

**May 23, 2007**

**Wrege Associates and BTconsultancy comments on a framework to auction spectrum in the 2 GHz Range including Advanced Wireless Services**

Wrege Associates and BTconsultancy welcome the opportunity to comment on Industry Canada's consultation for 2.6 GHz spectrum. Karen Wrege, founder of Wrege Associates, and Brett Tarnutzer, founder of BTconsultancy, were responsible for developing and managing the auction software programs that have supported more than 70 spectrum auctions for the United States Federal Communications Commission (FCC).

Ms. Wrege served as Deputy Chief of the Wireless Telecommunications Bureau, Spectrum Management Resources and Technologies Division at the Federal Communications Commission until January 2006 when she formed Wrege Associates. In addition to serving as Chief of the Operations Branch of the FCC's spectrum auction program, Mr. Tarnutzer most recently served as Project Manager for the FCC's auctions research and spectrum auction software development teams. BTconsultancy was formed in 2007. Both firms are consultancies specializing in the practical implementation of auction policy and strategic bid consulting to international spectrum authorities and spectrum auction bidders.

While at the FCC, Ms. Wrege and Mr. Tarnutzer managed the design, programming and implementation of numerous spectrum auction software systems. These include auction systems for simultaneous multiple round ascending (SMR) and SMR package bidding (SMRPB) auctions and a research simulation tool that implemented a combinatorial clock auction with a final proxy round.

Our comments focus on two improvements to the traditional SMR auction format that Industry Canada uses to allocate spectrum. Specifically, we recommend

that Industry Canada allow bidders to submit "last and best" or "exit" bids on a license-by-license basis. Additionally, we recommend that Industry Canada limit the information available to bidders before and during the auction in circumstances when competition is thin to prevent anti-competitive behavior among bidders.

### **Last and Best Bids**

The practice of allowing bidders to place last and best bids has gained popularity in recent years. Last and best bids provide a bidder with an opportunity to fine tune its final bid price in clock auctions and SMR auctions that utilize click box bidding by placing a bid below the current minimum acceptable bid amount but above the most recent high bid amount. The FCC adopted last and best bids in 2000 for auctions with package bidding. Last and best bids were also proposed by NEXTOR<sup>1</sup> and by NERA<sup>2</sup> for take-off and landing slots for the Federal Aviations Administration (FAA) auction and for the European Commission respectively. NERA also proposed "exit" bids for central resource adequacy markets for ISO New England, the New York ISO and the PJM ISO.<sup>3</sup> The practice is used widely in energy auctions.

When bid increments are large (10-20 percent of the standing high bid amounts), bidders are often forced to place multiple increment bids in order to make a bid that is close, but does not exceed their maximum valuation.<sup>4</sup> This approach is at best an approximation of the bidder's final value. Last and Best bids are a limited

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<sup>1</sup> Interim Report: The Passenger Bill of Rights Game, NEXTOR Working Paper: NWP-2005-002 at 131.

<sup>2</sup> National Economic Research Associates (NERA), Study to Assess the Effects of Different Slot Allocation Schemes, A Final Report for the European Commission, DG TREN, January 2004 at 304.

<sup>3</sup> National Economic Research Associates (NERA), Central Resource Adequacy Markets for PJM, NY-ISO and NE-ISO Final Report, February 2003 at 63.

<sup>4</sup> If a bid amount is nearing a bidder's budget for that license, by bidding a single increment, a bidder may risk having another bidder top that bid and be faced with having to bid yet another increment to stay competitive in that market. If the bidder's budget for the license is more than two increments but less than three increments, they may be priced out of that market.

exception to the minimum acceptable bid rule and to click box bidding to allow bidders to express their maximum value for a license despite the fact that the minimum acceptable bid is above their maximum value. Generally, last and best bids can be made at any price between the previous round high bid and the highest acceptable bid for the license in the current round. Last and best bids count toward a bidder's activity requirements only if the amount is greater than or equal to the minimum acceptable bid amount. The eligibility points associated with the license count toward the bidder's maximum eligibility constraint. Once a last and best bid is entered into the system for a license, generally the bidder is not allowed to place a subsequent bid on that license for the remainder of the auction. If a last and best bid is submitted in a round in which no other bids or proactive waivers are placed, the auction remains open for a subsequent round.

With the implementation of last and best bids, Industry Canada can keep bid increments high without the fear of shutting a bidder out of a market prematurely. Without a mechanism for bidders to express a final value, bid increments should be kept low in order to allow bidders to fully participate in the auction, but this may significantly extend the auction.

### **Limiting Bidder Information**

In auctions where there is the potential for thin competition, Industry Canada should consider limiting the information made available to bidders before and during the auction. In the FCC's Public Notice proposing procedures for its AWS auction, the FCC sought comment on such procedures and received a variety of comments on the issue.<sup>5</sup> The FCC chose to limit bidder information before and during the auction if the level of competition (as measured by the eligibility of bidders) did not reach a certain threshold. The FCC reasoned that if the auction

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<sup>5</sup> Auction of Advanced Wireless Services Licenses Schedule for June 29, 2006, Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 66, Public Notice, FCC 06-47 (rel. April 12, 2006).

was highly competitive, there would be less risk of bidders successfully engaging in collusion, but if the auction was less competitive there would be greater risks of anticompetitive behavior.<sup>6</sup> Given the large amount of spectrum in this auction, Industry Canada should be especially mindful that demand reduction<sup>7</sup> and market splitting can be exacerbated in SMR auctions with limited competition.

In the case of AWS, the eligibility threshold was met and the auction proceeded with full information revealed. Recently, however, in an auction for Broadband PCS Licenses, FCC Auction 71, the eligibility threshold was not met and the auction was the first the FCC conducted in limited information mode.<sup>8</sup>

The limited information proposal need only apply before and during the auction. Once the auction has closed, Industry Canada could, and should, reveal all of the information so that all bidders can validate the results.

## **Conclusion**

In summary, minor modifications to Industry Canada's SMR auction design could create greater efficiency for the auction. The introduction of last and best bids would allow bidders to express their true values for licenses while allowing Industry Canada to move the auction along at a rapid pace by using larger increments without the risk of shutting bidders out of the auction too quickly. The use of limited information procedures before and during the auction if there is thin competition will reduce the ability of bidders to successfully engage in anticompetitive behavior. We feel that these minor enhancements could benefit Industry Canada and the bidders in the auction for Advanced Wireless Services.

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<sup>6</sup> Id. at 141.

<sup>7</sup> See, for example, "Demand Reduction and Inefficiency in Multi-Unit Auctions," (Lawrence M. Ausubel and Peter Cramton) Working Paper, University of Maryland, July 2002.

<sup>8</sup> < [http://wireless.fcc.gov/auctions/default.htm?job=auCTION\\_summary&id=71](http://wireless.fcc.gov/auctions/default.htm?job=auCTION_summary&id=71)>.