

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of	)	
	)	
Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002	)	AU Docket No. 14-252
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket No. 12-268
	)	

**REPLY COMMENTS OF T-MOBILE USA, INC.**

Trey Hanbury  
Deborah Broderson  
David Crawford  
**Hogan Lovells US LLP**  
555 Thirteenth Street, NW  
Washington, DC 20004  
(202) 637-5534

*Attorneys for T-Mobile USA, Inc.*

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Andy Levin  
Kathleen O'Brien Ham  
Steve Sharkey  
Joshua L. Roland  
**T-Mobile USA, Inc.**  
601 Pennsylvania Avenue, NW  
Washington, DC 20004  
(202) 654-5900

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## Executive Summary

Commenters in this proceeding support auctioning additional low-band spectrum as scheduled in 2016 as well as most of the proposed auction design features intended to encourage competition, innovation, and investment in the market for wireless broadband services.

***Protect Consumers by Promoting Competition.*** Commenters widely recognize that foreclosure of non-dominant providers is a costly consequence of the exceptionally high concentration of low-band spectrum and agree that a spectrum reserve offers an effective mechanism to promote facilities-based competition. The Commission should protect and expand the spectrum reserve by increasing it from 30 to 40 megahertz and eliminating the extra-statutory price trigger for this spectrum. Similarly, the Commission should ensure that multiple competitive carriers gain access to low-band spectrum by limiting the amount of reserve spectrum a single bidder can win. The Commission should also reject demands that the reserve be comprised of only the worst available spectrum in the auction. After giving away billions of dollars worth of spectrum to the dominant carriers prior to the advent of spectrum auctions, limiting competitive carriers' low-band spectrum opportunity to the dominant carriers' cast offs would defeat the purpose of the reserve. For the same reason, the Commission should reject AT&T's effort to carve out a "dominant carrier reserve" and insulate that spectrum from whatever competitive pressure non-dominant carriers might offer during the bidding. AT&T's proposal would punish rational economic behavior and inject unnecessary additional complexity into an already very complicated auction. The quality and the quantity of the reserve will determine the future of competition.

***Clear the Maximum Amount of Spectrum Economically Capable of Supporting Broadband.*** Commenters largely agree that the Commission should attempt to clear the maximum amount of paired broadband spectrum, while minimizing impairments, especially in top markets. Setting the spectrum-clearing target to ensure that there are at least four paired licenses in nine of the 10 top markets and establishing the target for the rest of the country based on this target would offer the greatest amount of spectrum for wireless broadband deployment while still allowing the scale and scope necessary to ensure economical deployments. Adopting the proportionate one-to-one assignment round discounts as proposed will preserve the generic nature of each license category, simplify bidding and accelerate the auction process. Value weighting will focus market clearing on the areas that contribute most meaningfully to economic broadband deployments. And adjusting the proposed 20% impairment threshold to 10% in markets where more than 84 megahertz is cleared will balance the benefits of high spectrum clearing against the possibility of allowing excessive impairments in high-clearing scenarios.

***Auction Moderately Impaired Licenses, Distinguish Among Different Types of Impairments, and Auction Heavily Impaired Spectrum in a Follow-On Auction.*** Low-band spectrum is in preciously short supply and auctioning moderately impaired licenses, as well as categorizing impaired licenses to account for the broadband allocation plans of Canada and Mexico, will increase the availability of broadband spectrum. The Commission should distinguish among different types of impairments and reject calls to auction only unimpaired or lightly impaired spectrum in the forward auction. Choking off the supply of low-band spectrum makes sense for

the two dominant carriers that currently control 73% of all low-band resources, but creating artificial spectrum scarcity will not promote competition, innovation and investment in wireless broadband.

***Use Dynamic Reserve Pricing Judiciously.*** Limited use of Dynamic Reserve Pricing (“DRP”), or an alternative mechanism, would benefit all auction participants, and the adoption of four safeguards can protect against the harms associated with excessive use of DRP. First, DRP should end when there are enough frozen stations to create the potential for a 20% impairment, rather than continue until the impairment level actually reaches 20%. Second, DRP should begin only after sufficient time has passed to determine that the price for a frozen station has become substantially higher than the clock prices of other stations still participating in the auction. Third, the theoretical impairment should be reduced below 20% at higher levels of spectrum clearing to ensure sufficient spectrum availability to allow for cost-effective deployment. And fourth, to limit the impact that DRP can have on the value that a broadcaster would receive, a safeguard should be added by either preventing DRP from decreasing broadcast prices by more than a fixed percentage of a station’s opening bid or by using DRP only as a “last resort” option after the forward-auction has failed to satisfy the Final Stage Rule. Overly aggressive use of DRP has the potential to become counterproductive, and limitations on the use of DRP will prevent excessive use of this tool during the auction. Other limitations, including “Round Zero Reserve” pricing, might also be considered once more information is made available.

***Repack Unavoidable Broadcast Encumbrances into the Uplink Band to the Greatest Extent Possible.*** The majority of carrier commenters support prioritizing repacking of broadcast stations to the uplink band over placement in the downlink band. Prioritizing uplink impairments over more costly downlink impairments offers the best trade-off among the numerous design and deployment challenges associated with accommodating broadcast impairments of the 600 MHz band.

***Modify Auction Procedures to Make Participation More Manageable and Competitive.*** Allowing somewhat more time between stages and phases of the auction will permit bidders to make more informed choices about their bidding decisions. Limiting extended rounds to the top 40 PEAs will expedite the auction process while still accurately gauging demand. Cycling through clearing target that cannot be met wastes time and resources. And using a quasi-random assignment process after applying limited frequency and geographic contiguity objectives could clear more spectrum for broadband use and result in a more equitable distribution of spectrum resources among auction participants than an assignment auction.

\* \* \* \*

The 600 MHz incentive auction promises to provide competitive carriers with long-overdue access to low-band spectrum without the potential for foreclosure by the two dominant incumbents. Unlocking the consumer benefits of greater broadband investment, innovation and deployment will require the Commission to reject the dominant carriers’ last-ditch efforts to reduce the amount of spectrum available for broadband use, encumber what spectrum is available, and create new barriers to competitive entry. A reinvigorated wireless broadband

market can begin when the Commission holds the auction in early 2016 as scheduled using rules only slightly modified from the Commission's original proposals.

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**REPLY COMMENTS OF T-MOBILE USA, INC.**

**I. INTRODUCTION**

T-Mobile USA, Inc. (“T-Mobile”)<sup>1</sup> respectfully submits these reply comments in response to the 600 MHz *Comment Public Notice*.<sup>2</sup> Most commenters in this proceeding join T-Mobile in supporting bidding procedures to advance a more efficient and equitable distribution of spectrum resources as a means of encouraging wireless broadband investment, innovation, and competition. The Commission should embrace pro-competitive reforms to its auction procedures and reject those measures that would delay the auction, reduce the amount and utility of the spectrum available for broadband, or needlessly complicate the distribution of licenses.

**II. HOLDING THE INCENTIVE AUCTION AS SCHEDULED IN EARLY 2016 WILL BENEFIT THE INDUSTRY, CONSUMERS AND THE ECONOMY.**

The Commission should hold the incentive auction in early 2016 as scheduled. In the *Comment Public Notice*, the Commission said it planned to accept applications to participate in

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<sup>1</sup> T-Mobile USA, Inc. is a wholly owned subsidiary of T-Mobile US, Inc., a publicly traded company.

<sup>2</sup> Comment Sought on Competitive Bidding Procedures for Broadcast Incentive Auction 1000, Including Auctions 1001 and 1002, *Public Notice*, AU Docket No. 14-252, GN Docket No. 12-268, 29 FCC Rcd 15750 (2014) (“*Comment PN*”).

the incentive auction later this year and to start the bidding process in early 2016.<sup>3</sup> The vast majority of commenters supported conducting the 600 MHz auction as planned and called on the Commission to avoid any further delay.<sup>4</sup>

Access to additional spectrum below 1 GHz will address the need of all providers to meet constantly growing consumer demand for mobile broadband and to enable the economic and consumer benefits associated with mobile broadband.<sup>5</sup>

Robust networks require sufficient spectrum,<sup>6</sup> and the more than \$41 billion raised by the AWS-3 auction demonstrated the enormous pent-up demand for spectrum among mobile broadband wireless providers.<sup>7</sup> In a study prepared for the Expanding Opportunities for Broadcasters Coalition, Professor Peter Cramton has predicted that the incentive auction could raise nearly twice this amount, or at least \$80 billion, if the auction clears at least 10 paired

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<sup>3</sup> *Comment PN ¶ 8.*

<sup>4</sup> *See, e.g.,* Comments of Expanding Opportunities for Broadcasters Coalition, AU Docket No. 14-252, GN Docket No. 12-268 at 9-10 (Feb. 19, 2015) (“EOBC Comments”); Comments of LocusPoint Networks, LLC, AU Docket No. 14-252, GN Docket No. 12-268 at 4 (Feb. 20, 2015) (“LocusPoint Comments”); Comments of Rural Wireless Association and NTCA—The Rural Broadband Association, AU Docket No. 14-252, GN Docket No. 12-268 at 6-7 (Feb. 20, 2015); Comments of T-Mobile USA, Inc., AU Docket No. 14-252, GN Docket No. 12-268 at 2 (Feb. 20, 2015) (“T-Mobile Comments”); Comments of the Competitive Carriers Association, AU Docket No. 14-252, GN Docket No. 12-268 at 19 (Feb. 20, 2015) (“CCA Comments”); Coleman Bazelon & Giulia McHenry, The Brattle Group, *Realizing the Benefits from the FCC’s Incentive Auction without Delay* (Feb. 20, 2015) (“Brattle Report”), attached to LocusPoint Comments; Peter Cramton *et al.*, *Design of the Reverse Auction in the FCC Incentive Auction* (Feb. 19, 2015) (“Cramton Report”), attached to EOBC Comments.

<sup>5</sup> Brattle Report at ii.

<sup>6</sup> Mobile Future observes that demand for mobile broadband by consumers has grown “exponentially,” and experts anticipate that wireless broadband data usage will increase by a factor of seven over the next five years. Comments of Mobile Future, AU Docket No. 14-252, GN Docket No. 12-268 at 2 (Feb. 20, 2015) (“Mobile Future Comments”); *see also* Brattle Report at 25.

