

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Expanding the Economic and Innovation) WT Docket No. 12-268
Opportunities of Spectrum Through Incentive)
Auctions)

REPLY COMMENTS OF T-MOBILE USA, INC.

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I. INTRODUCTION AND SUMMARY

T-Mobile USA, Inc. (“T-Mobile”) submits these reply comments in response to the Wireless Telecommunications Bureau’s (“Bureau”) Public Notice seeking comment regarding (1) whether the Commission should offer package bidding in the incentive auction, and (2) Competitive Carriers Association’s (“CCA”) proposal to issue licenses based on a new geographic area size, Partial Economic Areas (“PEAs”).¹

The comments reveal at least one point of near-consensus: package bidding would introduce a number of potential problems into the incentive auction and is unnecessary.² Indeed,

¹ *Wireless Telecommunications Bureau Seeks Comment on a Proposal to License the 600 MHz Band Using Partial Economic Areas*, Public Notice, DA 13-2351 (Dec. 11, 2013) (“*Public Notice*”).

² *See, e.g.* Comments of Blooston Rural Carriers, Docket No. 12-268 at 8 (Jan. 9, 2014) (“*Blooston Comments*”); Comments of Cellular South, Inc, (d/b/a C Spire Wireless), Docket No. 12-268 at 3-4 (Jan. 9, 2014) (“*C Spire Comments*”); Supplemental Comments of Competitive Carriers Association, Docket No. 12-268 at 7-8 (Jan. 9, 2014) (“*CCA Comments*”); Comments of King Street Wireless, L.P., Docket No. 12-268 at 8 (Jan. 9, 2014) (“*King Street Wireless Comments*”); Comments of United States Cellular Corporation, Docket No. 12-268 at 32-48 (Jan. 9, 2014) (“*US Cellular Comments*”); Report of NERA Economic Consulting on behalf of the Rural Wireless Association (“*RWA*”) and NTCA – The Rural Broadband Association (“*NTCA*”), Docket No. 12-268 at 48-51 (Jan. 7, 2014) (“*NERA Report*”).

only the two dominant incumbents support package bidding.³ Other commenters recognize that package bidding conducted in a way that would allow à la carte bidding for components of the package raises complex questions concerning package definition, clock resets, pricing levels, eligibility, information exchange, competitive effects, and other concerns.⁴ The issues associated with package bidding are among the most challenging elements of auction design, and it is not at all clear how these challenges would be resolved in the context of this auction.

The principle purpose of package bidding is to limit exposure risk for nationwide wireless operators. Nationwide wireless operators, including T-Mobile, face an exposure risk when bidding for a large number of small geographic area licenses because plans for nationwide deployment may be thwarted if the nationwide operator wins in many areas, but loses certain key markets. Package bidding allows a nationwide bidder to avoid the risk that it wins numerous licenses it cannot cost-effectively use because it fails to obtain critical portions of its desired national footprint.

While exposure risk is a concern, the Commission has solutions other than package bidding to address this issue in the incentive auction. One straightforward means of addressing the problem is spectrum aggregation limits. By ensuring that one or two carriers do not acquire all the licenses in a given area, a spectrum aggregation limit provides an opportunity for other carriers to achieve their business plans and effectively eliminates any need for package bidding. To the extent further steps are necessary to reduce exposure risk, the Commission could offer pre-defined package bids (*e.g.*, a Major Economic Area (“MEA”)-sized package of PEAs or

³ See Comments of AT&T, Docket No. 12-268 at 4-7 (Jan. 9, 2014) (“AT&T Comments”); Comments of Verizon and Verizon Wireless, Docket No. 12-268 at 6-7 (Jan. 9, 2014) (“Verizon Comments”).

⁴ See US Cellular Comments at 36-43; NERA Report at 49.

Cellular Market Areas (“CMAs”) or the top 25 or top 100 PEAs or CMAs), but not allow for à la carte bidding on those same packages. This approach, which effectively creates one or more large geographic license areas, would help address concerns about exposure risk while avoiding many of the challenging auction design issues and potential anti-competitive concerns associated with package bidding.

