



# **Spectrum Auctions**

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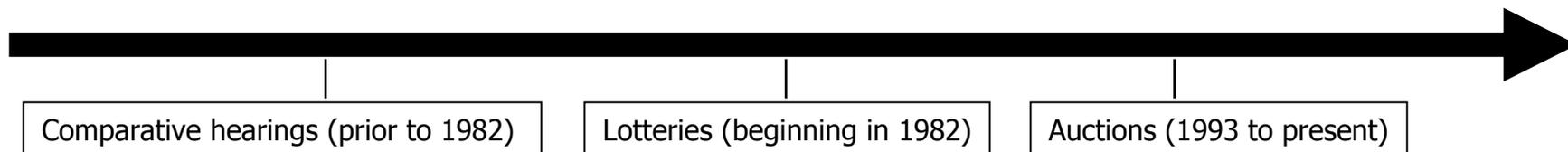
## Presentation Agenda

- Auctions Overview
- Auction Process and Timeline
- Auction Design
- Additional Auction Tools



# Assigning Initial Spectrum Licenses

- Choosing among mutually exclusive license applications
  - Comparative hearings
  - Lotteries
  - Auctions





# Statutory Authority for Auctions

- Omnibus Budget Reconciliation Act of 1993 granted FCC auction authority
- Balanced Budget Act of 1997 (BBA) extended and expanded auction authority.
- BBA **requires** auctions to resolve all mutually exclusive license applications unless exempt
  - Exemptions are:
    - Public Safety Radio Services
    - Digital television licenses to replace analog licenses
    - Non-commercial educational and public broadcast stations



## Public Interest Objectives of Spectrum Auctions

- Rapid deployment of new technologies
- Promote economic opportunity and competition by dissemination of licenses to a wide variety of applicants
- Recovery for the public of a portion of the value of the public spectrum resource
- Efficient and intensive use of the spectrum
- Schedule auctions to allow for notice and comment and for bidders to assess market and make business plans

## FCC Auctions Summary

- Since the first spectrum auction was held in July 1994, the FCC has
  - Completed 70 auctions (as of 4/30/08)
  - Auctioned over 31,000 licenses
  - Qualified over 4,000 bidders to participate
  - Transferred over \$28 billion to the US Treasury (3/31/08)



# Spectrum Auction Licensing Process

- **Pre-Auction**
  - Spectrum allocation rule making
  - Service rules established through rule making
    - Service area (site based or geographic area)
    - Block size
    - Technical rules
    - Construction requirements
    - Application and licensing process



# Spectrum Auction Licensing Process

- **Auction**
  - Public notices released (seeking comment, establishing procedures, qualified bidders, etc.)
  - Auction seminar
  - Mock auction
  - Auction
- **Post-Auction**
  - Down payment and long-form application
  - Final payment and license granted

