

A Proposal for an FCC Spectrum Exchange

Evan Kwerel

Office of Strategic Planning and Policy Analysis
Federal Communications Commission

John Williams

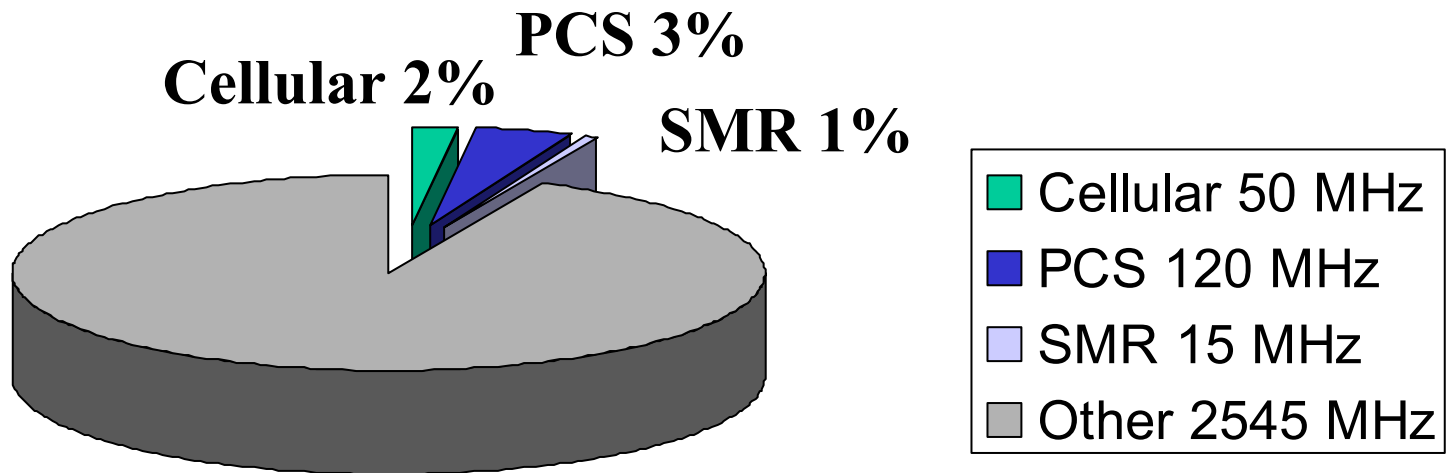
Spectrum Guru, Ret.

Third Combinatorial Auction and Exchange Conference
Wye River, MD
November 21-23, 2003

