

Appendix B: Federal Government Roles

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In its attempts to address rapidly changing technology, expanding user needs, and an outmoded regulatory structure, the federal government—including both the legislative and executive branches—will play three key roles in the development of radio-based systems and the National Information Infrastructure (NII): user, catalyst, and policymaker/regulator.

GOVERNMENT AS USER

The federal government is a major user of all kinds of wireless communication systems for defense, public safety, emergency preparedness, and space communications. In some cases, these systems are built and operated by the government. Increasingly, however, government communication needs are being met by private sector service providers.

The federal government has already taken steps to define its special requirements and to see how they may or may not be met by evolving NII systems and services. In this sense, the federal government may actually be *ahead* of many in the private sector in positioning itself for the coming explosion in the availability of wireless services and systems. The lessons learned by government policymakers may be important to Congress and others interested in ensuring that wireless technologies benefit not only government users, but all users.

Most federal government activity regarding wireless technologies has been coordinated through the Federal Wireless Users Forum (FWUF). Established in 1992, the FWUF is composed of government agencies with interests in using wireless communications as part of their missions. FWUF sponsors workshops on wireless services that bring together industry representatives and federal users in order to enhance technical understanding and define the emerging needs of the agencies, both civilian and defense, for wireless systems and services.

Another group, the Federal Law Enforcement Wireless Users Group (FLEWUG), is composed of more than 60 representatives from federal agencies with law enforcement responsibilities, and is open to state, county, and local agencies as well. The FLEWUG, which was formalized under the auspices of the National Performance Review (NPR), hopes to establish a National Law Enforcement and Public Safety Network, which has been advocated by Vice President Gore. The momentum to form this network came from the lack of compatibility between different law enforcement radio systems. The group conceivably could build its own system with pooled resources, but more likely would develop specifications for a common procurement for equipment and/or services.

In January 1995, the Government Information Technology Services (GITS) committee of the Information Infrastructure Task Force (IITF) approved

the creation of a Joint Federal Wireless Review Office (JFWRO), although its charter and mandate are not formally set. One of the roles of this new office will be to consolidate federal wireless programs by eliminating duplication and incompatible systems and promote more spectrum-efficient systems across government agencies. The use of commercial systems, where possible, is one solution the office is likely to pursue. The JFWRO's activities could reach into areas traditionally within the jurisdiction of the National Telecommunications and Information Administration (NTIA) and the Interdepartment Radio Advisory Committee (IRAC, see below). As a result, opposition to the creation of the office has developed. The division of authority and the interactions between NTIA, IRAC, and JFWRO are currently uncertain.

GOVERNMENT AS CATALYST

Although the primary burden of developing and deploying NII technologies and services falls on the private sector, the federal government has initiated grant programs that provide financial assistance for demonstration, planning, and even operation of telecommunications systems. NTIA has two programs that may be used to fund the development of wireless systems. First, the Public Telecommunications Facilities Program awards grants to noncommercial organizations primarily for the expansion or upgrading of public broadcasting (radio and television) facilities, and for the establishment of distance-learning projects. For FY 1994, funding was just over \$21 million.¹

The Telecommunications and Information Infrastructure Assistance Program (TIIAP) provides funds,

on a matching basis, for planning and demonstration of technologies and applications that support the broader goals of the NII. In FY 1994, the first year of the program, grants totaled over \$24 million. When combined with the matching funds, the program is expected to generate almost \$68 million toward the development of the NII in schools, health care institutions, libraries and museums, social service organizations, and state and local governments.²

Based on a brief review of TIIAP grants awarded, wireless appears to play a small role.³ Of the 57 demonstration grants, most plan to use traditional wireline technologies to provide access to computer networks, including the Internet. One project uses broadcast and one uses microwave for backbone transmissions, etc., but none indicates a direct use of wireless technologies for access purposes.

GOVERNMENT AS POLICYMAKER AND REGULATOR

The third role the government plays is that of policy- and rule-maker. Responsibility is shared among Congress, the executive branch, and the Federal Communications Commission (FCC), an independent regulatory agency. In international issues dealing with spectrum and satellite services, the Department of State also plays a role in policy development. Congress periodically passes legislation outlining both broad policy directions and directing specific actions on the part of the FCC and the executive branch. Responsibility for day-to-day regulation and management of the country's radio spectrum is divided between the FCC, which regulates private sector and

¹ The 1994 grants went to support 61 public television, 50 public radio, and 29 distance-learning grants in 42 states, American Samoa, the Northern Marianas, and the District of Columbia. U.S. Department of Commerce, National Telecommunications and Information Administration, "NTIA Announces FY1994 PTFP Grant Awards," news release, Sept. 19, 1994.

