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Contents

Chapter 4 · Zoning the Spectrum	1
Insert on page 98 after note 10	1
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	3
Notes and Questions	5
Insert on page 114 at the end of § 4.E	5
President’s Council of Advisors on Science and Technology, Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth: Executive Summary	6
Notes and Questions	9
Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550–3650 MHz Band	10
Notes and Questions	16
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	17
Notes and Questions	19
Chapter 5 · Structuring and Assigning Licenses	21
Insert on page 137 at the end of note 8	21
Chapter 6 · Public Trustee Obligations	23
Insert on page 262 at the end of note 3	23
FCC v. Fox Television Stations, Inc.	23
Notes and Questions	26
Chapter 10 · Universal Service After the 1996 Act	27
Insert on page 383 after note 3	27
Connect America Fund	27
Notes and Questions	38
Chapter 14 · Shared Content	39
Insert on page 497 after note 3	39
Chapter 16 · Structural Regulation of Media	41
Insert on page 620 at the end of § 16.C.2	41
Notes and Questions	42

Chapter 18 · Broadband Universal Service	43
Insert on page 726 after note 3	43
Insert on page 752 at the end of the chapter	43
Connect America Fund	44
Notes and Questions	59
Chapter 19 · Broadband Jurisdiction and Structural Regulation	61
Insert on page 786 at the end of § 19.C.1	61
Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services	61
Notes and Questions	68
Insert on page 799 at the end of note 2	69

Chapter 4

Zoning the Spectrum

Insert on page 98 after note 10:

11. In 2012, Congress passed major spectrum legislation that, *inter alia*, implements the incentive auctions discussed on page 89 of the casebook. Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, 126 Stat. 156. Title VI of that legislation, often called the Spectrum Act, creates a new statutory section entitled “Incentive Auctions” that authorizes the FCC to share auction revenue with a licensee that “relinquish[es] voluntarily some or all of its licensed spectrum usage rights in order to permit the assignment of new initial licenses subject to flexible-use service rules.” *Id.* § 6402 (creating a new provision, 47 U.S.C. § 309(j)(8)(G)). The FCC has always had the ability to reclaim spectrum from existing licensees, authorize new services for that spectrum, and assign it to licensees for those new services. What the Commission lacked was the ability to share auction revenues with those who relinquished spectrum usage rights. This legislation permitted such sharing (the “revenue-sharing enhancement” outlined in the National Broadband Plan).

The debate over the legislation, and the legislation itself, focused particularly on spectrum devoted to broadcasting, as data indicated that the gap between the value of spectrum to broadcasters (particularly those with low viewership) and the value to providers of services like wireless broadband was extremely large. Indeed, the size of that gap helps to explain why incentive auctions were included in a broader budget-related bill: Incentive auctions offset the cost of other measures in the legislation because they were projected to raise billions of dollars for the federal government, in light of the difference in value between the old and new uses.

But how could the government gain those revenues? Why wouldn’t existing licensees hold out for valuations that captured for themselves all the difference in value between the old and new uses? The answer, in particular with respect to broadcasters, turns in significant part on the fact that the revenue projections, and a successful auction, did not depend on all broadcast licensees giving up all their spectrum usage rights. If a significant portion of licensees agreed to relinquish all their spectrum usage, or a portion of those rights (in which case they would share channels with another broadcaster, something that digital compression allows), the government could have a successful auction. And that, in turn, meant that the government could ask existing licensees to submit their reservation price (the price at which they would be willing to sell their license), knowing that it did not need to pay the reservation price for a broadcaster who submitted an exorbitant one.

The incentive auctions for broadcast television spectrum entail two auctions—a “reverse auction” in which broadcasters submit their prices to relinquish spectrum, and a “forward auction” of flexible-use licenses for the newly available spectrum in which new users would submit their prices to license spectrum. *See id.* § 6403(a), (c). This arrangement allows the Commission to construct supply and demand curves and then determine the optimal amount of spectrum to shift from existing to new users and uses. A third major element of the incentive auction process involves the Commission reorganizing the broadcast television spectrum, by reassigning some licensees to different frequencies and setting up channel-sharing for those who give up some but not all of their frequencies. Such moves are essential to creating blocks of spectrum for new licensees. The legislation provided for such consolidation (often called repacking), with some limitations—notably that broadcast licensees cannot be involuntarily relocated from UHF to VHF channels. *See id.* § 6403(b)(3).¹ As the FCC noted in its 2012 notice of proposed rulemaking on incentive auctions in discussing reverse auctions, forward auctions, and repacking,

Each of the three pieces presents distinct policy, auction design, implementation and other issues, and the statute in a number of cases imposes specific requirements for each piece. At the same time, all three pieces are interdependent: the amount of spectrum available in the forward auction will depend on reverse auction bids and repacking, winning reverse auction bidders will be paid from the forward auction proceeds, and our repacking methodology will help to determine which reverse auction bids we accept and what channels we assign the broadcast stations that remain on the air. For the incentive auction to succeed, all three pieces must work together.

Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions, Notice of Proposed Rulemaking, 27 FCC Rcd. 12,357 ¶ 5 (2012) (“Incentive Auctions NPRM”).

Why not simply give flexibility to existing licensees to offer new services? Part of the reason was that this would create a very large windfall for the licensees, most of which bought their licenses on the secondary market at low prices that reflected the authorized uses of the spectrum. And part of the reason involved efficiency. Notably, converting individual, local 6 MHz broadcast licenses into regional or national licenses suitable for wireless broadband would require a very large number of transactions, and thus high transaction costs. No channel is licensed in every community (to avoid interference), so buying all the broadcast television licenses on a particular channel in a region or nationwide would still leave large geographic areas not covered by those licenses. And once any entity started buying television licenses on a given channel with the intent of converting them into a regional or national wireless system, other television licensees on that channel would know that they could hold out for a supracompetitive price because they would be needed in order for the channel to be cleared in the target area.

