretary of Energy's recommendations made in the February 1992 update of the 1991 NES. He acknowledged that electric power survivability was a legitimate perspective for the task force's review. Additionally, the task force received a briefing from MITRE on electric power survivability and new technologies; the OMNCS staff recommended that the task force review new power generation technologies being developed under the NES for potential application to NS/EP telecommunications.

2.0 FINDINGS

To enable the task force to implement the first component of its approach (energy infrastructure survivability), data was retrieved from the DOE database, *Major Disturbances and Unusual Occurrences*, and vulnerabilities of the electric power infrastructure were analyzed. The task force also considered the North American Electric Reliability Council (NERC) and Congressional Office of Technology Assessment (OTA) reports on the vulnerabilities of the electric power system. While reviewing the NES to address the second component of its approach (new power generation technologies), the task force found that some of the alternative power generation technologies under development have the potential to be viable sources of power to support telecommunications. Through the third component of its approach, the task force found that some NSTAC member companies are considering alternative energy resources to supplement their commercial and backup power sources. The findings that resulted from the three components of the task force's approach are presented in the following sections.

2.1 TASK FORCE ANALYSIS OF ENERGY INFRASTRUCTURE SURVIVABILITY

The task force began addressing the first component of its approach by defining the elements of the electric power system, which are the generation, transmission, and distribution subsystems. In addition, substations, which can be part of either the transmission or distribution subsystems, convert power voltage from one level to another. The generation subsystem produces electric power by converting energy from a nonelectric form to an electrical form. The transmission subsystem carries electric power from generators to high voltage substations and between high voltage substations. The distribution subsystem carries electric power from the termination point of the transmission subsystem to the end users.

According to a DOE report, 85 percent of power failures are due to problems in the distribution subsystem (U.S. Department of Energy, 1981, *The National Electric Reliability Study: Final Report*, DOE/EP-0004, Washington, D.C. See Exhibit 2-1). To determine the source of customer-affecting power outages, the task force analyzed a sample of recent power failure data from the DOE database, *Major Disturbances and Unusual Occurrences*, including:

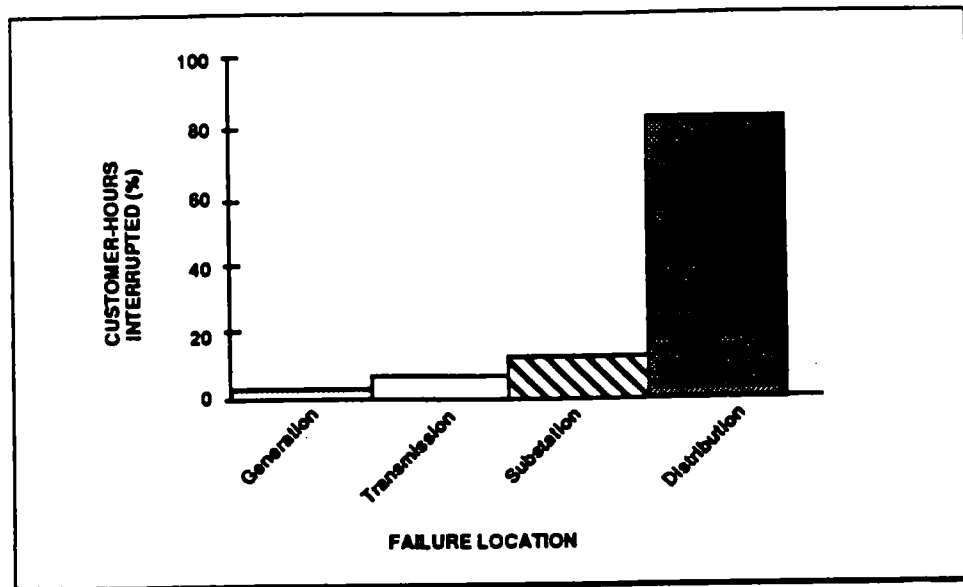
- Frequency of occurrence, by source (e.g., distribution, transmission)
- Average number of customers affected, by source
- Average duration of outage, by source.

The information in the DOE database was compiled based on electric utilities' reports of significant outages in accordance with the DOE's *Power System Emergency Reporting Procedures*. The task force selected data covering a 3-year period (September 1986 to September 1989). Of the 100 events reported to DOE, 40 events were selected as representative of the kind of outages telecommunication companies might experience. The sampling eliminated all voltage reductions (not outages) and events that did not disrupt service to customers.

Task force analysis found that 88.6 percent of customer-affecting outages occurred in the distribution and transmission subsystems of the power system; distribution outages were on average more than twice as long as transmission outages; and transmission outages affected slightly more customers, on average, than distribution outages (see Exhibit 2-2). The task force concluded that both transmission and distribution facilities are significant sources of vulnerability because they are, in general, located above ground and are most exposed to the effects of natural

disasters (e.g., hurricanes, wind storms, ice storms). The task force determined that the greatest improvements in power survivability will be accomplished by reductions in physical transmission and distribution vulnerabilities.

