Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of	)	
	)	
Implementation of the Commercial Spectrum	)	
Enhancement Act and Modernization of the	)	WT Docket No. 05-211
Commission's Competitive Bidding Rules and	)	
Procedures	)	

To: The Commission

COMMENTS
OF
NATIONAL HISPANIC MEDIA COALITION,
THE OFFICE OF COMMUNICATION OF THE
UNITED CHURCH OF CHRIST, INC.,
AND
MEDIA ALLIANCE

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The National Hispanic Media Coalition (NHMC),[1] The Office of Communication of the United Church of Christ, Inc. (UCC),[2] and Media Alliance[3] submit these comments in support of the Commission's proposal to prohibit any large in-region wireless carrier from having any "material relationship" with a designated entity. NHMC, *et al.*, urge the Commission to extend this prohibition to all large wireless carriers, regardless of whether they maintain a presence in the region. In addition, Commenters ask that the Commission consider other steps to facilitate the distribution of licenses to minority-owned businesses, women-owned businesses, and encourage the deployment of wireless advanced

[1]NHMC is a coalition of Hispanic organizations that have joined together to address a variety of media and telecommunications related issues that affect the Hispanic-American community.

[2]UCC is a non-profit corporation charged by the Church's Executive Council to conduct a ministry in media advocacy to ensure that historically marginalized communities (women, people of color, low income groups, and linguistic minorities) have access to the public airwaves. The United Church of Christ has over 1.3 million members and nearly 6,000 congregations. It has churches in every state and in Puerto Rico.

[3]Media Alliance is a 30-year old media resource and advocacy center for media workers, non-profit organizations, and social justice activists.

telecommunications services to minority communities and other traditionally underserved communities.

SUMMARY

The Commission's proposal to prohibit any entity with a material relationship with a large, in-region wireless carrier from enjoying a designated entities (DEs) credit represents a good start in remedying the failures of the designated entities credit program. But it does not go nearly far enough. There already exists sufficient evidence to prohibit DEs from entering into material relationships with ***any*** large wireless incumbent, regardless of whether the large wireless incumbent has an in-region presence.

With regard to the broader question of whether or not to exclude other telecommunications providers, such as in-region, incumbent wireline providers, the question is far more complex. Were facilitating competition the only criterion, as suggested by the Chairman's concurring statement, then the Commission should extend the proposed prohibition to include in-region wireline incumbents and, potentially, other large communications providers as well. (However, although a strong case could be made on competitive grounds to exempt DBS providers and cable overbuilders from such prohibitions.)

But the Commission has additional considerations with regard to the deployment of advanced wireless services. As the Supreme Court has observed, the Commission is often called upon to balance the sometimes competing goals of promoting competition and promoting the other goals of the Communications Act. *United States v. Radio Corporation of America,* 358 U.S. 334 (1959). In particular, the Commission has a responsibility to facilitate ownership by minority-owned and women-owned businesses, 47 USC. §309(j)(3)(B), to generally promote entry by small businesses in a manner that fosters competition, innovation, and diversity of media voices, 47 USC §257, and to encourage

deployment of advanced telecommunications services to ***all*** Americans. Telecommunications Act of 1996, Pub. L. 104-104, §706; 47 USC §151. With regard to this last duty, NHMC, *et al.* observe that deployment of advanced telecommunications services to traditionally underserved communities, such as minority neighborhoods, continues to lag behind comparable neighborhoods. Robert W. Fairlie, "Are We Really A Nation Online?" (Leadership Conference on Civil Rights, 2005);[4] Leonard M. Baynes, "Deregulatory Injustice and Electronic Redlining: the Color of Access to Telecommunications," 56 Admin. L. Rev. 263 (2004).

The short time the Commission has afforded to create a record and address these issues in this docket does not permit the Commission to obtain enough information to balance the impacts on competition of allowing large communications firms to have a material relationship with a DE against the possible impacts on other public interest goals mandated by the Communications Act. Accordingly, the Commission should take the immediate step of prohibiting material relationships between any DE and any large wireless carrier, regardless of whether the carrier has an in-region presence, but should defer the question of whether or not to expand this prohibition to other communications providers until after the AWS auction.

Finally, the Commission should take two related actions to protect both the integrity of the DE program and the auction process generally. First, the Commission should establish an expedited process by which third parties can file complaints with regard to "sham" DEs. Second, the Commission should standardize the way it records and publishes bidding information in a manner that maximizes the utility of this information. By facilitating the transparency of the process, scholars and others can track the behavior of bidders and related DEs to determine more easily whether any party

[4]Available at http://www.freepress.net/docs/lccrdigitaldivide.pdf.

or group of parties is seeking to manipulate the DE program and the auction process generally.

ARGUMENT

Designing an effective auction system does not happen by chance. Rather, as internationally renowned economist and auction design expert Paul Klemperer has observed, "what really matters in good auction design are the same issues any regulator would recognize as key concerns: discouraging collusive, entry-deterring and predatory behavior." Paul Klemperer, "What Really Matters In Auction Design," (2002) ("Auction Design").[5] In particular, Klemperer identifies two concerns directly implicated in this proceeding. First, the auctioneer must actively combat the ability of dominant incumbents to discourage competition through a combination of threat, collusion and vigorous enforcement of the rules. Second, the auctioneer should actively facilitate entry by new competitors, particularly those liable to prove innovative or disruptive in comparison with existing dominant firms.

Accordingly, in implementing the DE bidding credit, the Commission should be particularly vigorous in promoting these objectives. The evidence clearly supports excluding any large wireless provider, regardless of whether it has an in-region presence.

At the same time, however, exclusion of other entities raises more complex questions, requiring the Commission to weigh competing goals of the Communications Act and examination of real world evidence. Accordingly, the Commission should act to prohibit any material relationship between DEs and large wireless carriers, while continuing to develop a record to shape the upcoming auction of the returned analog television spectrum.

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[5] Available at www.paulklemperer.org.

I. ENTITIES WITH A "MATERIAL RELATIONSHIP" WITH LARGE INCUMBENT WIRELESS OPERATORS, WHETHER IN-REGION OR OUT OF REGION, SHOULD BE EXCLUDED FROM CONSIDERATION FOR THE DES CREDIT.

As the attached Declaration by Dr. Gregory Rose analyzing over ten years of FCC auction data demonstrates, the Commission has been sadly laggard in permitting existing wireless incumbents to game the system. Over time, the dominant wireless firms have established clear patterns of behavior that allows them to maintain a concentrated market in the control of licenses and the provision of wireless communications services generally.

In theory, allowing material relationships between DEs and large wireless carriers could be justified if these relationships promoted the other goals of Section 309(j) and the Communications Act. But in the ten years in which auctions have been the primary method for distributing licenses for wireless telephony and other wireless services, there is no evidence that allowing incumbent wireless carriers to partner with DEs has generally facilitated deployment of advanced services to minority or underserved communities, has promoted competition and small business growth, or has otherwise served the important social goals of the Communications Act. *See, e.g.*, Communications Act of 1934, as Amended, §§1, 257, 309(j)(4)(C).

A. The Attached Study by Dr. Gregory Rose Demonstrates that Dominant Wireless Incumbents Use the FCC's Auction System to Exclude Competitors, and that a Properly Administered DE Credit May Alleviate This Effect.

The extensive study of ten years of FCC auction data by Dr. Gregory Rose demonstrates that consolidation in the wireless communications market is not merely a function of recent consolidation of carriers. Rather than promote entry by new competitors, FCC spectrum auctions actually play a significant role in preventing the entry of new competitors. As Dr. Rose explains, the large wireless incumbents are able to use their superior resources and the advantage of playing in multiple auctions

over time to manipulate the system to exclude new entrants. Furthermore, the limited information available on the success of the designated entity credit makes the DE credit a potentially useful tool for promoting entry by new competitors.

Further, Dr. Rose explains that the theories frequently advanced in favor of permitting DEs to maintain material relationships with large wireless providers have not been borne out by reality. Minority communities and minority-owned and women-owned businesses have not benefitted from permitting such relationships, despite the oft expressed theory that minority-owned and women-owned businesses require the greatest opportunity to find experienced partners and capital investment. Nor have large wireless carriers found it attractive to partner with DEs to expand into communities that would otherwise be unprofitable to serve or in which the DE offers an entry or expertise. After ten years of permitting such relationships, minority communities remain underserved and minority-owned and women-owned businesses continue to lack access to necessary capital. *See also* Leonard M. Baynes and C. Anthony Bush, "The Other Digital Divide: Disparity In The Auction of Wireless Telecommunications Services," 52 Cath. U. L. Rev. 351 (2003).

Because the DE credit is, at present, the only change in the FCC's bidding rules likely to address the problems of identified in the Rose Declaration, the FCC should act expeditiously to protect it from possible influence and manipulation by incumbent wireless providers. In the interest of fostering genuine competition, the Commission should prohibit a DE from having a material relationship with any large wireless carrier.

B. Allowing Wireless Incumbents to Use DEs to Extend Into New Areas Is Equally Anticompetitive and Contrary to the Public Interest.

As the Rose Declaration makes clear, the key consideration in promoting competition is size

and strength in the wireless market generally, rather than whether a carrier has an in-region presence or is dominant in its region. While consideration of regional competition issues is appropriate when considering the impact of mergers, *see, e.g., In re Applications of Nextel Communications, Inc., and Sprint Corp.,* 20 FCCRcd 13967 (2005), the industry-wide competition concerns present here call for a more sophisticated approach.

As discussed in the Rose Declaration, the chief barriers to new entrants, whether on a regional basis or national basis, are: (a) the disparity of size and information asymmetry between large and small bidders; (b) the common incentives of large regional and national carriers to maintain hegemony and avoid ruinous price competition; and (c) the incentive of long term participants over time to conform to the understood "rules of the game" used to suppress auction price and punish disruptive players. Klemperer describes similar incentives and the need to combat them in his survey of FCC Auctions and European 3G auctions. Klemperer, "What Really Matters In Auction Design," *supra*; Paul Klemperer, "How (Not) To Run Auctions: The European 3G Telecom Auctions" (2001).[6]

This literature and the Rose Declaration make plain that any modest consumer gain in a region from the entry of a DE partnered with a large out of region carrier is more than offset by the use of a DE "front" to maintain industrial hegemony. The material relationship can comply with FCC rules, yet still render the DE unlikely to engage in genuine price competition or disruptive innovation. By contrast, a small wireless incumbent dominant in a small region rejected by dominant industry carriers as providing too marginal a return may, through a DE credit, provide genuine competition in another region. Accordingly, rather than looking to regional presence, the Commission should look to size as the critical factor.

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[6]Available at http://www.paulklemperer.org.

The Commission should not allow large carriers to neutralize what may be the critical advantage to an independent new entrant by permitting large out of region carriers to partner with DEs. A large carrier that genuinely desires to establish an in-region presence can participate in the auction directly. While it is in theory possible that a large carrier may decide to do so only if it can partner with a DE and benefit from the credit, this possibility is exceedingly remote. By contrast, the weight of the evidence based on the U.S. and European experiences shows both a willingness of large carriers to exclude genuinely independent rivals, and a distinct preference for avoiding head-to-head, cut-throat competition.

The Commission should not place the possibility of creating genuine, independent competitors at risk on the remote chance that, contrary to ten years of empirical evidence and the clear incentives of incumbents to maintain stability and exclude new entrants, a large out of region carrier will invest in-region only if it can benefit from the credit. If the Commission genuinely wants to encourage new entrants, it should prohibit any large wireless carrier from maintaining a "material relationship" with a DE.

II. THE COMMISSION SHOULD CONSIDER SAFEGUARDS FOR IN-REGION WIRE-LINE COMPANIES, BUT DEFER A FINAL RULE UNTIL A MORE COMPLETE RECORD IS DEVELOPED.