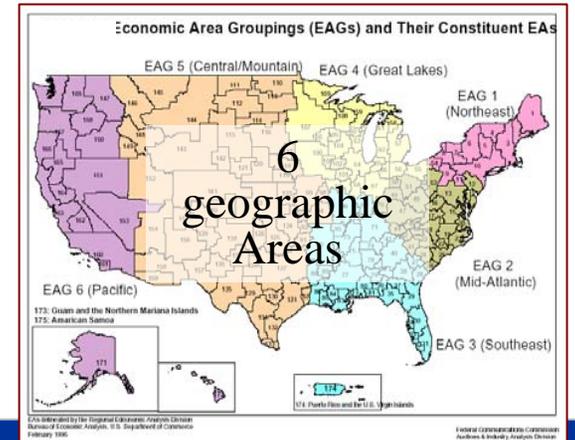
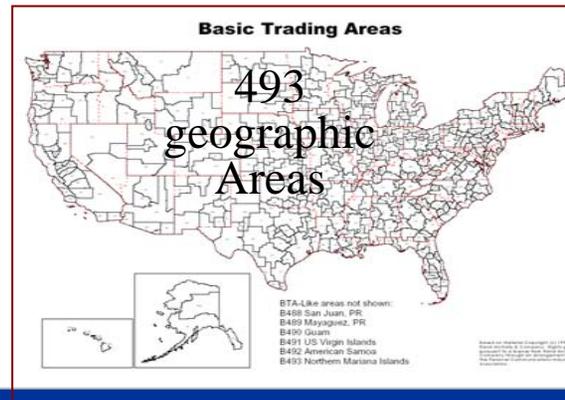
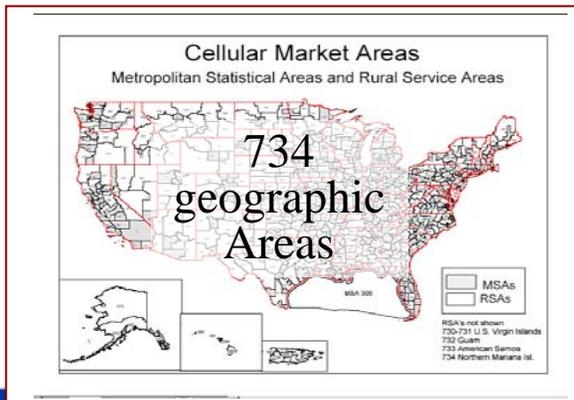
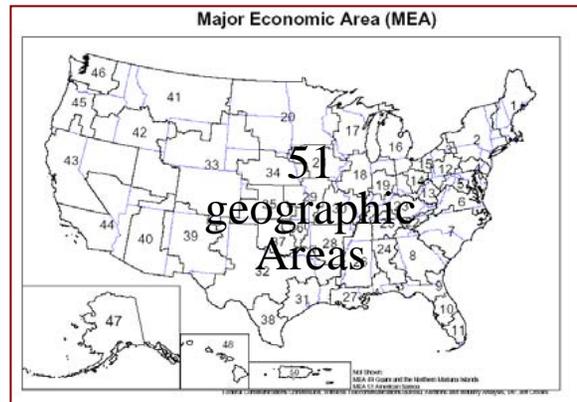
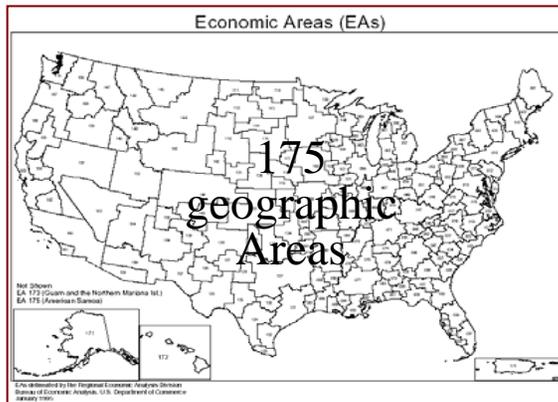
# Opportunities for the Public to Be Heard

- Commission seeks comment on policy issues that relate to auction designs in allocation & service rulemakings.
  - Band plan decisions (e.g., frequency block size, geographic areas, spectrum pairing)
- Commission seeks comment on specific auction design proposals when each auction is announced.
  - Auction design: package bidding, information disclosure procedures
  - Minimum bids / reserve price

# Spectrum Auction Licensing Process

## Rule Making – Service Rules

### Different Geographic Schemes for Different Services





# Bidding Credits for Small Businesses

- Small business size standards considered on service-specific basis
- Size based on average gross revenues over past three years ( $\leq \$3$  million,  $\leq \$15$  million,  $\leq \$40$  million)
- Bidding credits generally of 35%, 25%, 15%
- Subject to unjust enrichment
- Special attribution rule for rural telephone cooperatives



## Tribal Lands Bidding Credits

- Post-auction credits given to winning bidders that deploy facilities on and provide services to qualifying tribal lands.
- A qualifying tribal land is any federally recognized tribal area that has a wireline telephone penetration rate equal to or less than 85 percent.



