

Re-Auction of the D Block: A Review of the Arguments

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May 24, 2011

Introduction

Last March, we released a POLICY BULLETIN entitled: *Public Safety or Commercial Use? A Cost/Benefit Framework for the D Block*,¹ in which we proposed a framework to assess the relative benefits of having the government either assign the D Block to public safety or re-auction the spectrum for commercial use. Each approach has its costs and its benefits. Our analysis indicated that the 10 MHz D Block provides \$3.4 billion more in social benefits if assigned to public safety rather than to commercial use, even accounting for the expected auction revenues from that block. That is, the financial benefits of public safety assignment exceed any lost auction revenue from the D Block.

Notwithstanding, some policymakers remain committed to a re-auction attempt of the D Block for commercial use. Many proponents of a D Block re-auction focus exclusively on the potential auction revenues from the block.² Others appear to believe the auction will somehow fund the entire (or at least a good chunk of the) public safety network.³ In these tough financial times, it is difficult to criticize anyone looking for revenues or cost savings.⁴ However, it is essential to consider the full financial effects of the allocation options, not simply those implications favoring one option or another.

In this PERSPECTIVE, we present a more holistic view of the financial implications of a D Block re-auction. First, we present evidence suggesting that the claimed \$3 billion in revenue

from a D Block re-auction is too rosy an expectation.⁵ Statistical analysis of historical auctions indicates that a 10 MHz block of spectrum in the 700 MHz band must be *unencumbered* to produce \$3 billion in revenues.⁶ Yet, the FCC's *National Broadband Plan* envisions a number of significant encumbrances on any re-auction of the D Block which have substantially reduced auction revenues in the past.⁷ (In 2008, the D Block failed to secure a minimum bid at auction of \$1.3 billion due to onerous encumbrances, creating the stalemate among lawmakers and policymakers we are faced with today over this block of spectrum.)

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Second, the re-auction of the D Block will under no circumstances come close to fully funding a public safety network. A nationwide public safety network is expected to cost about \$10 to \$13 billion. Even if a re-auction of the D Block did bring in \$3 billion of revenues, it offsets only about one quarter of the public safety network's cost. The D Block re-auction offers no other mechanism by which to generate funds for the remaining network construction and operating costs. To date, the only formal proposal put

forth to fund the public safety network with auction revenue is a voluntary incentive auction for television broadcast spectrum.⁸

Finally, we discuss the potential broader adverse market effects of a D Block re-auction. The evidence indicates that the public safety community needs a full 20 MHz of spectrum.⁹ If the D Block is assigned to commercial use, then an additional 10 MHz for public safety must be obtained from either future spectrum assignments or the capacity-equivalent thereof obtained via burdensome public safety encumbrances on commercial spectrum.¹⁰ This alternate block of spectrum will not be contiguous to the Public Safety Broadband (“PSB”) Block, which has the effect of increasing the deployment cost of the public safety network by an estimated \$4 billion relative to the D Block assignment.¹¹

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A commercial assignment of the D Block also has the potential of frustrating the creation of contiguous blocks of spectrum for future auctions, thereby substantially reducing auction revenues. Moreover, filling the public safety spectrum shortage with public safety obligations on all commercial providers could substantially reduce future auction revenues.

In all, a plausible case can be made that the re-auction of the D Block will increase government spending on the public safety network and reduce future auction revenues by far more than

the re-auction may generate in revenues. Even under the favorable scenarios (e.g., \$3 billion in revenues), the re-auction of the D Block does not appear to pass a cost-benefit test.

Revenues from the D Block are Likely to be Relatively Small

The D Block and the PSB Block are two contiguous 10 MHz blocks in the 700 MHz band. In 2008, the Commission attempted to auction the D Block to create a mandated public-private partnership for a public safety network. Since the D Block is contiguous to the 10 MHz PSB Block, the agency hoped that the partnership would permit some commercial use of the PSB Block and provide additional capacity for public safety professionals on the D Block when needed. As we all know, the effort was an unmitigated failure, effectively leaving fallow both blocks – a condition that persists today.¹²

Despite the D Block bust, the *National Broadband Plan* proposes to try again. Recognizing the past failure, the Commission hopes to “overcome past challenges by encouraging, though not requiring, incentive-based partnerships to ensure success.”¹³ In other words, the Commission intends to assign the D Block to commercial use, leaving the public safety community to make its way with its 10 MHz PSB Block, an amount that appears to be insufficient for a modern, interoperable public safety network.¹⁴

Some favor the agency’s plan; others oppose it. Support for the re-auction of the D Block is based largely on its potential to generate auction revenue, which will be used to support unprecedented levels of federal deficit spending.¹⁵ By government estimates, the D Block would generate about \$3 billion in auction revenues.¹⁶

Based on an econometric analysis of the more recent spectrum auctions in the United States, if the FCC auctioned the D Block on a truly unencumbered basis, then we could expect the

auction to generate revenues in the range \$1.3 to \$3.3 billion.¹⁷ However, the re-auction of the D Block is not unencumbered. The Commission has made clear that it intends to impose costly requirements on any re-auction of the D Block.