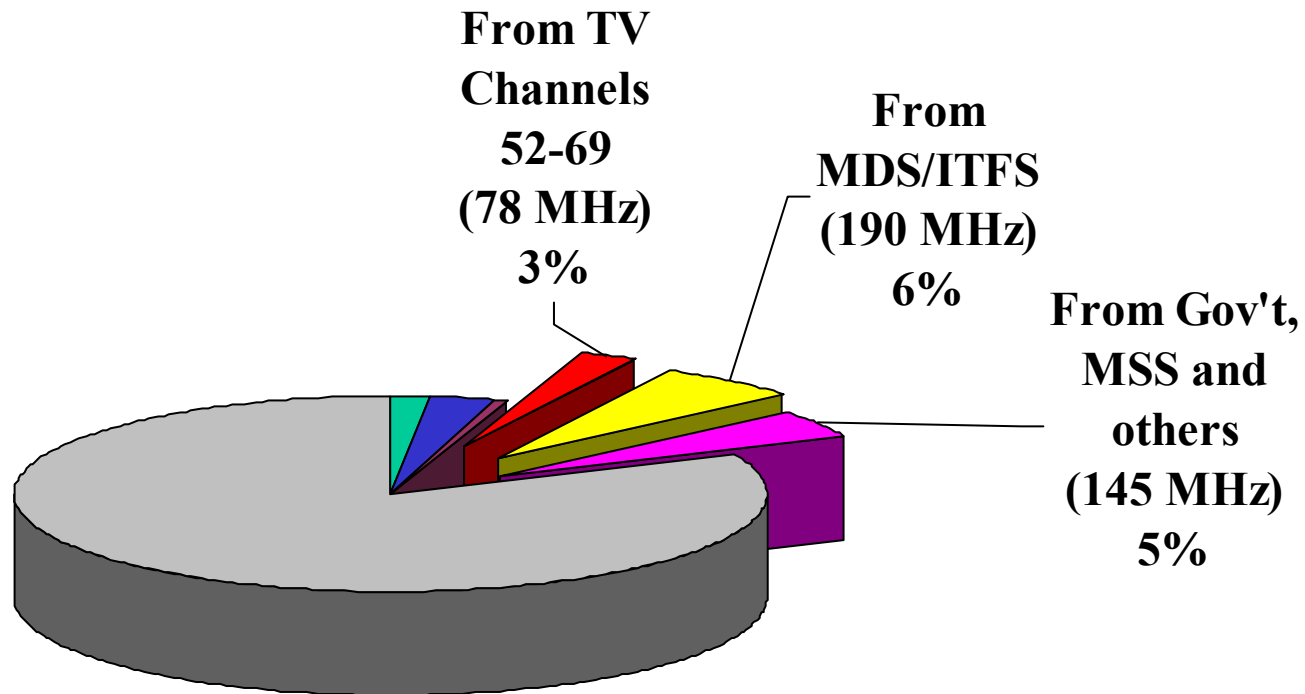
Disclaimer

- The opinions expressed in this talk are those of the authors and do not necessarily represent the views of the FCC or any other members of its staff.

Only about 7% (185 MHz) of Spectrum in 300-3000 MHz Range Is Fully Available to Market Today



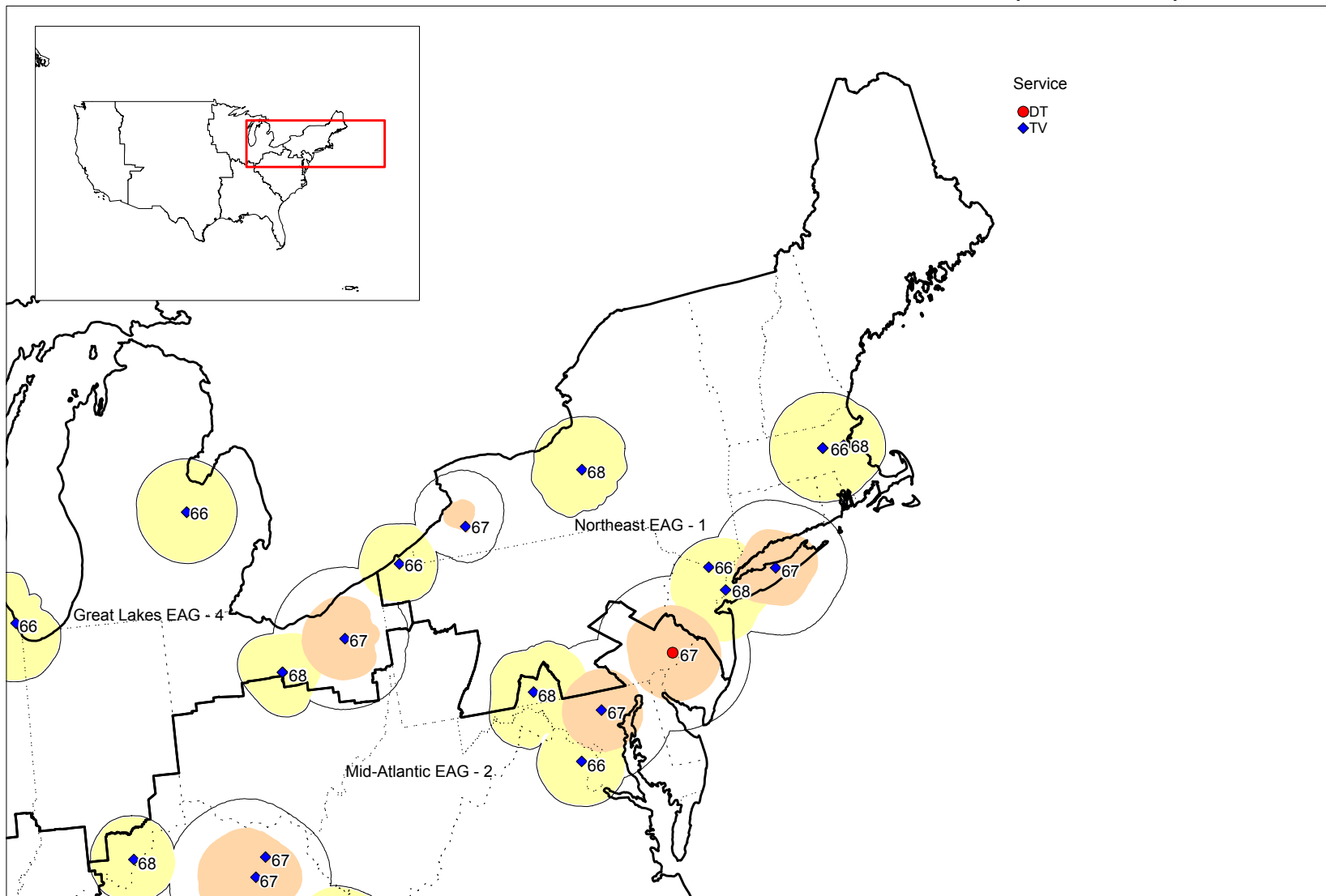
Another 15 % (413 MHz) for Flexible Use in the Pipeline