Comments to the public notice also evidenced a great deal of support for smaller economic areas, whether they are CMAs or PEAs. While T-Mobile continues to support MEAs, T-Mobile can support smaller geographic areas so long as (1) spectrum aggregation limits exist to guard against exposure risk, and (2) package bidding is not adopted with simultaneous à la carte bidding for elements of the package.

To the extent the Commission pursues smaller license areas, it should reject proposals that would impede the goal of clearing spectrum for mobile broadband. While the Rural Wireless Association (“RWA”) and NTCA – The Rural Broadband Association (“NTCA”) advanced a unique proposal for a bifurcated auction, the RWA/NTCA proposal risks reducing the amount of spectrum cleared because proceeds derived from rural areas would not be used for broadcaster clearing⁵ and because bidders for major urban areas may exercise restraint in the first phase to ensure they can acquire the contiguous suburban, exurban and rural licenses associated with their urban licenses.

⁵ See NERA Report at iii; Joint Comments of RWA and NTCA, Docket No. 12-268 at 10-12 (Jan. 9, 2014) (“RWA/NTCA Comments”).

II. COMMENTERS GENERALLY OPPOSE PACKAGE BIDDING, WHICH WOULD INTRODUCE EXCESSIVE COMPLEXITY INTO THE AUCTION.

Except for the two dominant incumbents,⁶ no commenter supports a package bidding model where package bidders compete directly with à la carte bidders.⁷ The Commission has limited experience with package bidding,⁸ and, as it recognized in the *Incentive Auction NPRM*, “[p]ackage bidding options generally complicate an auction.”⁹ In particular, package bidding with simultaneous à la carte bidding on the same group of licenses creates the potential thorny problem of excess supply when a bidder stops bidding on a package. Additionally, package bidding effectively creates a penalty-free withdrawal right for package bidders and introduces other gaming opportunities for package bidders.¹⁰ At the same time, the need for package bidding is substantially if not wholly eliminated because any one or two licensees are prevented from acquiring all of the licenses in an individual market.

A. Package Bidding with Simultaneous À La Carte Bidding Complicates the Auction and Introduces Corrosive Gaming Opportunities.

Several commenters recognize that package bidding with simultaneous à la carte bidding for the same group of licenses will complicate an already complicated process.¹¹ In particular, U.S. Cellular and National Economic Research Associates, Inc. (“NERA”) (in a report on behalf

⁶ See AT&T Comments at 4-7; Verizon Comments at 6-7.

⁷ See, e.g. Blooston Comments at 8; C Spire Comments at 3-4; CCA Comments at 7-8; King Street Wireless Comments at 8; NERA Report at 48-51; U.S. Cellular Comments at 32-48.

⁸ See, e.g., U.S. Cellular Comments at 42 (explaining that Auction 73 remains the only major auction that included package bidding procedures).

⁹ *Expanding the Economic and Innovation Opportunities for Spectrum Through Incentive Auctions*, Notice of Proposed Rulemaking 27 FCC Rcd 12357 ¶ 62 (2012) (“*Incentive Auction NPRM*”).

¹⁰ These problems do not exist if only package bidding without à la carte bidding is allowed on a group of licenses.

¹¹ See, e.g., C Spire Comments at 3-4; King Street Wireless Comments at 8.

of RWA and NTCA) discuss the difficult problem created if a bidder decides to stop bidding on a package when the package's price increases and suddenly there is an excess supply of licenses (*i.e.*, there are more licenses than there is demand for those licenses at that price).¹² Suppose, for example, a bidder places a package bid for two licenses in numerous license areas, and, late in the auction, that bidder stops bidding on the package. Depending on the size of the package, there could be dozens or hundreds of individual markets where the clock had effectively stopped because demand had been equal to supply for several rounds. There may be several additional markets where there is only one additional license demanded above those available. With the termination of bidding for the two-license package, all of these markets must effectively be reset. Addressing this eventuality is fraught with difficulty.

