The FCC’s Voluntary Incentive Auctions

What Broadcasters Need to Know
Agenda

- Background
  - Legislation
  - Auction Goals
  - Value Considerations
- The Incentive Auction
  - Forward and Reverse Auction
  - Descending Clock Auction
  - Repacking
- Questions
Incentive Auction Legislation

- Legislation passed and signed into law February 22, 2012
  - “Reverse Auction” for local broadcasters to acquire spectrum rights
  - “Forward Auction” for mobile carriers to sell spectrum rights
  - Repacking to effectuate auction results

- FCC gets specific authority to hold broadcast TV incentive auction
  - One chance only under specific auction authority
  - Broadcasters (full-power and Class A) paid to “relinquish” spectrum usage rights
    - Pay to go to from UHF to VHF
    - Pay to share channels
    - Pay to relinquish all license rights

- FCC also gets general authority to use incentive auctions
  - Could theoretically be used for a follow on auction
  - Would alter rights/obligations for repacking
Broadcasters Eligible for Reverse Auction

- All full-power and Class A commercial and non-commercial television stations in selected markets are eligible.

Which Markets?

FCC wants to auction as much 120 MHz of spectrum as possible so many of the largest markets will need considerable numbers of television stations to participate.

Additionally, smaller markets that are adjacent to these larger markets will need some stations to participate in order to “free up” that spectrum.

- Stations that are participating in the reverse auction will remain anonymous during the entire auction process.
Key Areas for Incentive Auctions

CONUS, Full Power and Class A

UHF-TV only using 41 dBu F(50, 90) FCC contours as of 2/12, includes T-Band in 30 mi. radius around metro areas in 90.303
Options for Stations

Stations Can

- **Not participate** (might be affected by the repacking to be discussed later)
- Channel share with another station or stations in the market (can be either commercial or non-commercial) and share in the proceeds from shared stations going off the air
- Opt for new VHF channels in their local markets and obtain proceeds from the reverse auction
- Go off the air and obtain the proceeds from the reverse auction

**Other potential options not fully laid out include:**
- Move from a high VHF channel to a low VHF channel
- Accept additional interference
Channel Sharing

- Channel Sharing is a Contractual Arrangement
  - Pick your partner(s) pre-auction
  - One station (sharer’s) put into auction, one station (sharee’s) retained

- Not a Typical Contract
  - Unlike normal commercial arrangements, there is no real exit
  - Your partner today may not be your partner tomorrow
    - Voluntary sale to third party
    - Involuntary transfer (probate, bankruptcy, revocation)
    - Strategies include ROFRs and “fail-over” to more arms-length arrangement

- Sharing in Practice
  - Not splitting MHz, but rather splitting ATSC bitstream
  - Channels can retain separate identities
  - Must carry rights for sharer dependent upon sharee’s contour
Spectrum Sharing—More Points to Consider

- Privately negotiated contract; $ amount from proceeds do not necessarily have to be divided 50-50
  - Some aspects of contract may need to be disclosed to FCC
  - FCC might allow communications between partners during auction
- Class A stations might be attractive candidates:
  - They have potential of greatly improving their over-the-air coverage
    - Sharer could possibly negotiate for larger share of proceeds
  - Might not be transmitting HDTV programming
    - Leaving more of the spectrum for sharer’s multicast signals
Possible Reverse Auction Structures

- FCC has suggested two auction structures:
  - Sealed Bid Auction
  - Declining Clock Auction (Milgrom Integrated Auction Proposal)

- Sealed Bid Auction
  - Interested broadcasters in all markets will submit a bid to FCC to be compensated for either
    - Going off the air completely
    - Moving to a VHF channel
  - Stations that have entered into a channel sharing arrangement will participate in auction as one station ("sharee") will be offering to go off air completely
  - Might include multiple rounds if the bids are too high by broadcasters to give up their spectrum
Possible Reverse Auction Structures

- Milgrom et al. Integrated Auction Proposal
  - Appendix C to NPRM
  - Very well respected experts in auction design