The Commission also seeks comment on whether to exclude other communications and media providers from maintaining a "material relationship" with a DE. As a matter of pure competition theory, it would be appropriate to exclude incumbent wireline carriers (whether cable or telephone) while permitting struggling competitors such as DBS and terrestrial overbuilders to partner with DEs.

Convergence represents a double edged sword. While convergence facilitates entry by competitors new to the specific product market, it also allows a dominant player to extend and protect

its dominance. Thus, for example, cable operators can maintain their market share (and thus market power) in the video markets by offering broadband services bundled with video, since this reduces the ability of rival MVPDs to induce customers to switch services. *See, e.g.*, Harold Feld, "The 'Switching Equation' and Its Impact on the Video Programming Market," Media Access Project (2006). *See also* Klemperer, "What Really Matters In Auction Design," *supra* (observing that allowing Pac Bell to participate in-region in the 1994 PCS auction effectively drove out competing bidders in the Los Angeles market and deprived consumers of a potential voice competitor). Allowing wireline incumbents to partner with DEs, and therefore exclude potentially disruptive independent competitors, raises serious concerns.

At the same time, however, the Commission must balance these competitive concerns with other goals of spectrum auctions and the Communications Act. In particular, while ten years of empirical evidence has demonstrated the unlikelihood of a large wireless incumbent partnering with a DE for provision of services to minority and other underserved communities, the argument may remain valid for wireline incumbents. Wireline incumbents seeking to penetrate wireless markets, particularly mature wireless markets in the most profitable DMAs, have a different set of incentives than large wireless carriers. The strategy of partnering with a DE to cultivate growing minority markets, and use of AWS spectrum to provide fixed wireless broadband in neighborhoods or rural areas that would be unprofitable to upgrade otherwise may prove attractive. In that case, the Commission could well decide that the strong public interest in encouraging deployment and expanding economic opportunity to such regions outweighs the broader economic concerns.

The extremely limited comment period the Commission has afforded for response to the *NPRM* makes it effectively impossible to answer this complex question. Rather than seek to resolve the issue

now, the Commission should adopt a rule that resolves the clearly identifiable harms of permitting large wireless carriers to work with DEs, while deferring the more complex question until the digital television spectrum auction. This will have the added advantage of providing a limited opportunity to see if wireline incumbents seize the opportunity presented in the AWS auction to partner with DEs, and if such partnerships promote the purposes of Sections 309(j)(3)(B) and 309(j)(4)(C)(ii).

If the Commission does allow wireline incumbents to participate in with DEs in future auctions, it should impose safeguards that will enhance the likelihood that the intended beneficiaries of Sections 309(j)(3)(B) and 309(j)(4)(C)(ii). As this raises additional complex legal and economic questions, and clearly exceeds the scope of this *NPRM*, the Commission should make no attempt to reach this issue here. As with the question of whether to place prohibitions on incumbent wireline carriers, the Commission should wait until it can compile a sufficient record for a reasoned decision.

A. Allowing Wireline Incumbents to Offer Wireless Services Enhances the Market Power for Wireline Incumbents in Related Markets and Diminishes Potential Competition from AWS Licensees.

The Commission and scholars have often touted the virtues of convergence in introducing competition in individual product markets. Accordingly, the Commission has at times actively sought to encourage cable entry into the voice telephony market, *In re Implementation of Section 11(c) of the Cable Television Consumer Protection and Competition Act of 1992, Horizontal Ownership Limits*, 14 FCCRcd 19098 (1999), or sought to encourage telephone competition into video. *In re Implementation of Section 621(a)*, 20 FCCRcd 18581 (2005). In reaching this conclusion, the Commission and a host of others have applied a relatively simple economic model that assumes (a) any new entrant into a separate product market or geographic market automatically enhances competition in that specific market and has no negative consequences; and (b) that consumers can

easily switch between competing providers, so that the presence of new entrants will automatically create the positive effects of competition. Adopting this simplistic view of the universe, aided and abetted by interested parties and ideologically driven theoretical models, has blinded the Commission to the ***anticompetitive*** impacts of convergence. *See generally* Paul Klemperer, "Using and Abusing Economic Theory," 2002 Lecture of the Alfred Marshall Lecture of the European Economic Association.[7]

Markets subject to network effects and switching cost are subject to competitive considerations not contained in the standard economic models that assume one product, one market, and frictionless transfers. Communications markets in particular are subject to these impacts. Network effects make networks with pre-existing market share exponentially more valuable than rivals, particularly new entrants that have few or no customers. *See generally* Katz, M.L. and Shapiro, C., "Network Externalities, Competition, and Compatibility," American Economic Review (1985). This conveys to the network operator an enhanced ability to "lock in" customers. *See* Joseph Farell and Paul Klemperer, "Coordination and Lock-In: Competition With Switching Costs and Network Effects, UC Berkeley Competition Policy Center Working Paper (2004).[8] This also confers market power on the "upstream" producers wishing to reach the large subscriber base held captive by the dominant network. This allows the dominant network operator both to capture monopoly rents and impose conditions upon the upstream producers that increase price or deprive service to rival networks. *See, e.g.*, David Waterman, "Local Monopsony and Free Riders," Information Economics and Policy, Vol. 8 (1996).

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[7]Available at http://www.paulklemperer.org.

[8]Available at http://iber.berkeley.edu/cpc/pubs/Publications.html.

The matter is further complicated by the difficulty regulators have in identifying and regulating anticompetitive predation in networked environments, particularly as the interlinked markets grow more complex, and after the fact corrective action becomes more difficult, more costly, and less effective. *See, e.g.,* Joseph Farrell and Phil Weiser, "Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age," UC Berkeley Competition Policy Center Working Paper (2003) (describing regulatory and economic confusion); Joseph Farrell and Michael L. Katz, "Competition or Predation: Schumpeterian Rivalry In Network Markets," UC Berkeley Competition Policy Center Working Paper (2001) (describing difficulty in detecting and addressing predatory conduct in networked markets).

Finally, serious consideration of the potential anticompetitive impacts of convergence has been slow to emerge because of the conventional wisdom that a network operator's economic interest and those automatically aligned with those of its users as a consequence of the mutual desire to maximize the value of the network. *See, e.g.*, James Speta, "Handicapping the Race for the Last Mile?: A Critique of Cable Open Access," 17 Yale Journal on Regulation 39 (2000). Gradually, however, challenges to this view have emerged, demonstrating that opportunities exist for network operators to benefit from anticompetitive actions that diminish the value of the network to the user. Barbara Van Schewick, "Toward An Economic Framework for Network Neutrality Regulation," TPRC Working Paper (2005); Farrell & Klemperer, "Consumer Lock In," *supra*.

This more sophisticated view of competition theory raises serious concerns as to whether wireline in-region incumbents should be permitted to even participate in the AWS auction, let alone whether they should be allowed to partner with designated entities and receive a 25% bidding credit. As an initial matter, AWS licenses are not designed merely to provide mobile telephony services. The

Commission intends to allow AWS licensees to offer any IP enabled service, making AWS licenses suitable for provision of fixed wireless video, voice and data "triple play" in direct competition with the wireline "triple play" offered by incumbent wireline services. In other words, every AWS license won by an in-region incumbent wireline provider translates into a loss of a direct competitor.

In addition to this direct loss of a potential competitor, allowing an in-region incumbent wireline provider to offer mobile services reenforces the market power the wireline competitor already possesses, the so called "quadruple" play. With each additional layered service, the switching cost to customers rises, making competition more difficult and reenforcing the market dominance of the wireline provider in its initial product market. The ability to create incompatibilities with other networks (to the extent not prevented from doing so by regulation) also serves to reenforce the market power of the monopolist and encourage the user to consolidate all services in the provider's network to the detriment of rivals in all relevant product markets.

When viewed in this light, the incremental value of creating additional competition in the mobile wireless services market by encouraging incumbent wireline providers is more than offset by the anticompetitive effects in the incumbent's initial market and all related product markets (both upstream and downstream).

By contrast, however, permitting telecommunications and media providers that do not have market power – even large providers – to partner with DEs may enhance competition. For example, the inability of DBS providers to offer a broadband solution that competes effectively with either cable or ILECs has stymied DBS growth and threatens its long-term viability as a cable competitor in the video programming market. *See, e.g.,* Tom Stienert-Threlkeld, "DIRECTV Moves on Wireless Broadband," Multichannel News (February 22, 2006) (DIRECTV willing to invest $1 Billion for

terrestrial wireless broadband network to compete with cable triple play); Feld, Switching Equation *supra*; GAO, "Direct Broadcast Satellite Subscribership Has Grown Rapidly But Varies Across Markets" (2005). Permitting DBS providers to partner with DEs would improve the ability of DBS providers to compete in the video programming market and introduce a new competitor in the mobile wireless services market.[9]

B. Other Considerations May Argue Against Prohibiting Material Relationships Between DEs and Large Telecommunications Entities.

Against these anticompetitive effects, the Commission must consider whether permitting even in-region wireline incumbents to partner with DEs will serve the broader public interest goals of the Communications Act. In particular, the Commission should consider whether permitting wireline incumbents to partner with DEs will fulfill the goals of promoting distribution of licenses to minority-owned and women-owned businesses, expanding service and economic opportunity to minority communities and other traditionally underserved communities, and encouraging the deployment of new and innovative services to all Americans. Communications Act of 1934, Sections 1, 309(j)(3)(B), 309(j)(4)(C)(ii)-(iii); Telecommunications Act of 1996, Section 706.

It is tempting to conclude that since permitting such relationships with large wireless carriers has not proven a successful strategy for promoting these goals, permitting material relationships with wireline incumbents will likewise prove fruitless. But incumbent wireline providers face different incentives than do large wireless carriers. Although wireline carriers have the benefit of their market dominance in other services, they are new entrants in the wireless market. They therefore have a greater incentive to enter underserved markets such as minority communities, since they can hope to

[9]These benefits would still need to be weighed against the potential anticompetitive effects of layering bundled network services in one provider.

acquire new customers more easily in such communities. Providing an incentive to partner with DEs, particularly if combined with build out requirements or other safeguards to ensure that the intended communities enjoy the benefit of the DE program, may outweigh the Anticompetitive harms of encouraging incumbent wireline entry.

1. The Need to Encourage Deployment to Minority Communities Grows More Acute As The Digital Divide Grows.

Facilitating deployment of Advanced Wireless Services to minority communities therefore goes beyond remediation for any past discrimination. It is an essential element of economic and educational opportunity critical to the relevant communities and the health of our nation as a whole. Leaving aside any moral considerations and issues of social justice, the failure of the Commission to take steps to facilitate AWS deployment in underserved communities threatens to create isolated islands of poverty within our nation. As a matter of global competitiveness and economic well-being, we cannot tolerate a situation in which communities are increasingly and systemically denied the tools necessary for education, economic growth, and civic participation.

The need to facilitate broadband deployment to traditionally underserved communities, such as minority communities, has become increasingly urgent as our society moves into the digital age. A recent long-term study by the PEW Internet and American Life Project shows that internet access helps users create, maintain and expand social networks among family, friends, neighbors and professional colleagues. As a result, internet access contributed significantly to the development of "social capital" and concomitant access to educational resources, job opportunities, and health care information. In addition, internet access enhanced the ability of users to take advantage of economic opportunities and government services. As a consequence of this, internet users were able to make

better informed major life decisions, enjoy a higher quality of life, and increase economic productivity. Jeffery Boase, John B. Horrigan, Barry Wellman, and Lee Rainie, "The Strength of Internet Ties," PEW Internet & American Life Project (2006).[10]

Minority communities, however, continue to lag behind non-minority communities in home internet access and internet use, even when controlling for factors such as income and education. Fairlie, "Are We Really a Nation Online?" *supra.* In addition to denying these communities the benefits described above, the impact of the lack of internet access in the home corresponds to a significant decline in graduation from high school and achievement of secondary school education, even when controlling for other relevant environmental factors. *Id.* In addition, because an increasing number of workers use the internet at work, failure to become familiar with the internet and failure to have internet access in the home translates into a significant job training deficiency. *Id.*

Furthermore, as the Supreme Court has stated, the internet has become a modern "town square" generating content "as diverse as human thought." *Reno v. ACLU*, 521 U.S. 844 (1997). In addition, AWS includes video services. It is a vital part of the government's responsibility under the First Amendment to "preserve an uninhibited marketplace of ideas in which truth will ultimately prevail" and protect the public's "paramount" right "to receive suitable access to social, political, esthetic, moral and other ideas." *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367 (1969). *Accord* 47 USC §257(b).