<sup>7</sup> *See, e.g.,* FCC Chairman Tom Wheeler Statement on Auction 97 (Jan. 29, 2015) (“The results of [the AWS-3] auction confirm the strong market demand for more spectrum. We are confident there will continue to be strong demand for valuable low-band spectrum that will be made available in the Incentive Auction early next year.”), available at [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-331759A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-331759A1.pdf); *see also* Mobile Future Comments at 2-3, citing Auction of Advanced Wireless Services (AWS-3) Licenses Closes, Winning Bidders Announced for Auction 97, *Public Notice*, DA 15-131 (Jan. 30, 2015) (noting that net bids in the AWS-3 auction were four times the reserve price and almost three times early estimates for auction revenues).

blocks of 600 MHz spectrum.<sup>8</sup> A wide range of entities are expected to come to the incentive auction ready to bid aggressively, and many likely bidders have access to large amounts of capital now due to the generally favorable financing environment.<sup>9</sup> Auctioning the 600 MHz spectrum as scheduled in 2016 will unleash this demand and accelerate the deployment of wireless broadband services that can propel American economic growth.

Delaying the incentive auction would do more than just slow the promised benefits of heightened mobile broadband competition, expanded network deployment and lowered prices; it would actively inflict harm on the public interest. One prominent economic consulting firm's filing in this proceeding estimates that failing to hold the incentive auction in early 2016 would result in "unrealized net revenues and consumer surplus for wireless mobile services that can never be recovered" that could amount to \$62 billion of lost opportunity every year.<sup>10</sup> Because any delay could last several years, the Brattle Group projects that any delay in the Commission's current schedule could readily cost Americans some \$200 billion in lost revenue and consumer welfare.<sup>11</sup>

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<sup>8</sup> Cramton Report at 20; *see also* Kagan Media Appraisals, *Can the FCC Attract a Full House for the 2016 Broadcast Incentive Auction?* at 8 (Feb. 11, 2015), *attached to EOBC Comments* (estimating that 600 MHz auction revenues could "well be in the \$60 billion-80 billion range") ("Kagan Report").

<sup>9</sup> *See, e.g.*, Kagan Report at 23 ("AT&T has robust access to capital at very attractive rates."); *see also id.* at 15-16 (noting that Verizon "continues to have the highest wireless EBITDA margin in the industry"). AT&T has already committed to spend at least \$9 billion in the incentive auction, *see* AT&T/DirecTV, Description of Transaction, Public Interest Showing, and Related Demonstrations, MB Docket No. 14-90 at 51 n.166 (June 11, 2014), and has access to capital from a wide variety of sources at extremely competitive rates. *See* Kagan Report at 23 (observing that AT&T's credit-worthiness is ranked A2 by Moody's Investors Services, A by Fitch Ratings, and A- by Standard and Poor's). Verizon is also exceptionally well-capitalized; in 2014, Verizon issued nearly \$30.8 billion in public debt, or 53% of the total debt issued by the four largest mobile wireless broadband providers. *See* Kagan Report at 33. In contrast, T-Mobile issued just \$3 billion in debt, or five percent of the total. *Id.*

<sup>10</sup> *See* Brattle Report at 13.

<sup>11</sup> LocusPoint Comments at 3. Conversely, expanding the availability of low-band spectrum promises to increase U.S. employment, stimulate economic growth, incentivize capital investment, spur creativity in existing industries, and "cataly[ze]...entirely new industries." Brattle Report at 6, citing David W. Sosa & Marc Van Audenrode, *Private Sector Investment and Employment Impacts of Reassigning Spectrum to Mobile Broadband in the United States*, White Paper at 1-2 (Aug. 2011). For example, Sosa and Van Audenrode estimate that reallocating 300 MHz of additional mobile broadband spectrum would lead to \$75 billion in capital investment, 300,000 new jobs, and

Though elsewhere a cheerleader for rapid spectrum assignments,<sup>12</sup> AT&T is virtually alone in this proceeding in telling the Commission not to “rush” the release of additional low-band spectrum resources to the public.<sup>13</sup> AT&T, which currently holds more than one-third of all low-band spectrum in the United States, recommends the Commission take its time in finalizing the procedures before releasing more low-band spectrum to the wireless industry. But the Commission’s years-long effort by hundreds of full-time staff and experts can hardly be characterized as a “rush” to auction spectrum.<sup>14</sup> AT&T’s related argument that bidders need additional time to secure sufficient funding is, as Professor Cramton observes in his analysis for EOBC, “just silly.”<sup>15</sup> AT&T and Verizon have ample cash on hand and ready access to the capital and debt markets.

Any additional delays before the start of the auction would have significant social and economic costs. The pending litigation by the National Association of Broadcasters and Sinclair

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\$230 billion in GDP, with even greater effects from reallocating a full 500 MHz of spectrum to wireless broadband over a longer period.

<sup>12</sup> See AT&T, Acquisition of T-Mobile USA, Inc. by AT&T Inc., Description of Transaction, Public Interest Showing and Related Demonstrations, WT Docket No. 11-65 at 24-25 (Apr. 21, 2011) (noting the “looming spectrum crisis,” and stating that “AT&T’s network-capacity challenges...are not just ‘looming’ a few years down the road—they are here today”); see also “Spectrum: Crunching the Numbers,” Verizon Public Policy Blog (Feb. 23, 2012), available at <http://publicpolicy.verizon.com/blog/entry/spectrum-crunching-the-numbers> (“But why does Verizon need more spectrum? The answer...has become one of the big policy debates in Washington and across the country: the coming spectrum crunch.”); Letter from Steve Largent, President and CEO, CTIA—The Wireless Association to Chairman Julius Genachowski *et. al.*, GN Docket No. 09-51 at 2 (Mar. 13, 2013) (“The wireless industry is at a critical crossroads—the long warned spectrum shortage is at an inflection point.”).

<sup>13</sup> Comments of AT&T, AU Docket No. 12-252, GN Docket No. 12-268 at 3 (Feb. 20, 2015) (“AT&T Comments”).

<sup>14</sup> Indeed, by the time of the auction, the Commission will have had more than five years to prepare since it first proposed the concept in 2010 and more than three years since the legislation authorizing the auction became law. The National Broadband Plan was released in March 2010; the Spectrum Act was enacted in February 2012. Federal Communications Commission, *Connecting America: The National Broadband Plan* at 84 (Recommendation 5.8) (Mar. 17, 2010), available at <http://transition.fcc.gov/national-broadband-plan/national-broadband-plan.pdf>; Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6404 (“Spectrum Act”). The current proceeding alone will have involved more than two-and-a-half years of deliberation, as the Commission released the initial Notice of Proposed Rulemaking in this proceeding in October 2012. Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, *Notice of Proposed Rulemaking*, 27 FCC Rcd 12357 (2012).

<sup>15</sup> Cramton Report at 56 (noting that there is more than a year until the incentive auction, the capital markets in the U.S. work well, and “[e]very bidder in the AWS-3 auction bid knowing that the incentive auction would be coming up in early 2016”).

Broadcasting has already delayed resolution of this proceeding once.<sup>16</sup> Further delay of the incentive auction will delay consumers' access to additional wireless broadband coverage and enhanced performance while depriving competitive carriers of an opportunity to access low-band spectrum in hopes of better competing with the two dominant providers.<sup>17</sup>

### **III. MAKING THE RESERVE MORE ROBUST AND LESS CONTINGENT WILL PREVENT FORECLOSURE AND INCREASE POST-AUCTION COMPETITION.**

#### **A. Foreclosure Is a Major Risk of Highly Concentrated Low-Band Spectrum.**

Broadband and broadcast stakeholders recognize that foreclosure of competitors in the forward auction is a major risk of the historically high concentration of low-band spectrum.<sup>18</sup> The dominant incumbents, AT&T and Verizon, enjoy a coverage advantage that comes from the highly concentrated ownership of low-band spectrum, which in turn has allowed them to acquire the lion's share of subscribers.<sup>19</sup> The Commission established the spectrum reserve to ensure non-dominant carriers, including T-Mobile, could acquire sufficient amounts of low-band

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<sup>16</sup> The incentive auction has already been delayed by a year as a result of frivolous lawsuits challenging the Commission's well-reasoned rules. EOBC Comments at 8. Once the auction is complete, moreover, the 600 MHz band will require many years of diligent effort before the spectrum becomes available for wireless broadband deployment. The Commission anticipates that the auction itself will last for several months, and following the close of the auction the Commission has proposed a post-auction 39 month repacking and relocation process during which time mobile broadband providers would not have access to spectrum still occupied by transitioning broadcast stations. See Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, *Report and Order*, 29 FCC Rcd 6567, 6573 ¶ 11 (2014) ("*Incentive Auction R&O*"); see also Brattle Report at 4 ("[E]ven if the spectrum is auctioned in 2016, it will not be available to carriers until some point in 2019, at the earliest."); EOBC Comments at 14.

<sup>17</sup> Cramton Report at 4-5 ("A delay in the auction would be a gift to the dominant incumbents at the expense of all other parties.").

<sup>18</sup> See CCA Comments at 20; Comments of United States Cellular Corporation, AU Docket No. 14-252, GN Docket No. 12-268 at 30-31 (Feb. 20, 2015) ("US Cellular Comments"); see also Policies Regarding Mobile Spectrum Holdings; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, *Report and Order*, 29 FCC Rcd 6133, 6203 ¶ 62 ("We agree with the Antitrust Division of the DOJ, one of our nation's expert antitrust agencies: there is a risk of foreclosure in downstream wireless markets.") ("*Mobile Spectrum Holdings R&O*").

<sup>19</sup> Cramton Report at 56; see also *id.* at 17, citing Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, *Seventeenth Report*, 29 FCC Rcd 15311 (2014) (finding that AT&T and Verizon collectively hold 69% of the U.S. market share).

spectrum to enhance their coverage without fear of having their good faith bids foreclosed by AT&T and Verizon.<sup>20</sup>

Increasing access to low-band spectrum will strengthen the competitive potential of national and regional wireless providers for the benefit of American consumers.<sup>21</sup> Although the AT&T/Verizon-backed lobbying group Mobile Future asserts that a spectrum reserve is impractical,<sup>22</sup> the Commission roundly rejected these arguments in its *Mobile Spectrum Holdings Order* and that decision has not been challenged.<sup>23</sup> As a result, whatever debate over foreclosure that once existed has been settled. The risk of foreclosure rests on unchallenged, Commission-level findings and the spectrum reserve is the tool the Commission has adopted to mitigate that risk.