But...

- Heavily encumbered
- Fragmented in geographic and frequency domains
- Needs massive restructuring

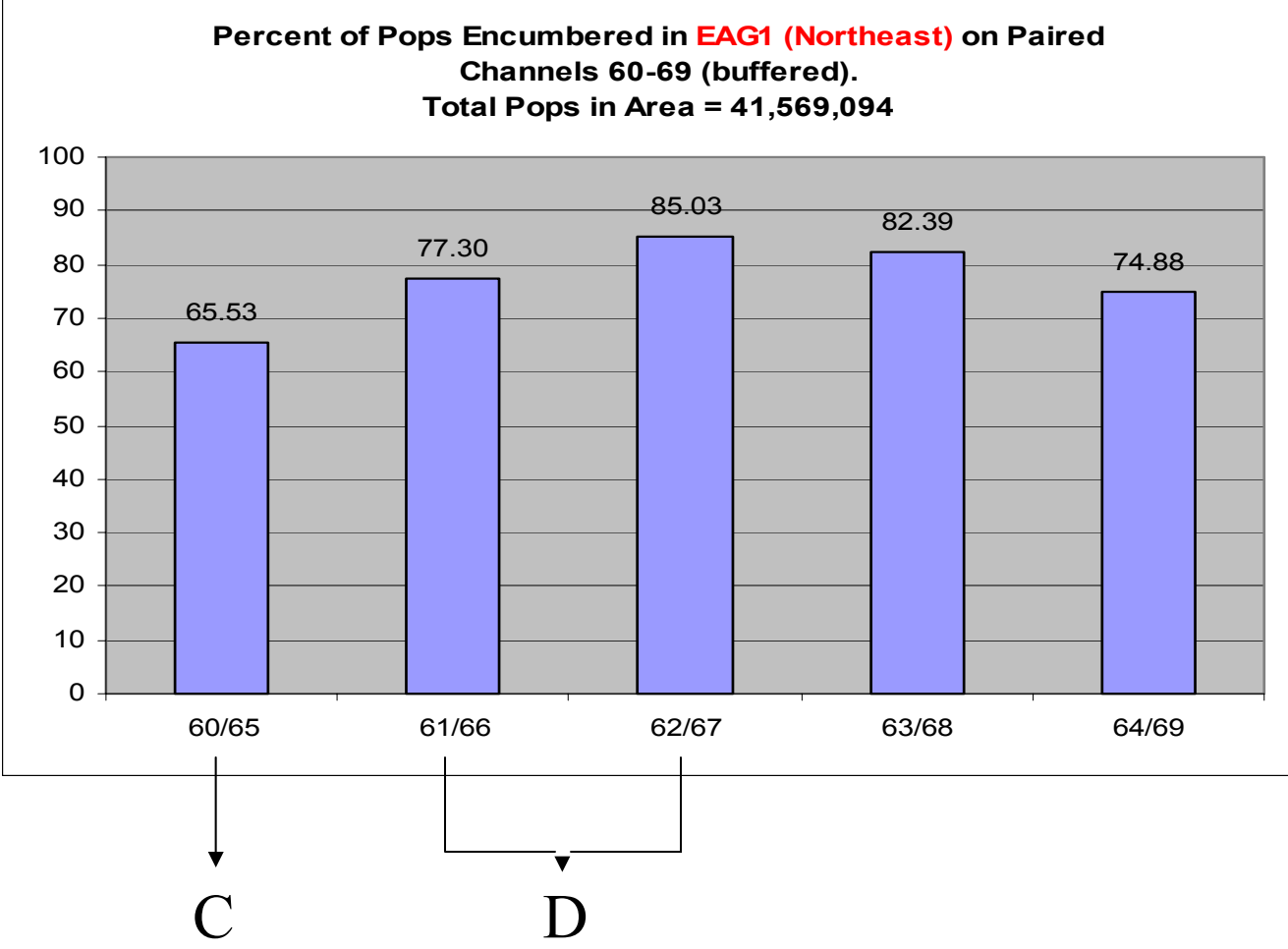
TV and DTV Stations that Encumber Channel 67 in EAG-1



