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BEFORE THE
Federal Communications Commission

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Implementation of Section 309(j))
of the Communications Act)
)
Competitive Bidding)

PP Docket No. 93-253

REPLY COMMENTS
OF THE
CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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SUMMARY

CTIA reiterates its support for the use of English oral auctions to award individual PCS licenses and limited combinatorial bidding to award larger PCS geographic areas. In addition, CTIA continues to urge the Commission to announce the winning combinatory bid prior to commencing English auctions.

The Commission should respond to criticisms that the proposed combinatorial mechanism improperly encourages nationwide aggregations by modifying its PCS service area scheme. Specifically, the Commission should start with all BTAs and allow the auction itself, principally through the limited combinatorial mechanism, to drive efficient geographic aggregations.

To maximize participation in PCS auctions, the Commission should allow all qualified entities to bid for any PCS license without restriction. In particular, cellular-affiliated entities should be permitted to bid for any PCS license, provided they certify that, should they win the auction, they will promptly bring their systems into compliance with the Commission's PCS rules and eligibility restrictions.

While some of the auction designs proposed in the comments offer certain theoretical advantages over the Notice's auction design, the Commission must look beyond what is theoretically possible and consider what will work most effectively as a practical matter for auctioning PCS spectrum, particularly given the limited statutory timeframe for PCS implementation.

For example, while NTIA's proposal to use electronic bidding with a full-blown combinatorial mechanism promises increased

theoretical efficiency by enabling bidders to express their combinatorial values for any PCS combination, it also introduces a level of complexity which may create practical inefficiencies. More importantly, it simply is not feasible for the Commission to implement this method in time to meet the statutory PCS deadline. Nor should the Commission attempt to test drive this novel approach on a segment of the radio spectrum as critical as PCS.

Proposals to implement simultaneous bidding should be rejected. Sequential bidding allows bidders to benefit from the information accrued from earlier rounds of bidding, while avoiding the complexities introduced by simultaneous bidding, such as the need to allow bidders to place limitations on winnings or expenditures, or to withdraw certain winning bids if they accidentally win "too much."

In the end, CTIA's auction design, which supplements the time-tested sequential English oral auction with a properly tailored combinatorial bidding mechanism, represents the optimal method for PCS licensing, since it strikes the best balance between theoretical efficiency on the one hand and simplicity, practical workability, and openness to all bidders on the other.

Finally, based on recent clarification of congressional intent, CTIA joins the near-unanimous opposition to the use of competitive bidding for licensing intermediate microwave links.

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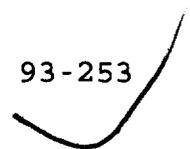
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**REPLY COMMENTS
OF THE
CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

The Cellular Telecommunications Industry Association ("CTIA") hereby submits its reply comments in the above-captioned proceeding.¹ After reviewing the comments submitted in this proceeding, CTIA continues to believe that its proposed auction design -- which uses sequential English oral auctions to award individual geographic areas and limited combinatorial bidding to license larger geographic areas, and which announces the winning combinatory bid prior to individual auctions -- strikes the optimal balance between theoretical efficiency, simplicity, practical workability, openness to all bidders, and other Commission and congressional objectives.

¹ Implementation of Section 309(j) of the Communications Act, Competitive Bidding, Notice of Proposed Rulemaking, PP Docket No. 93-253, FCC 93-455 (released October 12, 1993) ("Notice").

I. ALL QUALIFIED ENTITIES SHOULD BE ALLOWED TO BID FOR ANY PCS LICENSES WITHOUT RESTRICTIONS

CTIA concurs with those commenters arguing that all qualified entities should be permitted to bid for all non-set-aside PCS licenses.² As CTIA pointed out in its initial comments, the Commission's goal in implementing spectrum auctions should be to maximize participation of all eligible bidders. Toward this end, CTIA urged the Commission to adopt streamlined auction application procedures and to verify compliance with substantive Commission rules only with respect to auction winners in order to avoid inadvertent disqualification of serious bidders.³

Consistent with this objective of maximizing bidder participation, the Commission should allow cellular-affiliated entities to bid for any PCS license, regardless of cellular overlap, provided such entities certify upon entry into the auction process that, should they win the auction, they will promptly bring their systems into compliance with the Commission's PCS rules and eligibility restrictions.⁴ This

² See Ameritech Comments at 2; Bell Atlantic Comments at 5-9; Nalebuff and Bulow, "Designing the PCS Auction," submitted as attachment to Bell Atlantic's Comments, at 8-9; NYNEX Comments at 15; Sprint Comments at 6.