# Spectrum Auction Licensing Process

## Typical Pre-Auction Steps & Timeline

- **Announce auction start date** (4-6 months prior to auction)
- **Seek comment**
  - Auction procedures, minimum opening bids, etc.
- **Announce procedures** (3-5 months prior to auction)
  - Instructions and deadlines
- **Auction seminar** (60-75 days prior to auction)



# Spectrum Auction Licensing Process

## Typical Pre-Auction Steps & Timeline (continued)

- **Short Form Application (FCC Form 175)**

(deadline 45-60 days prior to auction)

- Requires basic information on identity of applicant, its structure and ownership
- Certification of financial, legal and technical qualifications
- Certification to prevent collusion
- Resubmission (Correct minor errors)



# Spectrum Auction Licensing Process

## Typical Pre-Auction Steps & Timeline (continued)

- Upfront payment deadline (3-4 weeks prior to auction)
- Announce qualified bidders (1-2 weeks prior to auction)
- Secure web access
- Mock auction (2-5 days prior to auction)
- Auction begins



# Spectrum Auction Licensing Process

## Typical Auction Bidding Procedures

- Bids can be placed electronically and/or telephonically
- Schedule of bidding rounds varies as the auction progresses
- Round results are available after each round of bidding
- The auction typically ends when there is a round with no new bids, proactive waivers, or withdrawals of provisionally winning bids



# Spectrum Auction Licensing Process

## Typical Post-Auction Procedures

- Auction Closing Public Notice released 2-5 days after bidding ends
- Long-form license applications (FCC Form 601) due 10 business days after Closing PN
- Down payments on winning bids (20%) due 10 business days after Closing PN
- Final payments on winning bids due 10 business days after down payments



# Spectrum Auction Licensing Process

## Typical Post-Auction Procedures (continued)

- Accepted for Filing PN released approximately 2 weeks after long-form deadline
- Petitions to deny due 10 days after Accepted for Filing PN; Oppositions due 5 business days after Petitions to Deny; Replies due 5 business days after Oppositions

# The Commission's Auction Design Options

- General parameters:
  - Sequential or simultaneous auctions
  - Single or multiple round auctions
  - License-by-license or package bidding
  - Amount of information disclosed
- These elements can be combined in various ways.



# Simultaneous Multiple Round Ascending Auction

- All licenses are available during entire auction.
- Bids are accepted until there are no new bids on any licenses.
- Facilitates aggregation and substitution.



# Simultaneous Multiple Round Ascending Auction

More than one bidding period permits

- Information discovery (observe prices from previous rounds)
- Pursuing backup strategies as information changes

Design promotes timely completion

- Minimum bids are a function of competition for the license
- Minimum bidding activity required to maintain current eligibility



# Full or Limited Information Disclosure

- There are trade-offs between benefits and potential harms from publicly revealing all information during the auction process.
- Economic theory and recent analysis suggest that an SMR auction may in some circumstances be more efficient if certain information about bids and bidder identities is not publicly revealed prior to and during the auction.
- The concern is that fully revealing bid and bidder information may lead to anti-competitive bidding behavior.



## Full Information Disclosure

- Bidder identities and license selections revealed prior to auction
- Bid information from prior rounds revealed during the auction, including bidder identities



## Limited Information Disclosure (Anonymous Bidding)

- Bidder identities revealed prior to auction, but not license selections
- Bid amounts from prior rounds revealed during the auction, but not bidder identities

## Anonymous Bidding

- **Benefits of Anonymous Bidding**

May prevent anti-competitive bidding behavior such as bid signaling, coordinated bidding, and retaliatory bidding.

- **Recent Auctions with Anonymous Bidding**

Anonymous bidding used in most recent auctions of wireless services licenses.



## SMR Auction with or without Package Bidding

- An SMR auction can be conducted with:
  - License-by-license bidding and/or
  - All or nothing bids on groups of licenses
    - Called “package” or “combinatorial” bidding



## SMR with Package Bidding

- Economic reasons favor the use of package bidding in certain circumstances.
  - Enables bidders to capture complementarities among licenses
  - Addresses “exposure” problem of winning some but not all of needed licenses
    - Reports on economic experiments results are available on the FCC Auctions web site.