In any event, the legislation achieved the FCC’s goal of giving it the ability to shift some very valuable frequencies from legacy uses like broadcasting to newer uses that people apparently value much more highly (that is what the much higher valuations for new wireless services indicate). And the legislation envisioned a very complex auction de-

1. There is some irony here, as in the early decades of television broadcasting VHF (channels 2 to 13) were the prime channels, and UHF (channels 14 and above) were less desirable and less valuable. Indeed, as the casebook highlights on pages 446–50, early FCC policy regarding cable television was heavily influenced by the Commission’s desire to help UHF gain a foothold in its competition against the dominant VHF broadcasters. UHF is now more valuable because VHF’s advantage of being lower on the television dial is overwhelmed by UHF frequencies’ better propagation characteristics for new wireless services.

sign—much more complex than any previous FCC auction scheme entailed, and perhaps the most complex government auction ever.

As to the degree of flexibility, the Incentive Auctions NPRM notes that the Commission has endorsed flexible uses and that the Spectrum Act provides the new licenses created by incentive auctions “shall be subject to flexible-use service rules.” Spectrum Act § 6403(a)(1). Accordingly, the NPRM proposes that the new licenses may be used for any fixed or mobile service that is consistent with the allocation of the band. ¶ 376. The Incentive Auctions NPRM also proposes that its rules aimed at permitting secondary markets in licenses apply to the new licenses. *See* casebook § 4.F. Thus the NPRM proposes allowing for spectrum leasing as well as geographic partitioning and spectrum disaggregation. ¶¶ 385–391.

Below is an excerpt from the section of the Commission’s Incentive Auctions NPRM addressing the band plan and one of its many elements—spectrum block size.

Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions

Notice of Proposed Rulemaking, 27 FCC Rcd. 12,357 (2012)

VI. FORWARD AUCTION — RECONFIGURING THE UHF BAND

A. Allocations

121. Prior to the enactment of the Spectrum Act we sought comment on adding new fixed and mobile allocations to the UHF and VHF bands. We seek further comment on our proposals in light of the Spectrum Act’s passage. Our goal is to adopt a band plan that will provide for flexible use of these bands for new wireless broadband services while continuing to support existing uses. In particular, we invite comment on the views expressed by broadcasters advocating retention of some of the UHF and VHF television bands exclusively for broadcast use. What are the benefits and drawbacks of such an approach? What effect would it have on the Commission’s future flexibility to manage the spectrum? As a practical matter, how could such an approach be implemented, given that the amount of broadcast spectrum recovered in any specific geographic area depends on the results of the broadcast television spectrum incentive auction?

B. 600 MHz Band Plan

123. Creating a band plan from relinquished broadcast spectrum usage rights (hereinafter called the “600 MHz band”) presents unique challenges. The forward auction’s interdependence with the reverse auction and the repacking mean that we will not know in advance the amount of spectrum we can make available in the forward auction, the specific frequencies that will be available and, perhaps, the geographic locations of such frequencies. Therefore, instead of a band plan with identified frequencies, a set number of spectrum blocks and a uniform set of geographic area licenses, we must establish a band plan framework that is flexible enough to accommodate varying amounts of spectrum from relinquished broadcast television spectrum usage rights in different locations. At the same time, the band plan must provide as much information and certainty as possible, to enable interested wireless providers to make informed business decisions about whether, and how, to bid for and use 600 MHz spectrum.

124. *Overview of the Band Plan.* Keeping these challenges in mind, we propose to adopt a band plan that balances flexibility with certainty, accommodating varying amounts of

available wireless spectrum in different geographic areas rather than requiring that a uniform set of television channels be cleared nationwide. Specifically, we propose a structure to keep the downlink spectrum band consistent nationwide while allowing variations in the amount of uplink spectrum available in any geographic area. [B]y keeping the downlink spectrum consistent nationwide, we can help ensure as a technical matter that wireless providers will be able to offer mobile devices that can operate across the country, which should minimize device cost and interoperability concerns, and allow for greater economies of scale. We also propose designating specific uplink and downlink blocks, pairing them where possible, to support expansion of cutting-edge wireless broadband technologies.

1. Spectrum Block Size

127. In determining the spectrum block size to create the 600 MHz band, we seek to maximize utility and allow for efficient use of this band. Given the unique circumstances of this spectrum, we also seek to optimize: (1) the efficiency with which the spectrum usage rights in the relinquished broadcast television spectrum can be rebanded; and (2) the process of transitioning from broadcast to mobile broadband use. To accomplish these goals, we must consider which technologies may be used in this band. Consistent with our long-standing policy on technology neutrality, we do not propose to prescribe a specific technology for use in the band. Nonetheless, for band planning purposes we expect that the most likely technologies that will operate on this spectrum are 3G and 4G Frequency Division Duplex (FDD) technologies. Various globally-standardized technologies, including Wideband-Code Division Multiple Access (W-CDMA), High Speed Packet Access (HSPA), and their variants, use 5 + 5 megahertz paired blocks when deployed as FDD. Long Term Evolution (LTE) supports a variety of block sizes, including multiples of 5 megahertz. Additionally, new versions of LTE and HSPA specify “channel aggregation” that can be used to bond smaller channels for greater performance.