² U.S. Department of Commerce, National Telecommunications and Information Administration, "Public Institutions Receive Millions to Deploy Information Superhighway," news release, Oct. 12, 1994.

³ This does not necessarily reflect a bias in the selection process. More likely it reflects applicants favoring traditional (wireline) solutions. The source of this favoritism may lie in costs, which could be higher for wireless; lack of knowledge about wireless alternatives; or a need that cannot be met by wireless applications. With over 1,000 applications received, no comprehensive data are available that reliably indicate which specific technologies are to be used. In addition, for the planning grants, the result of the proposed planning activity is to select appropriate technologies—in other words, no technology was necessarily selected in each application.

state/local government use of the spectrum, and NTIA, which oversees federal government spectrum use.⁴

■ Congressional Action

In the past several years, Congress has taken a more aggressive role in telecommunications policymaking—recognizing the increased importance and visibility that telecommunications has achieved as a contributor to U.S. business, international competitiveness, and quality of life. Addressing radio communications specifically, Congress passed the Omnibus Budget Reconciliation Act of 1993, which contained three major wireless policy initiatives.⁵ The act:

1. directed the Secretary of Commerce to transfer at least 200 MHz of spectrum from federal government uses to the private sector,⁶
2. laid out the principles for regulating commercial mobile radio services (CMRS),
3. authorized the FCC to use competitive bidding (auctions) as a method for assigning portions of the radio frequency spectrum.

As a result of the act, NTIA transferred 50 MHz of spectrum to the FCC for reallocation to private use, and identified another 185 MHz of spectrum to be transferred; the FCC laid the foundation of CMRS regulation (although some issues are still being considered); and auctions have been held in narrowband (data/messaging) personal communications services (PCS), voice PCS, and interactive video data services (IVDS).

Congress is currently debating several bills that would substantially change how various parts of the nation's telecommunications infrastructure are regulated.⁷ Generally, this legislation focuses on opening up the various segments of the telecommunications industry to more competition—in the belief that in-

creased competition will bring new services and low costs. The treatment of wireless communications in these bills is limited. Specific provisions relating to broadcasters' use of the spectrum are defined, but only a few paragraphs relating to CMRS providers are included—mainly to clarify the new legislation's relation to the Omnibus Budget Reconciliation Act of 1993.

■ Federal Communications Commission Proceedings

The FCC regulates all private sector and state/local government use of the radiofrequency spectrum. It *allocates* specific blocks of spectrum for use by different radio services, and it *assigns* to individual licensees the right to use specific frequencies or channels. The FCC has proceedings in progress that will affect almost every type of radio-based communication. Those proceedings will not be detailed here; the following represents only a summary of the wireless issues the FCC is currently considering. More discussion on the most important of these proceedings can be found in the specific sections of the report that deal with those issues:

- High-Definition Television (HDTV) proceeding
- Various PCS and CMRS proceedings
- Low-Earth orbit (LEO) satellite licensing
- Satellite digital audio broadcasting (DAB) licensing
- Enhanced-911
- zoning (petitions and comments have been filed; not yet a formal proceeding)
- public safety spectrum needs
- spectrum “refarming.”

Until recently, the FCC has been unable or unwilling to tackle long-term spectrum planning issues. Critics have long accused the Commission of doing little

⁴ The Communications Act of 1934 established the Federal Communications Commission and divided responsibility for spectrum management between it and the President. 47 U.S.C., sections 151, 152, 305 (1989). In 1978, Executive Order 12,046 transferred Presidential authority for spectrum management to the Secretary of Commerce and established the National Telecommunications and Information Administration (NTIA). Finally, in 1992, Congress passed the National Telecommunications and Information Administration Organization Act, formally delegating federal government spectrum assignment authority to the head of NTIA. Public Law 102-538, Oct. 27, 1992.

⁵ Public Law No. 103-66.

⁶ The 200 MHz was specified to be taken from government allocations below 5 GHz, and at least 100 MHz will come from below 3 GHz—some of the most sought-after frequencies due to transmission characteristics (see app. A). Public Law 103-66, Aug. 10, 1993, Title VI.

