

Ugly is Only Skin Deep: An Analysis of the DE Program in Auction 97

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Introduction

Auction 97 was the most financially successful U.S. spectrum auction to date. At the close of the auction in January 2015, gross bids totaled a whopping \$45 billion for the mid-band AWS-3 spectrum, exceeding expectations more than two-fold.¹ The Federal Communications Commission's final take was only \$41.3 billion; the \$3.6 billion difference was due to bidding credits granted to Designated Entities ("DEs"). The DE Program, mandated by Congress, aims to increase diversity in license ownership by granting favorable terms, usually discounts off bids, to small businesses.² The program has been criticized for allowing companies to buy spectrum licenses for less than they are worth.³ Naturally, big firms want to participate in the program, and smaller companies see it as an opportunity to monetize the discounts by flipping the licenses to higher-valued players after the auction. To protect against such "unjust enrichment," the Commission has a variety of pre- and post-auction safeguards governing the relationship between DEs and well-capitalized firms.⁴

In Auction 97, bidding credits totaling \$3.6 billion were enough to raise a few eyebrows, especially when \$3.3 billion of these credits went to two DEs in which DISH Network Corporation ("DISH") invested. The two DEs, Northstar Wireless and SNR Wireless

LicenseCo, won 702 licenses worth \$13.3 billion.⁵ Accusations that DISH exploited the DE Program to win licenses at a 25% discount came swiftly.⁶ Calls to deny the credits sought by Northstar and SNR soon followed.⁷ DISH, for its part, contends that it did nothing wrong and structured its relationships with the two DEs in strict accordance with the Commission's AWS-3 Auction rules.⁸ Independent assessments concur with DISH's arguments.⁹

The FCC rules at the time of the AWS-3 Auction did not prohibit the financial relationship between DISH and the two DEs; in fact, the rules in place at the time of the AWS-3 Auction were expressly designed to encourage large firm investment in DEs via arms-length financial roles. It appears that DISH did not abuse the rules, but embraced them.

While we recognize that some feel that the actions of DISH, Northstar and SNR were "distasteful,"¹⁰ in this PERSPECTIVE we argue that any attempt to claw-back the credits from the

two DEs post-auction—a possibility recently reported in the WALL STREET JOURNAL¹¹—is a bad idea from a policy perspective. The FCC rules at the time of the AWS-3 Auction did not prohibit the financial relationship between DISH and the two DEs; in fact, the rules in place at the time of the AWS-3 Auction were expressly designed to encourage large firm investment in DEs via arms-length financial roles. It appears that DISH did not abuse the rules, but embraced them.¹²

If the rules aren't working as intended, then the Commission needs to heed the words of Chairman Tom Wheeler and "fix" them. Indeed, the Commission's recent decision to modify its DE rules in response to the AWS-3 Auction results represents a tacit admission by the agency that the negatively perceived results of the auction are not the fault of DISH, but of the rules in place at the time of the auction.

If the rules aren't working as intended, then the Commission needs to heed the words of Chairman Tom Wheeler and "fix" them.¹³ Indeed, the Commission's recent decision to modify its DE rules in response to the AWS-3 Auction results represents a tacit admission by the agency that the negatively perceived results of the auction are not the fault of DISH, but of the rules in place at the time of the auction.¹⁴ Searching far-and-wide for dubious reasons to conclude *after the auction* that DISH exercised improper control of the two DEs pursuant to agreements disclosed *prior to the auction* not only damages the credibility of the DE Program, but it also wrecks the credibility of the agency. We also argue that disqualifying SNR and Northstar

from the discounts might require an auction "do over," the consequence of which is likely to cost the U.S. Treasury far more than \$3 billion and tarnish the Commission's reputation as a competent auctioneer and regulator.¹⁵

A Big Number in Context

To begin, let's put the bidding credits from Auction 97 in context. No doubt, \$3.6 billion is a large number. Big enough, obviously, to cause a ruckus. Upon closer inspection, however, the large value of the bidding credits is not particularly surprising for a \$45 billion auction.

Across the FCC's spectrum auctions held prior to Auction 97, the average difference between gross and net bids is 14.5% and the median difference is 13%.¹⁶ The range is 0% to 36%. For a \$45 billion auction, therefore, the expected bidding credit is around \$6 billion, which is nearly twice the total credit from Auction 97. While \$3.6 billion is certainly a lot of money, it's a big number in the company of even bigger numbers. By historical standards, the taxpayer got off relatively cheaply in Auction 97. The bidding credits summed to only 8% in that auction, well below the average 14% share.

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Given the rapidly rising value of spectrum due to its present shortage, spectrum prices should continue to rise and, absent a rule change, bidding credits also should likewise rise. If the prospects of very large credits are problematic for the Commission, then perhaps the Commission should "fix" the DE rules to avoid large credits in the future. It appears to have do so; for the first in history, the Commission's new DE rules now impose credit caps.¹⁷

Limiting, but not Prohibiting, Big Company Participation

If the Commission really wanted to avoid having “designated entities be beards” for large companies,¹⁸ then the agency could have simply prohibited DEs from having *any* financial relationship with a large business, either before or after the auction, and prohibit any license transfer or spectrum leases to a business that does not qualify as a DE. In fact, the Commission considered in the past a prohibition on material relationships between DEs and “a large in-region incumbent wireless service provider” or “a large entity that has a significant interest in communications services.”¹⁹ It did not embrace the policy, and for good reason.