April 18, 2000

Federal Communications Commission
Office of Engineering and Technology
Melvin C. Del Rosario

Percent of MHz-Pops Encumbered on TV Channels 60-69 in Northeast EAG

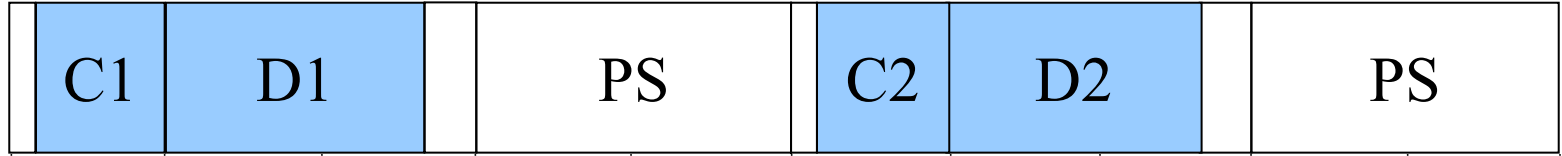


Three or More TV Stations Encumber All Blocks in the 700 MHz Band in NYC

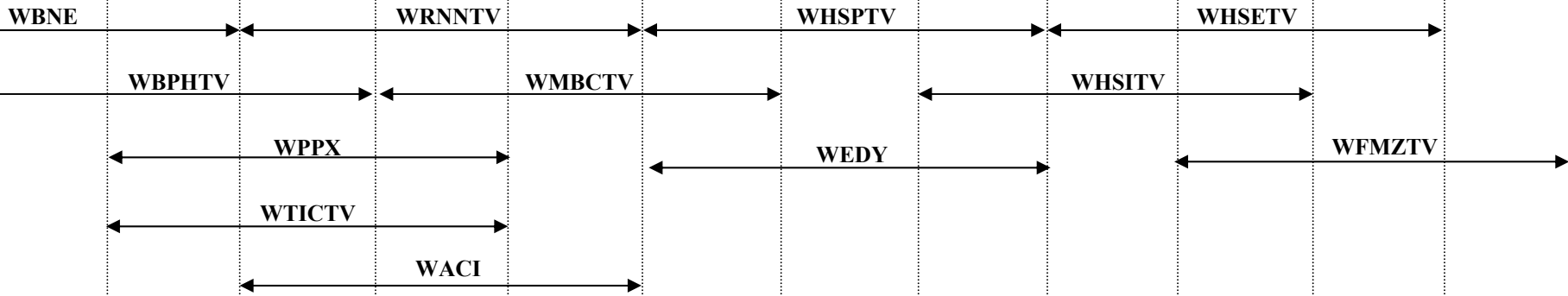
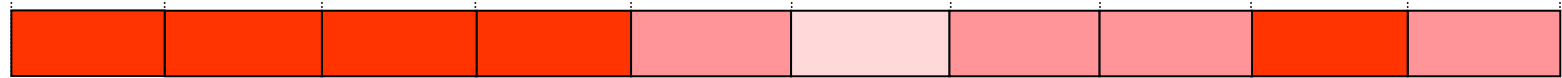
Channel 59-69 TV Incumbents Within 100 Miles of New York City

