

FCC Spectrum Auctions

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Joint Jurisdiction Over Spectrum

Federal Communications Commission (FCC)

- *Non-federal users*
- *Commercial, private, state and local public safety*

National Telecommunications and Information Administration (NTIA)

- *Federal Government Users*

Memorandum of Understanding governs formal agency coordination

Coordination takes place informally/formally at staff level through the Interdependent Radio Advisory Committee (IRAC)



Methods of Spectrum Assignment

No Mutual Exclusivity

- *First Come First Served*
- *Open Entry*

Mutual Exclusivity

- *Comparative Hearings*
- *Lotteries*
- *Auctions*



Nature of Spectrum Rights Assigned

Non - Exclusive

- *Multiple unrelated parties have access to same frequency in a geographic area*
- *Example (Air-to-ground, private land mobile, cordless phones)*
- *Provides little incentive to conserve spectrum and its use*



Methods for Assigning Licenses

Comparative Hearings

- Quasi- judicial administrative process
- Evaluate applicants under comparative criteria established by rulemaking prior to hearing
 - *Difficult to develop consensus on comparative criteria*
 - *Hearings and court challenges can take years*
 - *Large legal and opportunity costs for participants and government*



Methods for Assigning Licenses

Lotteries*

- Randomly assigns licenses
- FCC uses lotteries to assign Cellular Licenses (1984)
 - *Commission received about 385,000 applications for 642 licenses*
 - *“Application Mills” flourished charging an average of \$650 per application*
 - *After award, more than 70% of the licenses were transferred at least once (often in private auctions)*



U.S. Spectrum License Auction Authority

- FCC granted auction authority in Omnibus Reconciliation Budget Act of 1993
- Permitted Auctions if:
 - *Initial application (not license renewal)*
 - *Mutually exclusive applications*
 - *Paying subscribers*
- FCC must ensure certain “designated entities” are provided the opportunity to participate in the auction process



Further Spectrum License Auction Legislation

- Auction authority began in 1993 and extended and expanded in Balanced Budget Act of 1997
- Exemptions are:
 - *Public Safety*
 - *Digital television licenses to replace analog licenses*
 - *Non-commercial educational and public broadcast stations*
- Highlighted existing obligation to continue to use **engineering** solutions to avoid mutual exclusivity