[10]Available at http://www.pewinternet.org/pdfs/PIP_Internet_ties.pdf.

2. The Supreme Court's Decision in *Grutter v. Bollinger* Permits Consideration of Narrowly Tailored Race-Conscious Measures to Achieve the Compelling Government Purpose of Fostering Minority Access to Advanced Telecommunications Capabilities.

Following the Supreme Court's decision in *Adarand Contractors v. Pena*, 515 U.S. 200 (1995), the FCC eliminated the DE credit for women-owned and minority-owned businesses and has declined to adopt any race sensitive conditions to encourage deployment of advanced telecommunications capabilities to minority communities. In 2003, the Supreme Court clarified that race sensitive criteria ***could*** survive strict scrutiny if such criteria were narrowly tailored to serve a compelling government interest. *Grutter v. Bollinger*, 539 U.S. 306 (2003).

The President has established a national priority on of universal, affordable broadband deployment by 2007 as critical to maintaining our global competitiveness. In addition, the President has called for a number of initiatives that rely on ubiquitous broadband access, from e-government to telemedicine. In light of the evidence that minority communities will be left behind unless the FCC takes narrowly tailored measures designed to address the persistent, growing digital divide, the Commission should consider how the DE credit or other regulatory means can facilitate minority ownership and deployment to minority communities consistent with the standard set forth in *Bollinger*.

C. The Commission Should Defer Any Decision on Whether to Prohibit Wireline Incumbents From Partnering With DEs, And How Best To Encourage Deployment To Minority Communities, For A Subsequent Rulemaking.

NHMC, *et al.*, recognize that the question of race-conscious regulations to facilitate deployment of advanced wireless services, and advanced telecommunication capabilities generally, to minority communities raises complex legal and factual questions that exceed the scope of this *NPRM*. At the same time, such questions are inextricably tied to resolving the issue of how best to administer the

DE credit program. In addition, the longer the needs of minority communities remain unaddressed, the greater will be the cost to those communities and our nation as a whole as the digital divide widens.

The Commission should therefore defer both the complex question of whether to permit wireline incumbents to enter into material relationships with DEs, and how to encourage distribution of licenses to minority-owned and women-owned businesses and promote economic opportunity to minority communities in accordance with Section 309(j)(3)(B), to the next auction. This will provide the added benefit of observing the behavior of wireline incumbents, and the impact on minority communities, in the current auction.

In the meantime, the Commission should both monitor the situation carefully and take advantage of existing resources to address the digital divide issue. For example, although the Commission created a Diversity Advisory Committee, it has yet to utilize it in any way. The Commission could convene a meeting of the Committee and seek advice on how best to proceed.

III. THE COMMISSION SHOULD CREATE AN EXPEDITED COMPLAINT PROCESS TO DISCOURAGE SHAM DEs AND TRAFFICKERS.

As Klemperer has observed, a critical element in creating competition through auctions is the willingness of the government to enforce its rules vigorously and send clear signals to the industry that it will not tolerate clever attempts to "game the system." Failure to do so, on the other hand, encourages incumbents to collude and engage in other anticompetitive activity. Klemperer, "What Really Matters In Auction Design," *supra*.

Unfortunately, the Commission has an extremely poor record when it comes to post auction enforcement of anti-trafficking rules and other means of preventing incumbents from colluding with a DE. A recent article in the *Wall Street Journal* describing a number of DEs financed by Mario

Gabelli, observed that allegations of abuse of the rules and trafficking were being addressed by a private *qui tam* law suit rather than by the FCC.[11] Indeed, so lax is the FCC in the enforcement of the DE credit that, in the words of one industry participant: "It's hard not to be cynical."[12]

To address these concerns, and thus increase the likelihood that the DE program will facilitate entry by genuine new competitors rather than confer licenses on speculators or shams, the Commission should establish an expedited complaint and enforcement process. In pursuing complaints, staff must vigorously develop evidence and move to resolve complaints within a short period of time – ideally no more than 90 days. Otherwise, parties will continue to flaunt the Commission's rules, speculators will enjoy unjust enrichments at the expense of the public in violation of Section 309(j), and the incumbents will continue to thwart competition.

IV. THE COMMISSION SHOULD STANDARDIZE THE AUCTION DATA KEPT AND THE MANNER IN WHICH IT IS MADE AVAILABLE TO THE PUBLIC.

In order to assist the Commission and the public in monitoring the success of the DE credit program and to encourage transparency in the auction process generally, the Commission should standardize the auction data collected and the manner in which it makes this data available to the public. Ideally, the Commission should consult a focus group of academics, industry researchers, and public interest advocates to determine the most useful data to collect, in what format to maintain it, and how the data gathering and publishing processes can generally promote transparency and efficiency

[11] John R. Wilke, "In FCC Auction of Airwaves, Gabelli Was Behind the Scenes," *Wall Street Journal*, A1 (December 27, 2005).

[12] Paul Davidson, "Spectrum License Distribution Scrutinized," *USA Today* (February 12, 2006).

in the auction process.[13]

At the least, however, the Commission should resume the practice of indicating which winners were eligible for a DE credit and disclose with what entities these DEs maintain any material relationship. While such data is discoverable in other ways, it would enormously facilitate scholarly research and public monitoring of the program if the Commission made access to this data convenient. Given that the auction of the returned "analog" television spectrum will take place no later than 2008, the Commission should take every step possible to encourage public monitoring and scholarly research of the DE program and the auction process generally.

CONCLUSION

The Commission has before it sufficient evidence to adopt the proposed prohibition on allowing large wireless carriers to form "material relationships" with designated entities, regardless of whether the wireless carrier has a significant presence in the region. The more complex questions of who else should be prohibited from such relationships and how best to achieve the purposes of the DE credit as set forth in Section 309(j)(3)(B) and (4)(C) must be deferred until the Commission has had an opportunity to compile a more substantial record. At the same time, neither the competition questions raised by convergence nor the pressing issue of the digital divide and its disparate impact on minorities will wait until the last minute before the anticipated 800 MHz auction in 2008. The Commission should act expeditiously to compile a record and consider proposed rules.

WHEREFORE, NHMC, *et al.* request the Commission adopt the proposed rule, with the

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[13] This proposal applies only to ***post auction*** data. The question of what data to display during an auction, for example, whether to continue to employ the open ascending auction model or move to some other form, has significant impact on whether the auction is more or less subject to either explicit or tacit collusion and signaling. Klemperer, "What Really Matters In Auction Design," *supra*.

modifications suggested above.

Respectfully submitted,

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DECLARATION OF DR. GREGORY ROSE

1. My name is Dr. Gregory Rose. I am an independent consultant working with Media Access Project on matters pertaining to WT Docket No. 05-211.[1]

INTRODUCTION

2. I have been asked to determine whether the current DE credit, as used in FCC auctions, promotes the intended goals of the Designated Entity (DE) credit and of Section 309(j)(3)(B) and (4)(C)(ii). In other words, does the DE credit promote distribution of licenses, access to economic opportunities, and deployment of new technologies to small businesses, minority owned business, women owned businesses, and traditionally underserved communities such as rural communities and minority communities?

To accomplish this, I will first briefly trace the history of FCC auctions, their general goals, and how well they have achieved these goals without consideration of the DE credit. Next, I will examine whether the DE credit "strategy" has proven successful in advancing the goals of the spectrum auction system and the specific goals of Sections 309(j)(3)(C) and (4)(C)(ii).

3. Examining ten years of auction data made available to the public through the FCC' s website, I found that spectrum auctions have generally failed to serve the stated goals of

[1] The research underlying this affidavit was made considerably more difficult by the way in which the FCC collects and organizes auction data. Random differences in result format and variable capture – apparently a consequence of there being no authoritative decision as to how data would be collected -- are rife in the FCC' s databases. Information on designated entity participation is particularly difficult to retrieve. Frankly, if the evident cause for the incoherent data capture and reporting were not incompetence, one might think the cause to be fraud. There is a fundamental need for greater rigor and consistency in FCC auction results collection and reporting without which the reliability of FCC data must be questioned.

introducing competition, promoting efficient spectrum use, and broadly fostering technological innovation. To the contrary, FCC auctions as structured and administered over the last ten years have created a system in which a small number of dominant players are able to systemically exclude new entrants – the most likely source of head to head competition and disruptive technological innovation.

Furthermore, evidence exists that the current auction structure does not achieve the unstated goal of maximizing revenue to the government. To the contrary, there is evidence to support the conclusion that the current auction structure, by facilitating tacit collusion and excluding new entrants, artificially depresses the price paid at auction.

For those auctions for which data was available with regard to use of the DE credit, use of the DE credit did increase the number of new entrants winning licenses. This suggests that DE credits can serve a valuable role in fostering competition in the communications markets and encouraging head to head competition at auction that would potentially drive up the bid price to compensate for the credit.

It is impossible to tell, however, based on the information available, whether the current DE credit achieves these ends. Increased consolidation within the industry and the failure of the intended beneficiaries of the DE credit – notably minority-owned and women-owned firms – to experience new entry or economic opportunity in the wireless communication market suggests a need for corrective action.

4. Given the success of the DE credit in facilitating new entrants, prohibiting a material relationship between incumbent wireless carriers (whether in region or out of region) appears to be a prudent first step in achieving the goals of the DE credit and promoting competition in the wireless market generally. While the data available does not

demonstrate unequivocally that such a change will increase competition, the data does suggest that prohibiting such material relationships will restrict the ability of incumbents to manipulate the auction system to exclude new entrants while not depriving the intended beneficiaries of the DE – minority-owned businesses, women-owned businesses, and underserved communities – of needed capital or other benefits.

A. History and Goals of FCC Spectrum Auctions.

5. Prior to the approval of spectrum auctions, the FCC assigned spectrum through comparative hearings in which the merits of two or more competitors for a single license were evaluated and a decision to allocate to one of them was made on the basis of how well an applicant made efficient use of spectrum and met the demands of the "public interest." Although the determination of the public interest was not clearly defined, it remained the more important criterion. The comparative hearing method involved three rounds of agency decision-making: before an FCC administrative law judge, the Review Board, and the Commissioners themselves, plus the possibility of review by the Court of Appeals. Lotteries were also used to allocate the first cellular telephone service licenses, although lotteries led to speculation in spectrum and resale, requiring new rule-making and extensive dispute resolution and frequently resulting in profoundly inefficient outcomes. Even today the majority of bandwidth is still assigned under comparative hearing decisions, although gradually the auction process is being applied to more and more bandwidth.

6. As a result of authorization by Congress in the Omnibus Budget Reconciliation Act of 1993, since 1994 the Federal Communications Commission (FCC) has conducted 58 auctions of licenses for electromagnetic spectrum. Based in part on the FCC's initial

experiences with such auctions, the Balanced Budget Act of 1997 mandated the use of auctions to resolve mutually exclusive applicants for initial licenses in all but a handful of exempted categories.[2] As the Congressional Budget Office points out,

> In designing auctions for spectrum licenses, the FCC is required by law to meet multiple goals and not focus simply on maximizing receipts. Those goals include ensuring efficient use of the spectrum, promoting economic opportunity and competition, avoiding excessive concentration of licenses, preventing the unjust enrichment of any party, and fostering the rapid deployment of new services, as well as recovering for the public a portion of the value of the spectrum.[3]

The adoption of auction for assignment of spectrum licenses to applicants was primarily justified on the grounds that auctions produce more efficient outcomes in terms of competition, rational exploitation of complementarities, availability of technologies to the public, and revenue maximization.