Potential mechanisms to reset the clock seem to pose serious complications and risks for participants in both the forward and reverse auctions. Simply reverting to the next highest bidder in the forward auction seems impractical. As U.S. Cellular explains, several rounds may have passed since the next-highest bidder stopped bidding on the license, and it may well have updated its bidding strategy to pursue other markets, especially given the Commission's activity rule.¹³ As a result, the next-highest bidder may be unwilling or unable to adopt its previous bid unless the price is sufficiently reduced, it is granted additional eligibility, or both. Moreover, the next highest bidder's previous bid could arguably still be too high, because it would have bid up to that amount only in response to the package bidder. Yet even if the price were to be set at the *next*, next-highest bid (the third highest bid price), the same problems remain. The previous bidders may have shifted their strategies, and demand for the license may have been permanently

¹² See US Cellular Comments at 36-40; NERA Report at 49.

¹³ See US Cellular Comments at 37.

reduced. Additionally, whether or not demand for an individual license has been permanently reduced in certain instances, the very prospect of excess supply undermines certainty and pricing in the auction.

The necessity to reset the clock in some form suggests that the forward auction could require an extended period of time to complete. For instance, returning to the example of a bidder for the package of two licenses in each market, the package bidder may be able to introduce another complex package bid (perhaps removing only a few markets from its previous nationwide bid) once stops bidding on the first package. Of course, this new package itself may ultimately be unsuccessful, requiring the clock to be reset yet again in several markets (perhaps two, three, or more times). Depending on the Commission's precise rules for package bidding, this potential problem could continue indefinitely, and the potential for delay is only exacerbated by multiple bidders submitting package bids.

NERA suggests a further potential problem unique to the incentive auction context – the excess supply problem may be so substantial that it could cause aggregate forward auction bids to fall below the auction-clearing target, and the aggregate bids may fail to reach that target even after the clock is restarted.¹⁴ For purposes of illustration, suppose that the clearing target has been met and that the clock has stopped in all markets nationwide except for one, where a nationwide package bidder for one license in each market is competing with an à la carte bidder. Suppose further that the à la carte bidder ultimately causes the package bidder to stop bidding, setting off a nearly nationwide chain reaction of excess supply. This chain reaction could be so substantial that the aggregate bids fall below, and are never able to return to, the clearing target. If the Commission were to have the authority to retain the last package bid, it could ensure that

¹⁴ See NERA Report at 49.

the spectrum clearing target was met, but it could only do so by exposing itself to a host of challenges from the à la carte bidders that were denied licenses in favor of the package bid, which could not stand on its own. Even if the Commission did not exercise the authority to choose the package bid over the à la carte bid(s), as this illustration shows, excess supply problems can reduce aggregate forward auction bidding and, correspondingly, reduce the amount of spectrum cleared.

While economists have from time to time introduced proposals attempting to address the difficult excess supply problem, they are untested in situations, such as here, with several hundred potential geographic license areas. For example, Lawrence Ausubel, Peter Cramton, and Paul Milgrom have proposed a “clock-proxy” design where the auctioneer runs a clock auction with package bidding, otherwise known as a combinatorial clock auction, followed by a second, sealed-bid proxy auction.¹⁵ While this proposal could address some of the excess supply challenges present at the close of the incentive auction, it raises many other complications that would need substantial further notice and comment before adoption since a combinatorial clock

¹⁵ See Lawrence Ausubel, Peter Cramton, and Paul Milgrom, *The Clock-Proxy Auction: A Practical Combinatorial Auction Design* in Peter Cramton, Yoav Shoham, and Richard Steinberg, *Combinatorial Auctions* (2006), available at <ftp://cramton.umd.edu/ca-book/cramton-shoham-steinberg-combinatorial-auctions.pdf>; see also Karla Hoffman, *Spectrum Auctions* 23-25 in Jeff Kennington, Eli Olinick, and Dinesh Rajan, *Wireless Network Design: Optimization Models and Solution Procedures* (2010), available at http://seor.gmu.edu/~khoffman/spectrum_auctions.pdf. Under this approach, the clock auction proceeds until there is no excess demand left in the auction, meaning that there is no license for which there are more licenses desired at that price than there are licenses available. If there is an excess supply of licenses because, for example, a package bidder or several package bidders decide to stop bidding, the auctioneer would then conduct a second sealed-bid proxy auction. In this second auction, bidders can submit additional bids (as long as they comply with the existing activity rules), and these new bids, together with the bids submitted during the clock stage, are used to award the excess licenses. Note that even this proposal does not discuss how to address the many times *during* an auction where a package bidder’s decision to stop bidding could create an issue of excess supply and necessitate restarting of the clock in certain markets.