**B. If the Commission Retains the Reserve Trigger, It Should Be Set No Higher than \$1.25 to Avoid Reducing or Eliminating the Spectrum Reserve.**

Expanding the size of the potential reserve from 30 to 40 megahertz will increase future competition in the wireless market and enhance auction revenues by intensifying bidding on the non-reserved licenses. In addition, a price per MHz-POP trigger for the spectrum reserve remains unnecessary. If a triggering mechanism for the reserve is adopted nonetheless, any such

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<sup>20</sup> See *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6203 ¶ 171 (noting that the decision to adopt a reserve “is based on the current marketplace structure of the mobile wireless service industry”); see also CCA Comments at 20; Cramton Report at 56; LocusPoint Comments at 3; US Cellular Comments at 30-31.

<sup>21</sup> Cramton Report at 3; Brattle Report at ii, 8-9 (observing that access to low-band spectrum could also enable new entrants or regional carriers to compete more effectively, thereby increasing competition and lowering consumer prices).

<sup>22</sup> Mobile Future Comments at 7; see also Opposition of Mobile Future to Petition for Reconsideration, WT Docket No. 12-269 at 5-9 (Sept. 24, 2014). Mobile Future’s arguments are especially unconvincing in light of the results of the AWS-3 auction, which strongly suggest that Verizon and AT&T would be the highest bidders on the unreserved spectrum in the auction and able to drive up the costs well beyond the prices in the spectrum reserve. See, e.g., Cramton Report at 20, 23-24; see generally Kagan Report (assessing favorably the financial ability of AT&T and Verizon to participate in back-to-back AWS-3 and 600 MHz auctions).

<sup>23</sup> See *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6197 ¶ 156 (noting opposition of Mobile Future, AT&T and Verizon to the implementation of a spectrum reserve for non-dominant providers); see also *Incentive Auction R&O*, 29 FCC at 6573 ¶ 10.

mechanism should be set no higher than \$1.25 per MHz-POP in the top 25 PEAs based on the gross revenues of Category 1 licenses, rather than being priced at the anticipated final bid price for the spectrum.<sup>24</sup>

**1. *A Larger Spectrum Reserve Will Enhance Future Mobile Broadband Competition.***

The spectrum reserve is a critical component of the forward auction design, but the current limit on the amount of spectrum that can be allocated to the reserve is insufficient to support robust mobile broadband competition in the future. Expanding the reserve spectrum from 30 megahertz to 40 megahertz—while limiting reserve-eligible bidders to acquiring no more than 20 megahertz—would promote vigorous and sustained post-auction competition while driving incentive auction revenues upward.<sup>25</sup> In particular, a reserve of 40 megahertz will allow multiple non-dominant providers to secure the resources necessary to provide technologically efficient broadband services.<sup>26</sup> By contrast, failing to expand the maximum reserve to 40 megahertz would increase the chance that the two dominant carriers will foreclose other carriers from accessing sufficient low-band spectrum to successfully compete in the market.<sup>27</sup> As

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<sup>24</sup> See T-Mobile Comments at 39-41.

<sup>25</sup> T-Mobile Comments at 2-5; see also T-Mobile USA, Inc., Policies Regarding Mobile Spectrum Holdings, *Petition for Reconsideration*, WT Docket No. 12-269 at 7-12 (Aug. 11, 2014) (noting that the current reserve size fails to provide access to a sufficient amount of spectrum to maintain the four nationwide-carrier structure of the current market) (“T-Mobile Mobile Spectrum Holdings Petition”); Letter from William J. Baer, Assistant Attorney General, U.S. Department of Justice to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 12-269 at 1-2 (May 14, 2014) (“If the largest providers are able to use a foreclosure strategy, they will be able to exercise a degree of market power, at least in certain areas, due to their networks’ superior coverage characteristics.”).

<sup>26</sup> T-Mobile Comments at 2-5; *Mobile Spectrum Holdings R&O*, 29 FCC at 6210 ¶ 190; see also Letter from Joan Marsh, Vice President, AT&T to Marlene Dortch, Secretary, Federal Communications Commission, GN Docket No. 12-268, Docket No. 12-269 at 2 (Apr. 16, 2014) (“[A] 10x10 MHz allocation is necessary to achieve minimal economic and technical efficiencies in an LTE deployment”); Verizon Wireless-SpectrumCo Joint Opposition to Petitions to Deny and Comments, Exhibit 2: Supplemental Declaration of William H. Stone, WT Docket No. 12-4 at ¶ 8 (Mar. 2, 2012) (“LTE provides higher peak and average data rates if deployed over wider bandwidths (10x10 MHz or higher)”).

<sup>27</sup> See *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6165 ¶ 62 (“We agree with the Antitrust Division of the DOJ, one of our nation’s expert antitrust agencies: there is a risk of foreclosure in downstream wireless markets.”).

consumer, labor and small business groups explained in a recent letter to the Commission, “only a spectrum reserve of 40 MHz or more can prevent the two dominant carriers from using the 600 MHz auction to extinguish the handful of wireless broadband competitors that continue to offer consumers an alternative for wireless voice and data services.”<sup>28</sup>

Fostering competition, not raising revenue above and beyond what it costs to clear broadcasters, should be the predominant consideration for the design of the incentive auction,<sup>29</sup> but expanding the size of the reserve could help increase auction revenues.<sup>30</sup> As has been demonstrated in numerous U.S. and international spectrum auctions, pro-competitive auction structures can increase revenues and promote opportunities for small competitors.<sup>31</sup> In particular, spectrum-aggregation limits can stimulate auction competition by motivating greater participation from bidders other than the two dominant carriers, which could result in higher revenues.<sup>32</sup> Moreover, increasing the size of the reserve from 30 megahertz to 40 megahertz will encourage Verizon and AT&T to bid against each other for the non-reserve spectrum, which

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<sup>28</sup> Letter to Chairman Tom Wheeler, Federal Communications Commission, WT Docket No. 12-269, Docket No. 12-268 at 3 (Feb. 24, 2015) (“Consumer/Labor/Business Letter”) (providing the consolidated views of Open Technology Institute at New America, Public Knowledge, the National Hispanic Media Coalition, Engine, Center for Media Justice, Common Cause, Writers Guild of America – West, Institute for Local Self Reliance, and the Benton Foundation).

<sup>29</sup> See, e.g., Consumer/Labor/Business Letter at 2-3, citing 47 U.S.C. § 309(j)(3) (requiring the Commission to adopt competitive bidding rules that, among other things, “avoid[] excessive concentration of licenses” and “disseminat[e] licenses among a wide variety of Applicants”); see also CCA, Pricing in the 600 MHz Incentive Auction at 9, attached to Letter from Steven K. Berry, President & CEO, CCA to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 12-268, 12-269 (Sept. 15, 2014) (“Tying the reserve blocks to an arbitrary revenue goal will only serve to depress competition by increasing the likelihood that the reserve spectrum will not exist or that competitive bidders will not be able to access it.”).

<sup>30</sup> T-Mobile Comments at 4 (discussing how the implementation of a spectrum aggregation-limit in the 2014 Canadian 700 MHz band auction produced revenues that were over double preliminary market estimates).

<sup>31</sup> See, e.g., Peter Cramton, *The Revenue Impact of Competition Policy in the Incentive Auction* at 10 (Dec. 2013), available at <http://www.cramton.umd.edu/papers2010-2014/cramton-revenue-impact-of-competition-policy-in-incentive-auction.pdf> (noting “the positive impact of limits on competition and auction revenue” that has been observed “in numerous spectrum auctions” in the United States and internationally); see also Peter Cramton, *The Rationale for Spectrum Limits and Their Impact on Auction Outcomes*, 3-7 (Aug. 2013) (“*The Rationale for Spectrum Limits*”), attached to Letter from Trey Hanbury, Counsel to T-Mobile USA, Inc. to Marlene Dortch, Secretary, Federal Communications Commission, GN Docket No. 12-268 & WT Docket No. 12-269 (Sept. 9, 2013).

<sup>32</sup> Cramton, *The Rationale for Spectrum Limits* at 8-10.

should increase prices for the non-reserve blocks and could lead to higher auction revenues overall.

Adopting a 20 megahertz limit for the amount of reserve spectrum that a bidder can acquire in a given PEA would also promote competition by ensuring that multiple carriers have access to low-band spectrum.<sup>33</sup> Such a limit would prevent a single reserve-eligible bidder from capturing all of the reserve spectrum in a market. CCA correctly observed that a “blanket 20 megahertz limit ... would maximize the number of competitive providers and prevent spectrum concentration.”<sup>34</sup>

**2. *Increasing the Price Per MHz-POP Trigger Above \$1.25 Risks Auction Failure.***

The Commission should abandon as unnecessary the second prong of the proposed test for the Final Stage Rule, which establishes a minimum price per MHz-POP before the auction system will create the spectrum reserve. This triggering mechanism was not mandated by Congress in the Spectrum Act and is unnecessary to ensure vigorous competition for the reserved spectrum.<sup>35</sup> Should the Commission retain this threshold, however, it should ensure the price per MHz-POP is set no higher than \$1.25 in the top 25 markets; any increase above this price per MHz-POP risks auction failure.<sup>36</sup>

Setting an average price per MHz-POP threshold that is too high or covers too many markets would delay the creation of the spectrum reserve to the point that it no longer offers a

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<sup>33</sup> See T-Mobile Comments at 4-5.

<sup>34</sup> CCA Comments at 28.

<sup>35</sup> See T-Mobile USA, Inc., Petition for Reconsideration, GN Docket No. 12-268 (Sept. 15, 2014); T-Mobile, Reply to Oppositions to Petition for Reconsideration, GN Docket No. 12-268 (Nov. 24, 2014).