7. The following analysis demonstrates that the FCC auctions of licenses to use the spectrum do not meet the requirements established by Congress. They do not ensure "efficient use of the spectrum," and rather than promote "economic opportunity and competition" they have resulted in an "excessive concentration of licenses." Moreover, there is little evidence that this process has fostered the "rapid deployment of new services." And while there has been some recovery of "a portion of the value of the spectrum," it is not at all certain that auctions return to the Treasury a value close to their worth. This paper will examine each of these points in turn.

B. FCC Auctions Do Not Promote Competition.

[2] These exempted categories included non-commercial education and public broadcast stations, public safety radio services, and replacement of analog television licenses with digital television licenses.

[3] U.S. Government, Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2001-2010* (Washington, D.C., 2000), Appendix B.

8. Promotion of competition is frequently touted as a principal benefit arising from the use of auctions to assign electromagnetic spectrum. Competition in these cases can be conceptualized in two ways: do the outcomes produced by the auction system enhance competition within the telecommunications industry generally[4] and does the auction process itself significantly exhibit the signs of real competition among bidders? On close examination of the actual data from spectrum auctions conducted by the FCC since 1994, claims for either outcome or process competition seem largely unfounded.

9. There are several ways to evaluate the degree to which FCC spectrum auctions enhance or diminish competition in the telecommunications industry. Of principal concern is the extent to which such auctions occasion market concentration on a scale which erects significant barriers to entry and permits the exercise of market power to shape price. This is all the more important because of the tendency for the telecommunications industry to exhibit high levels of concentration historically. This paper proposes to look at four such measures: the percent of bidders in any auction acquiring 50 percent or more of auction items versus the percent of bidders acquiring any auction items; the mean number of licenses/permits acquired by the top five bidders versus the mean number of licenses/permits acquired by the remaining bidders; a chi-square test of the difference between the observed mean number of licenses acquired by the top five bidders and the expected mean number of licenses acquired by the top five bidders under conditions of perfect competition; and the Hirschman-Herfindahl Index of market concentration. Table 1 presents the results of these measures.

[4] Auctions are predicated on the bidder with the highest private value winning. This is no guarantee that bidders with the highest social value will prevail. This tension between private and social value has been resolved in FCC spectrum auctions almost entirely in favor of private value.

Table 1.
Indices of Competition in FCC Spectrum Auctions

Auction No.	Type	No. of Licenses at Auction and (Actually Assigned)	No. of Bidders	Percent of Bidders Acquiring 50% or More of Auction Items	Percent of Bidders Acquiring Any Auction Items	Mean No. of Licenses Acquired by Top 5 Bidders	Mean No. of Licenses Acquired by Remaining Bidders	Chi-Square Test of Difference Between Observed and Expected|PC	a	HHI
1	PCS Narrowband Nation	10	29	10.35	20.69	2.00	0.0417	7.23	<.01	2700
2	IVDS	594	289	12.11	61.59	17.20	1.7887	108.66	<.001	1130
3	PCS Narrowband Region	130	28	10.71	32.14	4.60	0.3043	12.78	<.001	1377
4	PCS A&B Block	99	30	10.00	60.00	14.80	1.0000	44.43	<.001	1537
5	PCS C Block	493	255	5.10	34.90	30.20	1.4250	413.42	<.001	348
6	MDS	493	155	3.87	43.23	54.40	1.6533	1189.52	<.001	714
7	900 MHz SMR	1020	123	3.25	24.39	126.00	2.3155	1670.75	<.001	940
8	DBS (110W)	1	3	0.00	33.33	-	-	-	-	10000
9	DBS(148W)	1	2	0.00	50.00	-	-	-	-	10000
10	PCS Block C Reauction	18	32	9.38	21.88	3.20	0.0741	12.37	<.001	2531
11	PCS D,E, F Block	1479(1472)	153	4.58	81.70	132.80	5.4595	1243.79	<.001	542
12	Cellular Unserved	14	22	13.64	45.45	1.80	1.0000	0.64	NS	1429
14	WCS	126	24	12.50	70.83	17.40	2.0000	28.12	<.001	1289
15	DARS	4	4	0.00	50.00	-	-	-	-	5000
16	800 MHz SMR	525(524)	62	1.61	22.58	102.00	0.2456	1033.14	<.001	8232
17	LMDS	986(864)	139	6.47	78.82	79.40	3.4900	861.66	<.001	709
18	220 MHz	908(693)	54	7.41	81.48	90.20	4.9400	466.41	<.001	1227
20	VHF Public Coast	42(26)	8	12.50	50.00	5.20	0.0000	1.17	NS	3846
21	LMS	528(239)	5	20.00	80.00	-	-	-	-	6661
22	PCS	347(302)	57	5.97	85.07	34.20	2.0791	195.60	<.001	866
23	LMDS	161	90	6.67	44.44	15.20	1.0000	100.54	<.001	686
24	220 MHz	225(222)	18	11.11	88.89	35.40	3.4615	43.14	<.001	1846
25	Closed Broadcast	115	242	13.60	37.60	4.00	0.4008	26.15	<.001	152
26	929 and 931 Paging	2499(985)	81	9.88	96.30	78.00	7.8289	356.49	<.001	490
27	Broadcast	1	3	0.00	33.33	-	-	-	-	10000
28	Broadcast	2	4	0.00	50.00	-	-	-	-	5000
30	39 GHz	2175	35	8.57	82.86	346.00	14.6667	1298.32	<.001	2302
32	AM Broadcast Stations	3	5	0.00	60.00	-	-	-	-	6000
33	Upper 700 MHz Guard	96	15	13.33	60.00	18.40	0.4000	22.50	<.001	2938
34	800 MHz SMR General	1053(1030)	26	3.85	53.85	199.40	1.5714	668.90	<.001	6146
35	PCS C&F Block	422	87	3.45	40.23	56.00	1.7317	538.37	<.001	1315
36	800MHz SMR Lower	2800	28	3.60	78.60	546.60	2.9130	1994.52	<.001	8497
37	FM Broadcast	288(258)	456	2.63	24.12	18.60	0.3659	574.82	<.001	408
38	Upper 700 MHz Guard	8	5	0.00	60.00	-	-	-	-	3438
39	Public Coast & LMS	257(217)	7	28.57	100.00	42.20	3.0000	4.04	<.05	3103
40	Paging	15514(5323)	193	8.29	94.30	312.00	20.0200	2933.04	<.001	312
41	Narrowband PCS	365(317)	9	11.11	55.56	63.40	0.0000	22.54	<.001	5163
42	Multiple Address Sys	5104(878)	13	7.69	100.00	156.00	12.2500	115.87	<.001	3412
43	Multi-Radio Service	27	7	14.29	42.86	5.40	0.0000	0.61	NS	5007
44	Lower 700 MHz band	740(484)	125	8.00	81.60	36.80	2.5000	280.02	<.001	478
45	Cellular RSA	3	7	0.00	43.00	-	-	-	-	3333
46	1670-1675 MHz Band	1	2	50.00	50.00	-	-	-	-	10000
48	Lower & Upper Paging	10202(2832)	104	10.58	92.31	191.20	18.9495	987.37	<.001	370
49	Lower 700 MHz Band	256(251)	56	3.57	62.50	32.60	1.7254	176.39	<.001	1667
50	Narrowband PCS	48	4	25.00	75.00	-	-	-	-	7734
51	Narrowband PCS	5	2	50.00	50.00	-	-	-	-	10000
52	Direct Broadcast Satellite	3	2	50.00	100.00	-	-	-	-	5556
53	MVDDS	214(192)	14	14.29	71.43	35.40	1.6667	34.31	<.001	2123
54	Closed Broadcast	4	6	16.67	33.33	-	-	-	-	6250
55	900 MHz SMR	55	17	5.88	29.41	11.00	0.0000	18.64	<.001	7078
56	24 GHz	880(7)	3	33.33	66.66	-	-	-	-	4286
57	AMTS	20(10)	4	25.00	100.00	-	-	-	-	3600
58	Broadband PCS	242(217)	35	11.42	68.57	27.40	2.6667	72.49	<.001	988
59	Multiple Address Systems	4226(2223)	31	6.45	83.87	398.40	8.8846	1488.31	<.001	2583
60	Lower 700 MHz Band	5	5	0.00	43.00	-	-	-	-	3600
61	AMTS	10	7	28.57	57.14	2.00	0.0000	0.24	NS	3000
80	Blanco, Texas Broadcast	1	11	9.09	9.09	-	-	-	-	10000
82	New Analog Television	4	11	9.09	27.27	-	-	-	-	3750

Source: FCC

The outcomes of FCC spectrum auctions show a high degree of skew toward acquisition of 50% or more of auction items by a relatively small number of bidders. In only 15.52%[5] of auctions did a small subset of bidders fail to acquire at least 50% of items auctioned. The more competitive outcome of 50% of bidders acquiring 50% or more of auctioned items occurred in only 5.17% of auctions. Much more troubling is the evidence that very small subsets of bidders tended to acquire numbers of licenses/permits totally out of proportion to competitive expectations: 1-10% of bidders acquired 50% or more of licenses/permits in 43.10% of auctions, 11-20% of bidders acquired 50% or more of licenses/permits in 27.59% of auctions, 21-30% of bidders in 6.90% of auctions, and 31-40% of bidders in 1.72% of auctions. The mean percentage of bidders acquiring 50% or more of auction items over all FCC spectrum auctions was 11.26%. In other words, barely more than 10% of bidders were routinely able to acquire 50% or more of the available licenses/permits. Examining the situation in terms of the percentage of bidders who acquired any auction items is somewhat more promising. In only 12.07% of auctions did all bidders acquire at least one license/permit. However, in 53.45% of auctions between 51% and 100% of bidders acquired at least one item. This still leaves 46.55% of auctions in which 50% or less of bidders acquired at least one item. On average 58.19% of bidders acquired at least one license/permit. This comparison allows us to establish one pattern across FCC spectrum auctions: they tend to be dominated by a small subset of bidders who acquire a majority of auction items while other bidders typically obtain only a handful of licenses/permits, if that. This finding is supported by

[5] Note that fractions are rounded in this analysis.

analysis of the mean number of auction items obtained by the top five bidders in comparison to the mean number of auction items obtained by the remaining bidders.

In the 38 auctions, analysis of the mean number of auction items obtained by the top five bidders in comparison to the mean number of auction items obtained by the remaining bidders is appropriate.[6] The mean number of auction items obtained by the top five bidders reinforces the impression of a high degree of skew toward such bidders: in 24.64% of such auctions the top five bidders obtained an average of more than 100 licenses/permits each, in 2.57% 81-100, in 7.69% 61-80, in 7.69% 41-60, in 17.95%, 21-40, and in 38.46% of auctions 1-20 items. On average, the top five bidders received a mean of 85.82 auction items. Examination of the mean number of auction items obtained by the remaining bidders reveals a similarly staggering skew: in 30.77% of such auctions the remaining bidders acquired on average less than one license/permit, in 51.28% between 1 and 5 auction items, in 7.69% 6-10 items, in 5.13% 11-15 items, in 2.565% 16-20 items, and in 2.565% 21-25 auction items. On average, the remaining bidders received a mean of 3.43 auction items. These findings are consistent with the existence of a strong skew biasing auction outcomes in favor of a small subset of bidders.