For the better part of the last twenty years, the FCC has struggled to find the appropriate balance of promoting Congress’s twin yet conflicting goals of establishing spectrum preferences for small businesses and protecting against “unjust enrichment.”²⁰ Indeed, the DE Program presents a bit of a conundrum: on the one hand, DE qualification is based upon revenues (or, more accurately, the lack thereof). On the other hand, spectrum is expensive, so DEs need access to significant capital if they are to participate meaningfully in any auction. But where does this capital come from? The obvious answer is from other, well-financed players.²¹ For this reason, the Commission for many years rejected any prohibition on material relationships between DEs and larger companies.²² Besides, a rule prohibiting large-firm participation is not insulated from loopholes that may allow “puppet corporations” into the scheme. Instead, it makes far more sense to adopt safeguards that protect the integrity of the DE Program regardless of the parties to a deal. This approach, including both pre- and post-auction safeguards, was sensibly chosen by the Commission.

These protections are strong and straightforward. To begin, prior to the auction, the Commission requires an applicant to file a

“short form” application and disclose the identity and relationships of those persons or entities that directly own or control the applicant.²³ At that point, the Commission is fully aware of the identity of the firms involved and the nature of their financial relationship. Based on that information, the agency has the authority to grant or deny both DE status and “Qualified Bidder” status. Assuming the Commission grants one or both determinations, at the conclusion of the auction, winning bidders must file a “long form” application, which is then put out for notice and comment.²⁴ Given many prior auctions, this qualification process provides substantial precedent to guide applicants.

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In addition to pre-auction disclosures, at the time of the AWS-3 Auction the Commission had detailed post-auction “unjust enrichment” rules in place designed to guard against the monetizing of bidding credits. For example, if a DE violates the Commission’s extensive financial attribution rules within five years, then it must then pay back all or a portion of its bidding credits. Similarly, if a DE sells its spectrum to a non-DE before the end of the five-year holding period, then it must repay all or a portion of its bidding credits.²⁵ Moreover, under the FCC’s rules in place at the time of Auction 97, if a DE leased or resold (including under a wholesale agreement) more than 25% of the spectrum capacity of any one of its licenses to the same person or party, then that DE entered

into an “attributable material relationship” (“AMR”) and the DE was required to repay all or a portion of its bidding credits if those additional attributed revenues caused the DE to exceed the applicable DE revenue limits.²⁶ Finally, under Auction 97’s rules, DEs who win licenses must at some point build a network and become facilities-based providers in accordance with the build-out requirements contained in the auction rules.²⁷

Under the rules in place for Auction 97, the identity or size of companies doing business with a DE was not important. Thus, pointing fingers at DISH just because of its “size” is misguided. As stated by the FCC in its *CSEA/Part 1 Second Report and Order*,

... where an agreement concerns the actual use of the designated entity’s spectrum capacity, *it is the agreement, as opposed to the party with whom it is entered into, that causes the relationship to be ripe for abuse* and creates the potential for the relationship to impede a designated entity’s ability to become a facilities-based provider, as intended by Congress.²⁸

As the Commission clearly explained, the agency’s approach is to implement safeguards that are effective irrespective of the parties involved rather than focus on the identities of the parties to an agreement. In crafting the DE rules, the agency made a strategic choice, balancing the risk of large-firm involvement with the need for capital.

In this balancing act, the DE rules reduce the benefits and raise the costs of any attempt to circumvent the intent of the DE Program. Thus, even if firms push the limits of the rules, the net benefits are low. With low benefits, circumvention is discouraged, but *relationships with large firms are not prohibited*. It appears that these rules do discourage participation of large firms in the DE Program. As Ivan Seidenberg, former CEO of Verizon, once explained in the NEW YORK TIMES:

In order to gain control over these assets over time, you have to pay a price. ... We looked at this. We concluded it makes a lot of sense in the short term to buy the spectrum, get control of it, get out there quickly, not have bureaucracy and not deal with minority owners who don't have an interest other than flipping it.²⁹

While Mr. Seidenberg has his views on the matter, others are free to see it differently. It’s clear, however, that if a business complies with the rules, then its behavior is legitimate, regardless of the identity of the firm. Given the rules, it may be a risky or even poor business decision for a large firm to participate in the DE Program, since such relationships face numerous constraints and risks. (For example, DISH now has billions invested in companies over which it can exercise no control.) But the DE rules are not designed to guard against risky decisions; they are designed to ensure that small businesses own licenses. In this regard, the rules were successful for Auction 97: *DISH does not own any AWS-3 licenses; SNR and Northstar do*.

As discussed in more detail later, given the Commission’s procedures for implementing the DE Program—that is, qualifying firms prior to the auction—the agency’s review of agreements after the auction must adhere strictly to its own bright-line rules and precedent. Letting expediency and political pressures after the auction close sway its decisions will cut deeply into its credibility and threaten the DE Program, weaken the incentive of firms to participate in future auctions, and reduce investment in communications networks.

An Economic Model of the DE Program

While the DE Program has taken many forms over time, in most cases it simply involves a bidding discount to qualified DEs. An interesting question is: what is the optimal bidding credit? To answer this question, we offer a simple model with which the “optimal” discount may be determined. In this model,

there is an item (say, a spectrum license) to be sold by competitive auction. There are two bidders: unsubsidized (“U”) and subsidized (“S”). Bidders interest in the item is based on the profit (π_U and π_S , respectively) they obtain from having it, and they offer bids (b) in an effort to win the item. Only one of the bidders can win, and we ignore the resale of the property.

Why do we have policies that explicitly favor some bidders over others in spectrum auctions? Congress surely has its reasons, but for our purposes we simply assume that there is some type of “diversity premium” created if the subsidized bidder obtains the property, and we label that premium θ (where $\theta \geq 0$). The diversity premium is “exogenously” determined, for example by political considerations. In an effort to obtain that premium, the seller sets the bidding credit, a percentage discount rate δ , where $0 < \delta < 1$. If Bidder U wins the auction with a bid b , it need only pay $(1 - \delta)b$ to the seller.