128. To allow for the greatest amount of flexibility and efficiency, we propose to license the 600 MHz spectrum in 5 megahertz “building blocks.” Five megahertz blocks can support a variety of wireless broadband technologies, as described above. Licensing spectrum in 5 megahertz blocks also promotes efficiency in converting broadcast television licenses to flexible-use mobile channels because it is close in size to the 6 megahertz television channels that will be relinquished. Five megahertz blocks will optimize efficiency in the rebanded spectrum, allowing wireless spectrum demand in a given market to more closely match the amount of spectrum supplied by participating broadcasters. We seek comment on our proposal and whether this block size offers the best opportunity to use the spectrum efficiently.

129. We also seek comment on licensing the 600 MHz spectrum in six megahertz blocks. One advantage of six megahertz blocks is that they precisely correspond to the size of digital television broadcast channels relinquished. Because six megahertz blocks do not precisely map onto the channel sizes used for most wireless broadband technologies in the market at this time,² use of such blocks may result in spectrum inefficiency.³ Further,

2. Although the 700 MHz band includes 6 and 11 megahertz block licenses, we note that 700 MHz licensees have typically deployed channels that are multiples of five. Specifically, Verizon has deployed LTE technology using 10 + 10 MHz channels in its upper 700 MHz C-Block nationwide license. AT&T has deployed 10 + 10 MHz channels where possible, and 5 + 5 MHz channels elsewhere. Phil Goldstein, *Report: Sprint's LTE Network is as Fast as its Competitors*, Fierce Wireless, June 19, 2012, available at <http://www.fiercewireless.com/story/report-sprints-lte-network-fast-its-competitors/2012-06-19> (last visited Sept. 28, 2012).

3. Since licensees are likely to deploy technologies that use a block size that is a multiple of 5 megahertz, winners of 6 megahertz blocks will have 1 megahertz unused, winners of two contiguous blocks will have 2 megahertz unused, and so forth. Because the blocks are aligned (*i.e.*, downlink blocks are

using six megahertz blocks may reduce the number of blocks auctioned in some circumstances. We seek comment on the relative costs and benefits of licensing the blocks in 6 megahertz increments.

130. Some prospective 600 MHz licensees may want to obtain spectrum in larger spectral units—for example, in 10 megahertz blocks. [W]e are seeking comment on auction design options that would facilitate the aggregation of larger contiguous blocks composed of multiple 5 megahertz building blocks. We also anticipate that licensees could aggregate larger blocks post auction through the secondary market or using technological approaches such as channel aggregation. With these aggregation mechanisms in mind, we seek comment on the extent to which bidders view 5 megahertz building blocks as an acceptable balance between network performance and our ability to convert the 6 megahertz broadcast spectrum blocks into terrestrial wireless spectrum. Would the use of larger blocks (*e.g.*, 10 megahertz blocks) reduce the amount of spectrum that could be reclaimed in an auction? Do secondary markets or carrier aggregation technologies provide sufficient options for aggregating 5 megahertz building blocks?

Notes and Questions

1. **3G and 4G.** The Commission says both that it “do[es] not propose to prescribe a specific technology for use in the band” and that “for band planning purposes” it expects that 3G and 4G technologies are the most likely uses for the new licenses. Are those statements in tension? The FCC’s expectations that 3G and 4G services will predominate are consistent with almost everyone else’s expectation, but they could be wrong. How, if at all, should the FCC take that possibility into account?

2. **Other Considerations and Sizes.** Are there other considerations on block size that the Commission ignores? On what basis would you advocate for a different block size?

3. **Why Pick a Block Size?** Why doesn’t the Commission refrain from picking a block size, and leave that up to the bidders? For that matter, why shouldn’t the Commission avoid setting rules in advance and simply say that people can bid as they see fit, and leave it to them to match themselves? This is a variation of the question asked above the excerpt about letting existing licensees sell their licenses as they see fit. The short answer is that it would likely reduce social welfare by increasing transaction costs. Consider the difficulties noted above involved for a bidder that wanted to buy a single nationwide band of spectrum. Congress intended to reap billions of dollars from the incentive auctions (and promised much of that money to various programs), and a free-for-all process would have decreased that amount considerably. Permitting flexible uses increases social value. Complete flexibility in bidding apparently does not.

Insert on page 114 at the end of § 4.E:

In 2012 and 2013 there were three significant initiatives with respect to dynamic spectrum use and alternatives to exclusive licenses. The first involved the 5 GHz band. A 2013 notice of proposed rulemaking suggested unifying the regulations applicable to the different 5 GHz bands that have been opened up to Unlicensed National Information Infrastructure (U-NII) devices. Revision of Part 15 of the Commission’s Rules to Permit

next to downlink blocks and uplink blocks are next to uplink blocks), such unused portions will not serve any useful function as guard bands between blocks. Furthermore, because these small fragments will be spread throughout the band, they cannot easily be aggregated for any other purpose.

Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band, FCC 13–22 (Feb. 20, 2013) (“5 GHz NPRM”). Different rules applied to different portions of the 5 GHz U-NII bands. The NPRM proposed that some of the rules be aligned, with the result that there would be consistent rules across 125 megahertz of spectrum, permitting the introduction of wireless devices that could more easily operate across that range.

Perhaps more significantly, the 5 GHz NPRM suggested making an additional 195 megahertz of spectrum in the 5.35–5.47 GHz and 5.85–5.925 GHz bands available for U-NII use. The Commission’s proposal with respect to the first of these two bands responded to the Spectrum Act, which required the Commission to begin a proceeding “to allow unlicensed U-NII devices to operate in the 5350–5470 MHz band.” §6406(a). This provision did not apply to the 5.85–5.925 GHz band, but the FCC has authority to make proposals as to that band, too (just as the Commission could make proposals with respect to the 5.35–5.47 GHz band before the Spectrum Act was passed). The particular significance of the Spectrum Act was to require a proceeding on allowing unlicensed uses on the 5.35–5.47 GHz band.

