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Public-Private Partnership Options for Managing Wireless Networks

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Summary

For the last decade, the primary method by which the Federal Communications Commission (FCC) has assigned access to radio spectrum is through the auctioning of licenses for specific frequencies in designated geographical areas. Subsequently, with the recognition by capital markets that a spectrum license is a valuable asset, and with the relaxation of rules regarding ownership, sale, and trading of licenses, radio spectrum licenses have been increasingly treated like other financial holdings. The ongoing policy debate on the legal and economic implications of various forms of spectrum rights ownership has expanded since auctions began in the mid-1990s. Other major policy debates include the structuring of the auction process and of the auction rules that decide eligibility for bidding.

A number of these debates have been addressed in the form of hearings held by the Senate Committee on Commerce, Science, and Transportation and the House Committee on Energy and Commerce. Recent hearings have sought testimony regarding the upcoming auction of licenses for radio spectrum at 700 MHz being vacated by television broadcasters as part of the transition from analog to digital technologies.

Preparation for this auction has prompted a policy debate about a governance structure that would permit public sector entities — in this case first responders and other emergency workers — to share spectrum rights and network capacity with commercial interests. The FCC has received numerous proposals for setting up a governance model; this report discusses three: creating an entity to build a shared network on new spectrum at 700 MHz; building a shared network on spectrum already allocated to public safety users; and combining spectrum licensed for public safety with a commercial license for a shared, nationwide network. One of the models is the basis for a bill introduced by Senator John McCain (Save Lives Act, S. 744). Among its provisions, the bill would create a framework, and funding, to govern a shared network and spectrum access.

The FCC has the regulatory authority to set rules for auctions and is presently considering options for using its rule-making authority to create a shared network that would serve both the public safety community and commercial interests. Other options, including a Congressionally-chartered corporate structure, are also available to provide governance of a shared network.

This report has been written in order to provide Congress with a summary of some of the issues being debated in anticipation of an upcoming ruling by the FCC regarding the auction of licenses for spectrum at 700 MHz. It will be updated after the FCC announces its decisions.

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This report focuses specifically on options for governance to sustain a public-private partnership — between public safety entities and commercial wireless service providers — that would share access to radio spectrum and wireless networks. This analysis is based on two key assumptions that are generally supported by the majority of stakeholders: 1) that a network with national coverage would meet public safety needs for robust communications capabilities, information, and interoperability; and 2) that sharing spectrum with commercial users would benefit public safety by providing new sources of funding, economies of scale in building the needed network, and access to additional spectrum in times of large-scale emergencies, among other benefits. Access to private sector funding to build a network for the public safety sector, which will cost billions of dollars to construct,[1] has been part of the deliberations in evaluating possible options for a shared network. The role of capital markets in valuing spectrum as an asset that can be used to secure financing has developed partly in response to changes in Federal Communications Commission (FCC) rules regarding spectrum licenses, such as for resale.

The discussion of possible models of governance arises from preparations by the FCC to auction 60 MHz[2] in the 700 MHz band of radio spectrum, no later than January 28, 2008, as required by the Deficit Reduction Act.[3] The FCC has requested comments, through proposed rule makings, on the allocation of this spectrum and the

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[1] Cyren Call Communications Corporation, in ex parte comments filed with the FCC on June 4, 2007, set the cumulative capital expenditure for building a public-private network at $18 billion, of which roughly a third of the cost would be for enhancements for public safety use. An estimate from Northrop-Grumman Corporation places the cost at $30 billion, when service applications are included. (Statement by Mark S. Adams, Chief Architect Networks and Communications at WCA 2007, Washington, DC, June 14, 2007.) These estimates do not include the cost of radios.

[2] Spectrum allocations are assigned within bands that are divided into bandwidths or channels based on assigned frequencies. Electromagnetic radio waves are usually identified by frequency, measured in cycles per second, or hertz. Standard abbreviations for measuring frequencies include kHz — kilohertz or thousands of hertz; MHz — megahertz, or millions of hertz; and GHz — gigahertz, or billions of hertz. The 700 MHz band plan (698 MHz to 806 MHz) refers to those channels that are assigned to technologies that transmit signals at speeds within or near 700 million cycles per second.