<sup>36</sup> T-Mobile Comments at 39-41. If the Commission retains the \$1.25 reserve trigger, this mechanism should be limited to the top 25 PEAs by population; be based on gross, not net, bids; and be based only on bids on Category 1 licenses. See T-Mobile Comments at 40-41; see also US Cellular Comments at 30; CCA Comments at 33.

meaningful safeguard against foreclosure by the dominant bidders.<sup>37</sup> As in any auction, the auctioneer should not set the reserve price anywhere near the actual expected prices because at least half of the time the Commission will guess wrong and forgo a sale, which in this case would come at the expense of broadband clearing.<sup>38</sup>

Verizon appears to recognize that setting *any* price threshold as a condition for closing the auction is unnecessary and risks auction failure. In its comments, Verizon supports eliminating the price per MHz-POP trigger for the auction as a whole, or retaining a threshold no greater than \$1.25.<sup>39</sup> Despite acknowledging that the Commission would have to “guess” to establish any per-unit threshold for the auction, and recommending that the auction closing price be limited only to satisfying the revenue mandates in the Spectrum Act, Verizon then recommends that the Commission actually *increase* the reserve price trigger, allegedly because of the “intensely competitive” nature of the wireless industry.<sup>40</sup> Verizon seemingly has no problem foisting a damaging minimum price upon reserve-eligible bidders, because an artificial minimum trigger price would only harm reserve-eligible bidders, a category that usually excludes Verizon. The Commission should not increase the reserve trigger above \$1.25 per MHz-POP for the top 25 markets for the same reason it should not adopt a high threshold price for the auction as a whole: doing so risks failing to deliver any spectrum for broadband use.

### **3. *Bidding on Reserve Spectrum Will Be Highly Competitive.***

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<sup>37</sup> See T-Mobile Comments at 40.

<sup>38</sup> See *id.* In the *Comment Public Notice* the Commission acknowledged “the inherent price uncertainty present in any auction.” *Comment PN* ¶ 49.

<sup>39</sup> Comments of Verizon, AU Docket No. 14-252, GN Docket No. 12-268 at 16 (Feb. 20, 2015) (“Verizon Comments”).

<sup>40</sup> Verizon Comments at 15-17. AT&T’s proposal to “decouple” the reserve from the Final Stage Rule would work in much the same way as Verizon’s proposal. AT&T Comments at 8-9, 32.

Low-band spectrum is in extremely short supply and extremely high demand. Numerous structural safeguards – not the least of which is the requirement to pay all broadcasters in full before the reserve spectrum comes into being – prevent reserve-eligible bidders from securing a “windfall.” In its continued pursuit of arguments the Commission has previously rejected, AT&T asserts that reserve-eligible bidders will somehow not pay a portion of the cost of clearing the 600 MHz spectrum.<sup>41</sup> But the very structure of the auction and the realities of the U.S. broadband market provide a full answer to AT&T’s continued handwringing about pro-competitive procedures.

First, the reserve does not come into existence until *after* all clearing costs, including *all* payments to broadcasters, have been met.<sup>42</sup> Second, Verizon or AT&T are reserve-eligible in roughly 40% of all PEAs; therefore, the dominant carriers will have ample opportunity to push up prices in the reserve in the markets where they do not control excessive low-band resources, should they desire to do so.<sup>43</sup> Third, the high-value markets where AT&T and Verizon hold too much low-band spectrum to qualify as reserve-eligible are likely to invite vigorous and competitive bidding from T-Mobile, Sprint, DISH, and numerous small providers and investors.<sup>44</sup> With so many participants chasing so little spectrum, bidding for the reserve blocks is likely to be intensely competitive and, in any case, the reserve will not exist and the auction cannot close until broadcast expenses are fully paid.

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<sup>41</sup> AT&T Comments at 31-32; *see also* Philip A. Haile et al, *Comments on the FCC’s Current Incentive Auction Design Proposals* at 3 (Feb. 20, 2015) (“Haile Report”), *attached to* AT&T Comments.

<sup>42</sup> *Incentive Auction R&O*, 29 FCC Rcd at 6712-6713 ¶¶ 338-341. Any revenue in excess of clearing costs would only affect collections for the government.

<sup>43</sup> T-Mobile Comments at 5 n.13 (noting that either AT&T or Verizon are eligible for reserved spectrum in markets covering over 40% of the population); T-Mobile USA, Inc., *Policies Regarding Mobile Spectrum Holdings*, Reply to Oppositions to Petition for Reconsideration, WT Docket No. 12- 269 at 12 (Oct. 6, 2014).

<sup>44</sup> *See generally* Kagan Report.

AT&T's claim that reserve-eligible bidders will somehow fail to cover their share of the costs of clearing is without merit.<sup>45</sup>

**C. Placing only Category 1 Spectrum in the Reserve Promotes Competition.**

Most commenters support the proposal to place only Category 1 spectrum in the reserve, with adjustments to move Category 2 spectrum to the reserve in those instances when insufficient Category 1 spectrum is available to complete the reserve allocation.<sup>46</sup> Abandoning spectrum prioritization for the reserve blocks as AT&T and Verizon recommend would undermine the ability of non-dominant carriers to secure sufficient low-band spectrum resources to compete with the two dominant providers.<sup>47</sup>

**D. AT&T's Challenge to the *Incentive Auction Report & Order* Is Untimely and Irrelevant.**

The plain language of the *Mobile Spectrum Holdings Report and Order* holds that the size of the spectrum reserve would be based on the size of the “*initial* clearing target,” regardless of the extent to which clearing targets might be reduced in subsequent stages.<sup>48</sup> In drafting the *Mobile Spectrum Holdings Report and Order*, the Commission had a very compelling reason not to automatically roll back the size of the reserve as the auction progressed to lower clearing targets: any such reduction in the size of the reserve would provide a perverse incentive for

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<sup>45</sup> AT&T Comments at 31-32.

<sup>46</sup> Comments of Cellular South, Inc., AU Docket No. 14-252, GN Docket No. 12-268 at 4 (Feb. 20, 2015) (“C Spire Comments”); US Cellular Comments at 6; Comments of Sprint Corporation, AU Docket No. 14-252, GN Docket No. 12-268 at 48 n.76 (Feb. 20, 2015) (“Sprint Comments”); CCA Comments at 20.

<sup>47</sup> Compare AT&T Comments at 7, 35-36; Verizon Comments at 2, 8-10 with *Comment PN* ¶¶ 143, 153; see also *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6196 ¶ 154.

<sup>48</sup> See *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6208 ¶ 184. In the *Mobile Spectrum Holdings Report and Order* the Commission provides a chart that illustrates the maximum amount of reserve spectrum in each market for a range of *initial clearing targets*, and clarifies that if the auction does not close in the initial stage, the maximum spectrum reserve in each PEA will be the smaller of the maximum amount of reserved spectrum in the previous stage, or the amount of reserve-eligible demand at the previous stage. *Id.*

AT&T and Verizon to not compete vigorously in the forward auction.<sup>49</sup> Decreasing the size of the reserve at lower levels of spectrum clearing would encourage AT&T and Verizon to clear less spectrum by reducing bidding at higher clearing targets to decrease the size of the pro-competitive spectrum reserve.<sup>50</sup> The results of such a proposal – less auction revenue, less opportunity for non-dominant carriers, and less spectrum available for broadband use overall – explain why the Commission intentionally and thoughtfully based the size of the reserve on the size of the “initial spectrum clearing target.”<sup>51</sup>

Any privately “promised safeguards” allegedly made by the Commission for AT&T’s unique benefit regarding the reserve have not withstood public scrutiny and will be afforded no weight by a reviewing court.<sup>52</sup> AT&T is free to claim that the Commission has somehow “renege” on private, extra-legal promises, but these claims are not actionable and deserve no consideration here.<sup>53</sup>

#### **E. Adopting a “Dominant Carrier Reserve” Would Harm the Auction and Reserve-Eligible Bidders.**

The Commission should reject attempts by AT&T to impose a complex series of rules designed to wall off the non-reserve spectrum from bidding by reserve-eligible carriers.<sup>54</sup>

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<sup>49</sup> *See id.* The Commission defined “initial clearing target” as “the maximum amount of spectrum sought to be cleared of television stations and repurposed through the incentive auction,” which is to be determined “before commencement of the reverse and forward auction bidding processes.” *Incentive Auction R&O*, 29 FCC Rcd at 6709 ¶ 328 (emphasis added).

<sup>50</sup> AT&T cites to prior, inartful language from T-Mobile to suggest that potential auction bidders had a common understanding that the reserve decreased in each subsequent stage. AT&T Comments at 34, citing T-Mobile Mobile Spectrum Holdings Petition (“T-Mobile has complained that the ‘reserve saves a maximum of thirty megahertz of spectrum in each license area for competitive carriers and...this amount steadily decreases at lower levels of spectrum clearing.”). The plain language of the *Incentive Auction Report and Order* provides that the size of the reserve is determined by the initial clearing threshold, subject to adjustments based on reserve-eligible bidder participation at the time of the reserve trigger.

<sup>51</sup> *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6208 ¶ 184 n.520 (emphasis added).

<sup>52</sup> AT&T Comments at 28.

<sup>53</sup> AT&T Comments at 29.

<sup>54</sup> AT&T Comments at 9, 37, 39-44.

According to AT&T, reserve-eligible bidders “*should not be permitted to express a preference for higher prices.*”<sup>55</sup> Auctions, of course, are *designed* to identify a willingness to pay for each different item. That is the point. It is one thing to adopt pro-competitive safeguards to prevent bidders with market power from inflating auction prices in anticipation of recouping excess costs later by levying extra fees on consumers, cutting corners on service, or both.<sup>56</sup> It is entirely another to impose anti-competitive limitations on bidders that, by definition, lack market power simply to constrain the amount that the dominant carriers must pay to retain or extend their commanding position in the market.<sup>57</sup>

Reserve-eligible bidders have compelling reasons to want to bid more for non-reserve licenses than reserve licenses. The Commission has restricted reserve-eligible bidders from selling or “flipping” the reserve licenses to the dominant carriers through secondary market transactions for six years following the auction.<sup>58</sup> By comparison, no restrictions on trades of non-reserved licenses exist. As a result, non-reserved licenses will be more valuable in the secondary market following the auction and, therefore, should command higher prices than the reserve blocks during the forward auction. A willingness among reserve-eligible bidders to pay more for non-reserved licenses in the auction will simply reflect the additional value of an increased flexibility to sell the 600 MHz licenses on the secondary market following the close of bidding.