³ CTIA Comments at 25-29.

⁴ CTIA does not concede that the eligibility restrictions set forth in the PCS Second Report and Order are warranted and will challenge these rules in its petition for reconsideration of this order.

approach is consistent with longstanding Commission practice⁵ and with the Commission's recent recognition of the unique expertise and economies of scope cellular providers bring to the emerging PCS marketplace.⁶ Those commenters proposing exclusions of particular classes of bidders should not be permitted to use the spectrum auction process as a means of thwarting the development of competitive PCS offerings by efficient service providers.⁷

⁵ See, e.g., Fox Television Stations, Inc., 8 FCC Rcd. 5341, 5345 (1993) ("[I]f a broadcast licensee acquires a daily newspaper in the same market, the [broadcast-newspaper cross-ownership] rule effectively provides for an automatic temporary waiver in that the licensee must dispose of the broadcast station within one year or by the time of its next renewal").

⁶ See PCS Second Report and Order, Gen Docket No. 90-314, FCC 93-451 (released October 22, 1993), at ¶ 102 ("[P]articipation by cellular operators in PCS offers the potential to promote the early development of PCS by taking advantage of cellular providers' expertise, economies of scope between PCS and cellular service, and existing infrastructures") (PCS Second Report and Order). This approach is also consistent with Section 309(j) which contemplates no restrictions on participation of any particular class of entrants in the auction process.

⁷ In this regard, MCI's proposal to exclude cellular providers from bidding on one entire band of 30 MHz MTA licenses, regardless of cellular overlap, should be summarily rejected. See MCI Comments at 4-6. What MCI characterizes as a proposal to "maximize competition" is little more than an attempt to eliminate its potential PCS rivals. It is simply wrong for MCI to predicate its recommendation to exclude cellular on an unfounded accusation that "nine cellular providers" dominate the cellular industry, just as it would be equally wrong to propose a similar exclusion of the three largest long distance carriers based on their domination of the long distance market.

More importantly, MCI's claims of cellular domination and Dr. Kelly's blanket assertion that "cellular is not a competitive service," see Daniel Kelley, "Designing PCS Auction Rules to Encourage Competition," attachment to MCI Comments, at 7, are simply unsupported by MCI's decision to sell its cellular properties and by marketplace facts. From its beginning, the business of supplying cellular telephone communications has been

(continued...)

II. AUCTION DESIGN ISSUES

A. Electronic Bidding Should Not be Adopted for PCS Licensing

CTIA opposes proposals to use electronic bidding to license PCS spectrum.⁸ While, as a theoretical matter, electronic bidding offers certain design advantages, the fact remains that this method of bidding represents a relatively new and unproven auctioning vehicle which should not be test driven in the all too important PCS licensing process. As the Notice properly recognizes, "this technique has not been widely used ... and may take longer to implement than the other bidding methods."⁹ CTIA concurs with this assessment and believes that it is infeasible for electronic bidding to be implemented in time to meet Congress' May 7, 1994 deadline for the commencement of PCS

⁷(...continued)

characterized by rapidly increasing volume, declining prices, expanded service offerings, and significant technological change. Further, the advent of PCS, as well as the growth of other wireless services, such as ESMR, will subject cellular operators to additional competitive discipline. See Dr. Stanley Besen, Dr. Robert J. Lerner, and Dr. Jane Murdoch, The Cellular Service Industry: Performance and Competition, submitted as an Appendix to CTIA's Reply Comments in Gen Docket 90-314, January 8, 1993, at 4.

⁸ NTIA proposes a full-fledged electronic iterative combinatorial auction in which bidders would be able to submit combinatorial bids for any combination of licenses. See generally NTIA Comments. NYNEX recommends a more limited electronic bidding approach in which the Commission would establish the blocks available for combinatorial bidding beforehand. NYNEX Comments at 14. CTIA opposes both approaches.