[3] P.L. 109-171, Sec. 3003 (a) (2).

upcoming auction.[4] Responses address both the 60 MHz assigned to be auctioned and 24 MHz assigned for public safety use.[5]

Several models for governance of a public-private partnership have been suggested to the FCC. This report summarizes key proposals, reviews some of the options available to the FCC, and touches on issues that might need to be resolved in the creation of a public-private partnership. Some possible actions by Congress regarding governance, the upcoming auction, and related issues are also considered. Although debates continue concerning public safety spectrum and network needs, these debates will not be discussed in this report.[6]

Proposals Before the Federal Communications Commission

Some of the responses received by the FCC regarding allocation of spectrum in the 700 MHz band propose frameworks for sharing resources between the public safety sector and the commercial wireless industry. As examples, three of the proposed models are discussed below.

One. One proposed model would provide new spectrum for public safety use with a national license to be held in trust by a not-for-profit corporation that would negotiate the design, implementation, build-out, and management of a shared network with third parties from the private sector. Control of the license would remain with the not-for-profit corporation, which could revoke agreements to use its spectrum if its private sector partners failed to meet requirements. The FCC would provide oversight in its capacity as regulator. Because additional spectrum would be required, the Deficit Reduction Act would need to be amended.[7]

Two. Another model would split the 24 MHz already assigned to the public safety sector into two categories; half the spectrum would be used for state and local networks and half would be transferred to a national license. The national licensee would be obligated to build a network that could be shared with public safety. The

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[4] The FCC proposed rule making, comments, and reply comments are in Docket No. WT 96-86, available under E-Filing at [http://www.fcc.gov].

[5] The assignment to public safety was required by Congress in the Balanced Budget Act of 1997, 47 U.S.C. § 309 (j) (14).

[6] For a discussion of public safety communications needs, see CRS Report RL33838, *Emergency Communications: Policy Options at a Crossroads*, by Linda K. Moore.

[7] The creation of a Public Safety Broadband Trust to hold a national license for shared spectrum was originally proposed by Cyren Call Communications Corporation in April 2006. The Trust would oversee the building and operation of a public-private shared network. A similar solution was provided in S. 744 (Senator McCain) except that the spectrum would be auctioned and the winning bidder take over the role of governance; a trust would be created only if there were no suitable bidder for the designated spectrum. Both Cyren Call's proposal and S. 744 would assign an additional 30 MHz of spectrum to public safety from the 60 MHz designated for auction by the Deficit Reduction Act (P.L. 109-171).

FCC would choose the licensee and would establish performance requirements, which it would enforce through oversight.[8]

Three. Yet another model would create a new band plan that would designate 12 MHz of the spectrum allocated to public safety licenses for sharing with 10 MHz — or more — of adjacent spectrum that would be auctioned. The auction and service rules would require that the winning bidder build a network to specifications set by representatives of public safety and the FCC. The FCC would have oversight in assuring that the auction and service rules were fulfilled. The corporate structure of the winner of the auction would have governance over the network and effective control of the spectrum used for the network.[9]

All three of these models share an important common denominator: the network would be built with funds from the private sector (private equity groups, venture capitalists, banks). Loan payments, and eventually profits, would be met through usage fees charged to all users, public safety and commercial alike. All of the models require enforcement by the FCC of performance criteria. Models Two and Three require that state and local entities return some 700 MHz channels previously designated for their use, in order to create a 12 MHz band suitable for high-speed, broadband applications that can be shared with the commercial sector. These two models, however, do not require that Congress take action to provide additional spectrum capacity, as required by Model One.