It remains to determine if this strong skew in favor of a small subset of bidders is statistically significant. The chi-square test of goodness of fit measures the degree to which an observed distribution differs from a theoretical distribution.[7] In this case the observed distribution is the number of auction items obtained by the top five bidders; the distribution is the distribution of auction items obtained by the top five bidders under the

[6] This analysis was not performed for auctions in which fewer than five licenses/permits were at auction or in which fewer than five bidders participated.

[7] The formula for calculating the chi-square is $\Sigma[(O - E)^2/E]$, where O is the observed frequency and E is the expected theoretical frequency.

assumption of perfect competition, i.e., equiprobability of success in an environment of perfect information and symmetrical resources. In 84.62% of auctions to which this test was applied the difference was significant at $a < .001$, in 2.56% of auctions it was significant at $a < .01$, and in 2.56% of auctions it was significant at $a < .05$. In 10.26% of auctions to which this test was applied no significant difference was found. Thus, in the overwhelming majority of FCC spectrum auction outcomes there has been a statistically significant bias in favor of a relatively small subset of bidders.

Even with this statistically significant bias it is still possible that the degree of market concentration produced by this bias is less than apparent because of the possibility of relatively large sets of bidders who are at least marginally successful in obtaining auction items. In order to explore this hypothesis let us assume that each auction amounts to a market in that particular bandwidth of spectrum, i.e., that the distribution of licenses over the successful bidders indicates market share.[8]

The Hirschman-Herfindahl Index (HHI) is a common measure of market concentration which is particularly sensitive to the number of actors in the market and can, therefore, indicate where the breadth of the distribution of licenses/permits mitigates the concentration effects of the already observed biasing skew.[9] The HHI is also useful in this case because it allows examination of auctions in which the number of auction items or the number of bidders was too small for a significant chi-square test. The U.S. Department of Justice uses the HHI in evaluating antitrust actions, regarding an HHI <

[8] When one controls for differences in size of population in license region by a weighting for price (high bid/population), this assumption is quite literally true because each auction allocates all of the designated bandwidth and the amount of bandwidth acquired reflects market share in that bandwidth.

[9] The formula for the HHI is $\sum s_i$, where s_i is the market share of bidder i. The Theil coefficient of inequality produces similar results for the auction data tested here.

1,000 as indicating a competitive market, an HHI ≤ 1,000 to 1,800 as indicative of a moderately concentrated market, and an HHI >1,800 as indicative of a highly concentrated market. In 24.14% of FCC spectrum auctions, HHI < 1,000 occurs; in 13.79% of auctions an HHI between 1,000 and 1,800 occurs, while in 62.07% of these auctions an HHI > 1,800 occurs. This suggests that while the breadth of distribution of licenses in roughly 24% of auctions reduces the danger of market concentration, in nearly 76% of FCC spectrum auctions moderate to high concentration still occurs.

Table 2 summarizes the findings by relating the degree of skew biasing outcomes

Table 2.
Relationship of Skew Bias to HHI in FCC Spectrum Auctions in Percent of Auctions in Category

	Low HHI	Moderate HHI	High HHI
No Skew Bias	-	2.84	7.89
Moderate Skew Bias	-	-	5.26
High Skew Bias	36.84	15.79	31.58

in favor of the five top bidders to the HHI for each auction. While it is clear that the breadth of distribution of licenses/permits in some auctions mitigates some of the market concentration effect even in the presence of significant skew favoring the top five bidders, it remains disturbing that 37 of 38 auctions examined score high in market concentration on at least one of the indices. This suggests strongly that outcome competition is not characteristic of FCC spectrum auctions and these auctions fail to enhance competition general in the telecommunications industry.

10. A troubling additional factor in evaluating the extent to which FCC spectrum auctions contribute to market concentration in the telecommunications industry is the large number of firms which have prevailed as top five bidders in more than one auction: 31 firms have prevailed in at least two auctions, nine in at least three auctions, and five in at least four auctions. Various firms associated with Nextel prevailed among the top five

bidders in seven auctions, amassing a total of 3,980 licenses. This suggests that the factors cited in the analysis above militate to advantage a number of firms across multiple auctions as well as in individual auctions. Table 3 lists the top 100 bidders in terms of number of licenses/permits acquired in FCC spectrum auctions.

Table 3.
Top 100 Bidders in Number Licenses Assigned in FCC Spectrum Auctions

Firm	No. of Licenses Assigned	Auction
Nextel Spectrum Acquisition Corp.	3437	33, 34, 36, 38, 43
WinStar Wireless Fiber Corp.	931	30
CloudNine Wireless, LLC	843	59
Jamestown Manufacturing Corporation	698	40
Advanced Metering Data Systems, LLC	652	59
TeleBEEPER of New Mexico, INC	624	40, 42, 43, 48,
MilkyWay Communications, LLC	476	42
Nextel License Acquisition Corp.	475	16
Intelligent Transportation & Monitoring Wireless	357	59, 61
Advanced Radio Telecom Corp.	352	30
Schuylkill Mobile Fone, Inc.	333	40, 48
Agri-Valley Communications, Inc.	270	48
Space Data Spectrum Holdings, LLC	247	41, 50, 51
AT&T Wireless PCS Inc.	243	4, 11
Baker Creek Communications, L.P.	232	17
Intek License Acquisition Corp.	232	18, 24
Communications Equipment, Inc.	231	40
Progeny LMS, LLC	230	21
Geotek Communications, Inc.	181	7
Southern Communications Services, Inc	179	34, 36
FCI 900, Inc.	177	7
Hyperion Communications Long Haul, LP	177	30
Microwave Data Systems Inc.	168	42
Scott C. MacIntyre	161	40, 41, 50, 55
SprintCom, Inc.	160	11
Metrocall USA, Inc.	145	26
Zephyr Wireless, L.L.C.	140	30
Cellco Partnership d/b/a Verizon Wireless	139	35, 58
New York State Electric & Gas Corporation	138	48
Warren C. Havens	137	20, 21, 24
Jeffrey Scott Cofsky dba Texas License Consultants	136	48
Atlantis Bidding Corp.	130	30
Net Radio Group Communications, LLC	126	18

Paging Network of America, Inc.	126	7
OPCSE-Galloway Consortium	109	11
Allegheny Communications, Inc.	101	41
Western PCS BTA I Corp.	100	11
Heartland Wireless Communications, Inc.	93	6
Aloha Partners II, L.P.	89	49
Helen Wong-Armijo	84	39
RAM Mobile Data USA, LP	83	7
Nevada Wireless, LLC	82	16, 34, 36
Southern Company Services, Inc.	82	16, 59
Telesaurus Holdings GB, LLC	80	39
Aloha Partners, L.P.	79	44, 60
Salmon PCS, LLC	79	35
Vodafone AirTouch Licenses, LLC	78	26
AllTel Mobile Communications, Inc.	73	11
Great River Energy	68	59
Nextel 220 License Acquisition Corp.	68	18
ABC Wireless, L.L.C.	64	22
Fleet Talk, INC.	63	7
WWC Paging Corp.	63	26
MDS Operations, Inc.	60	53
Leap Wireless International, Inc.	58	22, 35
American Telecaasting Development, Inc.	56	6
NextWave Personal Communications, Inc.	56	5
MAP Paging Co., Inc.	53	26
Eclipse Communications Corp.	51	17
Intek License Acquisition Corp.	51	24
Trompex Corp.	51	26
MilkyWay Broadband, LLC	48	44
ACI 900, Inc.	46	55
DTV Norwich, LLC	46	53
Alaska Native Wireless, LLC	44	35
Cavalier Group, LLC	44	49
DCR PCS, Inc.	43	5
NEXTBAND Communications, LLC	42	17
Paging Systems, Inc.	41	41, 42, 57, 61
Telephone & Two-Way, Inc.	40	42
WNP Communications, Inc.	40	17
Repeater Network Spectrum Acquisition, Inc.	39	18
College Creek Broadcasting, Inc.	38	37
Preferred Acquisitions Inc.	38	34
220 MHz Bidding Consortium	37	18
SOUTH.COM LLC	37	53
Vista PCS, LLC	37	58
Cook Inlet/VS GSM VII PCS, LLC	36	58
Wireless One, Inc.	36	6
OPCS Three, LLC	34	22

Pegasus Guard Band, LLC	34	33, 38
Motient Communications Co.	33	34
Actel Corp.	32	17
CAI Wireless Systems, Inc.	32	6
PCS Partners, LP	32	39
Cloudnine Communications, Inc.	31	23
Coloma Wireless, Inc.	31	14
LIN Television Corp.	31	44, 49
Cook Inlet/VoiceStream PCS LLC	28	22
PCTV Gold, Inc.	28	6
WirelessCo, LP	28	4
220 MHz Auction Group	26	24
Bruce E. Fox	24	53
Vulcan Spectrum, LLC	24	44
Bell South Wireless Cable, Inc.	23	1, 14
Cook Inlet/VS GSM V PCS, LLC	22	35
A.R.C., Inc.	21	36
Access Spectrum, LLC	21	33, 38
Edge Mobile, LLC	21	58
Radioactive, LLC	21	37

Source: FCC.

11. Does the auction process itself significantly exhibit the signs of real competition among bidders? There are several ways of addressing this question. Table 4 provides two indices which are helpful in providing an answer. One of the factors which militates

Table 4.
Indices of Competition Among Bidders in FCC Spectrum Auctions

Auction No.	Type	No. of Licenses at Auction and (Actually Assigned)	No. of Bidders	Pct. Of Licenses Acquired in First Round	Ratio of Mean Upfront Deposit of Top/Bottom 5 Bidders
38	Upper 700 MHz Guard	8	5	25.00	-
39	Public Coast & LMS	257(217)	7	52.53	-
40	Paging	15514(5323)	193	36.88	186.76
41	Narrowband PCS	365(317)	9	2.21	-
42	Multiple Address Sys	5104(878)	13	64.24	24.76
43	Multi-Radio Service	27	7	0.00	-
44	Lower 700 MHz band	740(484)	125	24.38	28.26
45	Cellular RSA	3	7	0.00	-
46	1670-1675 MHz Band	1	2	0.00	-

48	Lower & Upper Paging	10202(2832)	104	50.46	28.72
49	Lower 700 MHz Band	256(251)	56	2.79	183.57
50	Narrowband PCS	48	4	2.08	-
51	Narrowband PCS	5	2	0.00	-
52	Direct Broadcast Satellite	3	2	0.00	-
53	MVDDS	214(192)	14	8.33	25.47
54	Closed Broadcast	4	6	0.00	-
55	900 MHz SMR	55	17	7.27	6.38
56	24 GHz	880(7)	3	57.14	-
57	AMTS	20(10)	4	90.00	-
58	Broadband PCS	242(217)	35	6.45	136.98
59	Multiple Address Systems	4226(2223)	31	35.36	0.41
60	Lower 700 MHz Band	5	5	0.00	-
61	AMTS	10	7	0.00	-
80	Blanco, Texas Broadcast	1	11	0.00	-
82	New Analog Television	4	11	0.00	1.42

Source: FCC.

for oligopolistic rather than perfect competition in real-world markets is initial capitalization asymmetries. Actors who come to the market with fewer resources to invest, who are, therefore, more vulnerable to the vicissitudes of market fluctuation and to intimidation by stronger market actors, are significantly disadvantaged in their ability to compete. This situation also obtains in FCC spectrum auctions – some bidders come to the auction with hugely more resources to deploy strategically in pursuing acquisition of blocks of licenses than do others. However, there is a problem in that the majority of bidders are firms which are not publicly traded and it is difficult to obtain accurate information on their capitalization. It is for that reason necessary to develop a proxy variable which indirectly measures differences in initial capitalization.