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<sup>55</sup> AT&T Comments at 37 (emphasis in original).

<sup>56</sup> See, e.g., *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6154, 6165 ¶¶ 41, 62 (explaining that “[f]oreclosure can occur when competitors have an incentive and ability to acquire an input not only to put it to their own use, but also to withhold it from their rivals” and finding that “there is a risk of foreclosure in downstream wireless markets”); *Ex Parte Submission of the United States Department of Justice*, Docket No. 12-269 at 8 (Apr. 11, 2013) (“Carriers do have the ability and, in some cases, the incentive to exercise at least some degree of market power, particularly given that there is already significant nationwide concentration in the wireless industry. Therefore, the Department believes it is essential to maintain vigilance against any lessening of the intensity of competitive forces.”).

<sup>57</sup> See AT&T Comments at 9.

<sup>58</sup> *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6212 at ¶ 197.

Even if AT&T's proposal to wall off the non-reserve licenses from competition by reserve-eligible bidders did not punish rational economic behavior, measures intended to restrict reserve-eligible bidders from bidding against AT&T and Verizon in the non-reserve blocks would inject considerable complexity into an already very complex auction. Under AT&T's scheme, the Commission would limit the information bidders see and allocate demand among the non-reserve and reserve blocks pursuant to a series of rules. Depending on the precise circumstances involved, the reserve clock could increase, the non-reserve clock could increase, or both clocks could increase. Notably, however, reserve-eligible bidders could only bid on non-reserve blocks if the reserved block clock were also increasing simultaneously. Moreover, AT&T would impose uniform price increases on both sets of blocks regardless of the respective base prices such that "when both [reserved and non-reserved] clocks tick up in a given round, the same dollar increment applies to both."<sup>59</sup>

The limitations AT&T envisions are complicated to understand and challenging to administer. They are also entirely unnecessary. Reserve-eligible bidders may have sound economic reasons to acquire non-reserve blocks rather than reserve blocks and, in any case, reserve-eligible bidders lack the market power that prompted the Commission to adopt a spectrum reserve in the first instance.

AT&T has elsewhere described even common-sense limitations on dominant carriers as "unnecessary," "unwarranted," "unlawful" and "contrary to basic economic principles."<sup>60</sup> But when it comes to insulating itself from competition, AT&T seems to have lost track of these

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<sup>59</sup> Haile Report at 43.

<sup>60</sup> Joan Marsh, *An Interesting Auction Down Under*, AT&T Public Policy Blog (Nov. 16, 2013), available at <http://www.attpublicpolicy.com/fcc/an-interesting-auction-down-under/>.

objections.<sup>61</sup> The Commission should reject AT&T's proposed "dominant carrier reserve" as the clumsy, unwieldy effort to insulate AT&T from whatever modest pricing pressure competitive carriers might offer during the incentive auction that it is.

**F. The Proposed Auction Design Comports with the Spectrum Act.**

The plain language and the legislative history of the Spectrum Act contradict AT&T's half-hearted argument that the Commission's auction design is unlawful.<sup>62</sup> When AT&T first raised this argument in a May 2014 *ex parte* communication,<sup>63</sup> CCA exhaustively examined the issues and left no doubt as to its baselessness.<sup>64</sup> CCA's review of the text and history of the Spectrum Act demonstrates that AT&T's misinterpretation of Section 309(j)(17)(A) would nullify Congress' directive in Section 309(j)(17)(B) that the Commission adopt "rules concerning spectrum aggregation that promote competition" and contradict other provisions of the Spectrum Act.<sup>65</sup> Even AT&T, which subsequently endorsed the auction framework, seems to have been persuaded.<sup>66</sup> With CCA's refutation already contained in the record, no additional exploration of AT&T's new-found skepticism of the permissibility of the Commission's incentive auction design is necessary.

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<sup>61</sup> In the *Mobile Spectrum Holdings Report and Order*, the Commission decisively rejected claims by both AT&T and Verizon that these dominant carriers lacked the incentive or ability to use their commanding position over low-band spectrum to deny spectrum resources to would-be competitors. *Mobile Spectrum Holdings R&O*, 29 FCC Rcd at 6165-6166 ¶¶ 62-63.

<sup>62</sup> AT&T Comments at 37-38; *see also* Spectrum Act.

<sup>63</sup> *See* Letter from Peter D. Keisler, Counsel to AT&T, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 12-268, WT Docket No. 12-269 (May 9, 2014).

<sup>64</sup> Letter from Steven K. Berry, President & CEO, CCA, to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 12-268, WT Docket No. 12-269 (May 12, 2014) ("May 12 CCA Letter").

<sup>65</sup> 47 U.S.C. § 309(j)(17)(B); *see also* May 12 CCA Letter at 5 (noting that, "[a]bsent the modifications provided in the Spectrum Act, the FCC could have, consistent with the Communications Act, barred specific carriers from bidding in the incentive auction at all").

<sup>66</sup> *See, AT&T Statement on FCC's Spectrum Aggregation and Auction Eligibility*, AT&T Public Policy Blog (May, 15, 2014 at 2:46 PM), <http://www.attpublicpolicy.com/fcc/att-statement-on-spectrum-aggregation-and-auction-eligibility-order/> ("[t]oday, the Commission adopted rules and an auction framework that puts the auction on the path toward success").

#### **IV. MAXIMIZING CLEARED SPECTRUM WILL ENCOURAGE AUCTION PARTICIPATION AND POST-AUCTION COMPETITION.**

##### **A. To Maximize Participation, the Auction Design Should Clear as Much Unimpaired Spectrum as Possible, Especially in Top Markets.**

Commenters from all industries support clearing the maximum amount of paired broadband spectrum, while minimizing impairments, especially in top markets.<sup>67</sup> In setting a spectrum-clearing target, the Commission should aim high by focusing on clearing as much unimpaired spectrum as possible for mobile broadband use, subject to reasonable limitations.<sup>68</sup> Establishing an ambitious clearing target in major markets will also allow for non-dominant carriers that have either little to no low-band spectrum or inconsistent amounts of low-band spectrum nationally to compete successfully through access to spectrum in multiple “high demand” PEAs. At the same time, the spectrum-clearing target should allow for sufficient scale economies by ensuring that there are at least four paired licenses in nine of the top 10 markets.<sup>69</sup>

The Commission should reject NAB’s proposal for a lowest common denominator band plan, which would reduce the amount of spectrum available for broadband use.<sup>70</sup> Impairments are undesirable, but anything approaching NAB’s zero tolerance standard for impairments does too little to achieve the goal of putting spectrum to its best and highest use. By comparison, EOBC’s proposal, which asked the Commission to set the initial clearing target based on the maximum amount of spectrum that can be reallocated in New York or Los Angeles, moves in the right direction and recognizes the likelihood of some degree of impairment at any reasonable

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<sup>67</sup> See EOBC Comments at 30; LocusPoint Comments at 8-10.

<sup>68</sup> See LocusPoint Comments at ii, 8.

<sup>69</sup> T-Mobile Comments at 17-18.

<sup>70</sup> See Comments of the National Association of Broadcasters, AU Docket No. 14-252, GN Docket No. 12-268 at 6-11 (Feb 20, 2015) (“NAB Comments”); see also Comments of Media General, Inc., AU Docket No. 12-252, GN Docket No. 12-268 at 5 (Feb. 20, 2015) (“Media General Comments”).

level of clearing.<sup>71</sup> EOBC's proposed focus on two PEAs, however, is insufficiently representative of other major markets that contribute to scale economies and enable a consistent consumer experience. A somewhat more permissive clearing requirement would strike a better balance between the scale and design efficiencies of a more uniform band plan, on the one hand, and the desirability of securing more spectrum resources for wireless broadband deployment, on the other. As a secondary objective, the Commission should seek to maximize the number of paired licenses in the top ten PEAs and, at a minimum, should ensure that there are at least four licenses available in nine of the top 10 PEAs as T-Mobile has proposed. Doing so will promote scale economies and design efficiencies without resulting in a lowest common denominator plan.<sup>72</sup>

**B. Applying a One-to-One Discount on Impaired Licenses Will Encourage Bidding and Promote Spectrum Clearing.**

The Commission should adopt its proposed one-to-one discount on impaired licenses.<sup>73</sup> Doing so will preserve the generic nature of each license category and, therefore, simplify bidding and accelerate the auction.<sup>74</sup> This discounting method will also encourage carrier participation and ultimately increase competition.<sup>75</sup>

While a one-to-one discount is not a universal panacea,<sup>76</sup> the discount, particularly when accompanied by more granular information about the impairments,<sup>77</sup> provides enough commonality among licenses to allow for generic license bidding. The discount process allows

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<sup>71</sup> EOBC Comments at 30.

<sup>72</sup> T-Mobile Comments at 17-18.

<sup>73</sup> T-Mobile Comments at 25-26.

<sup>74</sup> See CCA Comments at 24-25.

<sup>75</sup> See *id.* at 25.

<sup>76</sup> See AT&T Comments at 19.

<sup>77</sup> See, e.g., Petition for Reconsideration of Sprint Corporation, GN Docket No. 12-268, ET Docket Nos. 13-26, 14-14 at 5-15 (Jan. 22, 2015) (recommending that the Commission adopt a more detailed metric to enable bidders to evaluate and predict potential interference to their operations).

auction participants to bid knowing that the Commission will award a discount proportional to the degree of impairment.<sup>78</sup> Providing a mechanism that allows purchases of lightly impaired spectrum at a discount in proportion to the population impaired will encourage broader participation and higher spectrum clearing.<sup>79</sup> The impairment adjustment also protects competitive carriers that would otherwise be unable to compete with the dominant providers in the assignment round for the least impaired spectrum if all licenses are sold for the same final clock bid price.<sup>80</sup>

The one-to-one discount is not perfect, but it does not have to be. The benefit of the Commission's proposed formula is that licenses within an area will become more similar in value to bidders because of the discounts and, to the extent differences remain, the assignment round will help equalize net value. Sprint and AT&T object to the Commission's proposed discount, contending the proposal does not account for the location of the impairment or the relative density of the impaired population within a PEA.<sup>81</sup> Yet Sprint offers no practical alternative to the Commission's proposal. Bidders always have idiosyncratic values for licenses and this auction is no exception. The relative value of specific impairments will inevitably vary from one bidder to the next based on a variety of carrier-specific factors, such as the carrier's current build out, its customer use patterns, and its license holdings. Finding a discount formula that reflects the values of the impairments for all bidders all, or even most, of the time is impossible. The Commission's proposed population metric offers a practical, pragmatic means of offering a generally applicable gauge for value that will benefit most bidders most of the time.