Options for the FCC Regarding Public Safety

The FCC is required by law to auction all 60 MHz of spectrum as designated. Within that constraint, however, the FCC generally has the authority to change its own rules, particularly as they pertain to public safety. In 2004, for example, the FCC invoked its statutory responsibility to protect the safety of the public in ordering the reallocation of commercial and public safety licenses, primarily at 800 MHz.[10] Similarly, the FCC can reassign the spectrum licenses designated for public safety use at 700 MHz by creating new band plans to favor certain applications or technologies. Furthermore, it can write auction rules for commercial licenses and establish service rules for those license-holders that could govern a public-private partnership. Finally, it can enforce the requirements it sets. These are some of the regulatory tools available to the FCC that could be used to implement the options discussed below. These options are:

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[8] FCC, *Ninth Notice of Proposed Rulemaking*, Docket No. WT 96-86, released December 20, 2006.

[9] This solution was first proposed by Frontline Wireless in February 2007. Similar proposals have since been filed with the FCC by other organizations.

[10] The FCC sponsored an agreement between Nextel (now Sprint Nextel) and public safety licensees to reallocate 800 MHz frequencies in order to mitigate problems with interference. Nextel agreed to pay relocation costs and was awarded additional spectrum by the FCC as compensation. FCC Docket No. 02-55. For details, see CRS Report RL32408, *Spectrum Policy: Public Safety and Wireless Communications Interference*, by Linda K. Moore.

- Maintain existing structure.
- Create a national license for the spectrum allotted to the public safety sector.

- Create a national public safety license and designate a commercial license for mandated sharing.

Option: Maintain Existing Structure. As regards spectrum assigned to public safety, one choice for the FCC is to leave the management of spectrum access rights for public safety licenses as it stands. It would not alter the existing governance, which is made up of 55 Regional Planning Committees, loosely coordinated through the efforts of the National Public Safety Telecommunications Council (NPSTC).[11] NPSTC participated with the Public Safety National Coordination Committee (NCC) in developing technical and operational standards for the 700 MHz band and in structuring the management of licenses through the regional committees. The NCC operated as a Federal Advisory Committee[12] to the FCC until its charter expired in 2003. The FCC adopted the NCC recommendations for some standards and these are being implemented with the participation of the Regional Planning Committees. With the support of NPSTC,[13] the FCC might negotiate with the Regional Planning Committees for modifications to the band plan that reflect changes in technology and public safety needs.

This decision would not directly affect the auction. However, the FCC would like to identify sources of funds to pay for the reprogramming of "already-deployed 700 MHz Band public safety radios."[14] Under the current plan, states and localities are assuming the costs of their networks at 700 MHz.

Option: Create a National License for the Spectrum Allotted to the Public Safety Sector. Another possibility for the FCC is to revise the band plan for public safety's allotted 24 MHz, creating a national license for 12 MHz that could be shared with commercial users, while leaving 12 MHz for narrowband (primarily voice) public safety communications. In December 2006 the FCC proposed, in the Ninth Notice of Proposed Rulemaking (NPRM), to turn over management of the 24 MHz of spectrum designated for public safety to a not-for-profit group. This group would, among other responsibilities, hold a national license that would support public safety users with a broadband wireless backbone.[15] In the NPRM, the FCC proposed assigning 12 MHz for state and local use and creating a national license for 12 MHz.

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[11] See [http://www.npstc.org/index.jsp]. Viewed June 5, 2007.

[12] The role and organization of Federal Advisory Committees is addressed in CRS Report RL30260, *Federal Advisory Committees: A Primer*, by Stephanie Smith.

[13] For example, NPSTC's *Principles Surrounding the 700 MHz Band*, filed with the FCC on April 17, 2007 [http://www.npstc.org/documents/041707%20NPSTC%20700%20MHzex%20parte%20Summary%20of%20Principles%20Final.pdf]. Viewed June 5, 2007.

[14] FCC, *Report and Order and Further Notice of Proposed Rulemaking*, released April 27, 2007, para. 255.