The seller offers this piece of property for sale in either a simple English or Second-Price sealed bid private values auction.³⁰ Let Bidder U, the unsubsidized bidder, have a value for the spectrum equal to $\pi_U = v$. Bidder S, the subsidized bidder, obtains a value from the property equal to π_S which is uniformly distributed on the interval $[0, v]$. Thus, $\pi_S < \pi_U$ almost surely. Subsidies given to Bidder S create the prospect of Bidder S winning the property, which would otherwise never occur. Given the uniform distribution assumption, the expected value of π_S is $v/2$. In this auction form, the probability Bidder S wins is just δ , while the probability Bidder U wins is $(1 - \delta)$. Thus, the larger the discount, the higher the probability Bidder S wins. Given this setup, expectations with respect to the seller’s auction revenue are:

$$E\{\text{Revenue} \mid S \text{ wins}\} = (1 - \delta)v ;$$

$$E\{\text{Revenue} \mid U \text{ wins}\} = \frac{\frac{1}{2}(1-\delta)v}{(1-\delta)} = \frac{v}{2} .$$

In light of the U.S. Government’s desire for auction revenues, auction proceeds are certainly an important consideration for the agency. However, Section 309(j) forces the Commission also to consider the social premium related to the diversity of license assignments. Here, we make the plausible assumption that the goal of the seller is to maximize its benefit arising from (1) auction proceeds and (2) and diversity.³¹ Based on this objective, the seller chooses the discount δ to maximize:

$$\delta[(1 - \delta)v + \theta + (1 - \delta)\frac{1}{2}v], \tag{1}$$

The seller’s expected benefit if Bidder S wins is $(1 - \delta)v + \theta$, which is the winning bid plus the diversity premium. If Bidder U wins, the seller’s expected benefit is $(1 - \delta)v/2$.

Note that if Bidder S wins, its bid is $(1 - \delta)v$. Yet, Bidder U has a value of v . Consequently, Bidder S, who paid $(1 - \delta)v$ for the license, could in principle monetize its credit by bargaining with Bidder U over the surplus created by the discount (δv). As is well known, the discount policy creates an opportunity for arbitrage, and it is this arbitrage that most of the DE rules aim to restrict. The Commission has implemented a number of pre- and post-auction rules to curtail such activities. While tougher rules have been proposed and considered in the past by the Commission, the agency chose not to impose them prior to the AWS-3 Auction. The Commission recently modified its rules on unjust enrichment, strengthening them in some instances and weakening them in others.³² Here, we ignore resale.

Maximizing the objective function, the optimal discount can be written as

$$\delta^* = \frac{1}{4} + \frac{\theta}{2v}, \tag{2}$$

where the optimal discount is related to the diversity premium and the value of the license. A number of important insights are available from the comparative statics of this simple expression, and they are easily decipherable from Equation (2).

The Diversity Premium

From Equation (2) we see that the optimal discount (δ^*) increases as the diversity premium (θ) rises. Under the current rules, businesses with average gross revenues for the preceding three years not exceeding \$15 million (recently increased to \$20 million) are eligible for bidding credits of 25% of the license purchase price where as businesses with average gross revenues for the preceding three years not exceeding \$40 million (recently increased to \$55 million) are eligible for bidding credits of 15% of the license purchase price.³³ Larger businesses receive no discount. Since the statute targets the preferences at small businesses, it is reasonable for the Commission to design a program that ties the size of the discounts to firm size.

The Value of Licenses

The parameter v indicates the “intrinsic” value of the license: when v is larger, the license is worth more to Bidder U and, on average, to Bidder S. Equation (2) shows that the optimal discount falls as the value of the license (v) rises. For licenses that are expected to be very valuable, either across or within an auction, the discount should be lower. Too large a discount will result in a very large bidding credit, overwhelming the value of the diversity premium (θ).

Practically, altering the discount rate may be difficult. A more sensible option could be to cap bidding credits. AT&T, after Auction 97 closed, recommended a bidding credit cap of \$10 million.³⁴ A credit cap can indirectly lower the effective discount on higher valued properties. Say, for example, the bidding credit is 25% but there is a cap of 20 on the bidding credits. If a

license sells for 40, then the credit is 10 and the effective discount rate is equal to the nominal discount rate of 25%. If, however, the license sells for 100, then the credit is only 20 (the cap), rendering an effective discount rate of 20%. In its recent order, the Commission decided to adopt caps on bidding credits that would vary by service and by auction.³⁵

The relationship of value to the optimal discount also helps frame the FCC’s discomfort with the auction outcome. Auction 97 surprised everyone with its very high revenues. If the 25% discount (or lack of a caps) applied to the auction reflected, if only informally, a large underestimate in the auction’s value, then the FCC’s estimation error was manifested in the substantial discount costs.

[I]t is certainly feasible for auction revenues to increase when adding subsidized, relatively lower value bidders to the auction. This revenue effect does not require collusion or other strategic actions by unsubsidized bidders.

Integrity of the Auction

Perhaps most importantly for Auction 97, Equation (2) reveals that *the optimal discount is not zero even when the diversity premium is zero* (it is 0.25).³⁶ Why is there a positive discount when the diversity premium is zero? Because an auction is more competitive when there are multiple bidders with similar valuations. The discount effectively increases the valuation of the low value bidders, which in turn puts pressure on the larger, unsubsidized bidders to increase their bids. Thus, it is certainly feasible for auction revenues to increase when adding subsidized, relatively lower value bidders to the auction.³⁷ This revenue effect does not require

collusion or other strategic actions by unsubsidized bidders.