As stated earlier, bidders in FCC spectrum auctions are required to place a refundable deposit with the FCC which determines the number of bids the bidder may place in the auction. While there are factors other than just initial capitalization which affect the amount a bidder may deposit, i.e., the bidder may be interested in acquiring

only a small subset of the available spectrum, this deposit primarily reflects the resources the bidder brings to the auction and can strategically deploy in the bidding process. Thus comparison of the mean upfront deposit of the five most successful bidders to that of the five least successful bidders in an auction provides a proxy measure of the range of initial capitalization asymmetry in the auction. There are 33 FCC spectrum auctions in which the number of bidders and items at auction are sufficiently large to permit reliable analysis of the ratio of the mean upfront deposit of the top/bottom five bidders in the auction. Only in one auction (auction 59, Multiple Address Systems) does this ratio favor the bottom end of the distribution. In the remaining 32 (96.97%) relevant auctions the ratio decidedly favors the bidders who prove to be most successful in the auction. The ratio ranges from 1.26 to 186.76; obviously the larger the ratio, the greater the putative initial capitalization asymmetries in a given auction. The mean ratio for all 33 auctions is 46:64. A Student's paired, two-tailed t-test of the difference of the means of the two distributions underlying the ratio was significant at a=.0167, which strongly implies that a very real difference is measured by the ratio. That significant initial capitalization asymmetries exist between bidders in these auctions and that the asymmetries significantly favor those bidders who eventually prevail is evidence that competition within the auctions is negatively affected by these facts. As will be shown below, such asymmetries make available strategies – particularly preemptive bidding – to a subset of bidders which can systematically reduce the price at which auction items are acquired.

12. Another index of competition within an auction is the percentage of licenses/permits which are acquired by a bid in the first round of the auction. Acquisition of an auction item with a bid placed in the first round signals either the absence of a competitor to bid

for the item or a preemptively high bidder which intimidates other bidders from entering competition for the item. In 29 (50%) of the 58 FCC spectrum auctions which have been conducted to date, auction items were acquired with a bid placed in the first round. The percentage of auction items acquired in this fashion ranges from 1.55% (auction 27, FM Broadcast) to 90% (auction 57, AMTS) with a mean of 13.08% over all the auctions. This is particularly disturbing evidence of non-competitive behavior in FCC spectrum auctions, particularly when contextualized with what we shall see below is an alarmingly high number of licenses at auction which never receive any bid whatsoever.

C. FCC Auctions Promote Collusive Behavior.

13. Collusive behavior is yet another indicator of non-competitive dynamics at work in the FCC spectrum auctions. In 2000 Peter Cramton and Jesse Schwartz examined such behavior in auction 11, the PCS D, E, F Block auction.[10] The problem which they identified was that fact that

> [d]uring the DEF auction (the Personal Communications Service (PCS) auction for broadband frequency blocks D, E, and F) the FCC and the Department of Justice observed that some bidders signaled each other with code bids. A code bid uses the trailing digits of the bid to tell other bidders on which licenses to bid or not bid. Since bids were often in the millions of dollars, yet were specified in dollars, bidders a negligible cost could use the last three digits —the trailing digits —to specify a market number. Often, a bidder (the sender) would use these code bids as retaliation against another bidder (the receiver) who was bidding on a license desired by the sender. The sender would raise the price on some license the receiver wanted, and use the trailing digits to tell the receiver on which market to cease bidding. Although the trailing digits are useful in making clear which market the receiver is to avoid, retaliating bids without the trailing digits can also send a clear message.[11]

They also found that

[10] Peter Cramton and Jesse A Schwartz, "Collusive Bidding in the FCC Spectrum Auctions," *Contributions to Economic Analysis & Policy* 1:1 (2002).
[11] Ibid.

> six of the 153 bidders in the DEF auction regularly signaled using code bids or retaliating bids. These bidders won 476 of the 1,479 licenses for sale in the auction, or about 40% of the available spectrum in terms of population covered. These signaling bidders paid about the same as other bidders for the F-block licenses, but on the D and E blocks, the signaling bidders paid $2.50/person, where as nonsignaling bidders paid $4.34/person. Moreover, when we control for market characteristics, we find that bidders that used code bids or retaliating bids paid significantly less for not only the D and E licenses, but also for the F licenses. We take this as evidence that the bid signaling strategies were effective at keeping prices low on the collection of licenses desired by the signaling bidders.
>
> Further, there was a tendency for bidders to avoid bidding against AT&T, a large bidder with a reputation for retaliation. Bidders frequently bid substantially more for an identical license, rather than bid on the cheaper license held by AT&T.[12]

To anyone who has followed the game theoretic literature analyzing behavior in Standard English Auctions, the findings of Cramton and Schwartz should be unsurprising. The work of Engelbrecht-Wiggins and Kahn[13] and of Brusco and Lopomo[14] has demonstrated that the auction design adopted by FCC spectrum auctions is particularly susceptible to tacitly collusive manipulation by bidders through signaling. Both studies have identified the existence of equilibria in which bidders can coordinate assignment of auction items at relatively low prices in auctions characterized by bidding on distinct units in sequential rounds. These equilibria are achieved through retaliation against bidders who refuse to cooperate in the assignment arrangement. It is important to note that the collusion achieved here is tacit rather than explicit. There is no need to assume prior communication and negotiation of the assignment arrangement. All that is required for tacit collusion is that the bidders recognize that self-interest is served by

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[12] Ibid.

[13] Richard Engelbrecht-Wiggans and Charles M. Kahn, "Low Revenue Equilibria in Simultaneous Auctions," Working Paper, University of Illinois, 1999.

[14] Sandro Brusco and Guiseppe Lopomo, "Collusion Via Signalling in Simultaneous Ascending Bid Auctions with Heterogeneous Objects, With and Without Complementarities," *Review of Economic Studies* 69:2 (2002), 407-436.

signaling which items they desire and which they are willing to forgo through retaliation against bids which threaten their acquisition of the items they desire. This is similar to the dynamic in oligopolistic markets in which the major actors achieve production and price equilibria which can be negotiated and enforced by the threat of punishment. It is also important to note that the dynamics of FCC spectrum auctions are somewhat more complicated than those of the game theoretic models developed by Engelbrecht-Wiggins and Kahn and of Brusco and Lopomo, since they are characterized by initial capitalization and complimentarity asymmetries as well as by the heterogeneity of auction items. In particular this implies both that collusive strategies will be somewhat more difficult to identify and that better capitalized bidders with substantial complementarities in their license acquisitions are more likely to be effective in utilizing a tacitly collusive strategy.

14. A related tacitly collusive strategy available in FCC spectrum auctions is the avoidance of head-to-head competition over licenses by the dominant bidders. This bidding strategy is suggested by a nearly uniform tendency observed since antitrust actions and deregulation in land-line telephony, cellular services, cable television, and broadband services, namely, avoidance of direct competition between major actors which might negatively affect profit and market share. To be sure, some of this phenomenon arises from the existence of complementarities arising from the technological need for geographical contiguity. However, analysis of two randomly selected FCC spectrum auctions in which head-to-head competition between the dominant bidders was examined while controlling for geographic contiguity (auction 43 – Multi-Radio Service – and auction 25 – Closed Broadcast) showed significant patterns of avoidance.

It should be kept in mind that the entire auction process is a series of reiterative games and in such games the likelihood of bidders learning ways in which to manipulate the bidding process is relatively high. In some cases, e.g., the classic Prisoner's Dilemma, iterative learning creates the possibility of Pareto-optimal equilibria, but such games are structurally different from the games which model auctions (i.e., the Pareto-optimal outcome necessitates collusion in the form of tacit agreement) and there is neither good theoretical nor empirical reason to believe that the sequential equilibria of auction games are impervious to anti-competitive collusive bidder manipulation.[15]

D. Post-Auction Analysis of The Distribution of Licenses Demonstrates The Failure of FCC Auctions to Create Competition.

15. Analysis of market power relations arising from outcomes in FCC spectrum auctions reveals the claim of increased economic efficiency in the form of increased competition put forward to justify adoption of the auction policy is simply not supported by the evidence. The evidence of a strong skew in favor of a small subset of bidders, the confirmatory evidence of the HHIs associated with each auction, and the number of bidders who have prevailed in multiple auctions all point inevitably to FCC spectrum auctions as engines for the production of market concentration in the telecommunications industry. The examination of strategic manipulation in FCC spectrum auctions has disclosed evidence of behaviors which systematically limit competition in the auction process. It is no exaggeration to suggest that oligopolistic competition characterizes most

[15] Viz. Robert Axelrod and William D. Hamilton, "The Evolution of Cooperation". *Science* 211 (1981), 1390–1396; Robert Axelrod, *The Evolution of Cooperation* (1984) and *The Complexity of Cooperation.* (Princeton: Princeton University Press, 1997); David Kreps, Robert Wilson, Paul Milgrom, and John Roberts, "Rational Cooperation in the Finitely Repeated Prisoners' Dilemma." *Journal of Economic Theory* 27 (1982), 245–52; and Paul Milgrom, "Axelrod's The Evolution of Cooperation." *Rand Journal of Economics* 15(1984), 30–59.

FCC spectrum auctions based on the evidence of capitalization asymmetries, first round acquisitions, and tacitly collusive bidding strategies. Bluntly, a substantial element of the rationale on which Congress based authorization of these auctions was little more than blue smoke and mirrors.

E. FCC Auctions Do Not Appear To Maximize Revenue.

16. It is one of the ironies of the way in which FCC spectrum auctions evolved that the economic theorists who designed them tend to emphasize justifications on grounds of economic rationality or efficient allocation of resources and to denigrate claims that revenue maximization was ever a major factor in their thinking, while the politicians who authorized them have embraced revenue maximization with a vengeance. As Eli Noam acutely observed,

> The underlying objective for the auction "game" is to raise revenues for government. This is usually denied quite heatedly, and other considerations are cited, such as moving spectrum to the users valuing it most, etc. But the political fact is that auctions were finally approved, after years of opposition to them by powerful Congressional barons and the broadcast industry, as a measure to reduce the budget deficit and avoiding spending cuts and tax increases. Allocating spectrum resources efficiently was a secondary goal in the political process. The maximizing function may have been constrained in several ways, such as by rules against monopoly control and in favor of diversity. But these additional policy considerations were only the fig leaf on the main reason, raising money for the empty coffers of the Federal Government. The rest is merely technique. Conceived in the original sin of budget politics rather than communications policy, spectrum auctions are doomed to serve as collection tools first and allocation mechanism second.[16]

On the face of it, FCC spectrum auctions have been veritable engines for making money for the federal government. To date FCC spectrum auctions have raised slightly

[16] Eli Noam, "Spectrum Auctions: Yesterday' s Heresy, Today' s Orthodoxy, Tomorrow' s Anachronism," *Journal of Law and Economics* (1998).

over $45 billion. Table 5 provides the revenue per auction and the revenue per license for each auction.