While the agency hopes for a “voluntary”¹⁸ public-private partnership, it nevertheless hedges, advancing a set of rules by which the D Block will be auctioned. These rules include the following:

- D Block licensee(s) must use a nationally standardized air interface [to] ensure that the D block will be technically capable of supporting roaming and priority access by public safety users of the neighboring public safety broadband block;
- D Block licensee(s) are required to provide such roaming and priority access to public safety users;
- D Block licensee(s) must develop and offer devices that operate both on the D Block and the neighboring public safety broadband block; and
- [D Block licensee(s)] should be subject to commercially reasonable buildout requirements.¹⁹

Clearly, the *National Broadband Plan’s* proposal for re-auctioning the D Block includes a number of meaningful value-reducing encumbrances.²⁰

As what is past can easily become prologue, it is sensible to look for guidance at the effects of similar requirements from the original failed auction. Fortunately, we have available a detailed report on the first failed auction from the agency’s own Inspector General (“IG”), who conducted a careful and detailed investigation into the reasons underlying the failure of the first D Block auction. This report contains numerous interviews with many of the major industry players, and presents a devastating critique of the public-private partnership

approach to the public safety network.²¹ Many of the findings in the IG’s Report remain relevant to the *National Broadband Plan’s* re-auction proposal, as we discuss below.

Roaming and Priority Access

Perhaps the biggest conflict for any public safety public/private partnership comes over the crucial and highly contentious issue of roaming and priority access. Under both the FCC’s old and new proposed paradigm, the D Block licensee is “required to provide roaming and [] priority access” for public safety use.²²

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In the case of the original D Block auction, the IG found such access requirements to be a major impediment to the successful implementation of the D Block paradigm. Indeed, as the IG pointed out, public safety’s mandatory prioritization meant that commercial users on the D Block would have been “subject to the very kinds of service interruptions—during periods of peak preemption—deemed unacceptable to public safety.”²³ One industry executive described the plan as “ruthless preemption” that would lead to “a very costly network with diminished commercial value.”²⁴

Moreover, given the requirement to enter into roaming and access agreements, the parties are obligated to set compensation to the private operator for use of its spectrum. A likely approach is for the FCC to impose on commercial providers a mandatory obligation similar to that imposed in the agency’s recent *Data Roaming Order*, where parties must reach “commercially reasonable” roaming agreements with public safety entities or deal with the Commission as arbiter.²⁵

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The problem with such a paradigm, particularly in regards to public safety entities, is that the Commission has very little credibility with Wall Street as a neutral arbiter of disputes. Indeed, in the case of the original D Block auction, the IG found that private firms expressed a legitimate “fear that the FCC would have a tendency to support the perceived needs [of public safety... and, as such, the] assurance that the FCC would monitor the negotiations, require good faith, and be the final arbiter of disputes was small comfort” to any prospective bidder.²⁶ Obviously, such risk will continue reduce the value of the D Block at any re-auction.

Increased Cost of Deployment

A network suitable for public safety also requires both higher technical standards and a larger footprint than does a strictly commercial network. And, logically, with such increased requirements comes higher network deployment costs, and, in turn, with higher deployment costs comes a lower auction value for the spectrum.²⁷ Former FCC Chairman Reed Hundt, who was serving as the President of potential D Block bidder Frontline Communications, conceded “the costs necessary to reach only a few additional users would entail a vastly disproportionate additional cost.”²⁸ Likewise, Verizon testified that the buildout requirements were too “costly”²⁹ and Qualcomm testified that the buildout requirements were “too onerous”, going so far as to note that these requirements were “far more expensive than any of the current [commercial] networks.”³⁰

The *National Broadband Plan’s* re-auction proposal does not fully alleviate these cost concerns. The new D Block licensee would be required to take on cost-increasing mandates including: (1) the use of a Commission-selected air interface; (2) the mandate to develop and offer devices that operate both on the D Block and the PSB Block; and (3) the requirement to buildout the network on the agency’s timetable.³¹ All of these requirements could increase deployment costs, thereby reducing the auction value of the D Block.