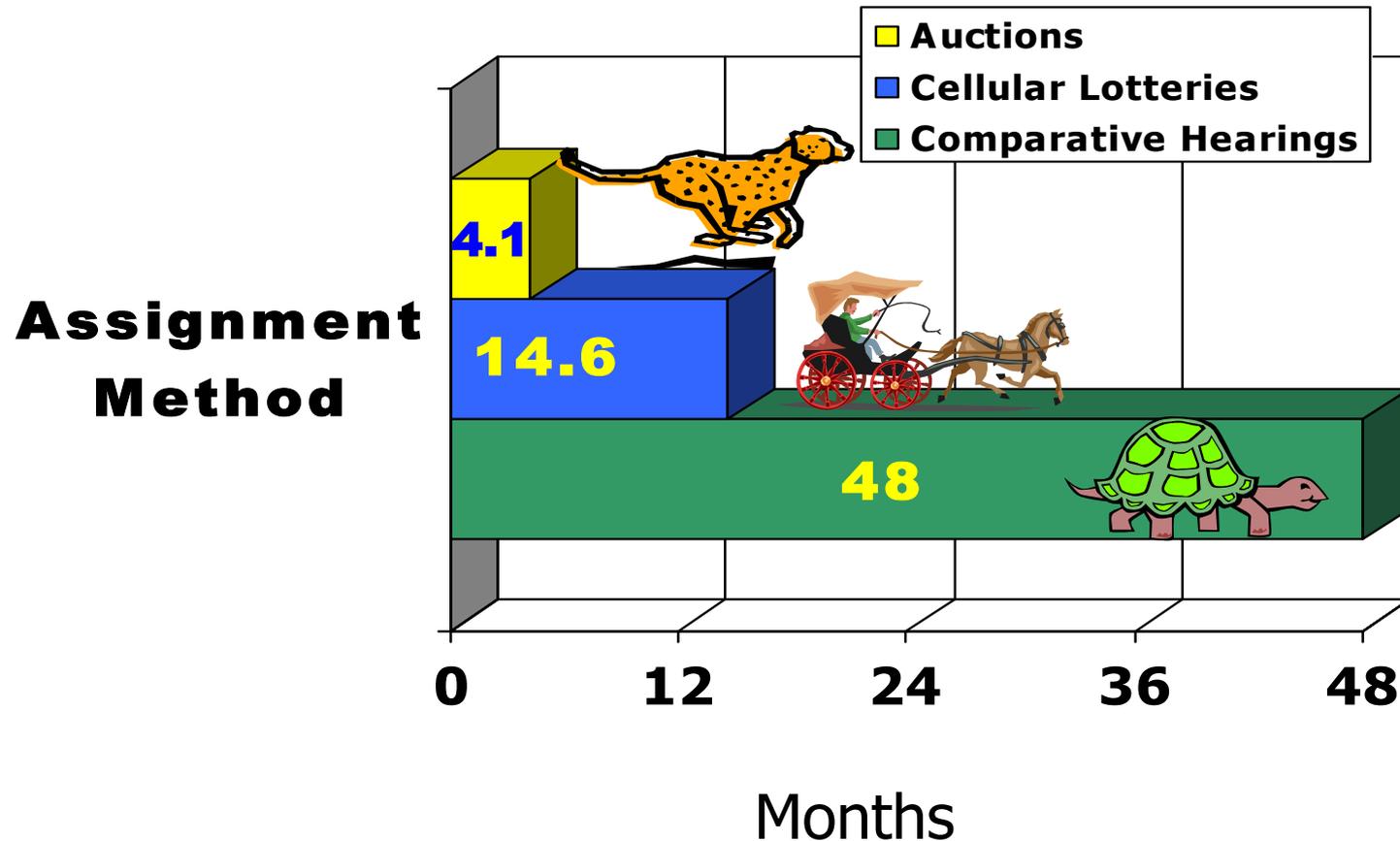


Auctions Foster Efficient Spectrum Use

- Well designed auctions facilitate efficient spectrum aggregation
- Auctions improve assignment decisions by providing information about relative value of spectrum
- Reduces government incentives to employ inefficient assignment methods for awarding spectrum



Auctions Speeds Technology to the Marketplace





Background

Common Auction Types

- Traditional Oral Outcry
- Sealed Bid
- Simultaneous Multiple Round Ascending
- Combinatorial



Simultaneous Multiple Round Ascending Auction

- Simultaneous
 - *All licenses are available during entire auction*
 - *Bids are accepted until there are no bids on any licenses*
- Multiple Round
 - *More than one bidding period*
 - Promotes aggregation strategy
 - Promotes aggregation strategy changes
- Ascending
 - *Prices increase as a function of competition for the license*
 - *More activity is required to continue to bid*



FCC Auction Design

- Simultaneous Multiple Round
- Payment Rules
 - *Upfront payment*
 - *Downpayment*
 - *Final payment*
 - *Installment Payments (No Longer Available)*
- Activity Rules
- Remote Bidding



Different Geographic Schemes for Different Services

Basic Trading Areas

493
geographic
Areas



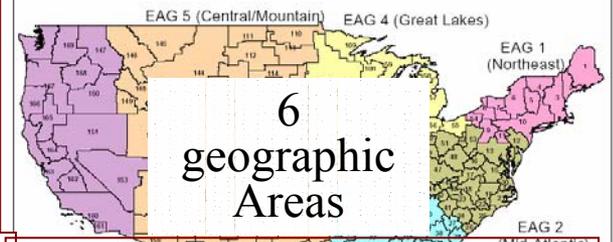
The 51 Major Trading Areas (MTAs)