747 752 762 777 782 792

746 806



59 60 61 62 63 64 65 66 67 68 69



Spectrum encumbered by:

- One station:
- Two stations:
- Three or more:

How to End the Spectrum Drought

- Property rights and markets
 - Define flexible, exclusive and exhaustive spectrum rights
 - Use markets to move spectrum to its highest value use
- FCC spectrum exchange during transition
 - Simultaneous market mechanism to restructure fragmented spectrum
 - Wholly voluntary for incumbents
 - Incentives for incumbents to participate
 - Reduces transaction costs
 - Increases liquidity

Proposal for Rapid Transition

- **Flexibility:** reallocate restricted spectrum to flexible, exclusive use
- **FCC spectrum exchange:** conduct series of large-scale, two-sided simultaneous auctions of spectrum *voluntarily* offered by incumbents together with any unassigned spectrum

Proposal (continued)

- **Incentives to participate**
 - Immediately grant participants flexibility
 - Allow participants to keep the proceeds from the sale of their spectrum
 - Participating incumbents share in increased value from flexibility and value created by a rapid and efficient restructuring of the spectrum

Proposal (continued)

- Incumbents not harmed
 - **Non-participants:** allowed to continue current operations and would receive full flexibility in 5 years.
 - **Participants:** not required to sell to get immediate flexibility. Can buy back their licenses.
- Expect incumbents to participate
 - Participation costs are low, nothing else to lose
 - No flexibility withheld
 - Participation serves efficiency by making explicit the opportunity cost of keeping spectrum.

Initial Implementation

- 413 MHz in the 300 to 3000 MHz range
- Reduce current spectrum shortages for high demand uses

Removing Barriers to Flexible Use Isn't Enough

- Unassigned spectrum needs to be available for flexible use
- Need to reconfigure existing spectrum into tradable property rights
 - Redefine interference limits in terms of outputs
 - Some licenses dissolve into flexible overlay licenses

Removing Barriers to Flexible Use Isn't Enough (cont'd)

- Need to address coordination problem
 - Put all highly interdependent spectrum up for sale at the same time
 - Mechanism to combine spectrum into efficient packages
- Incentive problems may prevent efficiency-enhancing trades
 - Interests of spectrum managers vs. interests of firm as a whole
 - Incumbents with incentives to strategically hold out

Who Runs the Exchange?

- Why not a purely private spectrum exchange?
 - Who sells FCC held spectrum?
- The FCC is in the best position to solve the coordination problem
 - FCC holds unencumbered spectrum
 - Little cost to adding licensed spectrum
 - FCC has established credibility in conducting transparent auctions for spectrum rights

Who Runs the Exchange?

- The FCC is in the best position to solve incentive problems of ensuring participation and mitigating hold-out problems
 - FCC regulatory authority over spectrum gives it more carrots (e.g., conditional flexibility) and sticks than private parties
 - Solving the coordination problem helps solve the participation problem