- Basic Elements of Proposal Can Be Modified In Many Ways
  - Forward and Reverse Auction processes can be switched in cycle
  - Reverse Auction can be run through all possible clearing targets
    - Essentially maps out entire spectrum “supply” curve
    - Avoids stop/start auction process and need to call participants back
  - FCC may run both simultaneously

- Significant Complexity of Auction “Assignment” Ignored
  - Question is which bids to consummate
  - FCC proposals—integer programming and sequential algorithms—not well defined

- What follows is a simplified version of the proposal
Milgrom Integrated Auction Proposal

- Define the amount of spectrum intended to be cleared—e.g., 120 MHz
- FCC has not been clear on whether clearing target is national or local
- FCC has also created a concept of “impaired” areas
  - Implication spectrum is unavailable
  - Impaired markets may be left untransitioned
With clearing target set, reverse auction can be run based on a fixed clearing scenario

- FCC can determine how many stations in each market must go dark to free the amount of spectrum called for by the clearing target
- Active bidders in the reverse auction “compete” to be one of the channels needed to go dark
Milgrom Integrated Auction Proposal

- However, the reverse auction has several possible outcomes, not all of which are considered successful…

Set Clearing Target

Run Reverse Auction

Met Clearing Target?
If broadcaster participation is sufficient to meet the clearing target, the clearing target must be adjusted down.

- Essentially, there is insufficient supply (broadcaster offered channels) to meet the demand (channels that must go dark to meet clearing target).
- Unclear what kind of increments the FCC will use to adjust clearing target downwards.
If the reverse auction provides a cost for the needed number of stations to go dark to meet the clearing target, an aggregate reserve price for the forward auction can be calculated:
- Reverse auction bids
- $1.75B for relocation
- Auction administration costs
Milgrom Integrated Auction Proposal

- Question is now whether forward auction can generate sufficient revenue
Milgrom Integrated Auction Proposal

- If it does not, supply is decreased by modifying the clearing target
If it does, we have a “successful” auction

NB: Congress expects auction will generate a substantial surplus
  - Funding for Public Safety Network
  - Deficit Reduction
Now to take a deeper look at the reverse auction sub-process
Walk through simplified descending clock auction rounds
Descending Clock Auction

- Assume a descending clock auction in a market where the clearing target requires two stations to go dark
- Alice, Bob, Charles and Diana all participate in the auction
- At clock tick 1, the FCC makes an initial offer to each station
  - Offers may be different
  - Each station may accept (✓) or reject (✗) FCC offer

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- Assume Bob, Charles, and Diana accept and Alice declines.
Descending Clock Auction

- Supply (3 stations) still exceeds clearing target (2 stations)
- Auction continues to clock tick 2
  - No offer is made to Alice
  - Bob, Charles and Diana get new offers

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- Assume all accept
- Supply still exceeds demand
### Descending Clock Auction

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- Auction continues to clock tick 3
- New offers are made to Bob, Charles and Diana
Descending Clock Auction

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- Again, assume all accept FCC offer
- Auction moves to clock tick 4
## Descending Clock Auction

Supply (3 stations) still exceeds clearing target (2 stations)

Bob, Charles and Diana get new offers

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Descending Clock Auction

Suppose Diana declines offer

Supply (2 channels) equals demand (2 channels)

Auction stage ends and the cost for clearing 2 channels is $113
  - Bob tentative “winner” at $59
  - Charles tentative “winner” at $54
Descending Clock Auction

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- What if clearing target is not met or forward auction does not meet revenue thresholds?
  - Clearing target may be decreased to 1 channel
  - Supply (2 channels) now exceeds demand (1 channel)
### Descending Clock Auction

- **Auction moves forward to clock tick 5**
- **New offers are made to Bob and Charles**

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- **Alice’s offer is rejected**: $72
- **Auction moves forward to clock tick 5**: Offers updated for Bob and Charles
- **New offers made**: Bob and Charles receive new offers
- **New offers for Bob**: $72, $65, $59, $54
- **New offers for Charles**: $67, $60, $54, $49
- **Auction continues with updated offers**
Descending Clock Auction

- If both accept, the auction continues
## Descending Clock Auction

At clock tick 6, new offers are made to Bob and Charles

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- At clock tick 6, new offers are made to Bob and Charles
### Descending Clock Auction

If Charles declines, supply matches demand

Cost of clearing 1 channel is now $49

Auction stage ends and shifts to forward auction to determine if closing condition will be met.