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<sup>78</sup> T-Mobile Comments at 25-26; CCA Comments at 25.

<sup>79</sup> CCA Comments at 25.

<sup>80</sup> CCA Comments at 26.

<sup>81</sup> Sprint Comments at 29-30; AT&T Comments at 17, 21.

The only alternative proposal offered – limiting the 600 MHz band to licenses with no or very little impairment – would thwart the public interest in transitioning as much spectrum as economically feasible to satisfy the burgeoning consumer demand for wireless broadband.<sup>82</sup> Limiting the amount of low-band spectrum available at auction may not concern entities such as Verizon and AT&T, that have deep holdings of low-band spectrum, but it would place an artificial constraint on the repurposed 600 MHz spectrum available to the public. A zero percent impairment level is not necessary for licenses to be fungible. Even heavily encumbered spectrum has engendered substantial investments at auction,<sup>83</sup> as evidenced by the successful auctions of the AWS-1<sup>84</sup> and the AWS-3 bands.<sup>85</sup> Adopting discounts proportionate to the population impaired will clear more spectrum for broadband use and promote the other public interest objectives of the incentive auction.

### **C. Value-Weighting of POPs Will Decrease Market Fragmentation.**

Weighting POPs by the value bidders have assigned to them in the past ensures that the auction targets the areas that matter most.<sup>86</sup> While NAB characterizes weighted-POPs as a “confusing” measure that counts populations differently depending on their location, weighting

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<sup>82</sup> AT&T Comments at 11 (asking the Commission to “auction only generally unimpaired spectrum blocks”); Verizon Comments at 5 (calling for the adoption of “a national clearing target with no impaired licenses outside of the border markets”).

<sup>83</sup> T-Mobile Comments at 23.

<sup>84</sup> See Auction of Advanced Wireless Services Licenses Closes, *Public Notice*, 21 FCC Rcd 10521 (WTB 2006) (portions of AWS-1 band occupied by incumbent federal entities, other portions by government public safety services, common carrier fixed microwave services and the Broadband Radio Service; 104 winning bidders won a total of 1,087 licenses with net total bids of \$13.7 billion, well in excess of \$2.059 billion reserve price for the band).

<sup>85</sup> See Auction of Advanced Wireless Services (AWS-3) Licenses Closes; Winning Bidders Announced for Auction 97, *Public Notice*, DA 15-131 (rel. Jan. 30, 2015) (AWS-3 band encumbered by Department of Defense use and long periods of time to relocate incumbents, including those remaining in the band indefinitely; 31 winning bidders won a total of 1,611 licenses with net total bids of \$41.329 billion, in excess of reserve price for the band).

<sup>86</sup> Under the Commission’s proposed standard, the auction system would weight the affected population in a license area by an index of area-specific prices from prior auctions, including the recent AWS-3 auction. *Comment PN ¶* 38. Acquiring sufficient low-band spectrum in key markets is critical to meeting customer expectations and satisfying network scale requirements. CCA Comments at 11 n.19.

is a standard technique commonly employed in a variety of settings.<sup>87</sup> Contrary to NAB's contention, moreover, weighting will not prevent the realization of a sufficiently rational and consistent band plan across most of the country. Indeed, T-Mobile's proposed modification to the aggregate 20% impairment rule, which would require the auction system to ensure that there are at least four licenses available in at least nine of the top 10 PEAs regardless of the clearing target, is intended to address this concern.<sup>88</sup>

In short, the benefits of spectrum weighting in achieving a less fragmented market with greater economies of scale and scope not only outweigh the potential complexities, but also can work in concert with other provisions to prevent excessive spectrum impairment that might otherwise frustrate broadband deployment in the 600 MHz band.

**D. Adopting a 20% Impairment Threshold in Markets Clearing 84 Megahertz or Less, and a 10% Threshold for Markets Clearing over 84 Megahertz, Would Avoid Excess Impairments and Maximize Available Spectrum.**

Commenters agree that impairments are undesirable and generally support minimizing encumbrances while maximizing the amount of cleared spectrum.<sup>89</sup> The proposed 20% impairment threshold, as modified by a 10% impairment level at higher levels of clearing and supplemented by a safeguard to ensure a critical mass of high-population markets, strikes the

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<sup>87</sup> NAB Comments at 9-10. According to NAB, because impairments in some PEAs will count for less than in other PEAs, the Commission's near-nationwide plan will not be able to ensure that 100% of the U.S. population is not impaired. From this, NAB hypothesizes that with a 126 megahertz clearing target nine out of 10 of the licenses in the New York and Los Angeles PEAs, which collectively have a weighted POP that represents nearly 21% of the nation's total weighted population, could be impaired and the near-nationwide standard still satisfied.

<sup>88</sup> Ensuring that there are a minimum number of licenses in at least nine of the top 10 markets would have especially meaningful consequences at higher levels of spectrum clearing, because the auction would have to move to a lower spectrum clearing target if the auction could not satisfy the 20% threshold. T-Mobile Comments at 18.

<sup>89</sup> See, e.g., CCA Comments at 4; Comments of CTIA, AU Docket No. 14-252, GN Docket No. 12-268 at 4 (Feb. 20, 2015) ("CTIA Comments"); Local Media Television Holdings, AU Docket No. 14-252, GN Docket No. 12-268 at 8 (Feb. 20, 2015); LocusPoint Comments at 8-9; Comments of Milachi Media, LLC, GN Docket No. 12-268, AU Docket No. 14-252 at 5-6 (Feb. 20, 2015) ("Milachi Media Comments"); T-Mobile Comments at 16-17.

proper balance between the benefits of high spectrum clearing and the costs of excessive impairments.<sup>90</sup>

AT&T argues that the 20% impairment threshold could permit excessive impairments.<sup>91</sup> Specifically, AT&T alleges that adopting a 20% threshold could give rise to a scenario in which the Commission clears 126 megahertz, but half or more of the available blocks in major cities are too impaired to be included in the auction.<sup>92</sup> AT&T's concern is legitimate, which prompted T-Mobile to propose a 10% impairment standard for clearing targets greater than 84 megahertz as well as other safeguards.<sup>93</sup> Even AT&T's auction simulations, however, do not support its contention that there is a "very high likelihood" that the auction can clear at least 84 megahertz of spectrum without the need to place any broadcasters in the 600 MHz band.<sup>94</sup> Based on T-Mobile's analysis, even an 84 megahertz clearing target could give rise to many impaired licenses and require an assumption that international border issues are resolved for both Canada and Mexico.<sup>95</sup> Impairments will have to be tolerated to a point almost regardless of the spectrum-clearing target.

While the Commission should tolerate fewer impairments at higher levels of spectrum clearing and should ensure major markets achieve sufficient spectrum clearing to allow for

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<sup>90</sup> See T-Mobile Comments at 20.

<sup>91</sup> AT&T Comments at 23.

<sup>92</sup> *Id.*

<sup>93</sup> T-Mobile Comments at 20.

<sup>94</sup> AT&T Comments at 25. However, AT&T's experts clarify in their report that achieving an 84 megahertz clearing target with "no or minimal 600 MHz band impairment" excludes border regions. See Haile Report at 31.

<sup>95</sup> In performing the repacking analysis with an 84 MHz clearing target, T-Mobile found that participation or lack of participation by certain broadcasters in parts of the country – primarily the northeast – could impede the ability to produce a completely unimpaired band plan. AT&T's study apparently reaches that same conclusion when finding that the probability of a station participating in the auction was less than or equal to 40%. See Haile Report at 31, Table 1. While increasing the clearing target to 108 MHz does increase the number of blocking sets in the dense Northeast part of the U.S., the international borders still dominate in terms of blocking set quantity and practical complexity. See Haile Report at 30, Fig.1 (showing multiple blocking sets along international borders near major cities such as Los Angeles, San Diego, Corpus Christ, Seattle, Detroit, Cleveland, Buffalo, and Rochester).

economic deployments, the Commission cannot simply disregard the need for a material tolerance for impairments based on AT&T's bald assertion that its modeling shows everything will turn out fine. A 20% threshold, modified as proposed by T-Mobile, balances the desire to maximize the amount of spectrum for broadband against the practical imperative of having a sufficiently consistent band plan to allow for economic deployment.

**E. Auctioning Impaired Licenses Will Increase Spectrum Availability and Encourage Auction Participation.**

Auctioning moderately impaired licenses, as well as properly categorizing impaired licenses to account for plans by Canada and Mexico to reclassify and auction their 600 MHz band spectrum, will increase the availability of this spectrum resource and ensure a successful auction outcome. Impaired licenses retain considerable utility, and there is no engineering rationale to adopt a “zero-tolerance” policy on impairments.<sup>96</sup> At the same time, however, the Commission should strive to mitigate the impairments to broadband operations by repacking broadcasters that cannot be accommodated in the UHF or VHF bands into the uplink spectrum.<sup>97</sup>

First, the Commission should recognize the differences between uplink and downlink impairments in assessing the Final Stage Rule. Because access to downlink spectrum is crucial for mobile broadband network deployment, the Commission should categorize a county with uplink impairments above a 15% threshold to be no more than 50% impaired, and a county with downlink impairments above a 15% threshold to be wholly impaired.<sup>98</sup> In addition, the

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<sup>96</sup> T-Mobile Comments at 22-23.

<sup>97</sup> See *infra* Section V.A; see also T-Mobile Comments at 10-15.

<sup>98</sup> Adopting targeted supplemental constraints on impairments in addition to the proposed 20% nearly-nationwide threshold will allow for a more efficient and competitive post-auction wireless broadband market. T-Mobile Comments at 15-16. Adjusting the impairment categorization of a county depending on the percentage of uplink or downlink impairment would reflect the varying technological differences between uplink and downlink configurations; a broadcast channel repacked into uplink would overlap no more than two five-megahertz uplink blocks, while a broadcast channel assigned to downlink would cause interference with the entire span of the duplexer, up to 25 megahertz of spectrum. See CCA Comments at 5.