The major complication with respect to both the 5.35–5.47 GHz and 5.85–5.925 GHz bands is that there are existing services on them, including military radar systems. Congress was of course aware of this, and §6406(a) of the Spectrum Act also provided that the Commission could allow unlicensed devices in the 5.35–5.47 GHz band “only if the Commission, in consultation with the [NTIA], determines that (A) licensed users will be protected by technical solutions, including use of existing, modified, or new spectrum-sharing technologies and solutions, such as dynamic frequency selection; and (B) the primary mission of Federal spectrum users in the 5350–5470 MHz band will not be compromised by the introduction of unlicensed devices.” *Id.* Thus much of the focus of the FCC’s 5 GHz NPRM (and the NTIA study that the Act called for) was on the possibilities for spectrum-sharing technologies. In the meantime, there is no new unlicensed use on these bands. Like all notices of proposed rulemaking, the 5 GHz NPRM made proposals but did not change existing law.

The second significant initiative involved a proposal for sharing spectrum used by the federal government with other users. The President’s Council of Advisors on Science and Technology (PCAST) issued a report on this possibility in 2012, which is excerpted below:

President’s Council of Advisors on Science and Technology, Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth: Executive Summary

[http://www.whitehouse.gov/sites/default/files/microsites/ostp/
pcast_spectrum_report_final_july_20_2012.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast_spectrum_report_final_july_20_2012.pdf) (2012)

In 2011, global mobile data more than doubled for the fourth year in a row. The number of devices connected to mobile networks worldwide is around five billion today, and could rise to 50 billion by 2020. By that time, wireless technologies are expected to contribute \$4.5 trillion to the global economy through the expansion of existing business and the creation of new opportunities. This growth has created unprecedented demand for commercial access to wireless spectrum. At the same time, U.S. Federal spectrum needs are also rising. For example, the number of unmanned aerial systems (UAS) operated by the Department of Defense (DOD) has drastically increased from 167 to nearly 7500 from 2002 to 2010, and the systems are carrying larger payloads and collecting increased volumes of intelligence, surveillance, and reconnaissance (ISR) data. This has resulted in a dramatic increase in the number of sorties flown and domestic training requirements, all of which require spectrum.

PCAST finds that clearing and reallocation of Federal spectrum is not a sustainable basis for spectrum policy due to the high cost, lengthy time to implement, and disruption to the Federal mission. Further, although some have proclaimed that clearing and reallocation will result in significant net revenue to the government, we do not anticipate that will be the case for Federal spectrum. In March of 2012, the National Telecommunications and Information Administration (NTIA) concluded that clearing just one 95 MHz band by relocating existing Federal users to other parts of the spectrum would take 10 years, cost some \$18 billion, and cause significant disruption to incumbent users. NTIA, *An Assessment of the Viability of Accommodating Wireless Broadband in the 1755–1780 MHz Band* (2012), www.ntia.doc.gov/report/2012/assessment-viability-accommodating-wireless-broadband-1755-1850-mhz-band. The last successful auction that involved cleared Federal spectrum, in 2006, yielded a total of \$13.7 billion for 90 MHz, but only half of the auctioned spectrum was Federal (the other half was already commercial), and the Federal agencies then required \$1.5 billion over the next 6 years to relocate services out of the cleared bands. In the end, therefore, the Federal contribution of 45 MHz realized a net of just \$5.35 billion. When this net revenue is annualized over 10 years or more, the typical duration of a license, the amount of revenue the Federal Government will receive is small. These modest sums should not be driving the direction of spectrum policy.

Historically, spectrum was managed by assigning exclusive rights to use a specific frequency in a specific location. Initially, these authorizations were granted to governmental and commercial users at no cost. Since the mid-1990s, long term commercial licenses have generally been assigned through competitive auctions. Winning bidders typically receive spectrum access in the form of exclusive assignments of frequencies to chosen services (i.e., licenses), ensuring that no other services infringe on that assignment (i.e., no interference). This study finds that today's apparent shortage of spectrum is in fact an illusion brought about because of the way spectrum is managed. If the Nation instead expands its options for managing Federal spectrum, we can transform the availability of a precious national resource—spectrum—from scarcity to abundance. This expansion can be done in such a way that it will not result in a loss of revenue to the Federal Government and may result in new revenue either from enhanced economic growth and innovation or from modest leasing fees. But in either case, the value to the Federal Government will be greater if the spectrum is available for reuse or relicensing more often than it is today. The new system for Federal spectrum management that this report calls for—a new spectrum architecture and a corresponding shift in the architecture of future radio systems that use it—can multiply the effective capacity of spectrum by a factor of 1,000.

The essential element of this new Federal spectrum architecture is that the norm for spectrum use should be sharing, not exclusivity. Technology innovations of recent years make this transformation eminently achievable. Two trends are especially important. First, instead of just the tall cell towers that provide coverage for very large geographic areas, many wireless services are already moving to “small cell” operations that provide services for very small geographic areas, reducing the potential for interference so that other services may operate much closer to them. The huge explosion of Wi-Fi services is one example of this evolution. Second, improvements in performance make it possible for devices to deliver services seamlessly even in the presence of signals from other systems, so that they do not need exclusive frequency assignments, only an assurance that potentially interfering signals will not rise above a certain level.

Taking these and other developments into account, this report argues that spectrum should be managed not by fragmenting it into ever more finely divided exclusive frequency assignments, but by specifying large frequency bands that can accommodate a

wide variety of compatible uses and new technologies that are more efficient with larger blocks of spectrum.

