

# **Network Reliability Steering Committee**

***Annual Report 2001***



**Network Reliability  
Steering Committee**



**Sponsored by the Alliance for  
Telecommunications Industry  
Solutions**

## **To the Telecommunications Industry:**

*This Annual Report reviews the health of the wireline telecommunications networks for the year 2001, as well as trends observed over the last nine years of outage reporting to the FCC. The past year was an extraordinary one, marked by dramatic events that have highlighted the criticality of the nation's communications infrastructure. Telecommunications reliability was not only challenged by natural disasters, but also by the damage as a result of the September 11<sup>th</sup> terrorist attack. The industry's cooperation and commitment to service and reliability enabled it to meet these challenges.*

*During the past year the frequency of outages and the outage index, a measure of impact on customers, remained within the "green" area of the control charts. These results are consistent with those observed in recent years, and demonstrate continued overall reliability of telecommunications networks and services. However, further analysis presents a mixed message regarding network reliability performance in 2001. The number of outages was lower than in any year to date, but the aggregated outage index reached its second highest value to date. Also, the average number of customers potentially affected by an outage and the average outage index per outage were the highest to date. The Local Switch outage category had the lowest annual frequency and aggregated outage index to date. The annual aggregated outage index of Procedural Errors as a root cause of outages was the highest to date. The Other outage category had the highest annual aggregated outage index of any category to date aside from Facility.*

*Special note should be taken of the extraordinary events of September 11, 2001, which produced seven outage reports to the FCC. Six of the seven reports (those directly associated with damage from the attacks on New York City and the Pentagon on that day) were combined and treated as a single outage for the purposes of this study as they all occurred concurrently as the result of a common cause, and because of the extraordinary nature of the event. We are all very proud of the industry and how all pulled together to restore service in the face of unprecedented conditions.*

*Analysis of outage data over the course of the nine-year data history shows that total outage frequency and aggregated outage index have increased at a slower rate than standard measures of network and call volume. It should be noted that within failure categories: the outage frequency rate of increase for CO Power is 12% per year; Facility outage frequency has decreased in the last two years and its aggregated outage index is decreasing at 6% per year; the frequency of CCS outages has increased in the last two years; and Local Switch annual outage frequency aggregated outage index are decreasing at 6% and 13% respectively. The frequency of outages with a Procedural Error as a root cause is increasing at a rate of 6% per year.*

*In the second half of 2001, "timing" was observed to be an increasing factor in network outages. Accordingly, the NRSC established a "Timing Outages Task Group" to investigate and report its recommendations to the Committee. The Task Group's analysis of outages reported in 2000 and 2001 indicated that timing was a factor in 9.4% of all outages and 33% of all SS7 outages. As a result of its investigation, the Task group developed three new Best Practices. This investigation was the result of the industry data collected under the NRSC umbrella and the root cause may never have been uncovered except for the aggregation of the data. Kudos to the team.*

*As in the previous Annual Report, I encourage all service providers and vendors to review the best practices documents available on the NRSC web site at <http://www.atis.org/atis/nrsc/nrschome.htm>. NRIC best practices are also available on the web in searchable format at <http://www.nric.org/>.*

*The continual effort and cooperation that that our industry has devoted to the reliability of the United States public telecommunications networks is exemplary. However, in light of recent events we must exert renewed energy and focus on a broader range of challenges. The spirit of collaboration and dedication found among the industry, consumer, and government representatives that make up the NRSC will help us prepare to meet these challenges.*

*PJ Aduskevicz  
Chair NRSC*

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# INTRODUCTION

This report provides an analysis of U.S. telecommunications network performance based on outage reports made by service providers to the FCC from January 1, 1993 through December 31, 2001. While service providers are required to make such reports for outages meeting various criteria, the vast majority of reports are made for outages that potentially affect 30,000 or more customers for 30 minutes or more. The analysis presented herein is primarily focused on those outages reported on the basis of these 30,000 customer/30 minute thresholds. A discussion of other reportable incidents is included in a section on “Special Outages.”

The Network Reliability Steering Committee (NRSC) was established under the auspices of the Alliance for Telecommunications Industry Solutions (ATIS) to monitor network reliability utilizing major outage reports filed with the Federal Communications Commission (FCC) pursuant to Part 63.100 of the FCC Rules. The NRSC’s mission is to analyze network outage data reported by companies, to identify trends, make recommendations aimed at improving network reliability, and make the results publicly available, and where applicable refer matters to other industry fora for further action.

During 2001 members and participants in the NRSC included:

- AT&T
- Beacon
- BellSouth
- Consumer Representative
- E-commerce & Telecommunications Users Group
- FCC
- Lucent Technologies
- National Association of Regulatory Utility Commissioners (NARUC)
- National Communications System (NCS)
- Nortel Networks
- Personal Communications Industry Association (PCIA)
- Siemens ICN
- SBC
- Sprint
- Telcordia Technologies
- Union Pacific Railroad
- United States Telecom Association (USTA)
- Verizon