

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

In the Matter of )  
 )  
Public Notice Requesting Comment on )  
Experimental Design for Examining ) DA 05-1267  
Performance Properties of Simultaneous )  
Multiple Round Spectrum License Auctions )  
With and Without Combinatorial Bidding )

REPLY COMMENTS OF  
TELEPHONE AND DATA SYSTEMS, INC. and  
UNITED STATES CELLULAR CORPORATION

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June 15, 2005

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Reply Comments of Telephone and Data Systems, Inc. and  
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**Introduction**

Telephone and Data Systems, Inc. and its subsidiary United States Cellular Corporation (collectively, "TDS") are pleased that the record in this proceeding supports two important points made in TDS's comments.

First, to satisfy the statutory mandates for auctions and wireless services, the FCC's auction rules and experiments must ensure the effective participation of smaller bidders. Package bidding inherently disadvantages small bidders through the imposition of "threshold" problems. Due to its simplified setting and other design flaws, the Goeree/Holt proposal fails to capture important small-bidder considerations. The experiment should be modified to provide more information concerning small-bidder issues -- the scope and magnitude of the "threshold" problem under various conditions, the informational and analytical burdens imposed on smaller bidders, the impact of strategic bidding, potential bidder confusion during the auction, and the like.

Second, achieving auction transparency is a desirable goal. Economists have pointed to the detrimental complexity of potential package auction rules, and the

Goeree/Holt proposal suffers from "black box" algorithms and areas where experimenter/auctioneer discretion can significantly impact the results. Recently-proposed package bidding procedures -- including the one described in the current proposal and the clock/proxy design -- increase uncertainty about current prices, minimum acceptable bids, bidding increments and winning strategies. Experiments should examine this issue as well.

With design improvements suggested in the comments, even this simplified experiment may lead the FCC to reject some package auction rules and mechanisms as excessively confusing or detrimental to small bidders. It is even possible that the FCC may conclude from these experiments that no package bidding procedure can adequately meet statutory requirements. However, we re-emphasize that drawing positive conclusions concerning the real-world desirability of any particular auction procedure, on the basis of necessarily-limited laboratory experiments involving relatively untrained or unsophisticated individual subjects, is unjustified and, indeed, quite hazardous.

**1. Small-Bidder Issues.** TDS and Leap Wireless International ("Leap") commented on the likely adverse impacts on small bidders of package bidding and certain related auction rules. TDS cited the statutory mandates and FCC orders for the effective participation of small bidders in auctions and wireless services.<sup>1</sup> In furtherance of its statutory mandates, the FCC has adopted channelization and service area

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<sup>1</sup> Comments of TDS at 4-5, 7, 16-17. Recently, the FCC sought comments on designing auction rules to improve its "pre- and post-auction procedures governing the consortium exception to facilitate its use among small businesses facing capital formation constraints." Implementation of the Commercial Spectrum Enhancement Act and Modernization of the Commission's Competitive Bidding Rules and Procedures, WT Docket No. 05-211, at para. 53 (rel. June 14, 2005) ("CSEA").

designations for spectrum subject to auction which preserve licensing opportunities for small bidders; the FCC recognized that regional carriers promote technological advances, innovative offerings and competition, especially in rural areas. The FCC should not adopt auction procedures which disadvantage small bidders.

TDS and Leap warned the FCC of the solid economic evidence, from experiments and other analysis, that package bidding favors larger, national operators.<sup>2</sup> TDS (with analysis by Professor Robert Weber) and Leap are especially concerned with the possible severity of the "threshold" problem.<sup>3</sup> Leap correctly noted the likelihood of threshold-within-threshold problems in large-scale FCC auctions derived from the diversity of bidders interested in local, regional and super-regional licenses. Additionally, both parties pointed out that asymmetries in bidder valuations can lead to problems as a result of the price-ratcheting mechanism, and expressed concern about the potentially detrimental length of package bidding auctions.<sup>4</sup>

TDS and three other parties described flaws in the Goeree/Holt proposal, supporting the conclusion that small bidders' problems from package bidding will be more severe in a large-scale FCC auction than in the experiment. Leap observed that the Goeree/Holt proposal "undoubtedly understates the likely magnitude of the threshold problem."<sup>5</sup> Professor Weber agrees: "These examples merely scratch the surface of the challenges smaller bidders face in dealing with the threshold problem . . . . With more

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<sup>2</sup> Id. at 5, 11; Comments of Leap at 5 n.4.