51
geographic
Areas



220 MHz Economic Area Groupings (EAGs) and Their Constituent EAs

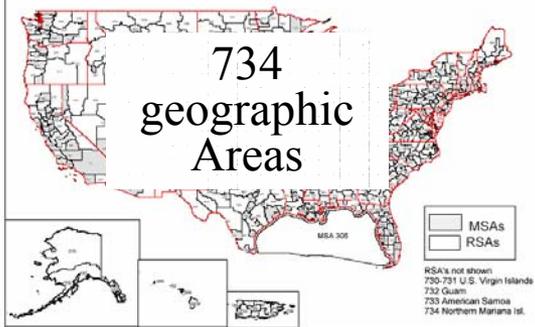
6
geographic
Areas



Cellular Market Areas

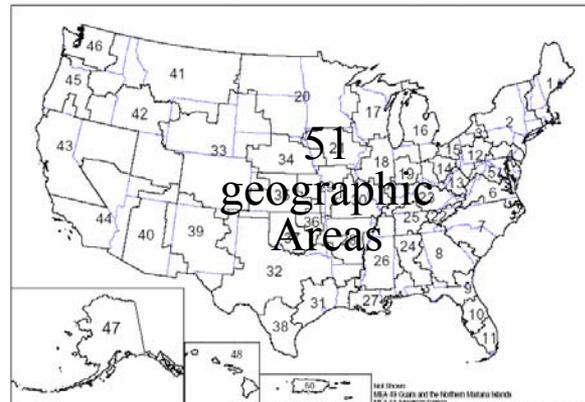
Metropolitan Statistical Areas and Rural Service Areas

734
geographic
Areas



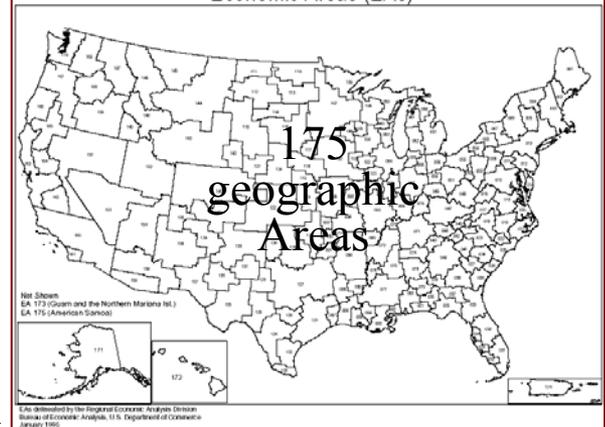
Major Economic Area (MEA)