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Significantly, higher auction proceeds are not the result of DEs winning licenses, but of unsubsidized bidders having to bid more aggressively to win licenses. We can demonstrate this with a simple simulation of the auction described above. Say that there are 100 licenses at auction and Bidder U's value is \$1 for each one of them. Bidder S's valuations are drawn randomly from the uniform distribution (with values between 0 and 1). Both Bidders S and U participate in the auction. The results are as follows.³⁸ In an unsubsidized auction ($\delta = 0\%$), the total revenues from the auction are \$50 and Bidder U wins all licenses. For a subsidized auction ($\delta = 25\%$), Bidder U wins 75% of the time and total net proceeds from the auction are about \$57. Auction revenues rise by \$7 in the subsidized auction. Critically, these higher proceeds are not from those licenses the subsidized bidder wins, but from those that it loses. The seller gets \$10 *more* from Bidder U in the subsidized auction, but gets \$3 *less* from those licenses Bidder S wins. In no instances are the winning bids across the subsidized and unsubsidized auction equal; the discount in the subsidized auction impacts the prices of all the licenses.

Perhaps the most important insight from this analysis is that the revenue effect of the DE Program implies that *the discount program affects the prices of all licenses in an auction*, not just those licenses a DE wins. The influence comes not only from the direct effects of the discount on winning bids (as in the simulation above), but

also potentially from the choices of what licenses a bidder chooses to bid on as the prices manifest themselves. As such, the DE Program must be carefully crafted and sensitively administered, since an error in implementation may invalidate the auction's results and require an auction do-over.

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Consider, for example, the argument that DISH and its DEs violated the DE rules and, as a result, should have part or all of the \$3.3 billion in bidding credits revoked. Since SNR and Northstar do not yet possess the licenses, any Commission action against the DEs must be based on the agency's pre-auction protections; that is, questions involving *de facto* or *de jure* control. DISH, SNR and Northstar disclosed their relationship prior to the auction and all three were declared by the Commission to be Qualified Bidders. SNR and Northstar entered the auction believing they qualified for a 25% discount and then bid accordingly. The two DEs bid on around 80% of the licenses available. Their involvement in the Auction was pervasive, affecting prices for far more licenses than just those they won. If now, after the auction, the Commission finds SNR and Northstar (both qualified for the auction by the agency) ineligible for the bidding credits on which their bidding decisions were made but permitted them to bid anyway, then the results of the auction — *all of the results* — are in doubt.

*Bidding credits crossed the \$3 billion threshold in round 23, which occurred only 7 days into the auction. *** Despite direct knowledge of the size of the bidding credits (within the first week) and the authority of the FCC to halt the auction, Auction 97 proceeded without intervention in this regard. The Commission was unmoved by the large DE credits, at least until they became public knowledge.*

Feigning Indignation?

While FCC officials appeared surprised by the bidding credits and DISH's involvement in the DE Program following the release of Auction 97's results, the timing of the outrage is suspect. As noted above, DISH notified the Commission prior to the auction of its passive investments in, and its joint bidding agreements with, the two DEs in short form applications.³⁹ The Commission found no objection with these investments and approved all three firms as Qualified Bidders for the auction.⁴⁰ Similarly, when the auction concluded, the Commission found "upon initial review" DISH's "long-form applications (FCC Form 601) for the AWS-3 licenses ... to be acceptable for filing."⁴¹

Accordingly, in reviewing these documents, one has to wonder exactly what the Commission was thinking was going to happen with DISH and the DEs. Anyone with even a passing knowledge of the mobile wireless industry was aware that DISH was on a spectrum buying spree. In 2014, DISH acquired at auction the 10 MHz H Block (1,915-1,920; 1,995-2,000) for \$1.56 billion.⁴² In 2013, DISH made a run to acquire Sprint.⁴³ In 2011, DISH purchased 40 MHz of MSS spectrum in the 2 GHz band ("AWS-4

band") for \$3 billion. DISH was obviously intending to be a player in Auction 97.

In light of the pre-auction disclosures, the agency's experience with the DE Program, and DISH's reputation as a spectrum buyer, the Commission cannot credibly claim it was ignorant of the possibilities before the auction began. Nor can it claim ignorance of the possibilities once the auction began. Auction rules permit the agency, by "public notice or by announcement during the auction [to] delay, suspend, or cancel the auction in the event of natural disaster, technical obstacle, administrative or weather necessity, evidence of an auction security breach or unlawful bidding activity, or for any other reason that affects the fair and efficient conduct of competitive bidding."⁴⁴ Auction 97 proceeded without interruption (save for holiday breaks and breaks unrelated to evidence of any unlawful bidding activity).

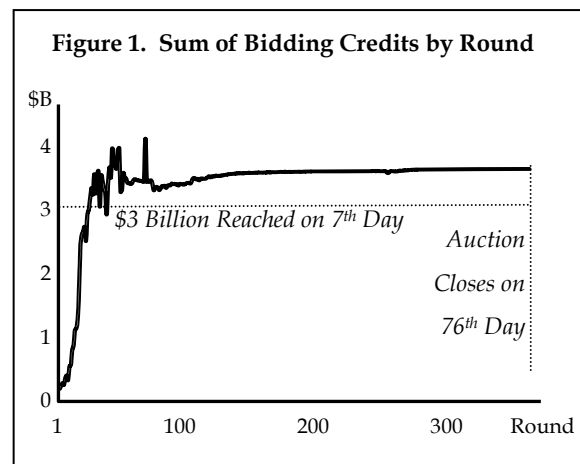


Figure 1 shows the implied total bidding credits in Auction 97 by round. Bidding credits crossed the \$3 billion threshold in round 23, which occurred only 7 days into the auction. Credits nearly reached \$4 billion by the 12th day of bidding. The auction closed 341 rounds and 76 days after it began. Despite direct knowledge of the size of the bidding credits (within the first week) and the authority of the FCC to halt the auction, Auction 97 proceeded without intervention in this regard. The Commission

was unmoved by the large DE credits, at least until they became public knowledge.