auction has not been proposed or contemplated for the incentive auction and would cause many additional and new issues. Moreover, as Karla Hoffman has explained with regard to the clock-proxy proposal, “it is not clear how to design a clock-proxy auction when the licenses are for multiple small regions.”¹⁶ In a situation with so many licenses, such as the incentive auction, it is computationally challenging to design such a solution even if issues of eligibility, budget, and duration are more easily overcome than anticipated.

Allowing package bidding in the incentive auction also invites gaming.¹⁷ For example, the Commission’s auction design consultants proposed an auction format that does not allow bids to be withdrawn,¹⁸ but, as T-Mobile explained in its initial comments, depending on whether there are any penalties for or limits on failed packages, package bidders would be granted an effective right to withdraw bids if package bidding is adopted.¹⁹ All a package bidder need do is diversify its risk of winning by including enough markets with substantial excess demand in its package. In doing so, a package bidder can both park eligibility (subverting the activity rule) and, potentially, engage in bid-signaling, market-division, or other gaming strategies.²⁰

Moreover, resetting the forward auction is problematic for reverse auction participants, who may be discouraged from participating if the process is overly drawn out. As the

¹⁶ Hoffman, *supra* n.15 at 25-26.

¹⁷ See, e.g., CCA Comments at 7 (“[P]ackages create opportunities for larger carriers to game the system by packaging highly desirable licenses and thereby shielding from other bidders the true value that they ascribe to those licenses.”)

¹⁸ Paul Milgrom, Lawrence Ausubel, Jon Levin, and Ilya Segal, *Incentive Auction Rules Option and Discussion* 16 (Sept. 12, 2012) (Attachment 1 of the *Incentive Auction NPRM*) (“Auctionomics Proposal for Incentive Auction Design”).

¹⁹ See Comments of T-Mobile USA, Inc., Docket No. 12-268 at 4-5 (Jan. 9, 2014).

²⁰ See, e.g., Peter Cramton and Jesse A. Schwartz, *Collusive Bidding: Lessons from the FCC Spectrum Auctions* at 11-13 (May 2000), <http://www.cramton.umd.edu/papers2000-2004/00jre-collusive-bidding-lessons.pdf>.

Commission’s auction design consultants recognize, “[l]ong delays in the Forward Auction could raise costs and discourage participation in the Reverse Auction.”²¹ Indeed, this expert team prioritized auction simplicity and introduced innovations like fungible licenses and intra-round bidding in an effort to complete the auction more quickly and in fewer rounds than past Commission auctions that sometimes have taken a month or more to complete (for a single forward auction).²²

B. Adopting a Package Bidding Framework Where No Simultaneous À La Carte Bidding is Authorized Would Avoid Problems Associated with Package Bidding.

These types of problems (complexity, excess supply, and gaming issues) are only present when package bidders compete for the same licenses as à la carte bidders. If package bidders are offered pre-defined packages and no bidder can bid on a portion of those packages, these problems do not occur. Pre-defined packages operate much like individual license areas without introducing a new license-area to the many the Commission already uses. This type of pre-defined package mitigates potential exposure risk while avoiding the difficulties with à la carte bidders competing for the same licenses as package bidders.²³

²¹ Auctionomics Proposal for Incentive Auction Design at 4.

²² *Id.* at 14.

²³ While package bidding without simultaneous à la carte bidding eliminates many auction complexities, package bidding should not be used to open a loophole to avoid the requirements of a reasonable spectrum aggregation limit that, like the Commission’s current screen, would apply on a market-by-market basis using a county-level analysis. *See, e.g., Policies Regarding Mobile Spectrum Holdings*, Docket No. 12-268 27 FCC Rcd 11710 ¶ 8 (2012).