[15] FCC, *Ninth Notice of Proposed Rulemaking*, Docket No. WT 96-86, released December 20, 2006; see paragraph 4 for summary.

The FCC would assign the license and regulate the activities of the licensee. The licensee would be permitted to operate commercially on the spectrum, with public safety users having priority access when needed, and to charge public safety for network access on a fee-for-service basis. The FCC anticipated that the licensee would be able to assume responsibilities such as the design and implementation, build-out, and maintenance of a national network, the coordination of eligibility for access to public safety channels, and the leasing of capacity to commercial users.[16] The FCC currently imposes limitations on sharing public safety licenses, but has proposed allowing a national public safety licensee to share with a commercial provider.[17] This proposal for sharing within the existing 24 MHz band has been criticized by most of those filing petitions with the FCC on the grounds that 12 MHz is not sufficient to support a national network that meets public safety network standards.[18]

The funds needed to pay for system changes as a consequence of the rebanding of the public safety spectrum block might come from the commercial partner chosen to build and operate the national network. In theory, the auction of adjacent spectrum would not be affected, although the value of spectrum licenses won through auction could be influenced by bidders' perceptions about the adjacent public safety licensee.

Option: Create a National Public Safety License and Designate a Commercial License for Mandated Sharing. The FCC can write rules that require the successful bidder for designated spectrum to share access with a public safety licensee that the FCC would appoint. In this way, there would be sufficient spectrum for a national network. The costs of building the network, however, would probably be fully assumed by the successful bidder. The public safety licensee would have veto power over construction and management decisions but would probably not have funds to build any part of the network.

Based on petitions filed with the FCC[19] and public statements as reported in the press,[20] the model that appears to have received the most support would join a commercially owned spectrum license with a national public safety license in a common, shared network. The commercial license would be auctioned to a single licensee that would be required to assume responsibilities such as the design and implementation, build-out, and maintenance of a national network, the coordination of eligibility for access to public safety channels, and the leasing of capacity to commercial users. Specific requirements for these responsibilities would be

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[16] Ibid., paragraphs 27 -30.

[17] Ibid., paragraph 45.

[18] For example, comments filed by the National Public Safety Telecommunications Council (NPSTC), February 26, 2007.

[19] FCC, *Report and Order and Further Notice of Proposed Rulemaking*, released April 27, 2007; comments due May 23; reply comments due May 30 but extended to June 4, 2007.

[20] "Public-Private Partnership Gains Support at Summit," Communications Daily, June 4, 2007, and "Martin Likes Elements of Frontline Broadband Proposal," Communications Daily, April 3, 2007.

conveyed through service rules. The FCC would regulate the operation of the network through the enforcement of service rules.

Creating the Framework for a Shared Network

If it chooses the model of a shared network using spectrum held by two separate licensees, the FCC would face a multitude of ancillary decisions. Decisions, in the form of rulings, would include:

- Choosing an entity to hold a single license for public safety for all or part of the existing 24 MHz allocation, with a new band plan that would require reprogramming of radios and other changes in order to move to new frequencies.

- Addressing reimbursement for the costs associated with a new band plan, notably the cost to reprogram software in radios and base stations.[21]

- Setting the auction rules for bidding on the section of commercial spectrum that would be used in a network shared with public safety.

- Creating a structure that could enforce service rules for use of that spectrum.

- Ensuring that the winning bidder would pursue investment, marketing, pricing and other business practices — and make choices for technology — so that the network would be timely built and maintained and continuity of operations assured.

The above list is indicative of the issues that the FCC must resolve and is not all-inclusive.

Designating a National Public Safety Licensee. If the FCC opts to create a national license for all or part of the spectrum available for public safety, it may designate an entity to hold that license. In the Ninth NPRM the FCC proposed that the designated licensee should meet criteria such as not-for-profit status, experience with public safety frequency coordination, and the ability to directly represent all public safety interests.[22]

In testimony before the Senate on June 14, 2007, a representative of NPSTC informed the Senate of plans to create a non-profit corporation to take on the role of

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[21] Motorola estimates that building has begun for 15 to 17 networks that will use 700 MHz. Radios and base stations must be tuned to different frequencies. Radios can be retuned but the software for programming the change must be developed. At a briefing for CRS, April 10, 2007, Motorola estimated a cost of $1,400 for each base station but had no cost estimate for the code plug programming.

