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Before the
U.S. Senate
Committee on Commerce, Science, and Transportation

Hearing On:
Crafting a Successful Incentive Auction: Stakeholders' Perspectives

Washington, DC
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Good morning Chairman Rockefeller, Ranking Member Thune, and members of the Committee. I am Harold Feld, Senior Vice President at Public Knowledge, a public interest nonprofit dedicated to the openness of the Internet and open access for consumers to lawful content and innovative technology. I am pleased to have the opportunity to appear before you once again to discuss the implementation of the FCC's first ever spectrum incentive auction.

Executive Summary

A little over 2 years ago, I testified before the House Energy and Commerce Subcommittee on Communications and Technology about what was then a proposal to consider giving the FCC authority to conduct incentive auctions. As I said at the time, the incentive auction provides a rare case for a 'win-win-win' in public policy. Done thoughtfully, the incentive auction could provide new low-band spectrum licenses for wireless carriers to meet expanding demand and enhance competition, provide revenue to pay for a national wireless network for first responders, and enhance the efficiency of the unlicensed TV white spaces service while preserving free over-the-air television.

I still believe we can do this. But we cannot succeed if we rush heedlessly forward out of impatience to hold an auction however ill-designed. Nor will we achieve this by forcing false choices between licensed and unlicensed spectrum, or between enhancing competition and paying for FirstNet. To the contrary, efforts to follow what seems like the straightforward path to maximizing revenue by minimizing guard bands or refusing to adopt rational spectrum aggregation limits are likely to make this auction a failure rather than a success.

Background

Congress' inclusion of Title VI in the Middle Class Tax Relief and Job Creation Act of 2012 was a groundbreaking and critical step forward for U.S. communications policy and the advancement of new and innovative technology in the 21st century. It was groundbreaking because of the creation of the FCC's authority to create and execute a two-sided incentive auction for the first time in history. This mechanism for fairly repurposing spectrum that is already allocated uses market based principles to encourage more efficient use of this valuable public resource and make room on the spectrum allocation for new uses and technologies to develop. The legislation was a critical step because it opened up spectrum to allow for greater growth and competition in the licensed wireless broadband market, while preserving a commitment to unlicensed spectrum to be used for new innovative services, some of which may not even have been invented yet. The legislation also balances the priorities of repurposing spectrum for new uses with the goals of funding an interoperable public safety wireless network in accordance with the recommendations of the 9/11 Commission.

I continue to believe that all these goals remain possible. Certainly it takes patience and a well developed record to find the way to balance these competing goals. I commend the FCC for working so diligently to get the numerous details right so that all these working parts will mesh together, rather than fly apart. Chairman Wheeler's recent blog post[1] outlining a schedule for how the FCC will make its decisions and a target date for the auction is realistic, and provides important transparency for the industry.

Conversely, I find it very unfortunate that some continue to try to create artificial choices among the goals Congress created. We are well aware that the final language of the Act represented a compromise between Members and stakeholders with very strongly held opinions on the appropriate policy to follow. Rather than refight these battles again and again, we should embrace the compromise. Rules that ignore the compromise struck by Congress, pretending that one faction triumphed over the other when it did not, do more than violate the language of law. Such efforts threaten to unbalance the complex machinery Congress dictated for running the auction, potentially dooming all these efforts.

Allow the FCC to do its job

Perhaps most importantly, Congress should remember that every economist that testified on incentive auctions – regardless of political affiliation – urged that the FCC must have maximum discretion to design and run the auction. Certainly Congress must maintain oversight. But Members should also recognize both the tremendous skill and experience the FCC has brought to bear on this complex problem and the FCC's history of success since Congress

[1] Tom Wheeler, "The Path To A Successful Incentive Auction," FCC Blog (December 6, 2012), available at: http://www.fcc.gov/blog/path-successful-incentive-auction-0

authorized spectrum auctions 20 years ago. It is entirely appropriate to require the FCC to explain its choices. It is counter-productive to tell the FCC before it even makes choices that it has chosen wrong.