The Value of the Encumbered D Block

According to the FCC’s Inspector General, public safety encumbrances on quasi-commercial spectrum create “many layers of uncertainty and risk,” and these problems “were responsible for potential bidders’ decisions not to bid” on the public/private partnership promoted by the agency.³² The *National Broadband Plan’s* proposal likewise creates “many layers of uncertainty and risk,” and it is reasonable to expect a significant diminution in the value of the block to private-sector bidders, reducing auction revenues.

Public safety obligations of the first auction attempt reduced the value of the spectrum by 86%³³ and, as discussed above, the FCC’s re-auction plan embraces similar encumbrances. Moreover, in light of recent Commission actions in the *Harbinger Order*,³⁴ and the pending merger of AT&T and T-Mobile, we believe there will be few established bidders for the D Block, either as a result of carrier choice or, more likely, by government mandated exclusion.³⁵ Fewer bidders typically implies less revenue.

As we concluded in our earlier paper, a re-auction of the D Block could produce less than \$1 billion in revenue and is unlikely to exceed \$2 billion in the best plausible scenario.³⁶ (We note, however, such predictions are necessarily speculative.)

Revenues from a New D Block Auction Will Not Fully Fund a Public Safety Network

As noted above, one alleged benefit of re-auctioning the D Block is the creation of revenues to help fund the public safety network. It appears that some policymakers believe these revenues will be sufficient to fully fund the public safety network. Nothing could be further from the truth.

The cost of constructing a public safety network is estimated to be about \$10 to \$13 billion.³⁷ In light of the numerous encumbrances, it is unlikely that the D Block will generate auction revenues anywhere near the claimed \$3 billion. A more reasonable estimate is revenue in the \$1 billion to \$2 billion range. So, under the best of conditions, therefore, the re-auction offsets about one one-third of the costs. A more plausible case is one-tenth of the cost.

Plainly, a D Block re-auction will not pay for the public safety network. Indeed, it will cover only a small share of the costs under the best of conditions, and, as explained in the next section, may actually increase the cost of the network.

Broader Adverse Market Effects of a D Block Re-Auction

As noted above, evidence indicates that public safety needs 20 MHz of spectrum to construct a modern, interoperable LTE public safety network.³⁸ Re-auctioning the D Block, however, leaves the public safety community with only 10 MHz of spectrum (the PSB Block). If 20 MHz is indeed required for a fully-functioning public safety network, then, as we explained in POLICY BULLETIN NO. 26, there are two solutions to resolve this shortfall, neither of which favor the re-auction of the D Block.

One option is to give additional spectrum, say 10 MHz, to the public safety community in the future. This block, however, will not be contiguous to the PSB Block. As a consequence, the efficiencies of contiguous spectrum are lost.

Adding a non-contiguous 10 MHz block to the PSB Block increases deployment costs for the public safety network by about \$4 billion.³⁹

Now, rather than reducing the public cost of the public safety network by an amount equal to auction revenues (as re-auction proponents hope), the re-auction plan increases the cost of the network by more than any offered estimate of auction revenues. The re-auction places a heavier burden on government finances than does a reassignment of the block to public safety. In essence, it could be argued that the re-auction proposal is founded on the logic that \$3 billion in revenues (at best) is sufficient to justify \$4 billion in additional network deployment costs (which must be funded by the government).

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A second approach is to burden all commercial providers with public safety obligations. Indeed, this approach is already being contemplated by the Commission. In the *National Broadband Plan's* re-auction plan, the Commission intends to impose a requirement that "commercial mobile radio service providers ... give public safety users the ability to roam on commercial networks in 700 MHz and potentially other bands."⁴⁰ Unlike in the earlier attempt to auction the D Block, the Commission now proposes to extend the "priority access on commercial networks" to "all networks using the 700 MHz band and potentially other networks as well."⁴¹

Thus, under the agency's purportedly new and improved plan, the value-killing obligations that

sank the first D Block auction apply not just to the D Block but to *all* spectrum licenses, sabotaging the commercial value of spectrum and increasing compliance costs for firms. As such, the expectation should be that the D Block re-auction curbs future auction revenues, including the contemplated voluntary incentive auction to reclaim unused broadcast spectrum. The plan also reduces the value of spectrum auctioned in the past, though we do not expect the Commission to issue refunds (though perhaps they should).⁴²

The voluntary spectrum incentive auctions proposed for broadcast spectrum could break the stalemate on this vitally important issue regarding robust ... broadband communications for America's first responders.