⁹ Notice at ¶ 56.

licensing. Even assuming the software proposed by NTIA¹⁰ can be adapted for auctioning spectrum (which is far from clear),¹¹ such adaptation may take considerable time to achieve.¹²

Keeping track of the incredible number of possible subsets in a full combinatorial is no small task, even for a computer-based auction. It is entirely possible that NTIA has underestimated the computing power and level of testing required to successfully implement this comprehensive vision. As Dr. Preston McAfee correctly points out, for example, there are 2,251,799,685,247 possible subsets in a full combinatorial of the MTA PCS licenses alone.¹³ When one considers the BTA licenses, as well, the number of possible combinatorial subsets is

¹⁰ See NTIA Comments at n. 35 (The software, entitled "Adaptive User Selective Mechanism" ("AUSM"), has been used by the Jet Propulsion Laboratory to assign scientific resources on the space station planned by NASA).

¹¹ Importantly, neither NTIA nor NYNEX present any evidence that existing electronic bidding software has been adapted in the past for various uses, nor do they make clear what modifications would have to be made to this software to customize it for PCS auctions.

¹² NYNEX, relying solely on the theoretical properties of electronic bidding, proposes no specific software, hardware, or other mechanics for implementing this method. It merely asserts that "because large scale electronic auctions already exist in the financial community, the methodology should be readily adaptable to spectrum auctions within the time frame contemplated by the Budget Act." NYNEX Comments at 13. This proposition is tenuous at best. It is equally likely that the level of software modification required would be substantial, or that an entirely new program would have to be written, specifically tailored for PCS licensing.

¹³ See Dr. R. Preston McAfee, "Auction Design for Personal Communications Services," submitted as attachment to PacTel Comments, at 12 (a complete combinatorial PCS auction "is computationally prohibitive.") ("McAfee Paper").

literally astronomical. While it is possible that a properly configured computer-based auction system could keep track of this astounding number of combinations, at a minimum such a system would require rigorous laboratory and real-world testing before actual implementation.¹⁴

Given the stringent time constraints imposed by Congress for the commencement of PCS licensing and the critical role PCS will play in the flourishing wireless industry and in our increasingly mobile society, the Commission should proceed with an abundance of caution and employ time-tested and easily understood auctioning vehicles for PCS licensing, so as to promote widespread bidder participation and rapid deployment of new services.

To the extent the Commission believes it is worthwhile to pursue the use of electronic bidding for spectrum auctions, CTIA urges the Commission to test and implement this novel auction method for spectrum-based services other than PCS, where the number of combinations is more manageable and the consequences of an unsuccessful implementation are potentially much less severe.

¹⁴ Even if the AUSM program is capable of processing the numerous combinations and calculating the highest bid (which would, of course, require the Commission to develop complex rules for determining who wins which items and at what price), it is another thing entirely to ensure that, as a practical matter, bidders would be able to interact easily with the program and to display at any given time the status of the bidding for particular PCS licenses. The significance of the user interface issue and the amount of programming effort required to make this complex auction program "user friendly" should not be underestimated.

B. English Oral Auctions Should be Used to Award Individual PCS Licenses

Virtually all commenters, representing a wide range of perspectives, support English oral auctions as the most effective method for licensing PCS spectrum.¹⁵ Moreover, the few opponents of oral bidding offer unpersuasive reasons for rejecting it in this context. For example, Pagemart asserts that oral bidding will somehow "guarantee[] oligopoly control of markets and risk[] predatory pricing."¹⁶ Pagemart's argument, of course, makes the fundamental error of assuming that big firms will always win oral PCS auctions simply because they have the resources to do so.¹⁷ Not only is this proposition contrary to well-established auction theory which clearly holds that in an oral auction, "any eligible and qualified bidder who is willing to pay enough can be assured of winning,"¹⁸ but it is also proven wrong in practice. Indeed, if it were true, oral auctions would never be used in any

¹⁵ See, e.g., CTIA Comments at 7-9; American Personal Communications Comments at 1; AT&T Comments at 11; BellSouth Comments at 4; Calcell Wireless Comments at 7; Cellular Communications Comments at 3; Comcast Corporation Comments at 3; Cox Enterprises Comments at 5; McCaw Comments at 5; Nextell Communications Comments at 4; Paging Network Comments at 7; Rochester Telephone Corporation at 8; The Rural Cellular Association Comments at 5; the Small Business Administration Comments at 34; Southwestern Bell Comments at 15; Telephone and Data Systems Comments at 6; Telocator Comments at 3; U.S. Intelco Networks Comments at 8.