Since passage of the Act, the FCC has moved quickly to design this first-ever incentive auction to reflect the several goals of the legislation and with the input of all critical stakeholders. In order for the incentive auction to be successful two things are necessary. First, all stakeholders and FCC staff need to work in a transparent, participatory way to determine the various aspects of auction design, band plan options, and repacking processes. Second, the FCC must enact rules that respect and balance the various goals of the legislation rather than bowing to pressure from one interest in favor of another.

Most importantly for those following from outside, the structure created by Congress depends on maximizing the difference between what it has to pay broadcasters and what it can persuade wireless carriers to pay. If the FCC recovers 120 MHz of spectrum, but ends up giving 90% of the proceeds to broadcasters to facilitate recovering that much spectrum, the auction cannot pay for FirstNet. By contrast, an auction that recovered somewhat less spectrum, but where the Federal government kept much more of the revenue, would potentially produce far more revenue for the government. As a result, the FCC must strike a balance between providing real incentive to broadcasters to return some or all of their spectrum use rights – particularly in constrained markets – while not proving so generous that the government fails to meet its revenue goals.

This means that, invariably, some stakeholders will not get the rules they want. Furthermore, because the interest of the federal government is somewhat at odds with the interest of both wireless carriers (who would prefer to acquire licenses as cheaply as possible) and broadcasters (who would prefer to sell for the highest value possible), any so-called "industry consensus" requires very careful examination.

At the same time, as the agency narrows its focus, all stakeholders must begin to abandon their opening positions and seek real consensus wherever possible. In particular, I am hopeful that unlicensed users and secondary licensees such as wireless microphone operators and LPTV operators can reach a consensus on how to coexist within the newly reconfigured broadcast band. Clearly there is much to be gained by finding a way to accommodate all the existing stakeholders rather than forcing the FCC to choose among them, and I hope that policymakers supportive of these interests will encourage the parties to work together rather than against each other.

Balanced Goals

Returning to substance over process, we must likewise remain focused on the statute as written. Since the Middle Class Tax Relief Act was passed, many folks have worked to reframe the goals of the law. The statute however is clear and provides for a variety of goals and outcomes that, if implemented well, should all be attainable.

As an initial matter, the Middle Class Tax Relief Act preserved existing FCC authority both generally, and specifically with regard to implementation of the TV "white spaces" service,

unless explicitly altered by statute.[2] The statute did nothing to alter the overall goals of the FCC's auction authority to promote the public interest by adopting rules that encourage innovation[3] and that "avoid excessive concentration of licenses."[4] Congress also retained the prohibition on consideration of auction revenue as a public interest benefit.[5]

Congress did make several specific alterations with regard to both unlicensed operation in spectrum recovered from broadcasters and with regard to limits on participation in the incentive auction. These explicit provisions provide the outlines of the balanced path the FCC must follow to actualize the goals Congress included in the Middle Class Tax Relief Act provisions on spectrum.

Funding for FirstNet

I recognize the importance of this auction for generating revenue to establish a national, interoperable public safety broadband network, as recommended by the 9/11 Commission. While I agree that funding FirstNet is important, I also want to remind Senators that there are multiple opportunities to raise revenue for FirstNet beyond the incentive auction of the 600 band. The recently announced 1755 MHz/AWS-3 auction alone could easily clear $10 billion and pay

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[2] §6403(i)
[3] 47 U.S.C. §309(j)(3)(A).
[4] 47 U.S.C. §309(j)(3)(B).
[5] 47 U.S.C. §309(j)(7)(B). By implication, Congress clearly intended that the combination of revenue from the incentive auction and the additional auctions required by Section 6401, but there is a considerable difference between an expectation expressed in the statute that a combination of spectrum auctions would raise $7 billion to cover FirstNet's construction costs and a command to maximize auction revenue for the incentive auction in direct violation of 47 U.S.C. §309(j)(7)(B).

for FirstNet, which needs to raise $7 billion in funding.[6] Additionally, the H-block auction scheduled for January 2014 is estimated to automatically clear at a minimum of $1.56 billion.[7]

Finally, those concerned that adoption of a spectrum aggregation limit will reduce auction revenue should consider that the Government Accountability Office (GAO) estimated that the Incentive Auction could raise $20 billion. Some private sector estimates placed the value even higher. The H Block auction will raise approximately $1.5 Billion, leaving only $5.5 billion to pay for FirstNet.