Depending on the rules, which the agency suggests may be expansive, the lost auction revenues could accrue on virtually all spectrum auctioned in future periods. Adding these lost revenues to the attenuation in commercial value of previously auctioned spectrum would easily swamp the \$1 to \$2 billion in auction revenues expected from the D Block. If true, the re-auction option appears exceedingly short sighted.

Conclusion

Resistance to the assignment of the D Block to the public safety community—thereby providing these vital public servants the resources to build a modern mobile communications network—rests largely on the hope of significant revenues generated from the re-auction of the D Block for commercial uses. However, a re-auction of the D Block offers far less revenue potential than the government predicts. Given the FCC's proposed

encumbrances, and other likely auction rules imposed by an aggressively regulatory agency, the auction revenues from the block are more likely to be about \$1 billion—about one-third of the number bandied about by auction proponents.

Yet, regardless of whether or not revenues are \$1 billion or \$3 billion, the auction revenues do not come close to fully funding the public safety network, as some appear to believe it will, and the re-auction plan offers no other source of revenue for funding the network. The government is on the hook for funding the vast majority of the costs of the public safety network. As noted above, to date, the only credible proposal that could provide sufficient spectrum to alleviate the looming spectrum exhaust and provide significant auction revenue sufficient to cover the cost of building a public safety network and have money left over for deficit reduction is the notion of voluntary incentive auctions to repurpose unused broadcast spectrum.⁴³

If the 10 MHz PSB Block falls short of satisfying public safety's spectrum requirements, as studies indicate it will, then the re-auction of the D Block actually increases the taxpayer's share of network deployment costs by far more than anyone's expectation of auction revenues. Also, the re-auction will cut substantially future auction revenues if the Commission imposes public safety encumbrances on all 700 MHz spectrum and other spectrum as well to cover the spectrum shortfall for public safety.

In all, the notion that the re-auction of the D Block is a net positive for the government's budget is exceedingly weak. A more likely consequence is that the re-auction increases deficit spending by adding costs to the public network and reducing future auction revenues.

If Congress is truly serious about raising money through commercial spectrum auctions, then it should encourage federal regulators in their

efforts to find more spectrum, including the repurposing of television broadcast spectrum to more valued uses. The voluntary spectrum incentive auctions proposed for broadcast spectrum could break the stalemate on this vitally important issue regarding robust, reliable and resilient broadband communications for America's first responders.

NOTES:

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¹ G.S. Ford and L.J. Spiwak, *Public Safety or Commercial Use? A Cost/Benefit Framework for the D Block*, PHOENIX CENTER POLICY BULLETIN NO. 26 (March 2011) (available at: <http://www.phoenix-center.org/PolicyBulletin/PCPB26Final.pdf>).

² See, e.g., S. Jerome, *Senate Dems Rally Behind Public Safety Bill*, THE HILL (May 15, 2011) (available at: <http://thehill.com/blogs/hillicon-valley/technology/161287-senate-dems-rally-behind-public-safety-bill>); D. Hatch, *Walden on Collision Course with Dems Over Spectrum*, NATIONAL JOURNAL (February 10, 2011) (available at: <http://techdailydose.nationaljournal.com/2011/02/walden-on-collision-course-wit.php>); PRESS RELEASE, *Upton, Walden Respond to President's Broadband Proposals* (February 10, 2011) (available at: <http://republicans.energycommerce.house.gov/News/PRArticle.aspx?NewsID=8205>).

³ S. Jerome, *Blackburn Supporting D Block Auction*. THE HILL (January 24, 2011) (available at: <http://thehill.com/blogs/hillicon-valley/technology/139657-blackburn-to-support-d-block-auction>). Notably, the original idea for a public-private partnership to buildout a public safety network was considered an option at the time due when there was no public funding to support a nationwide, dedicated public safety broadband network.

⁴ See, e.g., S. Jerome, *House GOP Fears Big Taxpayer Tab For Public Safety Network*, THE HILL (May 23, 2011) (available at: <http://thehill.com/blogs/hillicon-valley/technology/162649-house-gop-unflinching-on-cost-fears-for-public-safety-network>); D. Hatch, *Walden on Collision Course with Dems over Spectrum*, NATIONAL JOURNAL, *supra* n. 2 (“... if the D-block is not auctioned, a significant revenue-generating opportunity would be lost. You open a three billion dollar wound in a rather bleeding budget”); S. Jerome, *Upton, Walden Question President's Wireless, Public Safety Proposals*, THE HILL (February 10, 2011)(available at: <http://thehill.com/blogs/hillicon-valley/technology/143321-upton-walden-question-presidents-wireless-public-safety-proposals>).