Commission should choose the initial clearing target that will maximize the number of licenses in the top 10 markets by value-weighted POPs, and as discussed above, regardless of the clearing target, ensure there are at least four licenses available in at least nine of the top 10 PEAs.<sup>99</sup>

Spectrum impairment categorizations that take into account the different value of uplink and downlink spectrum will more accurately reflect provider deployment needs and maximize participation in the forward auction.<sup>100</sup> Specifically, the auction process will be improved if the Commission classifies downlink spectrum that has a wholly impaired uplink as Category 2 spectrum, provided the downlink channel is not more than 25% impaired.<sup>101</sup>

Second, both AT&T and Verizon seem to agree that international impairments should be largely ignored when determining the initial clearing target and, by extension, when categorizing and subsequently auctioning spectrum blocks.<sup>102</sup> Licenses subject to temporary international border impairments should be auctioned regardless of impairment and subject to a proportionate discount, but not counted against the nationwide impairment threshold.<sup>103</sup> Specifically, the categorization process should apply an 85% adjustment to Canadian-origin impairment calculation and a 60% adjustment to Mexican-origin impairment calculation; alternatively, the Commission could wholly disregard international impairments and consider only underlying domestic encumbrances.<sup>104</sup> Similarly, the Commission should adopt separate assignment-round

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<sup>99</sup> T-Mobile Comments at 16-18. For clearing targets of greater than 84 MHz, the 20% weighted MHz-POP threshold should be downwardly adjusted to 10%, to account for the increase in costs that accompany larger spectrum-clearing targets; alternatively the Commission could adopt a rule that would not allow more than 1.4 license impairments in a market on a value-weighted MHz-POP average basis. T-Mobile Comments at 19-21.

<sup>100</sup> T-Mobile Comments at 23-24.

<sup>101</sup> T-Mobile Comments at 23-24.

<sup>102</sup> See AT&T Comments at 6 (asking the FCC to disregard “temporary domain constraints imposed by foreign TV stations”); Verizon Comments at 6-7 (recommending that the Commission categorize as unimpaired border area markets with impairments affecting 15% or less of a market’s population).

<sup>103</sup> T-Mobile Comments at 26-32.

<sup>104</sup> T-Mobile Comments at 27.

discounts for Canadian-impaired and Mexican-impaired spectrum, such as 15% of the standard 1:1 discount for Canada, and 40% of the 1:1 discount for Mexico.<sup>105</sup>

**F. Dynamic Reserve Pricing Should Be Limited to Promote Certainty and Avoid Excessive Spectrum Impairment.**

Judicious use of Dynamic Reserve Pricing (“DRP”), or an alternative mechanism to deal with hold-out stations in markets with no competition, would benefit auction participants. Many commenters note that *excessive* use of DRP would lead to a 600 MHz band plan so riddled with market-specific interference conditions that it could frustrate broadband deployment even as it suppresses broadcast participation through the potential for seemingly arbitrary reductions in the prices broadcasters receive.<sup>106</sup> Without DRP, however, a single reverse auction participant that has no competition in its market could hold-out for an excessive payment and prevent the auction from meeting an otherwise achievable spectrum-clearing target.<sup>107</sup> DRP acts as a safety valve that mitigates “the risk that a station may be awarded its opening price merely because there is no channel to offer in its pre-auction band—a result that would have little or nothing to do with what the station would be willing to accept.”<sup>108</sup> Applied carefully, DRP would allow the Commission to encourage participation by offering higher bids to broadcasters without erecting unnecessary roadblocks to robust broadband deployment.<sup>109</sup>

Striking the right balance with the use of DRP poses a challenge, but not an insurmountable one. Safeguards against excessive use of DRP should reassure broadcasters that

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<sup>105</sup> T-Mobile Comments at 30-31.

<sup>106</sup> AT&T Comments at 42-43; CCA Comments at 14; EOBC Comments at 32-35; LocusPoint Comments at 7; Media General Comments at 3; Milachi Media Comments at 5; NAB Comments at 2-6; Comments of Sinclair Broadcast Group, AU Docket No. 14-252, GN Docket No. 12-268 at 5-9 (Feb. 20, 2015); Comments of Trinity Broadcasting Network, AU Docket No. 14-252, GN Docket No. 12-268 at 3-4 (Feb. 20, 2015).

<sup>107</sup> CCA Comments at 13.

<sup>108</sup> *Comment PN ¶* 106.

<sup>109</sup> CCA Comments at 14-15.

DRP will not be abused to artificially suppress pricing and reassure broadband providers that  
DRP will not result in excessive impairments. While any number of safeguards may be needed  
to satisfy these goals, the Commission should consider adopting at least four baseline protections  
against excessive use of DRP. First, use of DRP should end when there are enough frozen  
stations to create the potential for a 10% or 20% impairment, rather than continue in force until  
the impairment level actually reaches 10% or 20%.<sup>110</sup> Second, DRP should not begin until  
sufficient time has passed to determine that the price for a frozen station has become  
substantially higher than the clock prices of other stations still participating in the auction.  
Third, the theoretical impairment should be reduced below 20% at higher levels of spectrum  
clearing to ensure sufficient spectrum availability to allow for cost-effective deployment.<sup>111</sup>  
Fourth, to limit the impact that DRP can have on a broadcast station's value, a safeguard should  
be added that would either prevent DRP from decreasing broadcast prices by more than a fixed  
percentage of a station's opening bid, or limit DRP to a "last resort" option to be used only after  
the forward auction has failed to satisfy the Final Stage Rule. Taken together, these and similar  
measures would help ensure that DRP only targets true "outlier" cases in which reverse auction  
bidders do not face competition and could use their hold-out power to threaten an otherwise  
reachable spectrum-clearing target.

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<sup>110</sup> See *Comment PN ¶ 110* (proposing as an alternative application of DRP that "DRP procedures could be discontinued when there is the potential that the next participating station for which the auction system cannot find a feasible channel in the remaining TV portion of its pre-auction band, if it chose to drop out of the auction, would cause the predicted aggregate level of impairments to licenses in the 600 MHz Band to exceed this threshold").

<sup>111</sup> T-Mobile has elsewhere proposed a 10% impairment threshold for spectrum-clearing scenarios of greater than 84 megahertz. See T-Mobile Comments at 20-21. The Commission could also end DRP whenever its use would impair too many of the major markets to such an extent that deployment becomes infeasible. See T-Mobile Comments at 17-18.

Much of the opposition to DRP comes from uncertainty about when DRP will apply and how extensively the Commission will apply DRP in low- and no-competition markets.<sup>112</sup>

Providing reassurances – and meaningful constraints – on the use of DRP would go a long way in dispelling the uncertainty that exists around DRP, especially among broadcast stakeholders.

At a minimum, the Commission should affirm that it does not intend to use DRP as a tool for the Commission to divert revenue to the federal treasury and away from participating broadcasters.<sup>113</sup> DRP should be limited and be used strictly to achieve higher clearing targets than might otherwise be possible without incurring excessive impairment of the 600 MHz band.

EOBC has proposed an alternative method of addressing stations that cannot be repacked at the initial clearing target.<sup>114</sup> While the practical application of EOBC’s “RZR” mechanism requires further development and review, the Commission should continue to consider alternative proposals that would reduce the risk that outlier prices in low- or no-competition markets might damage broadband-spectrum clearing.

**G. Auctioning Heavily Impaired Blocks in a Follow-Up Auction Will Ensure Equitable Distribution of Spectrum and Avoid Unnecessary Complications to the Assignment Process.**

Commenters agree that auctioning heavily impaired blocks in a follow-on “remainders” auction after the close of the incentive auction will clear more spectrum for broadband use and avoid reinforcing the dominance of the two largest carriers by simply awarding the remainders as a bonus to the biggest spectrum winners, which are likely to be Verizon and AT&T even if the reserve is expanded.<sup>115</sup> Assigning this spectrum in an auction shortly following the principal 600 MHz auction will allow bidders time to evaluate the nature of each license’s impairments more

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<sup>112</sup> NAB Comments at 3; Sinclair Comments at 5-6.

<sup>113</sup> EOBC Comments at 37-38; NAB Comments at 2-6.

<sup>114</sup> EOBC Comments at 37-38.

<sup>115</sup> T-Mobile Comments at 32-36; CTIA Comments at 18-19.

thoroughly and avoid unnecessarily complicating the already highly involved assignment-round process.<sup>116</sup>

## **V. RECOMMENDATIONS REGARDING OTHER AUCTION PROCEDURES.**

### **A. Impairing the Uplink Band Will Support Engineering Best Practices, Minimize Interference, and Facilitate Equipment Design.**

A majority of carriers support placing unavoidable broadcast impairments in the 600 MHz uplink band,<sup>117</sup> rather than the downlink band.<sup>118</sup> Many carriers also expressed a preference for relying on the duplex gap and guard band to minimize or eliminate the need to impair the uplink portion.<sup>119</sup> T-Mobile supports proposals to prioritize impairments in the 600 MHz band in the uplink band up to channel 50.

As T-Mobile and others explain in their comments, placing impairments in the uplink band is technically superior to placing them in the downlink band.<sup>120</sup> In the uplink band, broadcast stations would interfere with a fixed and limited number of base stations receivers, but this interference could be mitigated by the installation of targeted base station receiver filters.<sup>121</sup> By contrast, broadcast stations operating in the downlink band would overload handset receivers and that interference would effectively impair all blocks that exclusively use the affected

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<sup>116</sup> CTIA Comments at 18-19.

<sup>117</sup> See, e.g., Verizon Comments at 17-20; CCA Comments at 3-8; C Spire Comments at 3-4; T-Mobile Comments at 10-15. Sprint did not specify a preference but asked that the Commission ensure that all impaired spectrum blocks within a market be contiguous. See Sprint Comments at 39.

<sup>118</sup> Although AT&T was the only carrier to recommend repacking in the 600 MHz downlink, see AT&T Comments at 12, two other commenters support placing broadcasters in the downlink band. See Comments of Public Broadcasting Service, Association of Public Television Stations, and Corporation for Public Broadcasting, AU Docket No. 14-252, GN Docket No. 12-268 at 3-5 (Feb. 20, 2015); Comments of Sennheiser Electronic Corp., AU Docket No. 14-252, GN Docket No. 12-268 at 2-3 (Feb. 20, 2015). The concerns raised by those commenters regarding interference to DTV receivers and unlicensed devices, however, are far outweighed by the benefits of making larger amounts of downlink spectrum available, as discussed below.