Even those who believe that preventing AT&T and Verizon from foreclosing competitors from these licenses would reduce auction revenue, a claim I and others dispute, no one can seriously suggest that adoption of a modest limit on how many licenses AT&T and Verizon can win will deprive the incentive auction of ***over $15 Billion in revenue***. Assuming that the earlier estimates of how much an Incentive Auction could earn are at all correct, the allegation that a "No Piggies Rule" of the kind proposed below would jeopardize the ability to pay for FirstNet flies in the face of reality. Given that those most loudly claiming that any restriction on AT&T and Verizon's ability to win all the licenses offered would put funding for FirstNet in danger

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[6] This 1755 MHz/AWS-3 auction is one that while hoped for, was uncertain. Furthermore, the 1755 band is not only in a decent bandwidth range and compliments the AWS footprints of the larger national carriers but this spectrum is also harmonized for LTE internationally. The amount of money carriers would save in equipment costs for that band is substantial. *See* FierceWireless, *T-Mobile CTO: 1755-1780 MHz is prime spectrum for LTE*, February 27, 2013, http://www.fiercewireless.com/tech/story/t-mobile-cto-1755-1780-mhz-prime-spectrum-lte/2013-02-27.

[7] FierceWireless, *Analysts: Sprint, T-Mobile ditched H Block to focus on other spectrum, avoid Dish complications*, November 13, 2013, http://www.fiercewireless.com/story/analysts-sprint-t-mobile-ditched-h-block-focus-other-spectrum-avoid-dish-co/2013-11-13.

were among those claiming that the auction would earn in excess of $20 billion, these doomsday predictions should be viewed with considerable skepticism.

Nurturing Continued Innovation In Unlicensed

As members of Congress and FCC Commissioners across the political spectrum have repeatedly stated, unlicensed spectrum remains one of our great spectrum innovations. The United States became the first country in the world to authorize flexible access to spectrum through a simple certification mechanism that dramatically lowered barriers to entry and innovation. Simply try to imagine a world today without such everyday devices such as garage door openers or free Wi-Fi in public buildings, from coffee shops to the halls of Congress. Bluetooth technology which operates over unlicensed spectrum has made phone conversations in cars safer with hands free technology, and the automobile industry is already testing the use of unlicensed spectrum to move the idea of auto piloted cars from science fiction to reality.

In particular, authorization to use TV white spaces (TVWS) under Republican FCC Chairman Kevin Martin, and subsequent modifications under Democratic Chairman Julius Genachowski, have opened the door to dramatic advances in hared spectrum technology. Earlier this year, West Virginia University announced that it would utilize TVWS to provide wireless broadband for its entire campus and surrounding neighborhoods, including free Wi-Fi on public transit. In Cape Town, South Africa Google is piloting wireless broadband connectivity using TVWS to rural areas that lack electricity using solar powered devices. With the large reserve of TVWS in rural areas of the U.S., many communities will look to TVWS networks as a possible solution to the economic challenge of rural broadband deployment. It is too early to know if this

will succeed, but initial projects on college campuses through Air U. and in small cities like Wilmington, NC will help answer these questions over the coming years.

Congress knew that the incentive auction could either enhance the efficiency of TVWS and encourage new investment, or wipe out this promising new technology altogether. Congress opted for the first course, instructing the FCC to structure the incentive auction in a way that compensated for the loss of spectrum in some markets by creating the potential for meaningful use in all markets through unlicensed in the 600 MHz guard bands.