C. A Reasonable Spectrum Aggregation Limit Renders Package Bidding with Simultaneous À La Carte Bidding Unnecessary.

Contrary to Verizon’s and AT&T’s claims,²⁴ package bidding is not necessary to mitigate the exposure risk for carriers participating in the incentive auction. A much simpler alternative is available: a reasonable spectrum-aggregation limit. By ensuring that no one or two carriers can sweep up all of the licenses available in a given license area, a spectrum aggregation limit promotes wider availability of licenses. In doing so, a spectrum-aggregation limit reduces the risk that a carrier will be shut out of a particular market. By adopting a spectrum-aggregation limit, the Commission can reduce exposure risk while avoiding the unnecessary complexity of package bidding in the incentive auction context.

D. Adopting Package Bidding with Simultaneous À La Carte Bidding Would Likely Harm Total Forward Auction Bidding and Reduce the Amount of Spectrum Cleared.

Although Verizon and AT&T argue that package bidding will stimulate forward auction bidding,²⁵ package bidding may harm total forward auction activity in the incentive auction context. As explained above, à la carte bidders competing for the same licenses as package bidders complicates and injects uncertainty into the auction. This uncertainty alone is likely to reduce bidder demand. Moreover, package bidding also introduces a “threshold” or “free-rider” problem for à la carte bidders.²⁶ As the Commission has explained, the threshold problem arises because “bidders for parts of a larger package each have an incentive to hold back in the hope that a bidder for another part will increase its bid sufficiently for the bids on the pieces

²⁴ See AT&T Comments at 4; Verizon Comments at 4.

²⁵ See AT&T Comments at 4-5; Verizon Comments at 6.

²⁶ U.S. Cellular Comments at 33-34.

collectively to beat the bid on the larger package.”²⁷ That is, package bidding suppresses activity because bidders have an incentive to hold back while someone else raises its bid to beat the package. If the à la carte bidders were competing against the package bidder in the absence of package bidding, each à la carte bidder would not have the same incentive to hold back hoping another bidder would help because bids on other licenses would not increase its chance of winning in the same way. Of course this free-rider problem also exerts a downward pressure on auction revenues.

III. SMALLER LICENSE SIZES ARE MANAGEABLE SO LONG AS REASONABLE SPECTRUM AGGREGATION LIMITS ARE IMPLEMENTED AND PACKAGE BIDDING WITH SIMULTANEOUS À LA CARTE BIDDING IS REJECTED.

While T-Mobile continues to support licensing based on MEAs,²⁸ T-Mobile understands the needs of carriers that support smaller license areas, whether PEAs or CMAs.²⁹ Smaller carriers may have more targeted business plans, and they may have difficulty competing for larger license areas. However, introducing smaller-sized licenses comes with its own challenges. Smaller license areas, whether PEAs or CMAs, increase exposure risk and add complexity to the auction. Bidders attempting to acquire complementary licenses in a given footprint must acquire more licenses if the license sizes are smaller, and all bidders must place bids on and consider more licenses during the course of the auction. Despite these challenges, smaller-sized licenses

²⁷ *Auction of Regional Narrowband PCS Licenses Scheduled for September 24, 2003*, Public Notice, 18 FCC Rcd 6366 (2003).

²⁸ *See, e.g.*, T-Mobile Comments at 7.

²⁹ *See* Comments of Atlantic Telephone Membership Corporation, Docket No. 12-268 at 2-4 (Jan. 9, 2014); Blooston Comments at i; C Spire Comments at 3; CCA Comments at 2-5; King Street Wireless Comments at 6-7; Comments of Peoples Telephone Cooperative, Docket No. 12-268 at 2-4 (Jan. 9, 2014); Comments of Public Service Wireless Services, Inc. at 2-4, Docket No. 12-268 (Jan. 9, 2014); RWA/NTCA Comments at 2; US Cellular Comments at 5-9; Comments of The Wireless Internet Service Providers Association, Docket No. 12-268 at 2 (Jan. 9, 2014).

would not create undue exposure risks or overly complicate the auction so long as the Commission (1) adopts spectrum aggregation limits, and (2) rejects package bidding with simultaneous à la carte bidding for the same licenses.

As discussed above, adopting spectrum aggregation limits would reduce the exposure risk introduced by smaller-sized license areas. Reducing the exposure created by smaller license areas is necessary, and adopting spectrum aggregation limits helps ensure that one or two carriers are not be able to acquire all of the licenses in a given area.