Exhibit 2-1
Frequency of Power Failure by Source

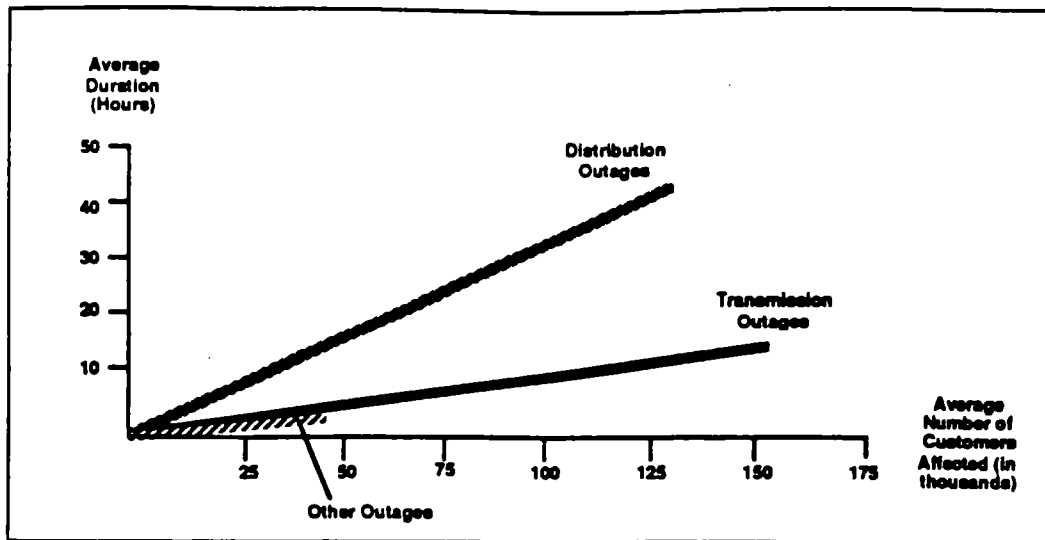


The task force found that the NERC and the OTA have reviewed the vulnerabilities of the U.S. electric power system and reached the following conclusions:

- The NERC reported in its *Reliability Assessment 1991-2000*, that "... the transmission systems are loaded at or near their capacity in some areas. Diminishing transmission capability margins and the decreasing flexibility of these systems to respond to system emergencies are growing concerns..."
- The OTA reported in *Physical Vulnerability of Electric Systems to Natural Disasters and Sabotage*, that "... very few blackouts have affected many people for more than a few hours. Nevertheless, much worse blackouts are possible which could cause enormous disruption and expense for society." Also, "... widespread outages or power shortages lasting several months or more are unlikely unless significant components of the bulk power system—generation and transmission—are damaged."

These expert findings presented an additional concern regarding transmission vulnerabilities as a significant source of lasting power failures, in addition to the physical vulnerabilities previously identified in task force analysis.

Exhibit 2-2
Power Failure Analysis



2.2 TASK FORCE ANALYSIS OF ALTERNATIVE BACKUP POWER TECHNOLOGIES FOR TELECOMMUNICATIONS

To address the second component of its approach, the task force reviewed the NES to determine whether new power generation technologies might be applicable to supporting NS/EP telecommunications backup power. The task force found that the following alternative energy sources being developed under the scope of the NES have the potential for providing new forms of backup power for NS/EP telecommunications:

- Utilizing new technologies (high energy-density batteries, fuel cell technology)
- Utilizing existing technologies for telecommunications (nonutility generators/exempt wholesale generators [forms of dispersed power generation], on-site renewable power supplies [e.g., solar, wind, low-head hydro, geothermal])
- Extending existing backup power capabilities (alternative means of fuel resupply/storage techniques [e.g., alternatively fueled vehicles, hybrid electric vehicle technology, enhanced storage for longer lasting fuel supply]).

The task force found that current NES R&D in the above areas was not specifically focused on power and fuel requirements of the telecommunications industry. One means of increasing such R&D is through cooperative research and development agreements (CRADA). CRADAs are quickly becoming the preferred method of transferring Government technology to private industry. These agreements were made possible by the 1986 Federal Technology Transfer Act and the 1989 National Competitiveness Technology Transfer Act. They are unique in that they are virtually free of the legal conditions placed on other Government/industry agreements, such as contracts, grants, and patent assignments. Another benefit is that they have a relatively short implementation time, usually taking only a few weeks.

2.3 TASK FORCE ANALYSIS OF NSTAC MEMBER COMPANY USE AND DEVELOPMENT OF ALTERNATIVE ENERGY SOURCES

To address the third component of its approach, NSTAC member companies provided information on their use and development of alternative energy sources. The task force found that NSTAC companies could increase their now limited use of these sources. With respect to the use of these sources, the Government's energy R&D might have applicability to the telecommunications industry; but either the information has not been adequately disseminated or the R&D does not address the industry's specific backup power requirements for disaster conditions.