The recommendations in this report are based on starting with low-risk existing technologies, early versions of which are already being deployed today. Enacting these recommendations will create market opportunity for newer technologies, enabling them to mature faster, accelerating the growth of spectrum sharing capacity, and leading to the development of an ongoing innovation cycle. However, the policies proposed are consistent with the later deployment of these non-commercial technologies, only when they are validated for their operational use in Federal spectrum.

To make an analogy, today's spectrum use resembles road transportation at the beginning of the automotive revolution when we created our highways and interconnection and commerce flowed. The mid-1980s innovation of "unlicensed" spectrum use, which makes spectrum available at no cost to any user willing to abide by technical conditions of use, has been essential to the rise of Wi-Fi and represents a wireless analogy to the early shared roadways. The rest of the spectrum system, however, still looks like a series of narrow roads. What PCAST proposes is creating the spectrum equivalent of wide multi-lane superhighways, where the lanes are continuously shared by many cars, trucks, and other vehicles. Spectrum superhighways would be large stretches of spectrum that can be shared by many different types of wireless services, just as vehicles share a superhighway by moving from one lane to another. In contrast to the way we have allocated spectrum, the road system has always let Federal and commercial vehicles share the same highways, with the proviso that government use was allowed to preempt commercial users' rights for reasons of public safety, emergency medical rescue, or national security. There is no reason that the same principles cannot apply to spectrum management. Users of spectrum can make use of the wireless equivalents of signals, sensors, and stop lights to avoid "collisions" with other users. Just as we created the initial transcontinental superhighways in the 20–30 years that followed the 1939 FDR-commissioned blueprint "Toll Roads and Free Roads," we have the chance to create spectrum superhighways today.

As a result, the most urgent recommendation in this report is that the President issue a new memorandum that states it is the policy of the U.S. government to share underutilized Federal spectrum to the maximum extent possible that is consistent with the Federal mission, and requires the Secretary of Commerce to immediately identify 1,000 MHz of Federal spectrum in which to implement the new architecture and thereby create the first shared-use spectrum superhighways.

As part of the process to reach this 1,000 MHz goal, PCAST recommends that the Federal Government, using industry partners, establish a new Federal Spectrum Access System (SAS) that will serve as an information and control clearinghouse for band-by-band spectrum registrations and conditions of use and allow non-Federal users to access underutilized spectrum in Federal bands. The SAS will put into practice the fundamental principle that underutilized spectrum capacity should be used or shared to the greatest possible extent. Another recommended change is that Federal spectrum, instead of being divided into small, dedicated frequency blocks as it is at present, should be divided into substantial frequency blocks spanning several hundred megahertz. Establishing these wide bands will make it easier for spectrum sharing to be the norm, a transformation in which all Federal agencies would be required to cooperate. Making spectrum access available to a wide range of services and applications will also require provision of a framework that establishes minimum technical standards for the coexistence of transmitters and receivers, in contrast to the present system that focuses on transmitters. Finally, simple measures that assess individual spectrum uses solely by their need for megahertz must be replaced by

more sophisticated metrics that reveal how effectively a stretch of spectrum can accommodate a variety of complementary services within a given area.

We recognize that the new spectrum architecture proposed in this report represents a major evolution of existing spectrum management practices. Implementing it will not be easy and may take a long time. But just as the transcontinental highway system began with one road, we must act immediately to act on the initial 1,000 MHz. Before they will embrace the new system, incumbent Federal spectrum users will need to have confidence that sharing of the spectrum they have been allocated will not cause harmful interference to the technologies that they operate, and commercial operators with new technologies will need to be made sure of the reliability of the spectrum access needed for their business models. So, to get started, we are proposing three key elements of a significant pilot program that includes immediate actions toward implementing our recommendations:

1. The immediate sharing of new low-power civil devices in two existing Federal bands, of over 100 MHz combined.

2. The creation of a group of industry executives (e.g. CEOs), selected by the President and called the Spectrum Sharing Partnership Steering Committee, to recommend a policy framework, centered on a public private partnership for sharing Federally-held spectrum, and implementation milestones that lay the groundwork for the first spectrum superhighways.

3. The creation of an urban Test City in a major U.S. city along with a Mobile Test Service that can relocate to urban, rural, and Federal facilities as needed to support rapid experimentation in spectrum management technology and practice.

We estimate that the overall costs of implementing this program, over the next 3 years, will be in the range of about \$80 million. We view the Federal Government as the initial funding source to cover costs, along with a public private partnership that will have the aim of transferring most costs to the private sector over the course of time.

Federal users currently have no incentives to improve the efficiency with which they use their own spectrum allocation, nor does the Federal system as a whole have incentives to improve its overall efficiency. This report therefore proposes an accounting, allocation, and incentive system (nominally called “Spectrum Currency”) that would reward agencies that move quickly to promote more effective spectrum use by making some of their spectrum available for sharing with other Federal and non-Federal users.

One of the other important directions that spectrum policy must take is to create a marketplace that can accommodate the widest range of commercial users, from initial venture-funded startups to established service providers. Today’s spectrum ecosystem offers only the choice between unlicensed and long term, renewable licensed spectrum. The number of business entities that can participate in auctions for nationwide, long term spectrum licenses, is limited. Experimenting with shorter-term, lower cost, spectrum license options for commercial users sharing Federal spectrum, will foster new innovative ideas, increase the number of participants in this market, contribute to economic growth, and also provide a way to collect an ongoing stream of revenue, if that is desired.

Notes and Questions

1. **Focusing on Federal Spectrum.** This report responds to a widespread belief that spectrum used by the federal government presents a particularly promising opportunity as a source of new spectrum capacity for new services. Those seeking frequencies focused on the federal government because much of the government’s spectrum is fairly lightly used.

To put the point differently, in terms of underutilized spectrum, some of the swaths of spectrum used by the federal government are particularly attractive candidates.