<sup>3</sup> Comments of TDS at 9 and attached paper by Weber ("Weber Paper") at 3-5; Comments of Leap at 5, 6.

<sup>4</sup> Comments of TDS at 11, 13; Comments of Leap at 9-10.

<sup>5</sup> Comments of Leap at 6.

licenses and bidders, the situation becomes even more complex."<sup>6</sup> Additionally, Ausubel, Cramton and Milgrom criticize the proposal's valuation model ("too simple to address the different effects of geographic coverage and bandwidth"), budget constraints ("not considered in any of the treatments" and "more complex in practice than a single bright-line number") and performance measures ("underdeveloped").<sup>7</sup> Similarly, PA Consulting Group points to sensitivities of the experiment to the selection of subjects, allocation of valuations, financial incentives for bidders, etc.<sup>8</sup>

Despite the severe flaws in package bidding and this experiment, Verizon Wireless ("Verizon") recommended that the FCC plunge into package bidding auctions. As a large, national carrier, Verizon's preference is not surprising. Its comments did not address the concerns about the severity of the "threshold" problem and other disadvantages to small bidders, such as informational and analytical burdens imposed on small bidders, the impact of strategic bidding, and potential bidder confusion during the auction. Nor did it provide any evidence of a significant "exposure" problem in past or planned FCC auctions using simultaneous multiple rounds without package bidding.<sup>9</sup> In

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<sup>6</sup> Weber Paper at 5.

<sup>7</sup> Comments of Ausubel, Cramton and Milgrom at 2-3.

<sup>8</sup> Comments of PA Consulting at 1-2.

<sup>9</sup> As TDS noted in its Comments at page 10, FCC auctions (but not simplified experiments) are shaped in part by post-auction abilities to acquire licenses through transfers as well as to transfer all or portions of acquired or existing licenses, including through geographical partitions and spectrum disaggregation. Larger bidders have extensively used post-auction transactions (transfers, partnerships and other alliances) to aggregate licenses, both within and across geographic areas. The ability of bidders to execute post-auction transactions mitigates any "exposure" problems. On the other hand, Professor (and former FCC Chief Economist) William Rogerson's statement to the FCC concluded that post-auction transactions are of less help to smaller bidders, including in overcoming "threshold" issues: "If regional/rural carriers are unable to directly bid on (*Footnote continued next page*)

fact, Verizon observed that there are major gaps in developing the design of an effective FCC auction with package bidding.<sup>10</sup> Verizon ignored the fact that since the statements from 2000 it quoted, economists have pointed to major flaws in proposal after proposal for package auction rules.<sup>11</sup> The proposed simplified experiment will not provide the basis for any reasonable decision by the FCC adopting package auction rules.<sup>12</sup>

The experiment should develop further information on the scope and magnitude of the "threshold" problem (such as the effects of increasing the number of licenses and the number/diversity of bidders), as well as whether some mechanisms and rules are effective in supporting small bidders. Still, this information should be developed and analyzed with a clear understanding that no set of rules can enable package bidding for large-scale FCC auctions in a manner consistent with the FCC's

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licenses, it is unlikely that they will be given timely or adequate access to spectrum [by larger carriers] via partitioning, disaggregation, sales on secondary markets or affiliation arrangements." Rogerson Paper attached to comments filed by U.S. Cellular in GN Docket No. 01-74 (May 15, 2001).