⁵ *Id.* See also <http://www.whitehouse.gov/the-press-office/2011/02/10/president-obama-details-plan-win-future-through-expanded-wireless-access>.

⁶ *Cost/Benefit Framework for the D Block*, *supra* n. 1 at p. 7; G.S. Ford, T.M. Koutsky and L.J. Spiwak, *Using Auction Results to Forecast the Impact of Wireless Carterfone Regulation on Wireless Networks*, PHOENIX CENTER POLICY BULLETIN NO. 20 (Second Edition) (May 2008) (available at: <http://www.phoenix-center.org/PolicyBulletin/PCPB20Final2ndEdition.pdf>).

⁷ CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, Federal Communications Commission (March 16, 2010) (available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-296935A1.pdf) (hereinafter the *National Broadband Plan*) at p. 315-6, Recommendation 5.8.2.

⁸ See, e.g., “Public Safety Spectrum and Wireless Innovation Act” recently introduced by Commerce Committee Chairman Senator Jay Rockefeller (D-WV), which would also give public safety the entire 20 MHz of the D Block and PSB and cover the costs of the network via voluntary incentive auctions to free up unused broadcast spectrum. (http://commerce.senate.gov/public/?a=Files.Serve&File_id=6321ae2e-fc48-412a-8eaf-15c848bc7047). This plan has received wide bi-partisan support, although the FCC was reportedly opposed to it. See S. Jerome, *Rockefeller: FCC was “Not Happy” with his Public Safety Communications Plan*, THE HILL (February 6, 2011) (available at: <http://thehill.com/blogs/hillicon-valley/technology/142345-sen-rockefeller-fcc-was-nothappy-with-his-public-safety-plan>).

⁹ A. Seybold, *Comments on the FCC White Paper: Federal Communications Commission Omnibus Broadband Initiative A Broadband Network Cost Model: A Basis for Public Funding Essential to Bringing Nationwide Interoperable Communications to America's First Responders*, Working Paper (April 26, 2010), p. 5 (10 MHz is insufficient for public safety) (available at: <http://andrewseybold.com/wp-content/uploads/2010/04/Comments-FCCWP-Final-April-27-2010.pdf>); A. Seybold, *Public Safety Broadband* (March 4, 2010) (“10 MHz of spectrum is not enough for either the public safety community or a commercial operator to handle all of the data traffic in the top 50-75 urban areas”) (available at: <http://andrewseybold.com/1338-public-safety-broadband>); Rysavy Research, *The Spectrum Imperative: Mobile Broadband Spectrum and its Impacts for U.S. Consumers and the Economy – An Engineering Analysis* (March 16, 2011) (available at: <http://www.mobilefuture.org/page/-/rysavy->

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[spectrum-effects-301611.pdf](#)) at p. 6 (demonstrating that LTE networks require a minimum of 20 MHz of spectrum). As the FCC has mandated that public safety networks must use LTE, it follows that public safety needs the full 20 MHz of spectrum. See *In the Matter of Service Rules for the 698-746, 747-762 and 777-792 MHz Bands; Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Amendment of Part 90 of the Commission's Rules*, __ FCC Rcd __, FCC 11-6, THIRD REPORT AND ORDER AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING (rel. January 26, 2011).

¹⁰ Today public safety's mission-critical voice communications are limited by nature because of a maze of different spectrum bands allocated to public safety at different times over the years and it has taken herculean efforts to create interoperability in particular spectrum bands, such as the 800 MHz band, in certain regions of the country, such as the Gulf Coast. This is the primary reason why interoperability remains elusive for first responders across the nation.

¹¹ *Cost/Benefit Framework for the D Block*, *supra* n. 1 at p. 11.

¹² OFFICE OF INSPECTOR GENERAL, *Official Report: D Block Investigation* (April 25, 2008) (hereinafter "*IG Report*") (available at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-281791A1.pdf). Some limited waivers have been granted for public safety officials to use the PSB Block.

¹³ *National Broadband Plan*, *supra* n. 7, at p. 315.

¹⁴ *Supra* n. 9. It should be noted that the Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006) ("*DRA*") directs the agency to auction the D Block.