2. Sharing. The fact that spectrum is lightly used does not necessarily mean that clearing it of those uses will be easy, and in fact PCAST finds that it will not be easy. Thus PCAST suggests sharing. Is the case for sharing a compelling one? Should PCAST have pushed harder to have the government simply vacate the spectrum? Or, by contrast, is imposing sharing a mistake, given the importance of the government uses?

3. Government Incentives. As the PCAST report acknowledges, federal users lack an incentive to vacate, or efficiently use, spectrum, because they cannot monetize it. This is analogous to the command-and-control approach to spectrum discussed in §4.A of the casebook. Indeed, in some ways the problem is worse than the command-and-control regime that applied to many commercial uses, because federal government users cannot confidently transfer their spectrum usage in return for something else they value. PCAST suggests overcoming this problem by creating a shadow currency that would value spectrum and that could be used by agencies insofar as they freed up spectrum capacity. The problem is that such a shadow currency has not been implemented, and agencies may fear that it will never actually materialize (e.g., even if they receive such currency, it will be used as a justification to reduce other spending, mitigating its value). Is there any credible commitment that the President, or Congress, could make that would come close to approximating the value of the spectrum and thus provide government users with a significant incentive to give up some of their spectrum?

4. FCC Response. The FCC responded to the PCAST report, and the possibility of spectrum sharing more generally, in the following notice of proposed rulemaking:

Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550–3650 MHz Band

Notice of Proposed Rulemaking, 27 FCC Rcd. 15,594 (2012)

I. INTRODUCTION AND EXECUTIVE SUMMARY

1. With this Notice of Proposed Rulemaking, we propose to create a new Citizens Broadband Service in the 3550–3650 MHz band (3.5 GHz Band) currently utilized for military and satellite operations, which will promote two major advances that enable more efficient use of radio spectrum: *small cells* and *spectrum sharing*. We also seek comment on whether to include under these proposed new, flexible rules the neighboring 3650–3700 MHz band, which is already used for commercial broadband services. Together, these proposals would make up to 150 megahertz of contiguous spectrum available for innovative mobile and fixed wireless broadband services without displacing mission-critical incumbent systems.

3. The PCAST Report identifies two technological advances as holding great promise for increasing our nation’s wireless broadband capabilities. First, increased use of small cell network deployments can multiply wireless capacity within existing spectrum resources. Second, increased spectrum sharing can make large swaths of otherwise “stovepiped” spectrum—nationwide bands set aside for important, but localized, government and non-government uses—newly available for broadband use. The proposed Citizens Broadband Service would foster the widespread utilization of both of these technological advances and promote the efficient use of the 3.5 GHz Band.

4. Small cells are low-powered wireless base stations intended to cover targeted indoor or localized outdoor areas ranging in size from homes and offices to stadiums, shop-

ping malls, hospitals, and metropolitan outdoor spaces. Typically, they provide wireless connectivity in areas that present capacity and coverage challenges to traditional wide-area macrocell networks. Small cells can be deployed relatively easily and inexpensively by consumers, enterprise users, and service providers. Networks that incorporate small cell technology can take advantage of greater “reuse” of scarce wireless frequencies, greatly increasing data capacity within the network footprint. For example, deploying ten small cells in a location in place of a single macro cell could result in a tenfold increase in capacity, using the same quantity of spectrum. Small cells can also be used to help fill in coverage gaps created by buildings, tower siting difficulties, and/or challenging terrain.

5. Spectrum sharing in this context refers to the use of automated techniques to facilitate the coexistence of disparate unaffiliated spectrum dependent systems that would conventionally require separate bands to avoid interference. Such coexistence may happen, for example, by authorizing targeted use of new commercial systems in specific geographical areas where interference into incumbent systems is not a problem. The need to minimize interference risks has caused, over time, much spectrum to be reserved for “high value” systems that protect national security, safety of life, etc. For example, the military may need spectrum for advanced radar systems or hospitals may deploy networks to enable real-time monitoring of patient vital signs. However, many of these uses are highly localized in nature. Therefore, more agile technologies and sharing mechanisms could potentially allow large quantities of special-purpose federal and non-federal spectrum to be used for more general purposes, such as commercial broadband services, on a shared basis.

6. The 3.5 GHz Band appears to be an ideal band in which to propose small cell deployments and shared spectrum use. The NTIA Fast Track Report identified the 3.5 GHz Band for potential shared federal and non-federal broadband use. NTIA, *An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675–1710 MHz, 1755–1780 MHz, 3500–3650 MHz, 4200–4220 MHz, and 4380–4400 MHz Bands* (October 2010) (Fast Track Report), available at http://www.ntia.doc.gov/files/ntia/publications/fasttrackevaluation_11152010.pdf. Incumbent uses in the band include high powered Department of Defense (DoD) radars as well as non-federal Fixed Satellite Service (FSS) earth stations for receive-only, space-to-earth operations and feeder links. In the adjacent band below 3550 MHz there are high-powered ground and airborne military radars. The Fast Track Report recommended, based on the commercial wireless broadband technology that was assessed, that new commercial uses of the band occur outside of large “exclusion zones,” which we estimate to cover approximately 60 percent of the U.S. population, to protect government operations. For this reason, and because of limited signal propagation at 3.5 GHz, the commercial wireless industry has expressed a viewpoint that the 3.5 GHz Band would not be particularly well-suited for macrocell deployment, with some suggesting that it might be more appropriate for fixed wireless or unlicensed use. We agree with the PCAST Report that the perceived disadvantages of the 3.5 GHz Band might be turned into advantages from the standpoint of promoting spectrum sharing and small cell innovation. Such a paradigm could vastly increase the usability of the band for wireless broadband.