<sup>10</sup> Comments of Verizon at 3-4.

<sup>11</sup> See K. Hoffman, "Issues in FCC Package Bidding Auction Design" (Nov. 22, 2003) (presented at the FCC's Combinatorial Bidding Conference Nov. 21-13, 2003); D. Porter, et al., "Combinatorial Auction Design" (June 17, 2003) (presented at the FCC's Combinatorial Bidding Conference Nov. 21-23, 2003); L. Ausubel, P. Cramton & P. Milgrom, "The Clock-Proxy Auction: A Practical Combinatorial Auction Design" (forthcoming in P. Cramton, et al., Combinatorial Auctions (2006)); L. Ausubel & P. Milgrom, "Ascending Auctions with Package Bidding" (June 7, 2001) (presented at the FCC's Combinatorial Bidding Conference Oct. 26-28, 2001).

<sup>12</sup> As a further illustration of how the complexity of FCC package bidding auctions would greatly exceed experiments, the FCC recently sought comments on establishing procedures in advance of each auction for apportioning bid amounts among individual licenses comprising a package, in part to allow the FCC to determine the applicability and amount of a small business bidding credit, unjust enrichment payment obligation, tribal land bidding credit limit, or bid withdrawal or default payment. CSEA, supra, at para. 40-45. The proposed experiment does not include such necessary rules.

statutory mandate for effective participation by small bidders.<sup>13</sup> Experiments cannot dispel the well-founded concerns that package bidding would disadvantage small bidders in a large-scale, high-stakes FCC auction, such as the upcoming auction of Advanced Wireless Spectrum as well as several other planned auctions.<sup>14</sup>

**2. Auction Transparency.** TDS's comments warned against auction complexity, in terms of both the mechanisms for navigating the auction itself and the strategies successful bidders will need to employ. Such complexity may discourage participation of small bidders. TDS and Professor Weber specifically applied this warning to Goeree/Holt's proposed "current price estimate" rules for calculating minimum acceptable bids and bidding increments (fostering strategic behavior that can be adverse to small bidders and cause confusion), the number of potential package bids, and other issues in package bidding auctions.<sup>15</sup>

Similarly concerned, Leap pointed to undesirable potential effects of the Goeree/Holt proposed pricing rule.<sup>16</sup> PA Consulting Group criticized the proposed linear programming approach to calculating current prices, effectively a black box for bidders making it difficult to predict which bids will win in complex situations and having a detrimental effect on tactical decision making.<sup>17</sup> As a more general criticism of many package auction rules, Verizon correctly noted that "[l]engthy auctions are resource

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<sup>13</sup> Comments of TDS at 4-6.

<sup>14</sup> Id. at 11.

<sup>15</sup> Id. at 2, 12-16.

<sup>16</sup> Comments of Leap at 10.

<sup>17</sup> Comments of PA Consulting at 2.

intensive and thus costly to all bidders, both large and small."<sup>18</sup> Ausubel, Cramton and Milgrom note several disadvantages of simultaneous multiple round auctions with package bidding, including minimum bids that are difficult for bidders to anticipate and understand and opportunities for collusion.<sup>19</sup>

No party disputes the point made by TDS and Leap that the proposed Goeree/Holt experiment may lead to rejection of some package auction rules and mechanisms as excessively confusing and ineffective. The lack of interest in Auction No. 51 did not yield useful real-world information on the "current price estimates" algorithm or package bidding.<sup>20</sup>

If the FCC develops an interest in pursuing an experiment significantly different from the Goeree/Holt proposal, the FCC should issue a new public notice and provide an opportunity for comments before proceeding. For example, the clock-proxy design does not solve the potentially detrimental effects of package bidding on small bidders, but rather thrusts the FCC into the central arbiter role of setting starting prices through the clock phase which can strongly shape the auction's outcome. This role is far less transparent than the straight-forward formulas the FCC has used to set minimum opening bids based on population covered and licensed MHz.<sup>21</sup> Moreover, the algorithms

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<sup>18</sup> Comments of Verizon at 3.