51
geographic
Areas



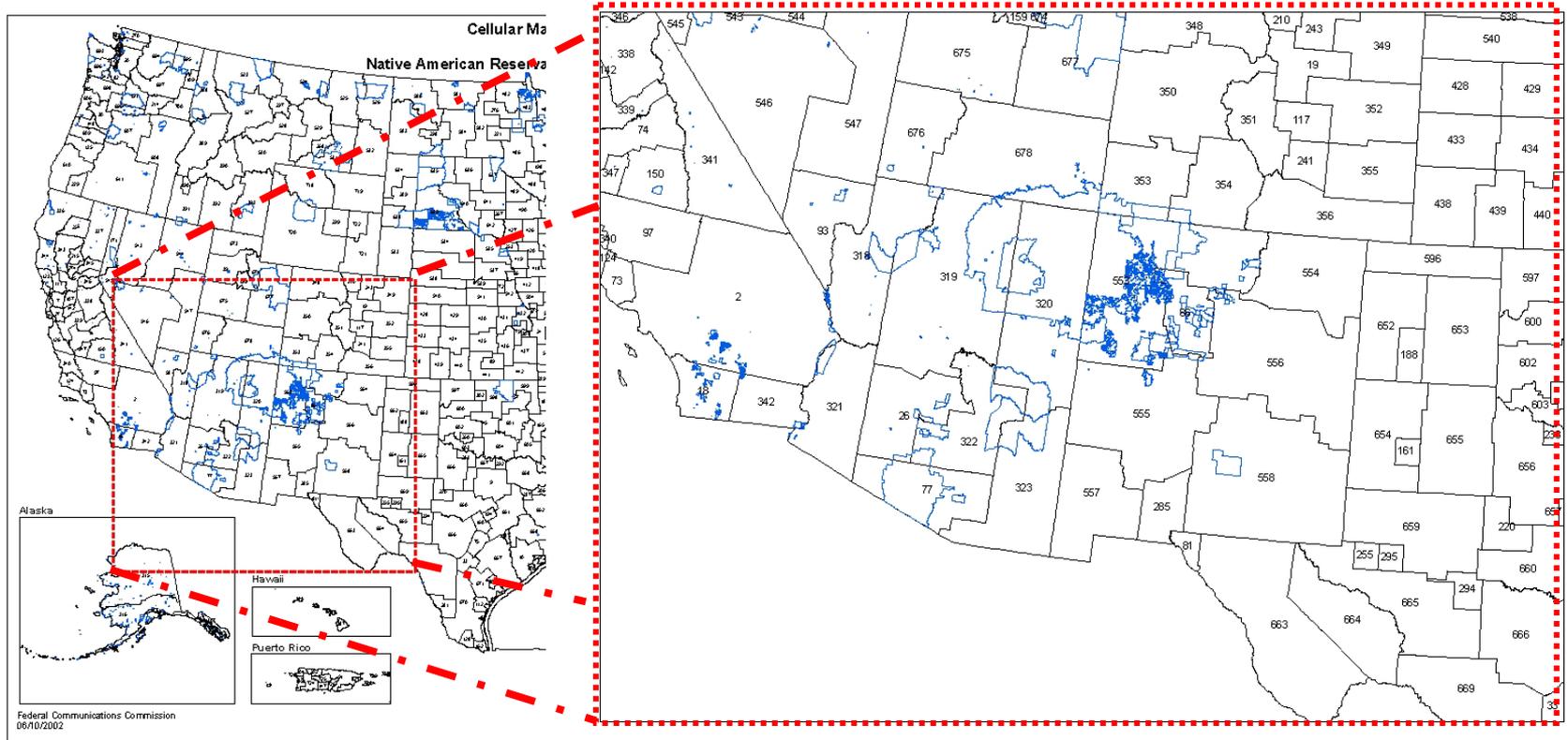
Economic Areas (EAs)