While the Commission appeared dumfounded and embarrassed after the auction's close, the nature and magnitude of the outcome was predictable both before and during the auction.

While the Commission appeared dumfounded and embarrassed after the auction's close, the nature and magnitude of the outcome was predictable both before and during the auction. The Commission is well aware both of the inherent defects of the DE Program and complaints about DE relationships with larger providers.⁴⁵ Indeed, the agency has extensive experience in this regard.⁴⁶ Despite numerous scars, and plenty of reasons to believe that DISH was going to compete aggressively in Auction 97, the Commission expressed no concerns about the DISH agreements. SNR and Northstar—with all of their agreements and arrangements with DISH disclosed pre-auction—were qualified as bidders and the auction proceeded. SNR's and Northstar's participation in the auction was pervasive. Once the auction began, nearly all the license prices were affected by the participation of the DEs, affected prices for licenses they won, they lost, and even those they did not bid on. Declaring that SNR and Northstar were "Qualified Bidders" before the auction, allowing them to participate in the auction and impact prices broadly, and then declaring them "unqualified" for bidding credits after the auction would cast doubt on the FCC's ability to properly run auctions. In the future, the agency should carefully qualify applicants, including DE status, *prior to the auction* and then stick to its decisions.

Policy Implications and Conclusions

Regulatory credibility is at the core of the Auction 97 issue, and this is true whether or not SNR and Northstar are disqualified from the bidding credits due to some real or fictional technicality. Of all the myriad ways that regulation can fail, the lack of credibility of the regulator—its inability to keep its word and follow its own precedent—is perhaps the most important. Participating in the provision of communications services requires large fixed and sunk investments whose returns are realized only sporadically over long periods. If firms and investors fear expropriation of returns by a regulator unable to commit to its policies, then investment will be severely curtailed. As noted by Levy and Spiller (1994),

The combination of significant investments in durable, specific assets with the high level of politicization of utilities has the following result: utilities are highly vulnerable to administrative expropriation of their vast quasi-rents. Administrative expropriation may take several forms. Although the easiest form of administrative expropriation is the setting of prices below long-run average costs, it may also take the form of specific requirements concerning investment, equipment purchases, or labor contract conditions that extract the company's quasi-rents. Where the threat of administrative expropriation is great, private investors will limit their exposure.⁴⁷

Given the Commission's mandate in Section 706 to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans," the FCC must guard what credibility it has left to maintain investor confidence.⁴⁸

As for auctions, if DEs feel that their discounts will be honored only if the Commission likes the outcome of the auction, then they and their partners will be discouraged from future participation. If unsubsidized bidders are wary

of the agency's commitment to any part of the auction's rules, then they likewise will reduce their valuations of spectrum licenses and auction revenues will decline. While the present controversy is in the auction sphere, the assessment of the credibility of the FCC on this matter reaches well beyond auctions. If investors feel that the Commission will not honor its commitments if it doesn't like the outcome of its policies, then capital will find greener grass.

A regulator must respect its rules, commit to them come hell or high water, and change them only on a going forward basis. How the FCC decides the DE question in Auction 97 will say much about the future of the Commission, including whether it remains fit to regulate and capable of running an auction.

A regulator must respect its rules, commit to them come hell or high water, and change them only on a going forward basis. How the FCC decides the DE question in Auction 97 will say much about the future of the Commission, including whether it is capable of running an legitimate auction and remains fit to regulate an industry of immense economic and social significance.

NOTES:

* **Dr. George Ford is Chief Economist, and Professor Michael Stern is Senior Fellow, of the Phoenix Center for Advanced Legal and Economic Public Policy Studies. The views expressed in this PERSPECTIVE do not represent the views of the Phoenix Center or its staff.**

¹ J. Engebretson, *AWS-3 Auction Finally Ends, Raising \$45 Billion*, TELECOMPETITOR.COM (January 29, 2015)(available at: <http://www.telecompetitor.com/aws-3-auction-finally-ends-raising-45-billion>). In fact, the Congressional Budget Office (“CBO”) scored the Spectrum Act as having no net budget effect, assuming that auction revenues would just offset relocation and other expenses. See *S. 911 Public Safety Spectrum and Wireless Innovation Act*, Congressional Budget Office (July 20, 2011) (available at: <http://www.cbo.gov/sites/default/files/s911.pdf>).

² See generally 47 U.S.C. § 309(j)(3)-(4).

³ See, e.g., S. Lobaton and S. Romero, *FCC Auction Hit with Claim of Unfair Bids*, NEW YORK TIMES (February 12, 2001); A. Schatz, *FCC Considers Tightening Rules On Airwave-Auction Discounts*, WALL STREET JOURNAL (February 2, 2006) (available at: <http://www.wsj.com/articles/SB113885476847663026>).

⁴ For a brief overview of such procedures, see L. J. Spiwak, *How the AWS Auction Provides a Teachable Moment on the Nature of Regulation*, BLOOMBERG BNA (April 28, 2015) (available at: <http://www.phoenix-center.org/BloombergBNADesignatedEntities28April2015.pdf>).

⁵ *Auction of Advanced Wireless Services (AWS-3) Licenses Closes - Winning Bidders Announced For Auction 97*, PUBLIC NOTICE, DA 15-131, 30 FCC Rcd 630 (January 30, 2015).