III. DISCUSSION

A. Licensing Framework

1. Proposed Multi-Tier Framework

53. We propose a three-tiered licensing and interference protection framework to manage access to and use of the 3.5 GHz Band, providing different levels of protection for

different levels of access in the 3.5 GHz Band. The three proposed tiers are Incumbent Access, Priority Access, and General Authorized Access. To govern the interaction between the three tiers, we propose to establish a spectrum access system (SAS), incorporating a geo-location enabled dynamic database and, potentially other appropriate mitigation techniques.

54. Under the proposed framework, Incumbent Access users would include authorized federal and grandfathered FSS users in the 3.5 GHz Band. Incumbent Access users would have protection from harmful interference from all other users in the 3.5 GHz Band, which would be achieved through appropriate interference mitigation techniques, including geographic restrictions on Citizens Broadband Service use in the SAS. In this way, our proposal would ensure that federal users and grandfathered FSS licensees would be able to continue to use the band without interference from new Citizens Broadband Service users.

55. In the Priority Access tier, the Commission would authorize certain users with critical quality-of-service needs [to] operate with a measure of interference protection in portions of the 3.5 GHz Band at specific locations. Priority Access users would be eligible to use authorized devices on an interference protected basis within their facilities as controlled by the SAS. The Priority Access tier would be available only in areas where Citizens Broadband Service devices would not cause interference to incumbent operations and would not be expected to receive interference from incumbents (Priority Access Zones). In addition, Priority Access users would be required to provide interference protection to and accept interference from Incumbent Access users (even though no such interference would be anticipated in Priority Access Zones), but would not be required to provide such protection to General Authorized Access (GAA) users.

56. In the GAA tier, licensees would be authorized to use the 3.5 GHz Band on an opportunistic basis within designated geographic areas. GAA users would be required to accept interference from Incumbent and Priority Access tier users and would be required to avoid causing harmful interference to any users in those tiers. GAA use would permit ready access to unused portions of the 3.5 GHz Band for a broad class of residential, commercial, enterprise, and government users. Uses could include fixed or mobile consumer level devices, similar to Wi-Fi or TV White Spaces devices. Use of GAA devices would be permitted in Priority Access Zones as well as areas where such devices would not cause harmful interference to incumbent operations but where signals from incumbent operations could be expected to interfere with GAA uses on occasion (GAA Zones). Additionally, a supplemental proposal would allow GAA use at higher power levels in non-congested areas where those power levels do not pose an interference risk to higher tier users.

57. In general, under this three-tiered licensing proposal we believe incumbent users would be able to operate on a fully protected basis, while the technical benefits of small cells could be leveraged to facilitate innovative and efficient uses in the 3.5 GHz Band. Figure 1, on the following page, provides a conceptual illustration how the different tiers, and corresponding zones, might interrelate from a geographic perspective within the 3.5 GHz Band. We seek comment on these tentative conclusions. We also seek detailed comments on the proposed three-tiered licensing and interference protection model, including the proposed geographic restrictions on Citizens Broadband Service operations, and request comprehensive analyses of the costs and benefits of this approach.

59. *Federal Radar Interference into Citizens Broadband Service Systems.* [T]he Fast Track Report proposed exclusion zones around DoD radars that were calculated to protect not only the DoD radar systems but also to prevent harmful interference from such

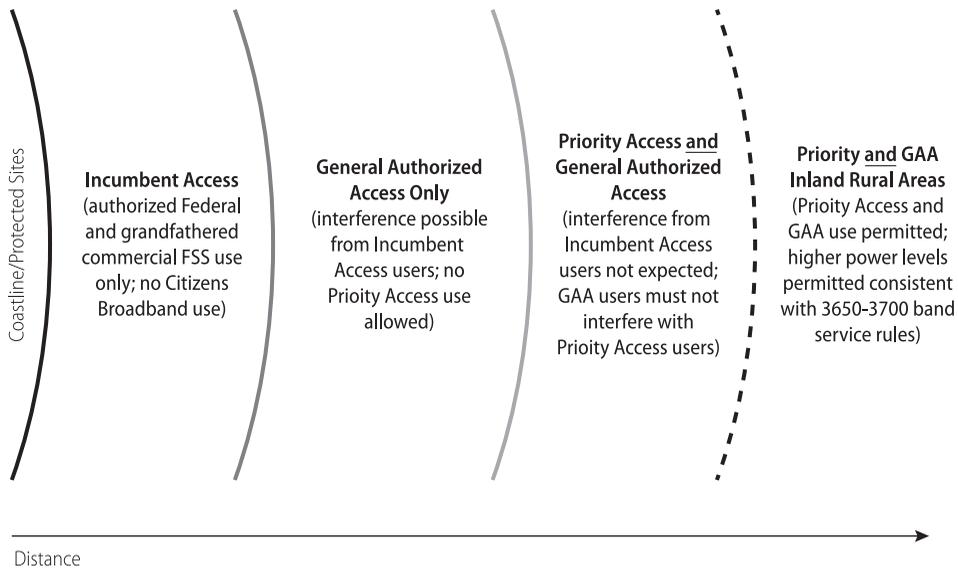


Figure 1

systems into commercial devices. Under our proposal, GAA use would be allowed in areas where small cell devices would not cause harmful interference to incumbent operations but where signals from incumbent operations could possibly interfere with GAA uses on occasion (GAA Zones). In addition, we propose to allow “mission critical” operations in Priority Access Zones, where interference from radars into small cell use would not be expected. [In this NPRM,] we inquire about possible technological approaches to designing resilient small cells that can avoid interference from high-powered radars. Nonetheless, given the Fast Track Report’s concerns about incumbent interference into commercial systems, should GAA operations be permitted in areas where they can possibly receive interference from radars? Or should such use be restricted to areas where no harmful interference from Incumbent Access users would be expected[?] Similarly, should “mission critical” operations be permitted in the 3.5 GHz Band? Or does the threat of such interference render the band unusable for such sensitive operations, suggesting they be prohibited even in places where there is no expectation of harmful interference from DoD radars? How do the answers to these questions affect the value of the band? We seek comment on these important questions that go to the heart of the proposed Citizens Broadband Service.