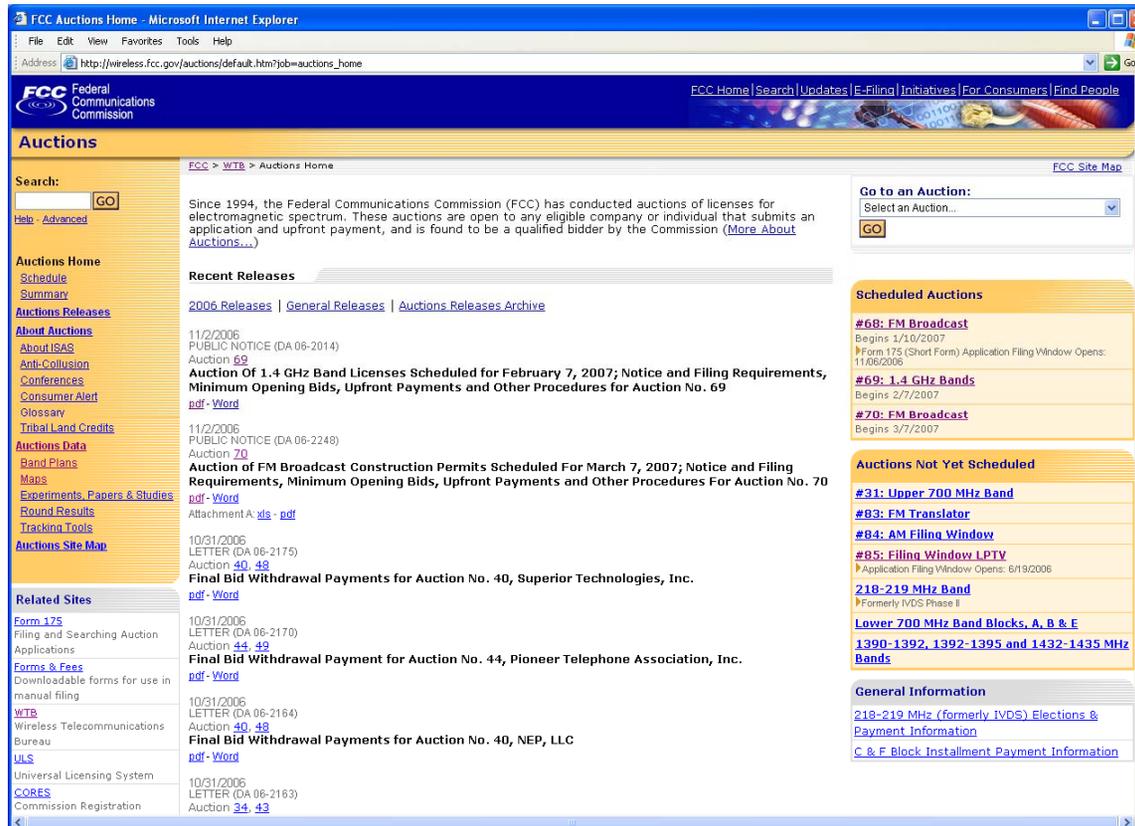
## SMR with Package Bidding

- Assume: A alone is worth \$10 and B alone is worth \$10, but a package of both (AB) is worth \$50
- If X wins A for \$20 and Y wins B for \$20:
  - Synergies lost
  - Each paid too much
  - Auction has not assigned licenses to highest valuing bidder
- Z might not be willing to bid up to \$25 for each license separately, but if Z can bid \$50 on package AB, Z will win
  - Auction will have produced more revenue and better efficiency

## Auction Design Goals

- Allows bidders to bid in a straightforward way for the licenses they wish to win.
- Gives public and participants confidence that licenses are assigned by fair and objective means.
- Assigns licenses to the parties that are most likely to put them to effective and efficient use.
- Facilitates efficient spectrum aggregation.