The final version of the Act rejected both the initial House approach of restricting TVWS use solely to the surviving broadcast bands, and the Senate approach of authorizing a direct allocation for exclusive unlicensed use if the FCC recovered more than 84 MHz of spectrum from broadcasters. The compromise version explicitly preserved the use of the remaining broadcast service for TVWS, while permitting the FCC to authorize unlicensed use in the 600 MHz guard bands.[8] At the same time, the use of unlicensed spectrum should not undermine licensed use of the 600 MHz band either by causing harmful interference[9] or by inflating the guard bands beyond what is "technically reasonable."[10]

[8] *See* §§6403(i); 6407.
[9] §6407(e).
[10] §6407(b). By adopting this language, Congress explicitly rejected the alternative – and more restrictive – language that guard bands be no bigger than 'technically necessary.' The word 'reasonable' denotes discretion (albeit bounded discretion), especially when combined with the Commission's responsibility (unaltered by the statute) to encourage innovation and flexibility. *See,* 47 U.S.C. §§303(g); 309(j)(3)(A).

This compromise illustrates the necessary balance the Commission should adopt. Congress clearly intended to foster the further development of unlicensed technology and TVWS in particular. The FCC may consider how to facilitate this development through the use of guard bands, and may certainly take the impact of its decisions on the development of the TVWS into account. At the same time, consideration for unlicensed use alone cannot drive the Commission's decision making.

In short, according to the Middle Class Tax Relief Act, unlicensed remains an important part of the wireless ecosystem. But it is only one part. The size of guard bands can – and should -- reflect, among other things, a desire to ensure sufficient national access to unlicensed spectrum to encourage investment and deployment in urban markets as well as rural markets. At the same time, concerns over unlicensed use cannot so dominate the Commission's thinking that they actively undermine the viability of licensed services.

On November 8, the FCC held a workshop to highlight the important role TVWS is already playing in providing needed broadband services in rural areas and urban areas alike.[11] Chairman Wheeler became the latest FCC Chairman to reaffirm the importance of unlicensed spectrum and TVWS stating, "Unlicensed spectrum has been, and must continue to be, the catalyst of innovation. Therefore, we must make sure that unlicensed spectrum is a key part of whatever decisions that we make."[12]

[11] A video archive of the event is available at http://www.fcc.gov/events/learn-workshop-discuss-unlicensed-spectrum-issues.
[12] *Id.* At 8:30-8:51.

Witnesses at the workshop included Elizabeth Bowles, president of a WISP based in Little Rock Arkansas, who described how the availability of unlicensed spectrum – and TVWS in particular – allowed her to bring broadband to schools, small businesses, and others who could not otherwise afford access. Others described use of the TVWS for higher education projects, and to bring affordable broadband to poor urban neighborhoods, and to create economic opportunity for women and minority owned businesses. Witnesses described innovative new devices already available from such retailers as Amazon.com, and how other countries are actively looking to develop their own TVWS technology.

In short, the value of the TVWS is well established. Beyond the contribution to the economy, unlicensed lowband spectrum empowers traditionally marginalized communities to take part directly in the emerging wireless future. The power of unlicensed to give these communities new opportunities is a social good that cannot be measured in dollars, but is utterly critical to the American spirit.

Public Knowledge believes the FCC should issue a further public notice at the January meeting where, under Chairman Wheeler's recently proposed schedule, key policy decisions will be outlined. This will allow stakeholders to come together around a common sense, consensus framework that promotes a robust TVWS on a national basis. Until details can be filled in, Public Knowledge continues to support calls from a broad range of stakeholders such as Comcast, Broadcom, The Wireless ISP Association (WISPA), and Google -- along with public interest organizations such as Free Press, Consumer Federation of America, and the New America Foundation – to create a 20 MHz contiguous block of spectrum for unlicensed in the "duplex

gap" between the uplink and downlink paired spectrum. Based on previous experience with duplex gaps, and in light of the propagation characteristics of the 600 MHz spectrum, this size would represent the optimum trade-off for licensed services to build inexpensive handsets that minimize internal filters and potential self-interference while providing adequate spectrum on a national basis for broadband in both urban and rural settings.