⁶ R. Knutson, *FCC to Tighten Reins on Wireless Licenses*, WALL STREET JOURNAL (March 18, 2015) (available at: <http://www.wsj.com/articles/business-watch-news-digest-1426727495>); P. Goldstein, *FCC’s Wheeler Vows To Fix Designated Entity Rules So That Huge Companies Can’t Get Discounted Spectrum*, FIERCE WIRELESS (March 19, 2015). (available at: <http://www.fiercewireless.com/story/fccs-wheeler-vows-fix-designated-entity-rules-so-huge-companies-cant-get-di/2015-03-19>); G. Avery, *Dish Network Accused by FCC Commissioner of Ripping off Taxpayers*, DENVER BUSINESS JOURNAL (February 2, 2015), (available at: http://www.bizjournals.com/denver/blog/boosters_bits/2015/02/dish-network-accused-by-fcc-commissioner-of.html).

⁷ See, e.g., Ex Parte Letter from Kathleen Grillo, Senior Vice President – Federal Regulatory and Legal Affairs (April 24, 2015) (“Verizon Ex Parte”); Petition to Deny of Communications Workers of America and the National Association for the Advancement of Colored People (May 11, 2015) (“CWA-NAACP Petition”); Petition to Deny of VTel Wireless, Inc. (May 11, 2015) (“VTel Petition”); Petition to Deny of Central Texas Telephone Investments LP and Rainbow Telecommunications (May 11, 2015) (“CTTI-Rainbow Petition”).

⁸ *In the Matter of Amendment of the Commission’s Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, FCC 14-31, 29 FCC Rcd 4610, REPORT AND ORDER (rel. March 31, 2014) (hereinafter “AWS-3 Order”); PUBLIC NOTICE: *Auction of Advanced Wireless Services (AWS-3) Licenses Scheduled For November 13, 2014, Notice And Filing Requirements, Reserve Prices, Minimum Opening Bids, Upfront Payments, And Other Procedures For Auction 97*, DA 14-1018, 29 FCC Rcd 8386 (rel. July 23, 2014) (hereinafter “AWS-3 Procedures Public Notice”).

⁹ See, e.g., Walter Peczyk, *Dish Does Not Control The Bidders That Won \$10 Billion Of Spectrum*, BTIG RESEARCH (Feb. 2, 2015) (“[W]e believe that there should be little, if any, justification for the FCC to do anything but issue the licenses without delay . . . AT&T and Verizon used the same designated entity structure [in past auctions]”); R. Kaminski, *How Do You Solve a Problem Like Dish?* CAPITAL ALPHA PARTNERS (April 7, 2015) (“For now, we believe DISH followed the rules, aiding retention of the ~\$3 billion in subsidy, however distasteful it may seem”); *FCC Still Looking at Dish Licenses From AWS-3 Auction, But Approves Others*, COMMUNICATIONS DAILY (April 10, 2015) (According to Craig Moffett, an analyst at MoffettNathanson: “Ultimately, it would be difficult for the Commission to withhold Dish’s licenses, or to deny its designated entity discounts, given how carefully Dish followed the rules.”).

¹⁰ Kaminski, *id.*

¹¹ T. Gryta, S. Ramachandran, R. Knutson, *FCC Poised to Reject Dish Entities’ \$3.3 Billion Auction Discounts*, WALL STREET JOURNAL, (July 16, 2015) (available at: <http://www.wsj.com/articles/fcc-poised-to-reject-dish-entities-3-3-billion-auction-discounts-1437075619>).