¹⁶ Pagemart Comments at 7.

¹⁷ Id. at 8 ("[O]nly a very few firms with significant financial resources ("deep pockets") will be in a position to make winning bids").

¹⁸ Notice at ¶ 37 (emphasis added).

context, since the mere possibility of big firms bidding against small and mid-sized firms would ensure an inequitable outcome. Of course, this is not the case. Oral bidding is a time-tested and widely used auction method precisely because its openness promotes participation by firms of all sizes and facilitates fair and efficient outcomes. There is nothing unique about PCS auctioning which would render these laudable theoretical and real-world properties otherwise in this context.¹⁹

In a similar vein, criticisms of the potential delays associated with sequential oral bidding are greatly exaggerated. For example, Dr. MacAfee posits that it will take 10 years to allocate PCS licenses by sequential oral auctions.²⁰ This projection, however, is predicated on the remarkable assumption that only one oral auction will be conducted per day. Surely, dozens of oral auctions can be conducted each day. Indeed, given the fact that the average auction of an item at Sotheby's lasts only two minutes,²¹ Dr. McAfee's projected timeframe for PCS oral auctions is particularly unrealistic. Further, by employing limited combinatorial bidding and

¹⁹ Pagemart's analysis also discounts or wholly ignores the fact that the Commission's PCS spectrum cap, spectrum set-asides for designated entities, and overly burdensome attribution and eligibility rules actually skew the auction process the other way, in favor of small and mid-sized firms and against certain classes of PCS providers, notably cellular carriers.

²⁰ MacAfee Paper at 9 and n. 10.

²¹ "Here Today, Gone Unaccountably," New York Times, October 31, 1993, § 4 (Week In Review), at 4.

preannouncing the winning combinatory bid as CTIA has proposed,²² a combinatory bid that is perceived as "high" could cause bidding for individual licenses to cease, thereby circumventing numerous individual oral auctions and accelerating the license process substantially.²³ Thus, English oral auctions, especially if complemented by a limited form of combinatorial bidding, is capable of licensing PCS spectrum in an expeditious manner.

Accordingly, for the many reasons cited in the Notice²⁴ and in CTIA's initial comments,²⁵ CTIA continues to support English oral auctions to award individual PCS licenses.

C. Limited Combinatorial Bidding Should be Used to License Larger PCS Geographic Areas

CTIA reiterates its support for the use of limited combinatorial bidding to license larger PCS geographic areas.²⁶ As CTIA stated in its initial comments, without some form of combinatorial bidding, bidders are unable to convey the

²² See CTIA Comments at 16-23.

²³ See *id.* at 18 ("Conversely, under the Commission's proposed auction sequence, the same result might be achieved, but only after the substantial expense and delay produced by the potentially numerous, but in retrospect wholly unnecessary, individual auctions").

²⁴ Notice at ¶¶ 37, 46.

²⁵ CTIA Comments at 7-9.

²⁶ CTIA continues to urge the Commission to limit the use of combinatorial bidding to combine geography only. Aggregations across geography are likely to be more important than aggregations across spectrum, and "3-D" combinatories across both spectrum and geographic areas would introduce a level of complexity into the PCS licensing process that the Commission is endeavoring to avoid -- indeed must avoid to meet the tight statutory timeframe. See *id.* at 14-15.

interdependence of PCS license values which, in turn, will increase the likelihood of inefficient aggregations and aftermarket transaction costs.²⁷ Combinatorial bidding allows the auction itself to dictate the optimal bundling of the auctioned items. As Dr. Isaac, a leading authority on combinatorial auctions, describes it:

Combinatorial bidding allows bidders to express their combinatorial values; bids can now more accurately reflect the valuation of different combinations of the goods at the auction.... The market becomes the mechanism for determining the combination of goods.²⁸

Several commenters raise objections to combinatorial bidding, which CTIA addresses in turn below.