⁷ S. 652, H.R. 1555, and H.R. 1528.

more than reacting to technology developments, and observers have commented that the FCC will not act until someone forces it to by filing a petition for change. In the past several years, the FCC has become more willing to plan more aggressively. It initially took an aggressive approach to developing standards and an implementation schedule for HDTV, although that schedule has slipped. The FCC's Office of Plans and Policies has written studies on the future of fiber optics and the broadcasting industry. And in early 1992, the FCC proposed the creation of a "spectrum reserve" in order to promote the development of new radiocommunication technologies and services. Much of that spectrum is now devoted to future PCS systems. Most recently, the FCC has opened a proceeding to examine how to use radio frequencies above 40 GHz.⁸

■ Executive Branch Efforts

NTIA is responsible for developing and promoting executive branch telecommunications policy. It serves as the President's principal adviser on telecommunications policies and is also responsible for managing the federal government's use of the radio frequency spectrum.⁹ In this role, it works closely with the FCC to develop policies and procedures that are consistent and that allow many portions of the spectrum to be shared by both government and non-government wireless users. To help it carry out its responsibilities for spectrum management, NTIA draws on the expertise of the members of the IRAC, which is made up of 20 federal agencies that use wireless communications, and the Spectrum Planning and Policy Advisory Committee, which consists of private sector and federal government members who advise NTIA on radiocommunication issues.¹⁰

The executive branch has taken steps to revitalize spectrum planning. NTIA established the Strategic Spectrum Planning Program to develop a long-range spectrum plan that will include both federal and non-federal users. In 1992, as part of this initiative, NTIA requested comments and information on "Current and Future Requirements for the Use of Radio Frequencies in the United States." In this proceeding, NTIA clearly notes the importance of improved planning of the spectrum resource:

... planning helps ensure that adequate spectrum will continue to be available for public safety needs, other non-commercial uses such as amateur radio and scientific research, and local, state, and federal government uses. Moreover, improved planning is essential for the U.S. government to represent effectively the interests of all U.S. spectrum users in international spectrum negotiations.¹¹

As a result of its inquiry, NTIA released a report, *U.S. National Spectrum Requirements: Projections and Trends*, and efforts to identify radio frequencies to meet the needs identified in the report has begun.¹² NTIA and IRAC have also completed analyses as part of their mandate to transfer 200 MHz (235 MHz was actually transferred) of federal government spectrum to the FCC for private sector use.¹³

To develop policy specifically for wireless communications, the executive branch has established several committees to address specific issue areas.

- **Federal Wireless Policy Committee.** Established in 1993, the Federal Wireless Policy Committee (FWPC) serves as a focal point for wireless policy development, both for the federal government and in relation to FCC activities. FWPC draws its mem-

⁸ Federal Communications Commission, *Amendment of Parts 2 and 15 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications*, Notice of Proposed Rulemaking, ET Docket 94-124, released Nov. 8, 1994.

⁹ The potential conflicts with this dual role are discussed in U.S. Congress, Office of Technology Assessment, *The 1992 World Administrative Radio Conference: Issues for U.S. International Spectrum Policy—Background Paper*, OTA-BP-TCT-76 (Washington, DC: U.S. Government Printing Office, November 1991).

¹⁰ For a more complete discussion of the IRAC and SPAC, see *ibid.*

¹¹ U.S. Department of Commerce, National Telecommunications and Information Administration, *Current and Future Requirements for the Use of Radio Frequencies in the United States*, Notice of Inquiry, Docket No. 920532-2132, released June 1, 1992.

¹² U.S. Department of Commerce, National Telecommunications and Information Administration, *U.S. National Spectrum Requirements: Projections and Trends*, Special Publication 94-31 (Washington, DC: U.S. Government Printing Office, March 1995).

¹³ U.S. Department of Commerce, National Telecommunications and Information Administration, *Spectrum Reallocation Final Report*, Special Publication 95-32 (Washington, DC: U.S. Government Printing Office, February 1995).

bers from a wide range of federal agencies that have operational, procurement, or policy interests in evolving wireless communications systems. Its mandate is to further the deployment of a digital, ubiquitous, interoperable, transparent, and secure (DUIITS) wireless communications network for the federal government. It has, thus, become the focal point of efforts to procure mobile services for the federal government. A single procurement is envisioned—to be completed by the end of 1995—that will give federal users access to a wide range of cellular, specialized mobile radio, PCS, satellite, and emerging wireless communication services.

- In September 1994, FWPC produced a statement of *Current and Future Functional Requirements for Federal Wireless Services in the United States*. This

document was based on information gathered from the various meetings and workshops sponsored by FWUF and information provided by FWPC members. It describes both specific and generic needs that the federal agencies think could be met with commercial or special wireless systems, and is intended as a guide for future procurement efforts.

- **Untethered Networking Working Group.** The National Science and Technology Council, in coordination with the Technology Policy Working Group of the IITF, set up an Untethered Networking Working Group to examine the impact of wireless technologies (satellite and terrestrial) on the evolution of the NII and the Global Information Infrastructure. It is unclear if this group ever met or what products it produced.