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- ¹² DISH notified the Commission prior to the auction of its passive investments in, and its joint bidding agreements, with the two DEs; and the Commission found no objection with these investments and approved all three firms as Qualified Bidders for the auction. Similarly, when the auction concluded, that the Commission found “upon initial review” DISH’s “long-form applications (FCC Form 601) for the AWS-3 licenses ... to be acceptable for filing.” See, e.g., FCC Form 175, FCC Auction No. 97, Northstar Wireless, LLC, Exhibit C (available at: https://auctionfiling.fcc.gov/form175/search175/attachment_view.htm?searchLevel=B&application_id=8538523&file_num=0006458325&version=2&PStart=1&auction_id=97&attachment_id=19474848); *Auction of Advanced Wireless Service (AWS-3) Licenses Status of Short-Form Applications to Participate In Auction 97*, Public Notice, 29 FCC Rcd 13465 (October 30, 2014); PUBLIC NOTICE, AUCTION 97: *Wireless Telecommunications Bureau Announces That Applications for AWS-3 Licenses in the 1755-1780 MHz and 2155-2180 MHz Bands are Accepted for Filing*, DA 15-302, 30 FCC Rcd 2094 (March 10, 2015) (hereinafter “AWS-3 Public Notice”) (available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-15-302A1.pdf).
- ¹³ J. Eggerton, *Wheeler: We Will Fix Auction DE Rules*, BROADCASTING & CABLE (March 18, 2015) (available at: <http://www.broadcastingcable.com/news/washington/wheeler-we-will-fix-auction-de-rules/138918>).
- ¹⁴ J. Eggerton, *FCC Chairman Proposes Auction Designated Entities Rule Revamp*, BROADCASTING & CABLE (June 25, 2015) (available at: <http://www.broadcastingcable.com/news/washington/fcc-chairman-proposes-auction-designated-entities-rule-revamp/142115>).
- ¹⁵ R. Kaminski, *FCC to Deny DISH Subsidies: What’s Next?*, CAPITAL ALPHA PARTNERS (July 17, 2015)(available at: http://www.capalphadc.com/downloads/2015/7/fcc_to_deny_dish_subsidies_whats_next.pdf)(“we expect any re-auctioned licenses to sell for lower prices.”).
- ¹⁶ The sample includes eighty-five auctions. The 14.5% mean is the average of the ratio of bidding credits to gross revenues. The weighted average of bidding credits (in real dollars) across all auctions is 8.7%.
- ¹⁷ At the time of this writing, the FCC just voted to adopt, but did not yet release, an order significantly revamping its DE Rules. See PRESS RELEASE: *FCC Reforms Competitive Bidding Rules For Spectrum Auctions – Modernizes Rules To Prevent Gaming And Provide Flexibility For Eligible Small Businesses And Rural Service Providers* (July 16, 2015) (available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0716/DOC-334398A1.pdf); see also FACTSHEET: *FCC ADOPTS COMPETITIVE BIDDING REPORT & ORDER TO REFORM AUCTION RULES AND SAFEGUARD SMALL BUSINESS BENEFITS* (July 16, 2015) (available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0716/DOC-334420A1.pdf).
- ¹⁸ *Wheeler: We Will Fix Auction DE Rules*, supra n. 13.
- ¹⁹ See, e.g., *Implementation of the Commercial Spectrum Enhancement Act and Modernization of the Commission’s Competitive Bidding Rules and Procedures, Second Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 06-52, 21 FCC Rcd 4753 at ¶ 2 (2006) (“CSEA/Part 1 Second Report and Order”), modified by erratum, 21 FCC Rcd 6622 (2006), clarified by *Order on Reconsideration*, 21 FCC Rcd 6703 (2006) (“CSEA/Part 1 Order on Reconsideration of Second Report and Order”), *aff’d in pertinent part sub nom. Council Tree Communications, Inc. v. FCC*, 619 F.3d 235 (3d Cir. 2010), rules amended and petitions for reconsideration dismissed, *Implementation of the Commercial Spectrum Enhancement Act & Modernization of the Commission’s Competitive Bidding Rules & Procedures*, 27 FCC Rcd 908 (2012).
- ²⁰ See, e.g., *Fresno Mobile Radio, Inc. v. FCC*, 165 F.3d 965, 971 (D.C. Cir. 1999) (when it comes to spectrum policy, the FCC “must balance a number of potentially conflicting objectives”); accord, *Rural Cellular Ass’n v. FCC*, 588 F.3d 1095, 1103 (D.C. Cir. 2009).
- ²¹ Indeed, we should all remember the NextWave debacle from the 1990s, where a DE was forced to forfeit its spectrum because it could not afford to pay for its winning licenses. See, e.g., D. Porter and V. Smith, *FCC License Auction Design: A 12-Year Experiment*, 3 J.L. ECON. & POLICY 63 (2007) at fn. 20 (“The C block auction, completed in May 1996, extended bidding credits to Designated Entities (DEs), small businesses or rural telephone companies determined by the FCC to be handicapped in accessing credit markets. DE bidders winning licenses were extended long-term (10-year) credit on extremely favorable terms (U.S. Treasury debt interest rates), paying for licenses via installments. The two largest bidders defaulted on their payments, leading to court battles resolved by the U.S. Supreme Court in 2003.”); see also *NextWave Wireless*, WIKIPEDIA (available at: http://en.wikipedia.org/wiki/NextWave_Wireless).

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²² See, e.g., *In the Matter of Updating Part 1 Competitive Bidding Rules Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions; Petition of DIRECTV Group, Inc. and EchoStar LLC for Expedited Rulemaking to Amend Section 1.2105(a)(2)(xi) and 1.2106(a) of the Commission's Rules and/or for Interim Conditional Waiver; Implementation of the Commercial Spectrum Enhancement Act and Modernization of the Commission's Competitive Bidding Rules and Procedures*, FCC 14-146, NOTICE OF PROPOSED RULEMAKING, 29 FCC Rcd 12,426 (rel. October 10, 2014); FCC PUBLIC NOTICE, *Request for Further Comment on Issues Related to Competitive Bidding Proceeding*, WT Docket No. 14-170, FCC 15-49, 30 FCC Rcd 4153 (April 17, 2015).

²³ See 47 C.F.R. §§ 1.2112, 1.2105.

²⁴ See 47 C.F.R. § 1.2108.

²⁵ See 47 C.F.R. §2111.

²⁶ 47 C.F.R. §1.2110(b)(iv).

²⁷ See *CSEA/Part 1 Second Report and Order*, *supra* n. 19 at ¶ 21 (2006).

²⁸ *Id.* at ¶ 23.

²⁹ S. Lobaton and S. Romero, *FCC Auction Hit with Claim of Unfair Bids*, NEW YORK TIMES (February 12, 2001).

³⁰ Obviously, this model is abstraction, but is nevertheless useful to determine the first-order effects of discounting. Spectrum auctions are typically multiple round, ascending-bid auctions with a common value component. We do not believe that analyzing a more complex auction form, though possibly informative, will not meaningfully affect the nature of our conclusions.

³¹ In order to determine the “optimal” discount rate, we must decide what it is that the FCC maximizes. While it is often argued that the agency maximizes auction revenues, it does not do so. In fact, Section 309(j) of the statute essentially prohibits revenue maximization since it seems to require the Commission to implement policies to favor certain bidders in ways that could reduce auction revenue. Also, in implementing the DE Program, Section 309(j)(7)(A) prohibits the Commission for implementing policies aimed solely at increasing auction revenues, which implies there are other considerations. While modeling regulators as social welfare maximizers is an option, we do not believe the FCC is a social welfare maximizer in practice, especially in its auction policies. We do not expect, for example, that the FCC assigns much weight to the profits of AT&T and Verizon in its deliberations, which it must do under the assumption of welfare maximizing. Moreover, modeling social welfare requires modeling market competition, secondary markets, unlicensed spectrum, and many other complexities of the mobile wireless market.

³² See *supra* n. 17.