# For more information, please visit the FCC Auctions web site:



The screenshot shows the FCC Auctions Home page with the following content:

- Search:** A search bar with a "GO" button and links for "Help" and "Advanced".
- Auctions Home:** A sidebar menu with links for Schedule, Summary, Auctions Releases, About Auctions, About ISAS, Anti-Collusion, Conferences, Consumer Alert, Glossary, Tribal Land Credits, Auctions Data, Band Plans, Maps, Experiments, Papers & Studies, Round Results, Tracking Tools, and Auctions Site Map.
- Recent Releases:**
  - 11/2/2006 PUBLIC NOTICE (DA 06-2014) Auction [69](#)  
**Auction Of 1.4 GHz Band Licenses Scheduled for February 7, 2007; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures for Auction No. 69**  
[pdf - Word](#)
  - 11/2/2006 PUBLIC NOTICE (DA 06-2248) Auction [70](#)  
**Auction of FM Broadcast Construction Permits Scheduled For March 7, 2007; Notice and Filing Requirements, Minimum Opening Bids, Upfront Payments and Other Procedures For Auction No. 70**  
[pdf - Word](#)  
Attachment A: [xls](#) - [pdf](#)
  - 10/31/2006 LETTER (DA 06-2175) Auction [40](#), [48](#)  
**Final Bid Withdrawal Payments for Auction No. 40, Superior Technologies, Inc.**  
[pdf - Word](#)
  - 10/31/2006 LETTER (DA 06-2170) Auction [44](#), [49](#)  
**Final Bid Withdrawal Payment for Auction No. 44, Pioneer Telephone Association, Inc.**  
[pdf - Word](#)
  - 10/31/2006 LETTER (DA 06-2164) Auction [40](#), [48](#)  
**Final Bid Withdrawal Payments for Auction No. 40, NEP, LLC**  
[pdf - Word](#)
  - 10/31/2006 LETTER (DA 06-2163) Auction [34](#), [43](#)
- Related Sites:**
  - [Form 175](#): Filing and Searching Auction Applications
  - [Forms & Fees](#): Downloadable forms for use in manual filing
  - [WTR](#): Wireless Telecommunications Bureau
  - [ULS](#): Universal Licensing System
  - [CORES](#): Commission Registration
- Go to an Auction:** A dropdown menu to "Select an Auction..." with a "GO" button.
- Scheduled Auctions:**
  - [#68: FM Broadcast](#): Begins 1/19/2007. Form 175 (Short Form) Application Filing Window Opens: 11/06/2006
  - [#69: 1.4 GHz Bands](#): Begins 2/7/2007
  - [#70: FM Broadcast](#): Begins 3/7/2007
- Auctions Not Yet Scheduled:**
  - [#31: Upper 700 MHz Band](#)
  - [#83: FM Translator](#)
  - [#84: AM Filing Window](#)
  - [#85: Filing Window LPTV](#): Application Filing Window Opens: 6/19/2006
  - [218-219 MHz Band](#): Formerly IVDS Phase II
  - [Lower 700 MHz Band Blocks, A, B & E](#)
  - [1390-1392, 1392-1395 and 1432-1435 Mhz Bands](#)
- General Information:**
  - [218-219 Mhz \(formerly IVDS\) Elections & Payment Information](#)
  - [C & F Block Installment Payment Information](#)

<http://wireless.fcc.gov/auctions/>



## FCC Auctions Web Site

- Lists All Scheduled, Completed and Upcoming Auction Events
- Auction Releases (Current and Archived)
- Auctions Data (Maps, Band Plans, Results)
- Auctions Contact Information

## Questions?

- If you have questions concerning the auctions program or if you would like to be placed on a notification list of upcoming auctions events, please contact us...
  - By phone via the Auctions Hotline at (717) 338-2868
  - By e-mail at [auchelp@fcc.gov](mailto:auchelp@fcc.gov)
  - By fax at (717) 338-2850



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