1. Several Concerns Raised by Commenters Regarding Combinatorial Bidding Will Be Eliminated By Adopting CTIA's Proposal to Preannounce the Winning Combinatory Bid

Several concerns cited by commenters regarding combinatorial bidding stem from the Notice's proposed auction sequence whereby the sealed combinatorial bid is not opened until after all the individual oral auctions are completed. These concerns will be best addressed by a reversal of the proposed auction sequence, as proposed by CTIA, whereby the winning combinatory bid is announced prior to commencement of the individual auctions. For example, AT&T argues that

combinatorial bidders would be deterred from bidding for individual licenses, for fear of increasing the

²⁷ Id. at 11.

²⁸ Dr. Mark Isaac, "Discussion of Proposed Spectrum Auction Processes," November 10, 1993, submitted as attachment to CTIA's Comments, at 8 (emphasis in original) ("Isaac").

total fees paid for those licenses, and thereby reducing the chances that a combinatorial bid will succeed.²⁹

AT&T also argues that

[u]nder the Commission's proposed rules, tentative winners in the bidding for individual MTA license would not know whether they have actually been successful until all licenses in that frequency block have been auctioned and the sealed combinatorial bids have been opened. This could cause significant delays in the issuance of PCS licenses.³⁰

By preannouncing the winning combinatorial bid, however, these concerns are eliminated. As CTIA stated in its initial comments, such preannouncement could speed PCS licensing by revealing early in the process that a high combinatory bid was likely to win, thereby rendering unnecessary numerous individual auctions. It would also encourage those bidders who submitted combinatory bids but lost to participate in the individual bidding.³¹

Preannouncement of the winning combinatory bid also answers Paging Network, Inc.'s criticism that the Commission's combinatorial proposal will "increase bid preparation costs for oral bidders because they will be forced to expend resources

²⁹ AT&T Comments at 6.

³⁰ Id. at 7 (emphasis in original). See also Paging Network Comments at 20 (the Commission's combinatorial bidding proposal stacks the deck against oral bidders because the oral bidders have no information about the winning combinatorial bid before they start to bid).

³¹ CTIA Comments at 18, 22. See also Cellular Communications Comments at 11 (The Commission should preannounce the winning combinatory bid so that "[p]arties who submitted sealed bids could still enter oral bidding for individual blocks if they find that the sealed bids were not high enough to earn the desired spectrum"); Telephone and Data Systems Comments at 15 (same).

estimating the valuations of an unknown (and unknowable) number of rival sealed bidders."³² Indeed, as CTIA pointed out in its initial comments, the preannouncement of the winning combinatory bid not only avoids this problem but it also establishes an "implicit reservation price" which, in turn, will provide all entities, especially smaller bidders, "with valuable insight into the underlying value of the component blocks."³³ As such, oral auction bidders will be able to apply resources which would have been used to estimate license values towards a more aggressive bid for the license itself.

Thus, by simply reversing the sequence in which the combinatory bid is revealed, the Commission will have gone a long way towards addressing many of the concerns raised in the comments about combinatorial bidding.

2. The Commission Should Modify its PCS Service Area Scheme to Allay Concerns That the Proposed Combinatorial Bidding Approach Will Improperly Encourage National PCS Licenses and Undue Market Concentration

Some commenters oppose the Commission's limited combinatorial bidding proposal because they view it as a backdoor to national licensing which the Commission rejected in its PCS

³² Paging Network Comments at 21.

³³ CTIA Comments at 18 ("Potential applicants will be able to take the winning combinatory bid and, using simple division, derive various approximate valuations of the spectrum, for example on a 'per pop,' 'per pop per MHz,' or 'per constituent block' basis").

Order.³⁴ These commenters are right, but for the wrong reasons. The source of the potential problem is the Commission's designation of MTAs as PCS service areas, not the use of combinatorial bidding to license PCS spectrum. The optimal service area scheme, which CTIA has urged the Commission to adopt throughout the numerous PCS proceedings,³⁵ is one which starts with small building blocks and allows the market to drive the efficient PCS aggregations. For example, if PCS licenses were initially designated using only BTA service areas, the limited combinatorial mechanism could be used to auction MTAs, while the constituent BTAs would be offered in sequential oral auctions.