175
geographic
Areas





Overlay of Economic Areas and Native American Reservations

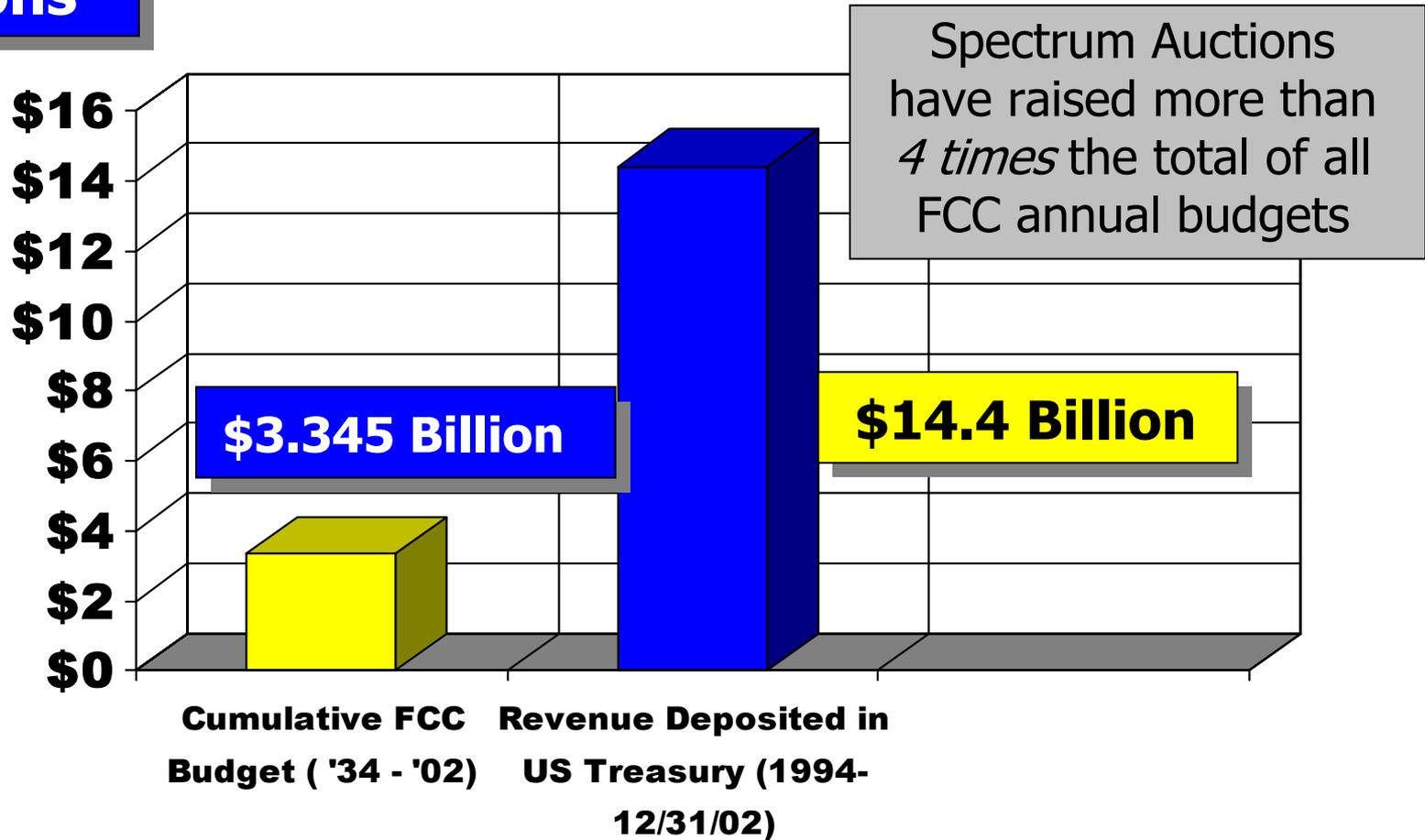


<http://wireless.fcc.gov/auctions/tribal/>



Auction Revenues

Billions





Auctions Overview

- Since auctions began in 1994
 - *1,503 bidders won 22,347 licenses in 42 auctions*
 - 1,173 (79%) bidders were small, very small or entrepreneur businesses and won 11,473 (50%) licenses
 - 168 (11%) minority bidders won 961 (4%) licenses
 - 163 (11%) women bidders won 917 (4%) licenses
 - 174 (12%) rural telco bidders won 675 (3%) licenses
 - *Deposited over \$14.4 billion in the US Treasury (as of 12/31/02)*

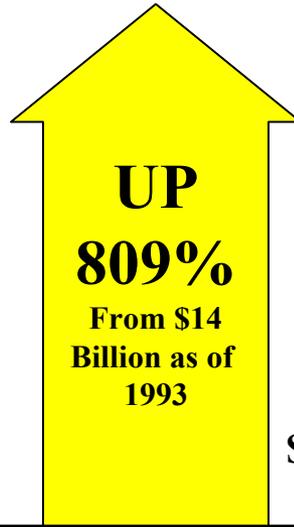


Charting the Growth in the Mobile Telephone Industry: 1993 - 2002

**141 Million
Subscribers in 2002**

**192,410 Jobs in
2002**

**\$126.9 Billion
Invested as of 2002**



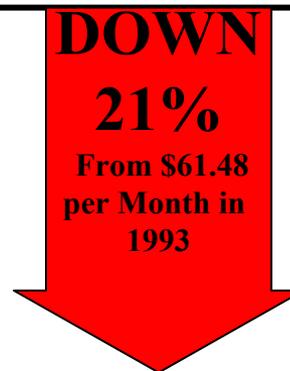
**Average
Subscriber
Bill**
\$48.40 Dollars Per
Month in 2002