Table 5.
FCC Spectrum Auction Revenue

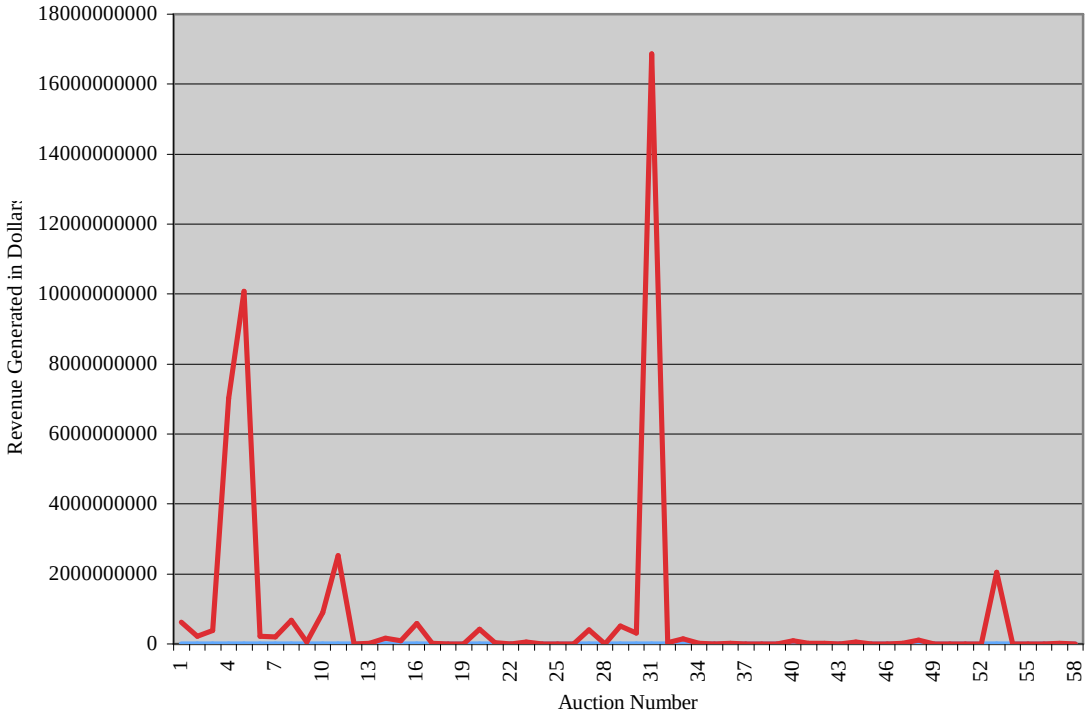
Auction No.	Type	No. of Licenses at Auction and (Actually Assigned)	No. of Bidders	Pct. Of Licenses Held by FCC at End of Auction	Revenue in $	Mean Revenue Per License
1	PCS Narrowband Nation	10	29	0.00	617,006,674.00	61,700,667.40
2	IVDS	594	289	0.00	213,892,375.00	360,088.17
3	PCS Narrowband Region	130	28	0.00	392,706,797.00	3,020,821.52
4	PCS A&B Block	99	30	0.00	7,019,403,797.00	70,903,068.66
5	PCS C Block	493	255	0.00	10,071,708,842.00	20,429,429.70
6	MDS	493	155	0.00	216,239,603.00	438,619.88
7	900 MHz SMR	1020	123	0.00	204,267,144.00	200,261.91
8	DBS (110W)	1	3	0.00	682,500,000.00	682,500,000.00
9	DBS(148W)	1	2	0.00	52,295,000.00	52,295,000.00
10	PCS Block C Reauction	18	32	0.00	904,607,467.00	50,255,970.39
11	PCS D,E, F Block	1479(1472)	153	0.47	2,517,439,565.00	1,702,122.76
12	Cellular Unserved	14	22	0.00	1,842,533.00	131,609.50
14	WCS	126	24	0.00	13,638,940.00	108,245.56
15	DARS	4	2	0.00	173,234,888.00	43,308,722.00
16	800 MHz SMR	525(524)	62	0.19	96,232,060.00	183,299.16
17	LMDS	986(864)	139	12.37	578,663,029.00	586,879.34
18	220 MHz	908(693)	54	23.68	21,650,301.00	23,843.94
20	VHF Public Coast	42(26)	8	38.10	7,459,200.00	177,600.00
21	LMS	528(239)	5	45.27	3,438,294.00	6,511.92
22	PCS	347(302)	57	12.97	412,840,945.00	1,189,743.36
23	LMDS	161	90	0.00	45,064,450.00	279,903.42
24	220 MHz	225(222)	18	1.33	1,924,950.00	8,555.33
25	Closed Broadcast	115	242	0.00	57,820,350.00	502,785.65
26	929 and 931 Paging	2499(985)	81	60.58	4,122,500.00	1,649.66
27	Broadcast	1	3	0.00	172,250.00	172,250.00
28	Broadcast	2	4	0.00	1,210,000.00	605,000.00
30	39 GHz	2175	35	0.00	410,649,085.00	188,804.18
32	AM Broadcast Stations	3	5	0.00	1,520,375.00	506,791.67
33	Upper 700 MHz Guard	96	15	0.00	519,892,575.00	5,415,547.66
34	800 MHz SMR General	1053(1030)	26	2.18	319,451,810.00	303,661.42
35	PCS C&F Block	422	87	0.00	16,857,046,150.00	39,945,606.99
36	800MHz SMR Lower	2800	28	0.00	28,978,385.00	10,349.42

37	FM Broadcast	288(258)	456	10.42	147,876,075.00	513,458.59
38	Upper 700 MHz Guard	8	5	0.00	20,961,500.00	2,620,187.50
39	Public Coast & LMS	257(217)	7	0.00	1,144,755.00	4,454.30
40	Paging	15514(5323)	193	65.70	12,897,127.00	2,338.98
41	Narrowband PCS	365(317)	9	13.15	8,285,036.00	22,698.73
42	Multiple Address Sys	5104(878)	13	82.80	1,202,725.00	235.64
43	Multi-Radio Service	27	7	0.00	1,548,225.00	57,341.67
44	Lower 700 MHz band	740(484)	125	34.59	88,651,630.00	183,164.52
45	Cellular RSA	3	7	0.00	15,871,000.00	5,290,333.33
46	1670-1675 MHz Band	1	2	0.00	12,628,000.00	12,628,000.00
48	Lower & Upper Paging	10202(2832)	104	72.24	2,445,608.00	239.72
49	Lower 700 MHz Band	256(251)	56	2.00	56,815,960.00	221,937.34
50	Narrowband PCS	48	4	0.00	428,709.00	8,931.44
51	Narrowband PCS	5	2	0.00	134,250.00	26,850.00
52	Direct Broadcast Satellite	3	2	0.00	12,200,000.00	4,066,666.67
53	MVDDS	214(192)	14	10.28	118,721,835.00	554,774.93
54	Closed Broadcast	4	6	0.00	4,657,600.00	1,164,400.00
55	900 MHz SMR	55	17	0.00	4,861,020.00	88,382.18
56	24 GHz	880(7)	3	99.20	216,050.00	245.51
57	AMTS	20(10)	4	50.00	1,057,365.00	52,868.25
58	Broadband PCS	242(217)	35	10.33	2,043,230,450.00	8,443,101.03
59	Multiple Address Systems	4226(2223)	31	47.40	3,865,515.00	914.70
60	Lower 700 MHz Band	5	5	0.00	305,155.00	61,031.00
61	AMTS	10	7	0.00	7,094,350.00	709,435.00
80	Blanco, Texas Broadcast	1	11	0.00	18,798,000.00	18,798,000.00
82	New Analog Television	4	11	0.00	5,025,250.00	1,256,312.50

Source: FCC

However, the total revenue figure is somewhat misleading. When you examine the auction revenue figures over time, it becomes apparent that a small number have generated most of the revenue, while the others generate vastly less revenue. Table 6 provides a graphic illustrating this. This pattern in revenue-generation is an artifact both of genuinely different valuations for different bandwidths and of the way in which FCC rules shape the qualifying bidder set.

Table 6.
FCC Spectrum Auction Revenue, 1994-2005



17. There is disturbing evidence that, despite the considerable revenue raised by the spectrum auctions, the FCC is not maximizing revenue because it is significantly misestimating bidder valuation of bandwidth in the reserve prices it sets. As explained above, the FCC sets a reserve price for licenses or packages put to auction. In 21 of 58 auctions (36.21%) licenses have been at auction but were retained by the FCC because no bidder met the reserve price. In most cases no bid whatsoever was placed on these licenses. This phenomenon ranges from .47% of licenses in auction 11 (PCS D, E, & F Blocks) to 99.20% of licenses in auction 56 (24 GHz); it averages 11.99% of licenses over all 58 auctions. In the majority of auctions the FCC has revised reserve prices downward even on licenses for which bids were received, so it is a much more significant indicator of mispricing that so many licenses received no bids at all.

18. Another indication of spectrum auctions' failure to maximize revenue is the way in which bidding strategies available only to a subset of bidders can systematically reduce price. Preemptive bidding is a strategy whereby a bidder offers a price for an auction item which is sufficiently large that it deters other bidders from competing for the item. This strategy is more readily available to bidders which are more heavily capitalized. For the purposes of this paper, a preemptive bid is defined operationally as a prevailing bid of at least half the mean final bid of the auction which successfully deters further bidding. Four auctions (14, 11, 30, and 48) were analyzed for the presence and consequences of preemptive bidding. Two types of such bidding were observed. Type 1 consists of a large initial bid which deters other bidders from ever bidding on the item. Type 2 consists of a large bid in later rounds which deters other bidders from further bidding. As Table 7 illustrates, bidders using type 1 preemptive bids in auction 14 obtained items on

Table 7.
Mean Price per Person ($/Population)

	Auction 14 (WCS)	Auction 11 (PCS D, E, F Block)	Auction 30 (39 GHz)	Auction 48 (Lower and Upper Paging Bands)
Preemptive Type 1	0.02358610	0.13645532	0.03566729	0.00094472
Preemptive Type 2	0.02629208	-	-	-
Other Than Preemptive Type 1	0.32288502	0.29543305	0.08612346	0.00175541
Other than Preemptive	0.38155176	-	-	-

Source: FCC.

average at only 7.30% of the mean price paid by bidders who did not use this strategy. The success of this strategy was smaller in the other four auctions, but still significant: in

auction 11 type 1 preemptive bidders obtained items on average at 46.19% of the mean price paid by bidders who did not use the strategy, in auction 30 at 41.41%, and in auction 48 at 53.82%. In auction 14 bidders using type 2 preemptive bids obtained items on average at 6.89% of the mean price paid by bidders who did not use the strategy. The perviousness of FCC spectrum auctions to strategic behavior available to bidders better capitalized than other bidders – a function of initial capitalization asymmetries – results in depression of price in favor of those bidders and adversely affects revenue.

F. The Limited Data Available Suggests DE Credits Appear to Increase the Number of New Entrants Winning Licenses.

19. In authorizing the FCC to conduct spectrum auctions Congress mandated that the agency use such auctions to increase economic opportunity for small businesses, women and minorities. An examination of the FCC's own auction data suggests that this mandate has been willfully ignored by the agency.

The most data is available for participation of small businesses in spectrum auctions. Of the 22,649 licenses and permits awarded by auction 1,435 have been acquired by firms meeting the small business criteria of the FCC – 6.34% of all licenses. The FCC has worked its way though an increasingly arcane set of rules regarding small business participation in spectrum auctions, none of which appear to have had a substantial effect in increasing the success of small business bidders. In auction 5 – PCS C Block – the "entrepreneur" category was embraced:

> To qualify as an entrepreneur, bidders must have gross revenues of less than $125 million in each of the last two years and total assets of less than $500 million at the time the FCC Form 175 application was filed).[17]

The "bidding credit" strategy also emerged:

[17] http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=5.

> Qualifying applicants in Auction No. 5 were eligible for a bidding credit on C block licenses that represents the amount by which a bidder's winning bids are discounted. The size of the bidding credit depends on the average gross revenues for the preceding three years of the bidder, as provided in 47 C.F,R. § Section 24.709 and §24.720(b).
>
> • A bidder with average gross revenues not exceeding $40 million for the preceding three years received a 25 percent discount on its winning bids for C.
>
> The definitions of very small business and small business (or a consortium of very small or small businesses; including calculation of average gross revenues) are set forth in 47 C.F.R. § 24.720(b).
>
> Winning bidders of C licenses should note that transfer and assignment restrictions and unjust enrichment provisions apply to winning bidders that use bidding credits and subsequently assign or transfer control of their licenses to an entity not qualifying for the same levels of bidding credits.[18]

Eighty-nine small business "entrepreneurs" acquired 493 licenses in this auction. The same rules were followed in auction 10 – the PCS C Block Reauction – in which seven small businesses acquired 18 licenses. In auction 11 – PCS D, E, and F Blocks – the entrepreneur rule was in place and the "bidding credit" strategy was modified:

> Size of an F-block bidding credit depends on the annual gross revenues of the bidder and its affiliates, as averaged over the preceding three years.
>
> * A bidder with gross annual revenues of not more than $15 million receives a 25 percent discount on its winning bids, and
>
> * A bidder with gross annual revenues of not more than $40 million receives a 15 percent discount on its winning bids.[19]

Ninety-three small businesses acquired 598 licenses. In auction 14 – WCS – the "bidding credit" strategy was continued. Eight small businesses acquired 32 licenses in this auction. In auction 22 – PCS – the "bidding credit" strategy was again adopted. Forty-eight small businesses under this definition acquired 277 licenses. In auction 25 – Closed Broadcast – the "bidding credit" strategy was amended to reward new entrants:

> In the "Closed" Broadcast Auction, the bidding credit depends upon the number of ownership interests in other media of mass communications that are

[18] Ibid.