Critically, the 20 MHz duplex gap is not the only way to provide adequate unlicensed spectrum to meet urban and rural needs. This is why a further public notice is imperative. As Chairman Wheeler stressed at the November 8 FCC Workshop, now is the time for parties to focus on practical proposals rather than insist that "the world will end" if they do not get exactly what they want.

Opportunity for Other Players to Come to the Table for a Deal

Since multiple users will operate in the spectrum between 470 MHz and 796 MHz this presents an opportunity for other players besides the wireless carriers and broadcasters to come to the table for a deal. Potential stakeholders that could benefit from participating in these auction discussions include owners of wireless microphone equipment. Public Knowledge is part of the Public Interest Spectrum Coalition (PISC) whose members believe the FCC has an opportunity to facilitate innovation and investment in unlicensed technologies while still preserving the use of wireless microphones. When the FCC adopted orders allowing unlicensed use of TVWS it reserved two channels for the use of wireless microphones. Because unlicensed devices cannot use channels used by broadcasters in neighboring TV markets, even low-power

unlicensed devices are not allowed to operate in the majority of vacant TV channels in each local market.

Conversely, wireless microphones have been successful in operating on the same channel as broadcast stations in distant or neighboring markets. The additional channels that are not available for use by unlicensed devices include unoccupied TV channels below Channel 21 and the larger category that includes channels where microphones have historically operated co-channel to broadcast stations in distant media markets. Incentive auction rule changes should include policies that ensure both wireless microphone operators and unlicensed broadband networks and devices have a sufficient amount of low-band spectrum available nationwide.

PISC has also provided proposals that would protect LPTV operators that provide service to their local community, while also accommodating use of the TVWS for unlicensed users. I am pleased that in recent days representatives from the LPTV community have begun to reach out to PISC members to begin discussion for a possible way forward.

These negotiations will work best if policymakers urge all parties to focus on coexistence and reasonable spectrum sharing. As demonstrated by the recent agreement between the Department of Defense and broadcasters to share the 2021-2110 MHz band,[13] and the recent

[13] Letter of Karl Nebbia, Associate Administrator, Office of Spectrum Management, National Telecommunications Information Administration (NTIA), to Julius Knap, Chief, Office of Engineering and Technology, filed in GN Docket No. 13-185 (November 25, 2013), available at http://apps.fcc.gov/ecfs/document/view?id=7520959441

voluntary agreement between the 700 MHz licensees and DISH to promote interoperability,[14] spectrum sharing must become the norm in an increasingly crowded spectrum world. Parties that insist on standing on what they believe is their due under the law should recall that the Communications Act unequivocally states that ***no one*** has any right to use spectrum. Accordingly, the best results can be achieved by genuine consensus among stakeholders realistically assessing their needs, rather than by forcing the FCC to chose among stakeholders.

The Myth of "Inflated" Guard bands

Opponents of unlicensed use have repeatedly stated that the law prohibits the use of unlicensed in the guard bands. Some have even gone so far as to argue that the law prohibits guard bands entirely, or requires the FCC to confine them to some arbitrary minimum. As noted above, this ludicrous claim violates the plain language of the statute, which not only explicitly preserves FCC authority to create band plans with guard bands but which rejected the more restrictive "technically necessary" for the more flexible "technically reasonable."

The alternative argument of opponents of unlicensed use is the effort to create a false choice between guard bands and auction revenue. This ignores that well managed guard bands enhance the value of licensed portions of the spectrum by lowering the cost of equipment design. Similarly, the increasing synergistic use between licensed and unlicensed spectrum, notably in

[14] *See* Promoting Interoperability in the 700 MHz Commercial Spectrum, WT Docket No. 12-69; Request for Waiver and Extension of Lower 700 MHz Band Interim Construction Benchmark Deadlines, WT Docket No. 12-332, *Report and Order and Order of Proposed Modifcation*, (October 29, 2013), available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db1101/FCC-13-136A1.pdf.

the development of "Wi-Fi offload" and "carrier grade Wi-Fi," show how permitting Wi-Fi in the guard bands would actually enhance value and thus ***increase*** auction revenue.

