



Energy Task Force Final Report

**Telecommunications Electric Service Priority
and
National Energy Strategy Review**

**Overview and
Executive Report**

May 10, 1993

ENERGY TASK FORCE FINAL REPORT

Overview

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EXECUTIVE SUMMARY

INTRODUCTION

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.

THE ISSUE

Volume I explains that the Energy Task Force's investigation focused primarily on developing the aforementioned criteria and a process for applying the criteria, and reviewing existing programs to determine if they could be applied to the task force's efforts. To develop criteria, the task force analyzed components of the public switched network. Specifically, the task force developed a narrow definition of critical industry NS/EP telecommunication facilities to ensure the creation of a manageable list for inclusion in DOE's Telecommunications Electric Service Priority (TESP) initiative. 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.

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.

In addition, the task force reviewed existing State and Federal programs. State initiatives included electric service priority restoration plans, the State of California's emergency response structure, and set-aside fuel programs. Federal programs included DOE's TESP initiative, the National Communications System's Regional Manager program, the Federal Emergency Management Agency's *Federal Response Plan* and the *National Plan for Telecommunications Support in Non-wartime Emergencies*, DOT's *Crisis Action Plan* and Federal Highway Administration's Federal Motor Carrier Safety Regulations, and the Telecommunications Service Priority System. The task force developed conclusions and recommendations accordingly.

In Volume II, the task force reviewed the National Energy Strategy to determine to what extent the following items were addressed: (1) survivability of the commercial energy infrastructure with particular focus on electric power survivability; (2) research and development in support of longer lasting alternative energy sources and power generation technologies that could be applied to telecommunications; and (3) alternative energy resources promoted by the NES with respect to NS/EP telecommunication concerns. To accurately determine what benefits these areas could bring to NS/EP telecommunications, the task force conducted the following analyses: energy infrastructure survivability, alternative backup power technologies for telecommunications, and NSTAC member company use and development of alternative energy sources. The task force developed conclusions and recommendations to be forwarded to DOE for inclusion in the next issue of the NES.

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 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 enhance industry's ability to respond to NS/EP telecommunication 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).

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.

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.

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.