[22] FCC, *Ninth Notice of Proposed Rulemaking,* Docket No. WT 96-86, released December 20, 2006 paragraph 27.

national public safety licensee if this is the course pursued by the FCC.[23] The not-for-profit company has been designated by NPSTC and its partners as the Public Safety Spectrum Trust Corporation. The Association of Public-Safety Communications Officials - International, Inc. (APCO), also has informed the FCC that it has "joined with other national public safety organizations to initiate the formation of a legal entity that could serve as the national public safety licensee."[24]

Funding to Implement FCC Solutions. In addition to the FCC's own administrative costs, at least three separate cost centers would be created if the FCC pursues a public-private partnership between two spectrum license holders that are obligated to cooperate with each other. One cost would be the compensation of states and localities that have to retune equipment as part of the rebanding of spectrum at 700 MHz. This expense could be reimbursed by the commercial partner as part of the service rules attached to the license. Alternatively, either the FCC or the affected states and communities could contact the National Telecommunications and Information Administration (NTIA) and request funds from the $1 billion set aside by Congress to help first responders buy equipment that can operate at 700 MHz, among other purposes.[25] The NTIA has the primary responsibility for administering these funds.[26]

Another cost would be the funding of the activities of the not-for-profit entity that holds the national public safety license. This licensee would have responsibilities that would include creating forums for discussion with the public safety entities it represents, preparing network requirements, monitoring the progress of network construction, participating in network management decisions with its commercial partner, and negotiating agreements on access and pricing. Apparently, no specific source for these funds has been identified.

Finally, there are the costs associated with the planning, construction, and management of a shared network built to public safety standards. Funds to cover these costs, and possibly the other costs noted above, will come initially from investors. The network owner and operator, presumably the commercial licensee, will recover its costs through fees charged to both public safety and commercial users.

Setting Auction Rules. Since it initiated auctions in 1994, the FCC has consistently worked to create auction rules that maximize opportunities for participation by small business and companies serving rural areas.[27] The FCC therefore has in place policies that allow it to set aside licenses for specific classes

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[23] Testimony of Wanda McCarley, current President of APCO and member of the NPSTC Governing Board, Senate Hearing, Committee on Commerce, Science, and Transportation, "The 700 MHz Auction: Public Safety and Competition Issues," June 14, 2007.

[24] FCC, WT Docket No. 96-86, et al., Comments of the Association of Public-Safety Communications Officials - International, Inc. (APCO), May 23, 2007, page 14.

[25] P.L. 109-171, Sec. 3006 (a) (2).

[26] P.L. 109-171, Sec. 3006 (a) (1).

[27] See CRS Report RL31764, *Spectrum Management: Auctions*, by Linda K. Moore.

of bidders, to provide economic incentives, and to bar prospective bidders from an auction, among other tools for managing the auction process.

Regulatory Governance Through Service Rules. In addition to setting up rules that screen auction bidders, the FCC also establishes and enforces service rules for the use of licenses once they are successfully auctioned. Among the provisions of service rules, there is typically a requirement that licenses be put to use within a specific number of years. Service rules can also be used to specify technologies, uses, or users. Some of the petitions filed regarding 700 MHz have requested service rules that favor, for example, participation by critical infrastructure industries, Internet-Protocol-enabled devices, Internet neutrality, open access, rural broadband service providers, and access to spectrum.