To illustrate this point, consider the following analogy. The development firm of Henry and Anna decide to develop some prime real estate for residential use. They build houses with lawns and driveways so that people can invite guests and hold parties while protecting the neighbors from each other's noise. They leave some open common space for playgrounds and to enhance the feeling of community. They use some land for green space to set the houses back from the main road. They end up building 20 houses.

Fred and Greg, rival developers who hold a similar plot of land, can't believe how much money they think Henry and Anna are leaving on the table with all this "wasted" space. They build townhouses jammed up as close to each other as possible, with the bare minimum number of parking spaces. By leaving no common space or open area, they cram in 30 houses.

But a funny thing happens. Henry and Anna can sell their houses for $500,000 a house, because they have all this space and it makes a very nice community. Fred and Greg can only get $150,000 for their houses, because no one wants to pay as much for houses jammed on top of each other, with everyone hearing their neighbor's business, no place for friends or relatives to park when they visit, and houses flush against the street.

At the end of the day, Henry and Anna make $10,000,000, while Fred and Greg make only $4,500,000. Despite all the wasted "green space," Henry and Anna end up making $5,500,000 more than Fred and Greg.

The same logic holds true with guard bands. Maximizing the number of MHz auctioned by having licenses piled one on top of the next with no guard bands does not mean more revenue from the auction any more than maximizing the number of houses in a development automatically means more money for the developer.

Competition: Spectrum Aggregation/Band Plan

Perhaps the most important goal to consumers in the construction of a balanced incentive auction implementation is the assurance that the rules will promote competition in the mobile broadband industry. Following the dominance of the 700 MHz Auction in 2008 by AT&T and Verizon, it became conventional wisdom that the overwhelming advantage of AT&T and Verizon in low-band spectrum meant a long, slow slide to duopoly. Only aggressive action by the Commission in 2011 and 2012 – adoption of data roaming rules, blocking AT&T's effort to acquire T-Mobile, and pressure on Verizon to divest spectrum to T-Mobile as part of the Spectrum Co. Review – created any expectation that competition remained viable.

The benefits of competition have become increasingly visible since the FCC and the Department of Justice Antitrust Division (DoJ) took steps to ensure that the market would contain at least 4 national firms. Billions of dollars of new investment flowed into the market as both T-Mobile and Sprint attracted new interest. AT&T began a process of "refarming" it's 2G

spectrum for 4G use and, spurred by competitive pressure, has moved rapidly to deploy LTE nationally. A revitalized T-Mobile has offered major innovations in handset upgrades and data plan pricing, forcing AT&T and Verizon to respond.

It is no coincidence that this dynamic market action follows regulatory action to promote competition, whereas the market remained virtually moribund from 2008-2012 when competition appeared dead. Only competition forces companies to invest in network improvements and pass along efficiencies of scale to customers rather than shareholders. By contrast, when competition declines, the surviving dominant firms can afford to decrease capital expenditures on network improvements because frustrated customers have nowhere else to go.

AT&T and Verizon continue to enjoy dominance in part because of their superior holding of spectrum below 1 GHZ, aka "low band spectrum." These companies acquired this advantage in substantial part from free low band licenses distributed to the incumbent local exchange carriers (ILECs) before the Commission began to auction spectrum in 1993. To pretend that this market distorting regulatory largess constitutes a free market triumph that regulators should respect is therefore quite disingenuous.

Likewise, the claim that AT&T and Verizon need additional spectrum because of their large customer base profoundly misstates the facts. To the contrary, as noted above, it is competition that forces companies to become efficient and pass those efficiencies on to their customers. As both the Department of Justice and the FCC transaction team found in the AT&T/T-Mobile transaction, AT&T in particular has used spectrum acquisitions to support a

profoundly ***inefficient*** network architecture. Indeed, the fact that Verizon supports more customers with less spectrum demonstrates that the problem for AT&T is not a spectrum shortage to meet demand, but a refusal to reengineer its network to provide more efficient coverage.