³³ 47 C.F.R. §1.2110 (f)(1)-(2).

³⁴ P. Goldstein, *AT&T, T-Mobile Urge FCC to Change DE Rules, while U.S. Cellular, CCA Warn Against Drastic Reforms*, FierceWireless (May 15, 2015)(available at: <http://www.fiercewireless.com/story/att-t-mobile-urge-fcc-change-de-rules-while-us-cellular-cca-warn-against-dr/2015-05-15>).

³⁵ See *supra* n. 17.

³⁶ This figure is the result of arbitrary modeling choices. Our model does not suggest a discount of 25% is optimal.

³⁷ I. Ayres and P. Cramton, *Deficit Reduction Through Diversity: How Affirmative Action at the FCC Increased Auction Competition*, 48 STANFORD LAW REVIEW 791, 766 (1996) (“An auction with few bidders can generate selling prices substantially below the highest bidders’ valuations. Foreclosure sales, for example, are notorious for this type of competitive failure: If only two bidders show up to bid on a single piece of property, the bidder with the higher valuation will only have to outbid her counterpart—even if the lower bid is only a fraction of the property’s true market value. Giving bidding preferences to weak bidders can increase auction revenues by inducing stronger bidders to bid more aggressively (at p. 766).”)

³⁸ The simulation is run 100 times and the mean of the outcomes calculated.

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- ³⁹ See, e.g., FCC Form 175, FCC Auction No. 97, Northstar Wireless, LLC, Exhibit C (available at: https://auctionfiling.fcc.gov/form175/search175/attachment_view.htm?searchLevel=B&application_id=8538523&file_num=0006458325&version=2&PStart=1&auction_id=97&attachment_id=19474848).
- ⁴⁰ *Auction of Advanced Wireless Service (AWS-3) Licenses Status of Short-Form Applications to Participate In Auction 97*, Public Notice, 29 FCC Rcd 13465 (October 30, 2014).
- ⁴¹ *AWS-3 Public Notice*, *supra* n. 12.
- ⁴² T. Ream, *Dish Network Sweeps H-Block Spectrum Auction For \$1.56 Billion*, FORBES (March 5, 2015) (available at: <http://www.forbes.com/sites/greatspeculations/2014/03/05/dish-network-sweeps-h-block-spectrum-auction-for-1-56-billion>).
- ⁴³ *Id.*
- ⁴⁴ *AWS-3 Procedures Public Notice*, *supra* n. 8 at ¶ 180.
- ⁴⁵ Dissenting Statement of Commissioner Ajit Pai in WT-Docket No. 14-170 (July 16, 2015) (“It’s no secret that the FCC’s Designated Entity (DE) program has been plagued by abuse. You don’t need to look any further than our most recent spectrum auction to see that large corporations routinely try to game the system and gain access to discounted spectrum.”) (available at: http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0716/DOC-334398A5.pdf).
- ⁴⁶ Consider Auction 35, which ended in 2001 and which offered licenses for Broadband PCS spectrum. For this auction, the FCC set aside a number of licenses for only small bidders. One of the largest winners in the auction, Salmon PCS, was funded with \$50 million of its own money and \$285 million provided by Cingular Wireless (for an 85% stake, within the limits of the DE rules). At the auction’s close, DEs with relationships with large, incumbent mobile wireless carriers ended up with 90% of the set aside licenses. For obvious reasons, some parties felt that the outcome was contrary to the intent of the FCC’s set-aside program. The licenses were nevertheless issued and discounts awarded. While the agency apparently determined there was no violation of a rule, one anonymous FCC official stated the auction’s outcome “made us look like idiots.” See, e.g., http://wireless.fcc.gov/auctions/default.htm?job=auction_factsheet&id=35; S. Labaton and S. Romero, *FCC Auction Hit with Claim of Unfair Bids*, NEW YORK TIMES (February 12, 2001) (available at: <http://www.nytimes.com/2001/02/12/business/fcc-auction-hit-with-claim-of-unfair-bids.html>); B. Brewin, *AT&T and Cingular Enlist Partners for Spectrum Bids*, COMPUTERWORLD (December 11, 2000)(available at: <http://www.computerworld.com/article/2589434/government-it/at-t-and-cingular-enlist--partners-for-spectrum-bids.html>).
- ⁴⁷ B. Levy and P. Spiller, *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulation*, 10 JOURNAL OF LAW, ECONOMICS, & ORGANIZATION, 201-246 (1994).
- ⁴⁸ See 47 U.S.C. § 1302. The agency’s credibility is already in doubt. See, e.g., G.S. Ford, L.J. Spiwak and M. Stern, *The Broadband Credibility Gap*, 19 COMMLAW CONSPECTUS 75 (2010) (available at: <http://www.phoenix-center.org/papers/CommlawConspetusBroadbandCredibilityGap.pdf>); L.J. Spiwak, *The FCC’s New Municipal Broadband Preemption Order Is Too Clever By Half*, BLOOMBERG BNA (April 10, 2015) (available at: http://www.phoenix-center.org/oped/BloombergBNA_TennesseePreemptionOrder10April2015.pdf); G.S. Ford and L.J. Spiwak, *The Unpredictable FCC: Politicizing Communications Policy and its Threat to Broadband Investment*, Bloomberg BNA (October 30, 2014) (available at: http://www.phoenix-center.org/oped/BloombergBNA_RegulatoryCertainty30October2014.pdf); G.S. Ford and L.J. Spiwak, PHOENIX CENTER POLICY PERSPECTIVE NO. 14-05: *The Unpredictable FCC: Politicizing Communications Policy and its Threat to Broadband Investment* (October 14, 2014) (available at: <http://www.phoenix-center.org/perspectives/Perspective14-05Final.pdf>).