**Price per
minute**
\$0.12 Per Minute
in 2002

Subscribers

Jobs

**Capital
Investment**

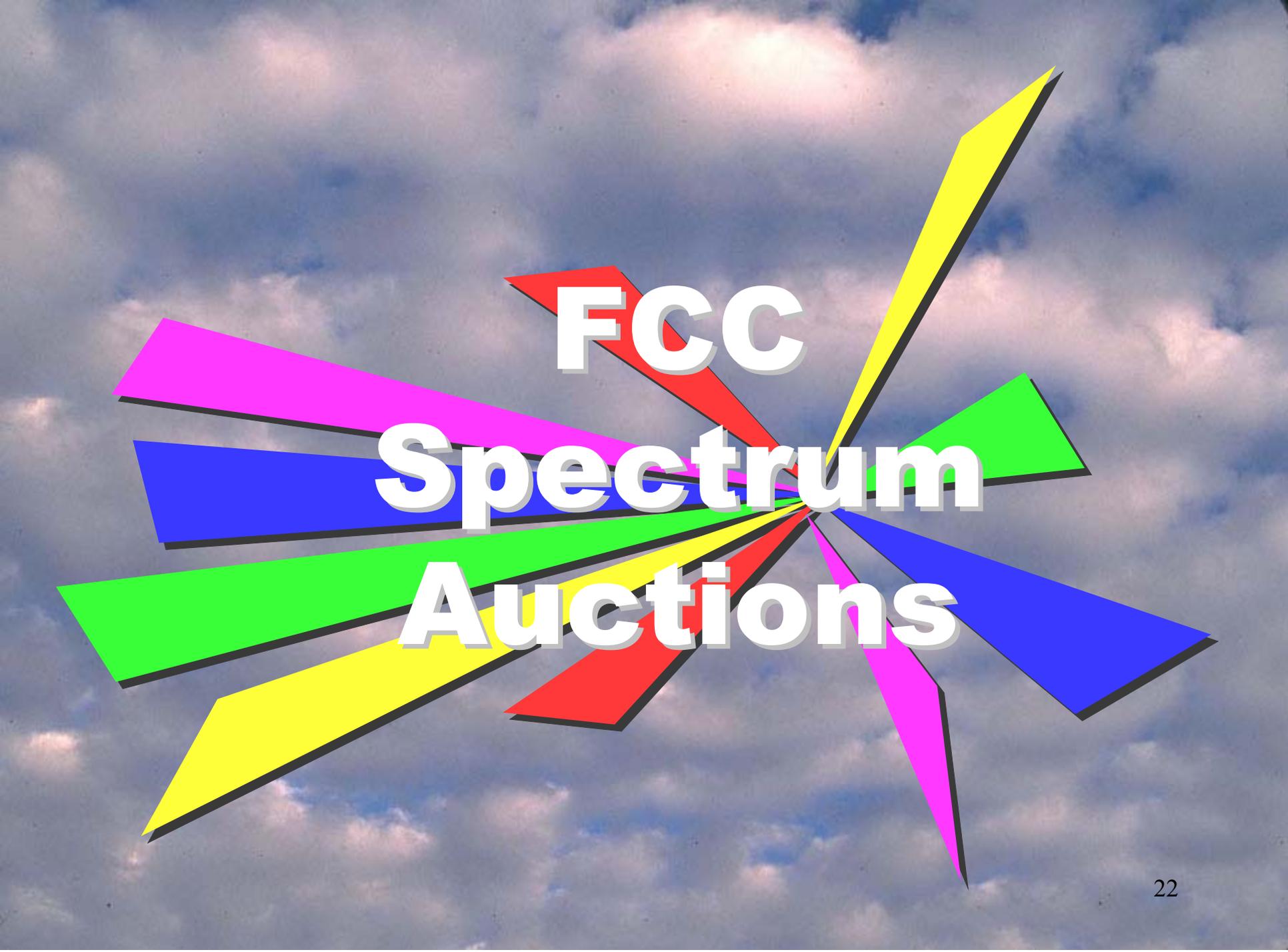


Source: Cellular Telecommunications & Internet Association (prices through June 2002)



Conclusions

- Wireless marketplace will continue to represent one of the fastest growing segments of the US economy
- FCC will continue to enact policies that promote competition and growth in the wireless industry
- May the most farsighted, innovative and creative service providers win.



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