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If Charles declines, supply matches demand

Cost of clearing 1 channel is now $49

Auction stage ends and shifts to forward auction to determine if closing condition will be met.
Other Complications of Reverse Auction

- Not all television stations are centrally located with the same power.

  Example: station remotely located from market center – intersects 3 different Economic Areas.

- As a result, that specific station is very valuable to the FCC to either move to the VHF band or go off the air.

- FCC recognizes these situations and will offer station-specific higher initial prices.

- Other stations in this market may be offered $15 million to go off the air and $5 million to move to VHF channel.

- This station may be offered $25 million to go off the air and $10 million to move to VHF channel.
The Big Questions for Television Stations

$ ? What is the value of MY Station in the Reverse Auction?

FCC ? Is the FCC really going to pay significant amounts for the spectrum relinquished?

# ? How many stations are going to participate, nationally and in MY local market?
$!

Answers/Thoughts on Those Questions

- Value of Stations in the Reverse Auction
- Important Points to Remember when assessing that value
  - Value of this spectrum for wireless uses – recent auctions show substantial amounts paid for spectrum in the largest markets
  - Hundreds of millions of dollars spent for equivalent amount of spectrum in these markets
  - FCC is not going to give broadcasters ALL of the proceeds they receive from the forward auction, BUT…
Incentives of FCC during this entire auction

- Need to generate enough ($1.75 billion) to fund the relocation expenses of broadcasters due to repacking, plus auction administration costs
- Would like to fund Public Safety programs
- Would like to provide some funds to pay down the debt
- MOST IMPORTANT: Want to transfer as much spectrum as possible from broadcasting services to wireless applications
- With that incentive, the FCC is not trying to maximize the difference between what they receive (forward auction) and what they pay out to broadcasters (reverse auction)
### Answers/Thoughts on Those Questions

- Which broadcasters are going to participate and affect the ultimate prices paid in individual markets?
  - Several broadcast groups have publicly stated that they are not participating
    - But, not surprisingly, none have announced that they ARE participating
    - Makes sense at this time not to announce
  - But there are clearly some recent buyers of local TV stations who are interested
  - And, there are clearly several broadcasters that will clearly receive more in the reverse auction than what they could receive by just selling the station
Repacking

- FCC has obligation to undertake “all reasonable efforts” to preserve contour and population served
  - Contour defined as DTV noise-limited contour—41 dBu F(50,90) for UHF
  - Population defined as served population within contour
    - Subtract POPs lost due to inter-station interference
    - Subtract POPs lost due to weak signal

- Three proposals for repacking
  - Generally based on 0.5% loss being acceptable, but potential to increase to 2% in some scenarios
  - Inquiry regarding whether threshold should increase where high MVPD penetration exists

- In major metros, repacking is likely to be final and nonappealable
  - Post-reband option for channel swaps, but likely no room
  - When model released need to be sure that output is acceptable under all input conditions
Repacking

- “Flexible” Plan
  - FCC can “replace” existing interference from one source with interference from another source as long as net pops served are the same.
Repacking

- **“Flexible” Plan**
  - FCC can “replace” existing interference from one source with interference from another source as long as net pops served are the same.

- **“Fixed” Plan**
  - FCC can replace existing interference from one source with interference from another source as long as the same pops are affected.
Repacking

- **“Flexible” Plan**
  - FCC can “replace” existing interference from one source with interference from another source as long as net pops served are the same.

- **“Fixed” Plan**
  - FCC can replace existing interference from one source with interference from another source as long as the same pops are affected.

- **“Static” Plan**
  - FCC can replace existing interference only with interference from that same source.
Repacking

- **Timing**
  - NPRM notes 1 year typical for post-DTV Transition channel swaps
  - Implies 3 years is too long
  - Proposes 18 months

- **Reimbursement**
  - What costs are reimbursable?
  - When/how does reimbursement occur?
    - Estimate and get paid in advance
    - If you want actual costs, you have to wait until complete
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