In its April 2007 Report and Order, the FCC solicited opinions on various proposals for service rules. In particular, it has sought comments on how to structure service rules that meet both public safety requirements and commercial needs. APCO is among those that has proposed a "conditional auction," which would give the public safety community additional time to develop requirements for a network, after the auction concludes. As envisioned by APCO, a statement of requirements would be ready before the auction began. The winning bidder would then negotiate detailed technical and operational requirements with the national public safety license-holder. In APCO's proposal, failure to reach agreement between the two parties could trigger a re-auction of the spectrum. The FCC has suggested binding arbitration as a means of resolving potential differences.[28]

Ensuring Continuity of Operations. In addition to setting auction and service rules, the FCC is seeking comments on the circumstances in which it might be required to reclaim a license.[29] Although the FCC appears to focus on non-compliance with service rules as the most likely cause for reclaiming a license, insufficient financial resources — including the possibility of bankruptcy — might also precipitate a decision to reclaim the license for a shared network. The total capital cost of building a public-safety grade network might exceed $18 billion.[30] This amount does not include other expenses that might need to be recovered, as discussed earlier in this report. Although spectrum licenses could be reauctioned and the network completed, time would be lost in providing new communications capabilities for public safety. The ongoing efforts of Congress and the Administration to provide sufficient communications capacity for responding to disasters could suffer a serious setback. Therefore, the FCC is faced with judging the financial viability of potential bidders for the shared-network license not only in terms of ability to pay for the license but also in terms of ability to obtain significant sums for capital and other costs. The FCC might require an escrow account, or other measures to provide funds if the licensee defaults for any reason. If these provisions are deemed onerous by potential bidders, they may decide not to enter the auction or to bid comparatively low amounts for the license. Furthermore, the FCC can neither

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[28] FCC, WT Docket No. 96-86, *et al.*, Comments of the Association of Public-Safety Communications Officials - International, Inc. (APCO), May 23, 2007, page 14 et seq.

[29] FCC, *Ninth Notice of Proposed Rulemaking,* paragraph 289.

[30] See footnote 1.

predict nor prevent a change in the climate of financial markets. Currently, capital markets are viewed as robust, with large sums available for investment from private equity firms and hedge funds, in addition to more conventional sources such as banks and venture capitalists. Numerous articles and editorials in the financial press have expressed concern about an end to easy credit, the possibility of a public equity "bubble," and other signals that may presage economic stagnation or decline.[31]

Some Alternative Forms of Governance for a Shared Network

As it moves toward announcing final auction and service rules, the FCC finds itself addressing issues of governance that are beyond its usual responsibilities in managing auctions and spectrum use. Although most petitioners have raised questions or made requests about the choices the FCC will make in setting auction and service rules, the general tenor suggests acceptance that FCC rules can provide the framework for appropriate governance of a public-private partnership concerning public safety and homeland security.

The FCC also has the option to ask Congress to consider chartering a federal government corporation, a quasi-governmental organization, or other legal entity.[32] This entity could hold and manage the public safety license as an equal to its commercial partner. It could be given powers that include negotiating agreements for sharing, building and managing its share of the network, collecting fees from users, and acquiring spectrum, as appropriate. This is essentially the role that, under current proposals, might be assigned to the commercial license-holder by FCC service rules. To meet its capital requirements and cover start-up costs, a federal corporation could borrow from the Treasury as well as raising funds through bonds and other financial instruments, which would be repaid from the revenue stream of service fees. Such an entity could, if needed, buy out its private sector partner if it defaulted on its obligations. Its favored access to financial markets could also secure funding even if a change in market dynamics leads to a reduction in investment capital flows.

There is precedence for the FCC to request legislation regarding spectrum management. The Commercial Spectrum Enhancement Act (P.L. 108-494, Title II), for example, was enacted by Congress at the behest of the FCC and the NTIA. It established a Spectrum Relocation Fund to hold the proceeds of certain spectrum auctions for the specific purpose of reimbursing federal entities for the costs of moving to new frequency assignments. In this way, spectrum was released to the commercial sector to build new wireless networks. Following procedures required by the act, the FCC scheduled an auction for Advanced Wireless Services (AWS),

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[31] For example, "The Coming Credit Meltdown," by Steven Rattner, *Wall Street Journal*, Opinion Page, June 18, 2007; "UBS Chief Warns on Loan Risks," by Peter Thal Larsen in London and Haig Simonian in Zurich, *Financial Times*, U.S. Edition, June 20, 2007, page 17; and "The New Capitalism," by Martin Wolf, *Financial Times*, U.S. Edition, June 19, 2007, page 11.