Under this approach, limited combinatorial bidding would complement rather than contradict the Commission's PCS service area scheme. In the PCS Order, the Commission concluded that "a combination of MTA and BTA service areas would promote the rapid development and ubiquitous coverage of PCS and a variety of services and providers."³⁶ By dictating at the outset the use of MTAs, however, the Commission risks the possibility that the auction process will undermine this service area scheme by encouraging national licenses. Conversely, if all PCS service areas were initially designated as BTAs, the auction process

³⁴ See, e.g., AT&T Comments at 7; BellSouth Comments at 10-11; McCaw Comments at 12; Southwestern Bell Comments at 23; Telocator at 6.

³⁵ See CTIA Comments filed on PCS NPRM, Gen. Docket No. 90-314, November 9, 1992, at 21-22; CTIA Reply Comments filed on PCS NPRM, Gen. Docket No. 90-314, January 8, 1993, at 5-8.

³⁶ PCS Second Report and Order, at ¶ 73.

itself, through the use of limited combinatorial bidding, would facilitate geographic aggregations of PCS licenses, i.e., MTAs, which the Commission has already endorsed. This approach, which relies on market forces, rather than governmental fiat, to build up the appropriate PCS license areas, is particularly apt given the widespread antagonism to national licensing and undue market concentration documented in the record and the uncertain nature of PCS.

Thus, the Commission should alleviate the concerns of those commenters in the instant proceeding regarding nationwide PCS awards not by abandoning the worthwhile combinatorial mechanism, but by modifying its PCS service area scheme to start small and allow the auction process to rationalize efficient PCS aggregations.³⁷

3. Full-Blown Combinatorial Auctions, While Offering Bidders Greater Flexibility, Would Introduce Unwanted Complexities and Practical Inefficiencies

Several commenters support the use of combinatorials, but oppose the limited form of this auction mechanism proposed in the Notice. These commenters argue that because the Commission's limited combinatorial approach does not adequately capture the full interdependency of bidders' values, it may lead to

³⁷ This modified approach would no doubt receive the support of many of the commenters who purport to be anti-combinatorial, but who, in actuality, are merely anti-national licensing. It is telling that several commenters, while expressing an opposition to combinatorials for national aggregations, nevertheless support the use of this auctioning vehicle to aggregate BTAs into MTAs. See, e.g., American Personal Communications Comments at 3; Comcast Comments at 9; Southwestern Bell Comments at 35.

inefficiencies by awarding licenses to parties that do not value them most. To ensure efficient outcomes, they urge the Commission to "go beyond its limited and possibly uneconomic proposal ... and allow the marketplace, rather than the Commission, to decide the optimal groupings of licenses."³⁸

While full-blown combinatorial auctions might accord greater flexibility to bidders to express their value interdependencies, it would also render the licensing process so complex as to be contrary to the congressional directive for speedy PCS licensing/deployment and fundamentally at odds with the Commission's simplicity principle.³⁹ As Dr. Isaac describes it:

A complete combinatorial auction would allow bidders to submit bids not just on 1,2,3, and N, but also upon the blocks of 1+2, 2+3, and 1+3.... The FCC's proposal has, on the other hand, a significant advantage: it is simple and easy to understand. Combinatorial auctions are not well known. The fact that the example used here uses only three blocks illustrates the fact that the mathematics of the complete combinatorial bidding gets very complicated very quickly. Complexity in this context raises a number of concerns, including difficult and controversial implementation, difficulty in formulating bids, discouraging of potential (especially smaller) bidders, and potentially less efficient outcomes. The FCC's proposal is a simple but appropriate and important first step to introducing and evaluating combinatorial auctions in this process.⁴⁰

In short, while full combinatorials promise maximum theoretical efficiency by enabling bidders to express their interdependent values for any combination of PCS licenses, they also introduce a

³⁸ Nextel Comments at 10. See also NTIA Comments at 9.

³⁹ See CTIA Comments at 13-14.

⁴⁰ Isaac at 12.

level of complexity which may create practical inefficiencies. For example, the number of possible subsets in a full combinatorial alone⁴¹ may interject such a level of confusion into the auction process that bidders won't even be able to figure out how to make their bids or how to formulate contingent strategies.⁴² Of course, the result would be reduced bidder participation and less aggressive bidding.

The Commission must look beyond what is theoretically possible and consider what will work most effectively as a practical matter, in order to maximize bidder participation in and efficient operation of the PCS auctioning process. CTIA continues to believe that the limited form of combinatorial bidding proposed for BTAs in the Notice strikes the optimal balance between efficiency and practical workability and will best promote widespread bidder participation and aggressive bidding.⁴³

⁴¹ As noted above, in a full combinatorial auction, the number of possible MTA subsets alone is 2,251,799,685,247. See p. 5, supra.