¹⁵ *Supra* n. 5.

¹⁶ *Id.*

¹⁷ *Cost/Benefit Framework for the D Block*, *supra* n. 1 at p. 7; *Using Auction Results*, *supra* n. 6; G.S. Ford, *Valuing the AWS-3 Spectrum: A Response to Comments*, PHOENIX CENTER PERSPECTIVE NO. 08-02 (July 21, 2008) (available at: <http://www.phoenix-center.org/perspectives/Perspective08-01Final.pdf>); G.S. Ford, *Calculating the Value of Unencumbered AWS-III Spectrum*, PHOENIX CENTER PERSPECTIVE NO. 08-01 (June 25, 2008) (available at: <http://www.phoenix-center.org/perspectives/Perspective08-02Final.pdf>).

¹⁸ *National Broadband Plan*, *supra* n. 7 at Recommendation 5.8.2.

¹⁹ *Id.*

²⁰ If the buildout schedule for the re-auctioned D Block is commensurate with other commercial auctions, then there should be no devaluation based solely on the buildout schedule.

²¹ *IG Report*, *supra* n. 12.

²² *National Broadband Plan*, *supra* n. 7 at p. 315.

²³ *IG Report*, *supra* n. 12 at p. 24.

²⁴ *Id.* at p. 20.

²⁵ *In the Matter of Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services*, FCC 11-52, SECOND REPORT AND ORDER, __ FCC Rcd __ (rel. April 7, 2011) at ¶¶ 74-87.

²⁶ Indeed, in the case of the first D Block auction, the IG found that public safety officials "freely acknowledged that emergency responders could not be subject to the kind of interruption and loss of service experienced by the typical cell phone user [... and that a] system impervious to such interruptions would be much more expensive to build." *IG Report*, *supra* n. 12 at p. 23. See also G.S. Ford and L.J. Spiwak, *The Broadband Credibility Gap*, PHOENIX CENTER POLICY PAPER NO. 40 (June 2010) (available at: <http://www.phoenix-center.org/pcpp/PCPP40Final.pdf>), and republished in 19 COMMLAW CONSPECTUS 75 (2010) (illustrating the effects of a lack of credibility by regulators).

²⁷ *IG Report*, *id.* at p. 24.

²⁸ *Id.* at p. 24.

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29 *Id.* at p. 20.

30 *Id.* at p. 21.

31 *National Broadband Plan*, *supra* n. 7 at Recommendation 5.8.2.

32 *IG Report*, *supra* n. 12 at p. 26.

33 *Cost/Benefit Framework for the D Block*, *supra* n. 1.

34 *SkyTerra Comm., Inc. & Harbinger Capital Partners Funds, Applications for Consent to Transfer of Control*, Memorandum OPINION AND ORDER AND DECLARATORY RULING, 25 FCC Rcd 3059 (2010); see also *Cost/Benefit Framework for the D Block*, *supra* n. 1 at pp. 7-9; T.R. Beard, G.S. Ford, L.J. Spiwak, and M. Stern, *A Policy Framework for Spectrum Allocation in Mobile Communications*, 63 FEDERAL COMMUNICATIONS LAW JOURNAL 639, 651-52 (2011) (available at http://www.law.indiana.edu/fclj/pubs/v63/no3/Vol.63-3_2011-May_Art.-03_Beard.pdf).

35 *Cost/Benefit Framework for the D Block*, *supra* n. 1; Beard, Ford *et al.* *id.*

36 *Cost/Benefit Framework for the D Block*, *id.* at p. 9.

37 *Id.* at p. 11; R. Arbogast and D. Kaut, *Senators Push for Public Safety Build, Wireless Broadband Spectrum Bill*, STIFEL NICOLAUS TMT REGULATORY (May 18, 2011) (“the public-safety network could be built for \$11-13 billion”).

38 *Supra* n. 9.

39 *Cost/Benefit Framework for the D Block*, *supra* n. 1 at p. 11.

40 *National Broadband Plan*, *supra* n. 7 at p. 316 (Emphasis supplied).

41 *Id.* at p. 316.

42 *In the Matter of Preserving the Open Internet, Broadband Industry Practices*, FCC 10-201, REPORT AND ORDER, __ FCC Rcd __ (rel. December 23, 2010) at ¶ 133 (according to the FCC, it has the authority to “change the license terms ‘if in the judgment of the Commission such action will promote the public interest, convenience, and necessity’ ... even if the affected licenses were awarded at auction.”)

43 See *supra* n. 9.