Meanwhile, adopting package bidding with à la carte bidding for the same licenses in an attempt to address the exposure problem introduced by smaller license areas would create a problem worse than the one it is trying to solve. Smaller license areas already add an additional layer of complexity; package bidding will add several more. As discussed above, package bidding would introduce difficult problems of excess supply for which no party has offered solutions – much less ones that are market-tested or reliable enough to incorporate in what already promises to be the Commission’s most complex undertaking. In any event, package bidding is unnecessary because spectrum aggregation limits can mitigate exposure risk. Again, however, package bidding without à la carte bidding for the same licenses for a predefined set of smaller licenses could reduce the exposure risk for larger bidders while at the same time ensuring that smaller license areas are also available.

IV. RWA/NTCA’S TWO-PHASE PROPOSAL WOULD UNNECESSARILY REDUCE THE AMOUNT OF SPECTRUM CLEARED FOR MOBILE BROADBAND.

RWA and NTCA have jointly proposed a novel, bi-furcated approach for the incentive auction: the Commission would first conduct the forward auction based on Economic Areas (“EAs”), and winning bidders would be awarded the Metropolitan Statistical Area (“MSA”) license areas within those EAs; following this first phase, the Commission would then conduct a

second phase of the auction for the remaining Rural Statistical Areas (“RSAs”).³⁰ As several commenters recognize, however, this proposal would add significant complexity to an already complicated process.³¹

One major drawback of RWA and NTCA’s proposal is that it unnecessarily diverts forward auction proceeds from the amount used to clear broadcast stations.³² As RWA and NTCA explain, proceeds from the second phase of the auction would not be used for purposes of meeting the spectrum-clearing target; only bids related to MSAs in the first phase would be used to determine the available supply of spectrum.³³ By RWA and NTCA’s own calculations, this feature of their proposal would forego approximately 10% of forward auction proceeds. While reduced forward auction bidding may not translate into reduced broadcaster clearing in a directly linear fashion, a 10% reduction in the value of available forward auction licenses suggests a real possibility of a decreased amount of broadcaster spectrum that can be cleared.

Beyond this initial approximately 10% reduction in funding for clearing broadcaster spectrum, bi-furcating the auction may dampen demand for the urban licenses in the first phase of the auction. In particular, bidders for major urban markets may perceive that they have to maintain sufficient reserves after the first phase of the auction closes so that they may acquire the suburban, exurban, and rural areas surrounding the markets where they have purchased an urban license. In other words, bidders may restrain bidding in the first round to ensure that they can realize the full complementary values of contiguous geographic areas. By creating a perceived

³⁰ CMAs are comprised of MSAs (the urban CMAs) and RSAs (the rural CMAs). *See, e.g.*, RWA/NTCA Comments at ii.

³¹ *See* AT&T Comments at 9; C Spire Comments at 4; CCA Comments at 2-3.

³² *See* NERA Report at i; RWA/NTCA Comments at 10.

³³ *See* NERA Report at iii; RWA/NTCA Comments at 10-12.

need for phase-one auction participants to maintain sufficient reserves, RWA/NTCA's proposal would likely suppress bidding and thus further reduce the amount of broadband spectrum available.

V. CONCLUSION

If the Commission pursues smaller license areas, whether PEAs or CMAs, it has a straightforward solution to mitigating the increased exposure risk associated with its decision: adopting a spectrum aggregation limit. A spectrum aggregation limit will ensure that more than one or two carriers can acquire spectrum in a given license area and will also promote competition and stimulate investment. Meanwhile, pursuing package bidding with à la carte bidding for the same licenses to mitigate exposure risk introduces immense complexity and creates new and unwelcome opportunities for gaming the auction. If any form of package bidding is to work in the incentive auction context, competing à la carte bidding cannot be allowed. Offering a pre-defined set of packages and only permitting package bidders to bid on those licenses would avoid many of the complexities and gaming opportunities that simultaneous package and à la carte bidding for the same licenses would introduce. Maintaining simplicity and promoting competition will ensure auction success.

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