[19] http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=11.

attributable to the bidder-entity and its attributable interest-holders. (See PN DA99-1346 (pdf) for more information)

• A 35 percent bidding credit will be given to a winning bidder if it, and/or any individual or entity with an attributable interest in the winning bidder has no attributable interest in any other media of mass communications, as defined in 47 C.F.R. § 73.5008; and,

• A 25 percent bidding credit will be given to a winning bidder if it, and/or any individual or entity with an attributable interest in the winning bidder has an attributable interests in no more than three media of mass communications, as defined in 47 C.F.R. § 73.5008; and,

• No bidding credit will be given if any of the commonly owned mass media facilities would serve the same area as the proposed broadcast or secondary broadcast station, as defined in 47 C.F.R. § 73.5007, or if the winning bidder, and/or any individual or entity with an attributable interest in the winning bidder, have attributable interests in more than three mass media facilities.

However, attributable interests held by a winning bidder in existing low power television, television translator or FM translator facilities will not be counted among the bidders' other mass media facilities.[20]

Neither winner of the two licenses in this auction was a new entrant. In auctions 27 and 28 – both Broadcast – the same rule prevailed, but no new entrant did. In no other auctions does the FCC report that small businesses or new entrants acquired licenses and inconsistencies in data categories and lacuna in reporting by the FCC make it impossible to determine whether this is an artifact of the failure of small businesses to prevail or inept data reporting by the FCC. At the very least it implies that FCC ceased to care whether this information was made available to the public or not.

G. DE Credits Do Not Appear To Have Conferred Intended Benefits on Women and Minorities or Increased Overall Competition in Wireless Markets.

20. The extent to which any measures undertaken by the FCC under its designated entities program have ameliorated discrimination against women and minorities is virtually impossible to determine, although the FCC' s own studies suggest that not much has happened. The FCC does not make easily available data on the gender and ethnicity

[20] http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=25.

of auction bidders; indeed, only one bidder in all the auctions is identifiably female by name – Helen Wong-Armijo. A Congressional Budget Office study, based on data provided to it by the FCC, indicates that in the Regional Narrowband, Broadband PCS C Block, Broadband PCS D, E & F Block, Specialized Mobile Ratio, and Multipoint Distribution Service auctions women and minorities did not do especially well except in the PCS C Block auction. Table 8 contains the relevant data. Studies commissioned by the FCC and reporting on spectrum auctions through 2000 are depressingly acute on the

Table 8.
Minorities and Women in FCC Spectrum Auctions

Auction No.	Type	No. of Licenses at Auction	No. of Bidders	Number(Pct.) of Licenses Acquired by Minority-Owned Businesses	Number(Pct.) of Licenses Acquired by Women-Owned Businesses
3	PCS Narrowband Region	130	28	6(4.00)	5(3.85)
5	PCS C Block	493	255	150(30.43)	95(19.27)
6	MDS	493	155	10(2.03)	35(2.35)
7	900 MHz SMR	1020	123	31(3.04)	19(1.86)
11	PCS D,E, F Block	1479(1472)	153	70(4.76)	50(3.40)

Source: U.S Government, Congressional Budget Office, *Where Do We Go to From Here?* FCC Spectrum Auctions and the Future of Radio Spectrum Management, April 1997.

continued presence of real discrimination. In terms of auction utilization they report:

> Measured across all wireless auctions through 1999, minority and women applicants were less likely to win at least one license than were non-minority applicants.... Minorities and women qualified for auctions at significantly lower rates than non-minorities. The reasons for this result are not entirely clear, suggesting this is an area for future research...[21]

[21] U.S. Government, Federal Communications Commission, "FCC Econometric Analysis of Potential Discrimination Utilization Ratios for Minority- and Women-Owned Companies in FCC Wireless Spectrum Auctions," December 5, 2000, http://www.fcc.gov/opportunity/meb_study/auction_utilization_study.txt. The study was prepared by Ernst and Young LLP for the FCC.

One might think that historical patterns of income, credit, and entry discrimination and the FCC's collusion in their perpetuation simply never occurred to the analysts as an explanation, if another study commissioned by the FCC at the same time had not made the point directly:

> Minorities and women repeatedly report encountering discrimination in their efforts to obtain capital to finance their broadcast and wireless businesses, discrimination in securing advertising on their stations, and discrimination by members of their communities and members of the communications industry.… Small telecommunications businesses generally, and those owned by women and minorities in particular, report that the market consolidation permitted by the relaxation of the FCC's ownership rules has created nearly insurmountable obstacles to those seeking to enter, or even survive as a small player, in the broadcast industry.…Minority-owned firms report that the repeal of the former tax certificate program - which, from 1978 until its repeal in 1995, provided tax incentives to encourage firms to sell broadcast licenses to minority-owned firms - has had a severe negative impact on their ability to obtain new stations; and Interviewees believed that EEO enforcement has been uneven over the past fifty years. This reported uneven enforcement coupled with industry hiring practices has hindered the ability of minorities and women to obtain the work experience that could one day assist them to become broadcasters themselves.[22]

This is, bluntly put, a continuing national scandal about which the FCC has done little or nothing.

21. Furthermore, while available auction data suggest that DE credits do promote acquisition of licenses by new entrants, it is unclear whether these new entrants contribute to competition in the market. A disturbing article in the Wall Street Journal suggests that the FCC's rules encourage the use of "sham" DEs to capture licenses at

[22] U.S. Government, Federal Communications Commission, "Historical Study of Market Entry Barriers, Discrimination and Changes in Broadcast and Wireless Licensing: 1950 60 Present," December 2000, http://www.fcc.gov/opportunity/meb_study/historical_study.txt. The report was prepared for the FCC by the Ivy Planning Group LLC.

auction with no intent to provide service.[23] In addition, national and regional concentration continues apace, suggesting that true competition requires additional modification of FCC rules and practices.

H. Recommendations With Regard To WT Docket No. 05-211.

22. Analysis of the last ten years of FCC spectrum auctions reveals that these auctions have met neither the standards nor the expectations expressed by Congress in their authorization. They do not facilitate the development of robust markets or meet the needs of the broader public interest. Instead these auctions, as they have been conducted, appear to serve the narrow interest of dominant actors in the telecommunications industry. They have systematically resulted in market concentration and the growth of the oligopolistic market power of major actors in the telecommunications industry. They have been pervious to manipulation by tacit collusion among bidders in ways which no minor amendment of the auction process could possibility remedy. Even the often made argument that FCC spectrum auctions maximize revenue fails in the face of both FCC mispricing of licenses, reflected in the large number of licenses which fail to be auctioned because no bidder meets the reserve price, and substantial evidence that strategic behaviors like preemptive bidding can guarantee better capitalized bidders licenses at consistently lower prices than their competitors.

23. In light of this analysis, the FCC should seriously consider a complete restructuring of its entire system of competitive auctions. Indeed, the FCC and Congress should seriously reconsider the wisdom of allocating licenses by competitive auction at all. The more than ten years of experience in structuring and administering auctions has called

[23] John R. Wilke, "In FCC Auction of Airwaves, Gabelli Was Behind the Scenes," Wall St. Journal, A1 (December 27, 2005).

into question the ideologically-libertarian economic theory, captured in simplistic models which ignore inconvenient facts, on which Congress and the FCC relied when choosing auctions as a means of distributing spectrum licenses. Game theory is a powerful tool for analysis of economic behavior. However, a game-theoretic model is only as good as its assumptions. Assumptions about information, bidder resources, risk-acceptance and -aversion, and the structure of bidder preference all matter, because they imply things about how the real world operates. All modeling is along a continuum between analytical tractability and empirical verisimilitude: the more mathematically tractable the model is, the less it resembles the real thing being modeled. It is for this reason that social scientists frequent evaluate and refine such models through experiments to see whether an analytically tractable model captures what really matters about the thing it models. The past ten years of FCC spectrum auctions have amounted to such an experiment, and the experiment demonstrates that the models on the basis of which Congress and the FCC were persuaded to adopt spectrum auctions fail dramatically in their prediction of real-world outcomes. When tested by the actual performance of such auctions, the chasm between the outcomes predicted by theory and the outcomes observed is immense. In sacrificing the public interest in pursuit of hypothesized market efficiencies and greater revenue we have arrived at the worst of both worlds: FCC spectrum auctions neither serve the public interest nor realize the promised economic efficiencies and revenue maximization touted by their advocates.

24. In the short term, however, the FCC is required by law both to carry out the scheduled AWS auction and to auction the 800 MHz "analog" broadcast spectrum no later than 2008. To the greatest extent possible, the FCC should structure its auction

rules to promote the explicit goals of Congress as embodied in Section 309(j) of the Communications Act.

25. With regard to the narrow question presented in WT Docket No. 05-211, the above study supports excluding all large wireless carriers, regardless of whether they have an in-region presence, from maintaining any "material relationship" with a DE. The evidence of both tacit collusion and avoidance of head-to-head competition, as well as the incentive of all members of the dominant incumbent hegemony to exclude truly disruptive competitors, argues against allowing any large wireless incumbent to compromise the one mechanism the FCC has employed that appears to have any impact on facilitating new entrants.[24]

The argument that permitting such material relationships is necessary to permit new entrants the broadest access capital and expertise necessary to compete with better financed bidders is belied by the failure to observe any widespread benefit of the bidding credit either in terms of increased competition or service to traditionally underserved communities. Again, given the incentives and history of the incumbents, it appears far more likely that large wireless carriers will use these material relationships to prevent disruptive innovation or ruinous competition, while tacitly colluding to use the bidding credit to further suppress the auction price.

In other words, while adopting the prohibition proposed in the rulemaking (modified to exclude all large wireless carriers) may not help, it certainly will not hurt.

[24] Whether other large providers of telecommunications services should also be excluded from maintaining material relationships with DEs, another question raised in the rulemaking, is beyond the scope of this study. Failure to make a recommendation in this regard should not be construed as either support for such a prohibition or an objection to such a prohibition.

Because the evidence suggests DE credits can facilitate new entrants, this approach should be tried as a first step in reforming the auction process as a whole.

26. To determine whether the change is successful, the FCC should once again make available to the public data on the number of DEs winning auctions. The FCC should also standardize its auction data presentation and facilitate availability of this data to third parties in a form that facilitates analysis. In addition, the FCC should either aggressively monitor the conduct of DEs post-auction or create a process that allows third-parties to trigger enforcement actions if DEs subsequently seek to sell their licenses or otherwise subvert the purpose of the DE credit. If the FCC intends to rely on the DE credit as a means of facilitating new entry (and it has proposed no other means), than it is incumbent upon the FCC to actively and continually compare its theory-derived expectations against emerging reality.

CERTIFICATION

I, Dr. Gregory Rose, hereby declare under penalty of perjury that to the best of my knowledge and belief the above is true and correct.

/s/_____
Gregory Rose
February 23, 2006