The DoJ has emphasized the importance of getting low band spectrum into the hands of competitors. Because the incentive auction represents the last chance to put valuable low band spectrum in the hands of competitors, the FCC should adopt rules of general applicability – as permitted by the Middle Class Tax Relief Act of 2012 – to prevent AT&T and Verizon from capturing the lion's share of the licenses.

This Auction Is About Future Spectrum Needs, And The Future of Competition.

My fellow witness Dr. Hal Singer has submitted a paper to the FCC with David Balto arguing that T-Mobile's recent revitalization shows that the DoJ is wrong in its concern that competitors require access to lowband spectrum.[15] Setting aside other objections to Balto & Singer's analysis, and the irony that T-Mobile enjoys its current success to from antitrust enforcement of the kind Balto & Singer object to here, the paper misses a key point about the Incentive Auction. Since its initial proposal as part of the National Broadband Plan, the Incentive Auction has been about meeting the *future* demand for spectrum, the so-called "spectrum crunch." The relevant question is therefore not merely whether T-Mobile and Sprint have

[15] *See* David Balto and Hal Singer, "The FCC's incentive Auction, Getting Spectrum Policy Right," Progressive Policy Institute (September 2013), available at http://www.progressivepolicy.org/wp-content/uploads/2013/09/09.2013-Balto-and-Singer_Getting-Spectrum-Policy-Right.pdf

sufficient spectrum to compete *today*, but whether they will have sufficient spectrum – particularly lowband spectrum – to remain competitive going forward. Indeed, under the logic proposed by Singer and Balto, it does no harm to AT&T and Verizon to be entirely excluded from the Incentive Auction because they currently have the best performing 4G networks.

Unlike the DoJ merger review, which looks to see whether a transaction is likely to substantially reduce competition, the FCC is required by law to consider how to use auctions to *promote* competition and avoid excessive concentration of licenses.[16] Even if Balto & Singer were correct that T-Mobile's recent performance alleviates competitive concerns in today's spectrum environment (a claim subject to considerable dispute), the failure of Balto & Singer to address adequately how foreclosure would impact future need leaves their analysis fatally flawed.

The "No Piggies" Rule

The FCC can promote these competition goals in two ways. First, it can adopt a total limit on the amount of spectrum, particularly low band spectrum, a single company can hold. The Commission had such a hard "spectrum cap" until 2003. Not coincidentally, elimination of the spectrum cap initiated a period of steady consolidation and a dramatic decline in competition to the detriment of consumers.

[16] *See* 47 U.S.C. §309(j)(3)(B).

Alternatively, the Commission could adopt an auction specific rule that would prohibit any one company from capturing too many licenses in the 600 MHz auction. This "No Piggies" rule would permit AT&T and Verizon to participate, while leaving significant spectrum on the table to attract many smaller bidders.

No Piggies Means More Auction Revenue

Auction experts will tell you that maximizing revenue requires two things. First, lots of bidders need to show up. Second, they cannot collude to divide the licenses among each other.[17] To achieve step one requires creating a set of rules that encourages as many bidders as possible that they can actually win enough licenses they need to make showing up worth the expense of playing. Participating in an auction costs a great deal of money. Companies go to capital markets to arrange for both the large "up fronts" needed to participate and to be able to pay for the licenses if they win. The companies set up huge "war rooms" with auction experts to track and advise them. Failing to win licenses, not only means the vast expenditure of money and resources is wasted. Publicly traded firms will lose significant stock value if they fail to win licenses deemed critical to their future growth, or if they are deemed to have been forced by AT&T and Verizon to significantly overpay.

Unless a firm believes it has some chance of success in the auction that will justify the cost and the potential risk of market backlash for a failed auction attempt, it will do better to sit on the sidelines.

[17] *See, e.g.,* Paul Klemperer, "Using and Abusing Economic Theory," Journal of the European Economic Association, 2003, 1, 272–300.

Without the No Piggies Rule, there is every reason to believe that AT&T and Verizon will repeat their success from 2008 700 MHz auction. No matter how much T-Mobile or Sprint (or other competitors) may need the spectrum in absolute terms, it is not worth the risk if they cannot win.