⁴² Several commenters realize the potential practical difficulties of a full-fledged combinatorial auction and thus propose that, if combinatorial bidding is adopted, the Commission establish the available combinatorial blocks prior to the auction. See BellSouth Comments at 10; NYNEX at 14.

⁴³ As discussed at pp. 13-14, supra, use of this limited combinatorial approach to aggregate BTAs into MTAs is particularly compelling given the Commission's endorsement of BTAs and MTAs in its recent PCS order. See PCS Second Report and Order at ¶ 73.

D. The Commission Should Not Use Simultaneous Auctions for PCS Licensing

While virtually all commenters support a sequential bidding approach,⁴⁴ several commenters criticize sequential auctions and urge the Commission to use simultaneous bidding for PCS licensing. Most of these commenters raise one of two principal arguments: (1) sequential bidding will result in unnecessary delays in PCS licensing;⁴⁵ and (2) with sequential bidding, a firm's bid in the early rounds would not be able to reflect whether the firm was able to acquire contiguous licenses in later rounds.⁴⁶ CTIA responds to these criticisms below.

First, as discussed above, the delays attributed to sequential bidding have been greatly exaggerated.⁴⁷ Further, the sequential process will be streamlined considerably if the

⁴⁴ See, e.g., CTIA Comments at 12-13; The Alliance for Rural Area Telephone and Cellular Service Providers Comments at 13; American Personal Communications Comments at 5; The American Wireless Communications Comments at 38-39; BellSouth Comments at 7, 10-13; Calcell Wireless Comments at 13-15; Cellular Communications Comments at 4; Cox Enterprises Comments at 5; McCaw Comments at 15; MCI Comments at 10-12; Nextell Communications Comments at 5; Paging Network Comments at 17, n. 30; The Rural Cellular Association Comments at 8; Small Business Administration Comments at 34; The Small Business PCS Association Comments at 5; Southwestern Bell Comments at 35; Telephone and Data Systems Comments at 8-11; Telocator Comments at 3; U.S. Intelco Networks Comments at 9.

⁴⁵ See, e.g., MacAfee Paper at 9.

⁴⁶ See, e.g., NTIA Comments at 10; Pacific Bell and Nevada Bell Comments at 9; Professor Robert G. Harris and Professor Michael L. Katz, "A Public Interest Assessment of Spectrum Auctions for Licensing Telecommunications Services," submitted as attachment to NYNEX's Comments, at 15.

⁴⁷ See discussion at pp. 8-9, supra.

Commission adopts CTIA's proposal to reverse the Notice's proposed auction sequence and announce the winning combinatory bid prior to initiating sequential oral auctions.⁴⁸

The criticisms regarding the informational shortcomings of sequential auctions are similarly overstated. By focusing solely on the information available to bidders in the early rounds of bidding, these critics wholly ignore the substantial informational advantages of a sequential auction for all bidders in later rounds. Information obtained by bidders from the results of early auctions will provide valuable insight into the likely value of subsequently auctioned PCS licenses and will inform bidders whether they should modify their bidding strategies. As the Notice correctly describes this benefit, "[sequential bidding] is likely to be better than sealed simultaneous independent bidding in facilitating the efficient aggregation of licenses" because "[u]nder sequential bidding the amount bid in later rounds can reflect what licenses have been acquired in earlier rounds."⁴⁹

The informational value of early auctions provided by a sequential bidding approach should not be underestimated, especially in the PCS context. Given the uncertain nature of PCS, bidders will need time to review the progress of the auctions, assimilate the information revealed by previous winning

⁴⁸ Id.

⁴⁹ Notice at ¶ 51. See also Nextel Comments at 5.

bids, and adjust their bidding strategies accordingly.⁵⁰ Simultaneous auctions do not afford bidders this opportunity of learning as they go along. Supporters of simultaneous auctions assume PCS bidders will be able to monitor the hundreds of concurrent auctions, process and absorb the implications of this information overload, and adapt their bidding strategies as needed. While this approach might be advantageous in auctions for a smaller number of well-known items, it could very well be counterproductive in the licensing of hundreds of non-homogenous PCS licenses whose inherent properties are as yet an unknown quantity.