[32] Several CRS reports discuss federal government corporations and quasi-governmental organizations, including CRS Report RL30365, *Federal Government Corporations: An Overview*, and CRS Report RL30533, *The Quasi Government: Hybrid Organizations with Both Government and Private Sector Legal Charters*, both by Kevin Kosar.

designated Auction 66, which was completed on September 18, 2006.[33] The AWS auction attracted nearly $13.9 billion in completed bids, substantially above the cost of relocating federal users.

Some Options for Congress

Congress has expressed many concerns about the 700 MHz auction in addition to those relating to meeting the needs of the public safety community.[34] If it were to choose to create a federal government corporation or similar body, it could meet some of these other concerns through the same charter. Benefits of a federal government corporation could be weighed against disadvantages such as financial demands on the U.S. Treasury if the federal government is obliged to honor the corporation's debt obligations, or concerns about the impact of federal participation in commercial wireless markets.

Congressional Oversight Through a Federal Corporation. Legislating a charter for a federal government corporation or similar entity could give Congress new opportunities for oversight. Typically, oversight is undertaken by committees with jurisdiction over the type of activity performed by the corporation. Jurisdiction of the Tennessee Valley Authority, for example, is shared between the Senate Committee on Environment and Public Works and the Subcommittee on Water Resources and Environment of the Committee on Transportation and Infrastructure in the House of Representatives. Joint oversight of a governmental corporate entity could provide a mechanism for coordinating the statutory obligation of the Department of Homeland Security to provide support for emergency communications with the FCC's responsibility to manage the spectrum used by public safety. Currently, the FCC is preparing to use its regulatory authority over spectrum use and auctions to take action in an area (improvement to public safety communications) that Congress has assigned the Department of Homeland Security (DHS). In Title VI of the Homeland Security Appropriations Act, 2007 (P.L. 109-295), Subtitle D — the 21st Century Emergency Communications Act of 2006 — Congress created an Office of Emergency Communications and the position of Director, reporting to the Assistant Secretary for Cybersecurity and Communications, to oversee the planning of a national capability to support communications for public safety and others in the emergency response community.[35] In the law, Congress specified that, in reviewing interoperable emergency communications plans, the Director of the Office of Emergency Communications must exclude the review of spectrum allocation and

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[33] "FCC's Advanced Wireless Services (AWS) Spectrum Auction Concludes," FCC News, September 18, 2006.

[34] For example, through hearings in both the Senate and House, such as "The Present and Future of Public Safety Communications," February 8, 2007, and "The 700 MHz Auction: Public Safety and Competition Issues," June 14, 2007, both in the Senate, Committee on Commerce, Science, and Transportation; and "Digital Future of the United States: Part III: Spectrum Opportunities and the Future of Wireless," April 19, 2007, House of Representatives, Committee on Energy and Commerce, Subcommittee on Telecommunications and the Internet.

[35] P.L. 109-295, Title VI, Sec. 671(b) 'Title XVIII, 'Sec. 1801 '(a) and '(b).

management.[36] Congress has yet to make decisions about jurisdiction for programs planned and funded by DHS that operate on spectrum managed by the FCC and the NTIA.