As discussed earlier in this report, the telecommunications industry relies heavily on batteries to provide emergency power in the event of a power outage. This need has led to concerns within the industry regarding the robustness of lead acid battery plants that provide power at remote sites—concerns being realized as the number of remote sites increases. Valve-regulated lead acid batteries are used at such sites and, while adequate for environments in which the temperature does not rise significantly above the range specified by the manufacturer, they exhibit much reduced lifetimes in hotter environments. In very hot areas of the U.S., for example, lifetimes can be as short as two years. With the ever-increasing reliance of emerging technologies and services on battery backup power, the reliability concerns and maintenance costs associated with valve-regulated lead acid batteries may make them unsuitable for deployment in environments where temperature is uncontrolled.

Bellcore is currently engaged in research to enhance network robustness and integrity through innovations in backup powering technologies. It is seeking to improve the reliability and reduce life cycle costs of lead acid batteries in outside plant environments, and ensure availability of new battery technologies that offer better and more cost-effective performance for backup power for such new capabilities as Fiber-In-The-Loop.

The U.S. Advanced Battery Consortium (USABC) has been reviewing recent Bellcore research and has been encouraged by the results published on "rocking chair" lithium-ion battery technology. This technology exhibits high energy density, stability of operation at high temperatures, and a wide charge-discharge window. The USABC was organized to accelerate the development of new, safer, and more reliable battery technologies for such applications as electric vehicles. Part of their funding is provided by the Federal Government with matching funds from the three domestic automobile manufacturers. This group is vitally interested in promising power cell research programs.

The commercial sector is also conducting some independent R&D. For example, PacifiCorp, the parent company of Pacific Telecom (NSTAC member company), has developed several alternative energy programs in its pursuit of acquiring the most efficient, cost-effective energy resources for its customers. (Pacific Telecom is not directly involved in the development of these programs.) In October 1992, it announced plans to build a 50 megawatt electrical cogeneration facility (cogeneration is the use of excess steam from an industrial process to produce electricity). PacifiCorp and three other Northwest electric utilities signed an agreement with U.S. Windpower in August 1992 to investigate developing the Northwest's first large scale wind generating project. By 1996, PacifiCorp expects the project's 138 wind turbines will potentially produce a total of 50 megawatts.

3.0 CONCLUSIONS

Based on its review of the President's National Energy Strategy in the area of electric power survivability, the task force concluded:

- **The National Energy Strategy does not address energy survivability as a specific objective.** Like the electric power industry, the NES places more emphasis on improving power reliability than on improving power survivability for disaster conditions.
- **Improvements in power survivability can be gained by reducing physical transmission and distribution vulnerabilities.** The transmission and distribution subsystems are the most vulnerable portions of the nation's electric power systems because they are, in general, located above ground. Additionally, some transmission and distribution components, although below ground, are also vulnerable to natural disasters such as earthquakes.

With respect to its review of the President's National Energy Strategy in the area of telecommunications backup power, the task force concluded:

- **The NES does not address R&D for telecommunications backup power.** The National Energy Strategy supports R&D on a variety of power generation technologies with potential use for providing long-lasting and survivable backup power. Although some of the existing R&D may have limited applicability to the telecommunications industry, technology transfer between Government and industry has not always occurred in the most timely and efficient manner.
- **There is a lack of cooperative R&D between the U.S. national laboratories and telecommunication companies regarding alternative forms of backup power technologies.** The DOE national laboratories have moved rapidly in implementing their newly added mission: helping to maintain U.S. competitiveness in the world marketplace. The new mission objective is to develop core capabilities that will enable U.S. industry to build better products and offer better services. The enabling mechanism has been the cooperative research and development agreement under the 1989 National Competitiveness Technology Transfer Act.

4.0 RECOMMENDATIONS

As an essential communications lifeline service provider, the telecommunications industry requires survivable electric power, both primary and backup, under disaster conditions. Therefore, the Energy Task Force makes the following proposed NSTAC recommendation to the President for his use in preparing the 1993 issuance of the National Energy Strategy:

- To address the improvement of electric power survivability under disaster conditions, the President's National Energy Strategy should:
 - Increase R&D and incentives to reduce transmission and distribution vulnerabilities
 - Evaluate locating dispersed power generation closer to customer loads as a possible means of further reducing transmission and distribution vulnerabilities
 - Focus more R&D on alternative backup power technologies for the telecommunications industry by encouraging cooperative R&D agreements between the U.S. national laboratories and interested telecommunication companies.

VOLUME II

APPENDIX A

TASK FORCE MEMBERS

APPENDIX A
TASK FORCE MEMBERS

GE	Mr. Stan Welland, Chairman
AT&T	Mr. David Bush
Bellcore	Mr. Randall Schulz
COMSAT	Mr. Ernest Wallace
CSC	Mr. Robert Brownfield, Mr. Guy Copeland
GTE	Mr. James Bean
ITT	Mr. Joseph Gancie
MCI	Mr. Tim Rodgers
Martin Marietta	Mr. Jerry Komlos
US West	Mr. Jon Lofstedt

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