Moreover, the uncertainty of bidders in the early rounds of sequential bidding should be less of a concern in this context given the ability of PCS licensees to aggregate and disaggregate their PCS holdings, a practice which the Notice properly

⁵⁰ As CTIA noted in its initial comments, the preferred sequence for offering PCS licenses is to auction all geographic areas in a spectrum block, beginning with Block "A," before proceeding to the next spectrum block, since 10 MHz will likely achieve the minimum efficient scale of PCS operation, see PCS Second Report and Order at ¶ 57, and since PCS aggregation across geographic areas is likely to be more important than aggregation across spectrum blocks. CTIA Comments at 23-24. See also Notice at ¶ 52; NYNEX Comments at 17; Small Business PCS Association Comments at 3. Within each spectrum block, geographic areas should be offered in descending order of population in order to promote geographical clustering of PCS licenses. See CTIA Comments at 24-25.

condones.⁵¹ As the OPP Policy Paper on spectrum auctions correctly observes:

[The uncertainty a firm faces in the early rounds of sequential bidding] would be less serious a problem for the firm if it could resell the ... channels after the auction or acquire ... more channels from another firm. This would be like having additional rounds of the auction.⁵²

In addition to overstating the difficulties associated with sequential bidding, supporters of simultaneous bidding belittle or wholly ignore the shortcomings of their proposed method. Simultaneous bidding introduces several layers of complexity, which are avoided by sequential bidding, such as the need to allow bidders to place limitations on winnings or expenditures or to withdraw certain winning bids if they accidentally win "too much."⁵³ For example, consider Bidder A who submits ten simultaneous independent sealed bids hoping to win only three MTA licenses. It is quite possible that Bidder A will win the 10 licenses for which he submitted bids. In this event, Bidder A

⁵¹ See Notice at ¶ 84 ("[A]n outright prohibition on transfer, even for a limited time such as one year, may block or delay efficient market transactions needed to attract capital, reduce costs, or otherwise put in place owners capable of bringing service to the public expeditiously. In other words, a prohibition on resale could have the unintended effect of delaying service to the public, contrary to the goals of the Budget Act").

⁵² Evan Kewerel and Alex D. Felker, "Using Auctions to Select FCC Licensees," OPP Working Paper Series, No. 16, May 1985, at 24. As CTIA pointed out in its initial comments, given the uncertainties inherent in PCS, secondary market transactions are both inevitable and necessary. CTIA Comments at n. 24. See also, CTIA Comments filed in Gen. Docket No. 90-314, November 9, 1992, at 6-7; 23-28.

⁵³ See Notice at ¶¶ 55, 63-65.

will have to withdraw from seven winning licenses, leading to additional levels of complexity and undesirable results. Dr. MacAfee suggests that in order to avoid circumstances in which an applicant wins more licenses than is intended, "[w]inners should be allowed to withdraw from a winning license, only forfeiting the \$0.02 per person per MHz up-front payment for a withdrawal...."⁵⁴ Under this proposed approach, however, simultaneous auctions could have the unfortunate property of penalizing those entities who bid most aggressively. As such, it may discourage bidders from making optimally efficient bids.⁵⁵

Dr. MacAfee suggests that if a withdrawal occurs in this situation, "the winner of the auction is the second highest bidder."⁵⁶ Dr. MacAfee fails to address, however, what happens if awarding this license to the second highest bidder causes that bidder to also acquire more licenses than it intended? Should the second highest bidder also be forced to pay a penalty? Should the license pass to the third highest bidder? If so, can one truly say that the auction has awarded the license to the one that values it most? Or must the auction simply be rerun,

⁵⁴ MacAfee Paper at 17.

⁵⁵ The draconian penalties for withdrawal from a simultaneous auction proposed by Professors Milgrom and Wilson are even more troubling in this regard. See Statement of Paul R. Milgrom and Robert B. Wilson, submitted as attachment to Pacific Bell and Nevada Bell Comments, at 19-20 (proposing that bidders who wish to withdraw from any single winning bid "are disqualified from all bidding, all their bids are deleted and their deposits are forfeit").

⁵⁶ MacAfee Paper at 17.