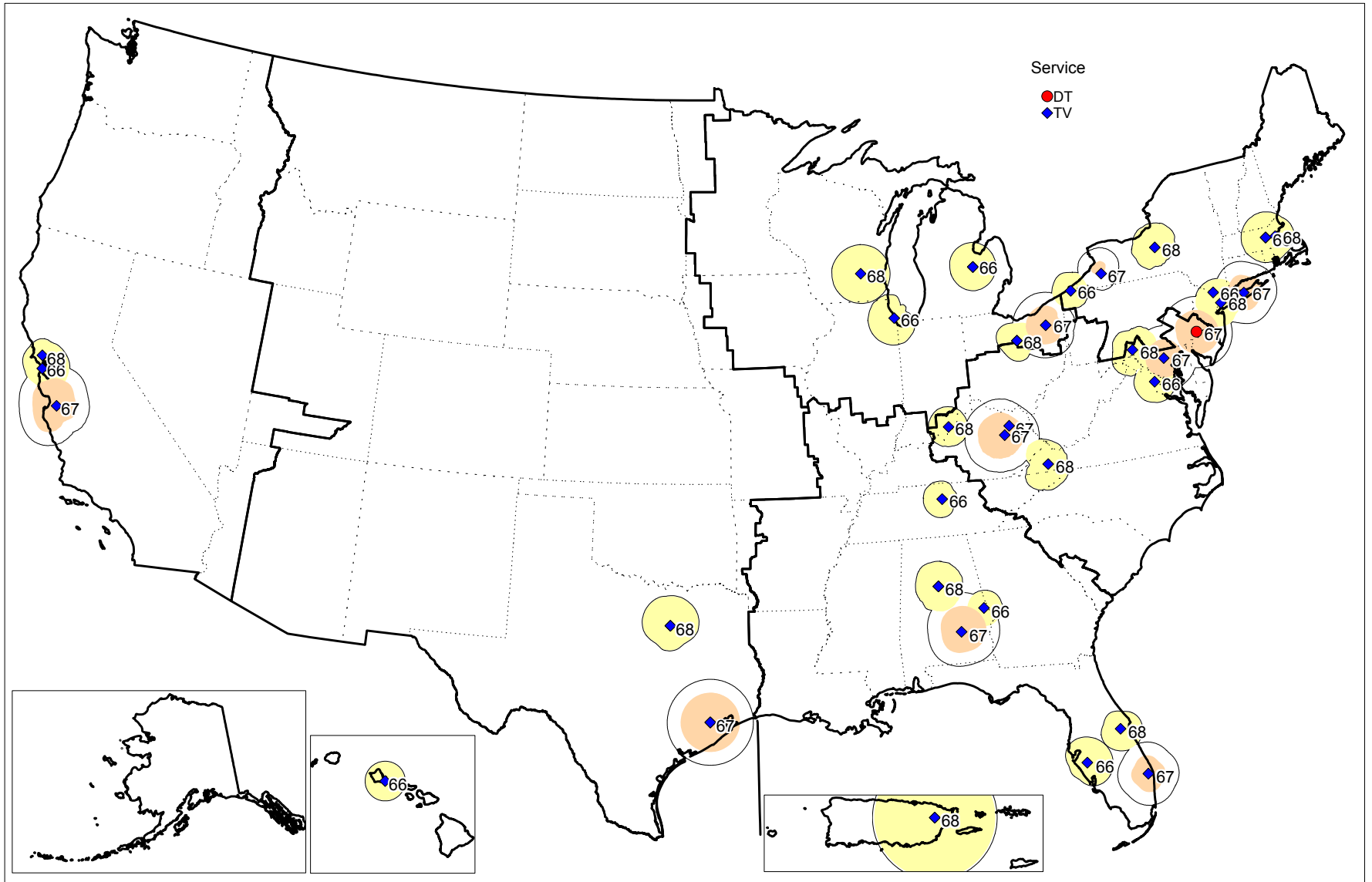
Remaining Issues

- Design of exchange mechanism
 - Incumbents can bid on (and buy back) own licenses in in band-restructuring auction
 - Exchange with rising bids and falling ask prices
 - Role of FCC as seller of spectrum
- Defining flexible spectrum rights to promote liquidity in the spectrum exchange

Remaining Issues

- Application of exchange to specific exclusively allocated bands
- Promoting efficient use of spectrum not exclusively assigned to private parties
 - Public safety spectrum
 - Public broadcasting spectrum
 - Federal government spectrum
 - Non-exclusive (e.g., private land mobile)
 - Unlicensed spectrum (part 15)

TV and DTV Stations that Encumber Channel 67



MAY 1, 2000

Federal Communications Commission
Wireless Telecommunications Bureau
Melvin C. Del Rosario