<sup>119</sup> See, e.g., AT&T Comments at 14-15; CCA Comments at 6-8.

<sup>120</sup> See, e.g., Verizon Comments at 17-20; CCA Comments at 3-8; C Spire Comments at 3-4; T-Mobile Comments at 10-15.

<sup>121</sup> See Verizon Comments at 19; T-Mobile Comments at 13.

duplexer<sup>122</sup> and, according to Verizon, could even potentially destroy a handset’s front-end low noise amplifier.<sup>123</sup> Moreover, as discussed below, there is greater value to downlink spectrum than uplink spectrum for mobile broadband providers.<sup>124</sup>

The advantages of repacking broadcasters in the uplink outweigh the potential costs associated with adapting base stations to accommodate the potential for interference or modify devices to enable supplemental downlink operations. AT&T argues that impairing the 600 MHz uplink would require substantial and unjustified “added costs” to enable supplemental downlink use.<sup>125</sup> But these claims regarding additional “direct equipment costs”<sup>126</sup> are overstated. The 3GPP standards support inter-band carrier aggregation with a single uplink and would not require any new hardware.<sup>127</sup>

Regardless, the Commission has consistently recognized that downlink capacity represents a more valuable component of broadband operations than uplink capacity.<sup>128</sup> Mobile

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<sup>122</sup> See T-Mobile Comments at 13; Verizon Comments at 18.

<sup>123</sup> See Verizon Comments at 18.

<sup>124</sup> Regardless of where the Commission places broadband impairments, ensuring that Channel 51 is entirely cleared of broadcast stations will avoid significant adjacent-channel interference challenges. See T-Mobile Comments at 11 n.30.

<sup>125</sup> See AT&T Comments at 24.

<sup>126</sup> *Id.*

<sup>127</sup> See Jeanette Wannstrom, *Carrier Aggregation explained*, 3GPP (June 2013)

<http://www.3gpp.org/technologies/keywords-acronyms/101-carrier-aggregation-explained> (explaining that “[i]n FDD the number of aggregated carriers can be different in DL and UL”, but that “the number of [uplink] component carriers is always equal to or lower than the number of [downlink] component carriers.”).

<sup>128</sup> For example, the Commission recently changed its definition of Advanced Telecommunications Capability to require a minimum downlink speed of 25 Mbps and a minimum uplink speed of 3 Mbps – a ratio of more than 8 to 1. See *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, 2015 Broadband Progress Report and Notice of Inquiry, FCC 15-10 at ¶ 3 (rel. Feb. 4, 2015). Similarly, recipients of high-cost universal service support subject to broadband obligations are required to provide at least a minimum downlink speed of 10 Mbps and an uplink speed of 1 Mbps – a 10 to 1 ratio. See *Connect America Fund*, Report and Order, 29 FCC Rcd 15644 ¶ 15 (2014). In addition, analysts have found that the value of spectrum is increasingly asymmetrical, with downlink spectrum already more valuable than uplink for mobile broadband services and projected to increase in value over time as consumers demand higher data speeds. One recent market analysis found that downlink spectrum is roughly nine times more valuable than uplink. For this reason, repacking broadcasters in the uplink could drive

broadband networks need less uplink than downlink capacity today, and analysts anticipate that this trend will continue.<sup>129</sup> Therefore, while there may be marginal costs associated with using downlink-only spectrum, those costs would be outweighed by the benefits of additional downlink capacity.

**B. Provide Additional Time Between Auction Phases.**

A number of commenters expressed concern that the time proposed in the *Comment Public Notice* between the reverse and forward auction and between the close of the clock rounds and the start of the assignment phase would not allow bidders sufficient opportunity to evaluate complex auction results.<sup>130</sup> Allowing at least five business days between the cessation of reverse auction bidding and the start of the forward auction in the initial stage and at least three business days in all subsequent stages, and five business days between the end of the clock auction and the start of the assignment round, will permit bidders to make more informed choices about their license bids and assignments and have greater confidence in the overall accuracy and reliability of the auction.<sup>131</sup>

**C. Limit Extended Rounds to High-Demand PEAs.**

The Commission has proposed that extended rounds would be implemented only in the top 40 PEAs when both the Final Stage Rule has not been met and demand for licenses in these

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up prices among bidders eager to increase their holdings of downlink spectrum. Citi Research, *Breaking Symmetry: Race for Downlink Spectrum to Reshape the Wireless Industry* at 5 (Aug. 8, 2013).

<sup>129</sup> See, e.g., Kostas Liopiros, “Asymmetry and the impending (US) spectrum crisis,” *Financial Times* (May 28, 2013), available at <http://www.ft.com/cms/s/0/cec2a244-c7d6-11e2-be27-00144feab7de.html#axzz3Soiw1iRk> (“[I]ndustry estimates of the ratio of data traffic in the downlink to data traffic in the uplink ranges from a ratio of about eight to one (8:1) – to considerably more. This means that about 90 percent or more of the data is transmitted or downloaded to the user. It also implies that wireless operators will have invested significant sums to increase the uplink capacity of FDD networks, most of which will be unused. The implication of asymmetric data is clear - going forward wireless networks will not need as much uplink capacity.”).

<sup>130</sup> CTIA Comments at 15-17; LocusPoint Comments at 12; Sprint Comments at 49-50.

<sup>131</sup> T-Mobile Comments at 36-39.

PEAs does not exceed supply.<sup>132</sup> As noted above, the top 40 “high demand” PEAs represent 80% of POPs in the U.S. Adding extended rounds to the remaining, lower demand, PEAs would only increase auction complexity without closing the revenue gap needed to satisfy the Final Stage Rule. Limiting extended rounds to the top 40 PEAs expedites the auction process while still covering the vast majority of the United States population. AT&T’s suggestion to conduct an extended round in *every* PEA would add little value, and considerable complexity and delay, to the auction design.<sup>133</sup>

**D. Allow Strategic Skipping of Clearing Targets.**

Not all clearing targets should necessarily be incorporated into the final auction design. CTIA and EOBC oppose the Commission’s proposal in the *Comment Public Notice* to skip certain clearing targets that could give rise to band plan challenges where “the benefits outweigh the costs,” arguing that omitting some targets could artificially suppress the number of channels cleared.<sup>134</sup> T-Mobile joins the vast majority of commenters in favoring the maximum amount of spectrum that can be cleared, but the Commission should retain the flexibility to skip clearing targets when it determines that targets, such as those incorporating considerable guard band spectrum, are unlikely to be met.<sup>135</sup>

**E. Adopt Quasi-Random Assignment of Licenses in Lieu of an Assignment Round.**

Several commenters recommend that the Commission should amend its proposed assignment round process to avoid systematically disadvantaging smaller carriers and depressing

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<sup>132</sup> *Comment PN ¶¶ 189-191.*

<sup>133</sup> AT&T Comments at 46.

<sup>134</sup> *Comment PN ¶ 69*; CTIA Comments at 16; EOBC Comments at 48-49.

<sup>135</sup> For example, the FCC notes that the 108 megahertz clearing target would include two downlink blocks that are separated from the remaining downlink blocks by Channel 37. *Comment PN ¶ 69.*

clock phase revenues.<sup>136</sup> Specifically, US Cellular proposes that the Commission honor bidders' preferences for specific spectrum blocks in the assignment round, but use quasi-random assignment when two or more bidders' preferences for a license conflict.<sup>137</sup> In addition, rather than first assigning blocks in descending order of weighted-POPs starting with the high demand PEAs, as proposed in the *Comment Public Notice*, US Cellular suggests that the assignment of licenses should not prioritize blocks by market size and POPs served, which would allow dominant providers to establish nationwide frequency preferences based on the high-value PEA assignments and unfairly drive up prices for these same frequencies in smaller PEAs where many non-dominant providers will be seeking licenses.<sup>138</sup> Quasi-random assignment round procedures would drive more revenue into the forward auction while avoiding harm to non-dominant wireless providers.<sup>139</sup>

## VI. CONCLUSION

The broadcast incentive auction is too important—and the consequences of delay too significant—for the Commission not to auction the 600 MHz band spectrum as scheduled in 2016. T-Mobile joins other commenters in urging the Commission ensure the two dominant providers do not foreclose competition. The Commission should protect and expand the reserve while maximizing the amount of unimpaired spectrum cleared in all markets and guaranteeing a minimum number of licenses in the top 10 PEAs. Repacking broadcasters in the uplink, rather

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<sup>136</sup> US Cellular Comments at 7-12 (noting that even the one-to-one impairment discount would be unlikely to compensate small bidders for being consistently assigned the most impaired spectrum in each market area, particularly if those impaired areas were critical for that bidder's business plan); *see also* C Spire Comments at 6 (recommending the random assignment of licenses among winners within each PEA); CCA Comments at 37-38 (same).

<sup>137</sup> US Cellular Comments at 11-12.

<sup>138</sup> US Cellular Comments at 19-20.

<sup>139</sup> The quasi-random nature of assignments would result from application of the three proposed assignment round prerequisites of achieving greater frequency and geography contiguity, subject to the proposal from T-Mobile to limit geographic contiguity to an area no larger than 20 contiguous PEAs or three adjacent MEAs. *See* T-Mobile Comments at 48-49.

than the downlink, band will help minimize impairments and deliver more spectrum for broadband use. By making a few adjustments to the procedures outlined in the *Comment Public Notice* the Commission can promote the deployment of a highly competitive wireless broadband market for the benefit of industry, the economy, and U.S. consumers.

Respectfully submitted,

/s/ Andy Levin

Trey Hanbury  
Deborah Broderson  
David Crawford  
**Hogan Lovells US LLP**  
555 Thirteenth Street, NW  
Washington, DC 20004  
(202) 637-5534

Andy Levin  
Kathleen O'Brien Ham  
Steve Sharkey  
Joshua L. Roland  
**T-Mobile USA, Inc.**  
601 Pennsylvania Avenue, NW  
Washington, DC 20004  
(202) 654-5900

*Attorneys for T-Mobile USA, Inc.*

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