A simple analogy illustrates the problem. My neighborhood association sponsors a basketball tournament with a $10 entry fee and a $500 prize. Should I enter? Well, if we pretend I am a decent amateur player, then it would make sense. The entry fee is relatively small, and even if I am not the best basketball player in the neighborhood, I am close enough to my neighbors that I believe I have a chance to win.

Now pretend that instead of playing my neighbors, I have the option to participate in a basketball tournament against the 1985-86 World Champion Boston Celtics. The entry fee is $50,000, but the prize is $10 million! This is a much higher potential return on my investment than the previous example, albeit for a much higher upfront cost and with a much reduced (*i.e.*, non-existent) chance of winning. Should I enter?

Unless I'm in the market for a divorce, the obvious answer is no. This bet makes absolutely no sense despite the potential return on investment. I would need to mortgage my house and go into crippling debt simply to enter the competition, fully aware I would have no chance of winning against Larry Bird today, never mind when he was at the peak of his career.

Similarly, in the absence of a No Piggies Rule, it makes no sense for T-Mobile or Sprint to spend millions of dollars to enter the spectrum auction because they have virtually no chance of winning enough licenses to justify participation. Sadly, spectrum auctions are not Disney movies. Failure is always a (very painful) option, and the need to win does not make winning any more likely than not really needing to win. The fact that these companies really need the spectrum does not, oddly enough, make it any more likely they will win or make it cheaper for these companies to get the necessary capital. To the contrary, the fact that they need the spectrum to remain competitive but are unlikely to win it drives up the cost of capital and increases the backlash when they lose.

Even without a No Piggies Rule to encourage smaller players to participate, the number of potential bidders has dropped significantly since the 700 MHz auction in 2008. Alltel and MetroPCS no longer exist. Leap may not exist by the time the auction takes place.

Opponents of the No Piggies Rule like to paint a stark picture of the auction failing if AT&T and Verizon do not participate. But an auction limited to AT&T and Verizon is equally likely to fail. The FCC must bring all potential bidders to the table, something only a No Piggies Rule can hope to accomplish.

Band Plan, Bidding Rules and Other Factors

Numerous other factors impact the likely success of the auction. With regard to bidding rules and other factors such as repacking, we lack a good sense of the FCC's current thinking.

These matters will, hopefully, becomes the subject of future public notices to further develop the record.

With regard to the band plan, the one thing agreed upon by nearly all competitors agree upon is that the band plan should optimize paired spectrum. Inclusion of supplemental downlink (SDL) spectrum below Channel 37 appears more likely to increase competition problems in light of the difficulties in integrating spectrum below Channel 37 with other low band spectrum below 1 GHz. Furthermore, based on the current experience with 700 MHz A & 700 MHz B block spectrum, it seems unlikely that manufacturers will develop equipment for supplemental downlink unless AT&T and/or Verizon capture significant SDL licenses.

Market Variability

Finally, the Wireless Bureau's May Band Plan Public Notice raised the question of "market variability." This would give the FCC flexibility to recover more spectrum in some markets than in others. Market variability potentially resolves the problem of holdouts in the most constrained markets. Without such flexibility, the FCC is limited in every market to the spectrum available in the most constrained market. This could essentially starve the auction for spectrum.

At the same time, too much variability creates significant problems. It is highly unlikely that equipment will be developed for markets where large amounts of spectrum can be recovered given that the largest markets are most likely to be constrained. Commenters have also noted

significant interference potential if there is too much variability in the band plan caused by market variation.

To balance these concerns, the Commission needs a *uniform core* with *flexible edges*. The Commission should establish a clear limit on the potential variation from the uniform core set by the most constrained market. This would reduce the value of holding out in the most constrained markets, without introducing so much uncertainty in the band plan as to undermine the ability of potential bidders to adequately assess the value of the licenses.

Thank you to the members of the Committee for your time and I look forward to the opportunity answer your questions.