Legislation for a Spectrum Plan. Among other legislative possibilities, Congress could choose to assign more spectrum to public safety use by amending the Deficit Reduction Act. Senator John McCain introduced a bill (S. 744) that would set aside 30 MHz of spectrum in the 700 MHz band to auction as a single, national license. The winning bidder would be required to meet criteria set forth in the bill as well as technical and other requirements developed by the public safety community. Public safety interests would be represented by a Public Safety Interoperability Working Group formed for that purpose. Funds to support the working group's activities, as specified by the bill, were authorized at $500,000 for each of the fiscal years 2008 through 2013. The bill was referred to the Senate Committee on Commerce, Science, and Transportation on March 1, 2007.

Legislation for Grants. Congress could also choose to amend the Deficit Reduction Act without making changes to the provisions regarding spectrum allocation. The Call Home Act (P.L. 109-459), for example, required that the grants program for public safety created in the Deficit Reduction Act receive "no less than" $1 billion to be awarded "no later than" September 30, 2007.[37]

Other Legislation. Other actions that Congress could take related to public safety and emergency communications include — but are not limited to — introducing legislation to set requirements on the auction rules or service rules as regards public safety and access to shared spectrum. It also could address some of the funding questions raised by the FCC and in this report, such as reimbursement for the rebanding of the public safety spectrum, or a program to fund the operating expenses of the public safety licensee representing the public interest in its negotiations with a commercial licensee over spectrum and network sharing.

Other Oversight. Finally, Congress could eschew legislative or funding measures and choose to continue to exercise oversight of the auction process through hearings and direct communication with the FCC.

Conclusion

The winning bidder of the spectrum license designated for sharing with public safety users — if the FCC decides to choose this option — will acquire not only the right to build a network but also the exclusive right to serve a captive market of first responders. The value of a near-guaranteed subscriber base and a predictable cash flow of subscriber fees is one of the attributes of a network shared with public safety that has attracted the attention of investors, especially private equity groups seeking

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[36] P.L. 109-295, Sec. 671, "Sec. 1801 "(c) "(12).

[37] P.L. 109-459, Sec. 2. Introduced by Senator Stevens as S. 2653.

high returns over the long-term.[38] A market-driven solution, relying on private investment, is therefore seen by many as a viable solution for funding part of a public safety network.

When Congress required the FCC to use auctions as the primary means for assigning spectrum licenses,[39] one of the perceived benefits was to capture some of the market value of spectrum for the U.S. Treasury. The earlier practice of assigning licenses to qualified operators based on merit had worked acceptably when the licenses were primarily for radio and television. However, this system broke down as technology and consumer demand created a boom in cell phone use.[40] Some licenses for early cell phone networks were distributed at modest cost to individual purchasers — many of them selected through lotteries — who then sold the licenses, which were often resold at high prices to large wireless companies.[41]

Similarly, Congress may wish to evaluate whether FCC rule making is an adequate mechanism for creating a structure to govern a shared network that will serve the nation's first responders and meet other public safety needs. Just as new methods were devised to assign spectrum as wireless technology changed, perhaps a different approach — beyond rule making and regulatory intervention — is required to assure the creation and operation of a public-private network. In this context, a federally-charted corporation is one alternative approach to solving some of the difficult questions that have been summarized in this report.

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[38] Statement by Morgan O'Brien, Cyren Call briefing for CRS, April 3, 2007. Public safety has been referred to also as an "anchor tenant." (For example, statement by Dr. Stagg Newman, Chief Technology Office, Frontline Wireless, in a presentation at WCA 2007, Washington, DC, June 14, 2007.)

[39] After years of debate over the idea of using competitive bidding (i.e., auctions) to assign spectrum licenses, the Omnibus Budget Reconciliation Act of 1993 (47 U.S.C. 927) added Section 309(j) to the Communications Act, authorizing the FCC to organize auctions to award spectrum licenses for certain wireless communications services.

[40] There were nearly 240 million cell phone subscribers in June 2007; statistic updated regularly at [http://www.ctia.org/].

[41] The distribution of licenses for cell phone networks from the early days of the technology until the introduction of auctions is described in *Wireless Nation: The Frenzied Launch of the Cellular Revolution in America*, by James B. Murray, Jr. Perseus Press, 2001, 2002.