<sup>19</sup> Comments of Ausubel, Cramton & Milgrom at 1-2.

<sup>20</sup> The FCC should not rely on the Auction No. 51 experience in adopting rules for a larger scale, high stakes auction with many bidders, hopefully fulfilling the statutory mandate to include many small bidders. CSEA, supra, at para. 42.

<sup>21</sup> Contrary to the FCC's discretion during a clock auction, the FCC in Auction 58 complied with the Administrative Procedure Act by providing notice of its proposed formulas, an opportunity for comment and a reasoned decision on the record to support its selection of minimum opening bids. See "Broadband PCS Spectrum Auction (*Footnote continued next page*)



used to assign channels and sort through bids in the proxy phase are again not transparent. Spectrum is not a commodity that can be purchased without regard to frequency.<sup>22</sup> All bidders, and especially small bidders, benefit from clear, pre-set channel plans for spectrum in usable block sizes.

Professor Roger Myerson and other economists showed many years ago that negotiation problems of the type created by the "threshold" problem typically have no direct or arbitral solutions which are economically efficient.<sup>23</sup> Therefore, any package-bidding procedure will leave small bidders disadvantaged relative to larger bidders. In attempting to deal with the possibility of "exposure" problems through package bidding, the FCC would find itself dealing with the necessity of creating at least some insolvable "threshold" problems as well as greater complexity in setting starting prices, computing prices in each round, and determining final prices and allocations of licenses. The FCC has conducted successful simultaneous multiple round auctions without package bidding, and should avoid the disadvantages, complexities and dangers of package bidding in large-scale auctions.

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Scheduled for January 15, 2005; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 58," DA 04-3005, at 28-30 (Sept. 16, 2004).

<sup>22</sup> Different blocks within a single band can have different incumbents, different interference issues, and may be valued differently by various carriers depending on the frequencies of the spectrum each carrier already holds (blocks spectrally adjacent to existing licenses have greater value).

<sup>23</sup> Small bidders forced to share the "threshold" burden must at times fail to reach agreement, even when there does exist an agreement which would benefit them all (by topping a package bid with bids all are willing to pay). See R. Myerson, "Incentive Compatibility and the Bargaining Problem," 47 Econometrica 61 (1979); R. Myerson, "Two Person Bargaining Problems with Incomplete Information," 52 Econometrica 461 (1984).

## **Conclusion**

The FCC should use the comments of TDS, Leap and other parties to improve the Goeree/Holt proposed experiment. The experiment should develop information on small-bidder issues. With design improvements, even this simplified experiment may lead the FCC to reject some package auction rules and mechanisms as excessively confusing, ineffective and detrimental to small bidders.

In the FCC's seminars on combinatorial bidding, comments and other statements, economists have pointed to major flaws in proposal after proposal for package auction rules. While one or a few large, national bidders may prefer package auction rules which inherently disadvantage small bidders, the self-serving preferences of a few do not reflect the public interest.

Experiments cannot develop package auction rules which are free of the "threshold" problem handicapping small bidders. The FCC should apply the successful rules for simultaneous multiple round auctions without package bidding in large-scale, high-states auctions, such as the upcoming auction of Advanced Wireless Spectrum as well as several other planned auctions.

Respectfully submitted,

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June 15, 2005

Certificate of Service

I, Judy Norris, a legal secretary with the firm of Holland & Knight LLP hereby certify that on the 15<sup>th</sup> day of June, 2005, copies of the foregoing Reply Comments of Telephone and Data Systems, Inc. and United States Cellular Corporation were deposited in the U.S. mail, postage prepaid, to the following:

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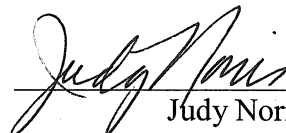
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