60. *Federal Use of Citizen’s Band Service.* We are cognizant that, much as federal agencies today make extensive use of commercial wireless technologies including cellular networks and Wi-Fi, so, too, they might find great value in small cell use. Therefore, we seek comment on the applicability of the Citizens Broadband service, including GAA and Priority Access tiers, to federal users. Federal agencies are permitted to operate various systems consistent with the FCC rules in various frequency bands. These federal systems are required by Section 2.103 of the Commission’s rules, 47 C.F.R. § 2.103, and NTIA’s Manual of Regulations and Procedures for Federal Radio Frequency Management (NTIA Manual) to operate in accordance with FCC rules and technical requirements, http://www.ntia.doc.gov/files/ntia/publications/manual_5_11.pdf. Non-federal services used by federal agencies span the various methods of authorization used by the FCC including license-by-rule, individual and blanket licenses, and unlicensed operation. We propose that federal

end users be able to make use of our proposed three-tier access system provided that agencies follow the technical and regulatory requirements developed through our rulemaking process. We seek comment on this proposal, including the appropriate regulatory means to effectuate it.

2. Proposed Licensing Model

61. We propose to establish the Citizen's Broadband Service by rule under Section 307(e) of the Communications Act, 47 U.S.C. § 307(e). We believe that a license-by-rule licensing framework would allow for rapid deployment of small cells by a wide range of users, including consumers, enterprises, and service providers, at low cost and with minimal barriers to entry. Much wireless broadband use occurs indoors or in other enclosed facilities. Typically, the owners or users of such facilities already have access to the siting permissions, backhaul facilities, electrical power, and other key non-spectrum inputs for the provision of service. Moreover, our proposal for small cell operation at the relatively high frequency 3.5 GHz Band would generally tend to contain service within such facilities, allowing for a very high degree of spectrum reuse. Therefore, authorizing these end users—or their agents or assignees—to have direct access to the 3.5 GHz Band in the physical locations that they otherwise are able to access would seem to facilitate expeditious and low-cost provision of service. A license-by-rule framework is very compatible with and conducive toward these aims.

62. Section 307(e) states in part that, “[n]otwithstanding any license requirement established in this Act, if the Commission determines that such authorization serves the public interest, convenience, and necessity, the Commission may by rule authorize the operation of radio stations without individual licenses in the following radio services: (A) citizens band radio service; . . .” *Id.* § 307(e)(1). Section 307(e) states further that, “[f]or purposes of this subsection, the terms ‘citizens band radio service’ . . . shall have the meanings given them by the Commission by rule.” *Id.* § 307(e)(1). We believe that a license-by-rule framework is an appropriate methodology for authorizing users in the 3.5 GHz Band consistent with the tiers of service proposed herein. This proposed framework would facilitate the rapid deployment of compliant small cell devices in critical use facilities, while minimizing administrative costs and burdens on the public, licensees, and the Commission. Moreover, this proposed framework would allow the Commission a great deal of flexibility to establish appropriate service and allocation rules. It would also promote administrative efficiency by maintaining the rules governing the Citizens Broadband Service in a single rule part. Thus, we tentatively conclude that authorizing the operation of compliant devices in the 3.5 GHz Band by rule under Section 307(e) of the Act would further the public interest, convenience, and necessity. However, we also seek comment on alternative licensing and spectrum access models.

5. Alternative Licensing and Spectrum Access Models

83. While we believe that the three-tiered license-by-rule approach described above would provide a comprehensive framework for authorizing and managing access to the 3.5 GHz Band, we acknowledge that other approaches could be taken to manage non-federal access to the band. To that end, we seek detailed comment on alternative licensing and spectrum access models for the 3.5 GHz Band, taking into account: (1) the need for compatible operation with Incumbent Access users, including the acceptance of interference from these users and (2) our proposed technical rules to enable small cell use in this band. Commenters should thoroughly compare and contrast their preferred alternative models to the proposals set forth herein.

84. *Two-Tier Variation.* We seek comment on whether a two-tiered model composed solely of Incumbent Access and Priority Access tiers would be more appropriate

for the 3.5 GHz Band. Under this regulatory model, Incumbent Access users would continue to be protected from harmful interference and the remaining available spectrum would be licensed under criteria similar to those applicable to the proposed Priority Access tier. Similar database and technological coordination techniques described above would apply to this model as well and access would be permitted only within designated geographic areas. However, GAA use would not be permitted under this alternate proposal. We expect that this model would be compatible with the alternative licensing approaches described herein. We seek comment on this two-tier alternative, including the costs and benefits. What impact could this alternative have on spectrum efficiency in the 3.5 GHz Band relative to our three-tiered approach? Under this approach, should Priority Access users be allowed to operate in areas where interference could be expected from Incumbent Access users? Is there a specific licensing approach that is most compatible with this model? How would the use of a two-tiered framework affect the costs and benefits to wireless operators, enterprise users, consumers, or other potential users of the spectrum?

85. *Geographic Area Exclusive Licensing Alternative.* Rather than utilizing the license-by-rule approach described above, should the Commission entertain mutually exclusive applications for the Priority Access tier within defined geographic service areas? We note that Section 309(j) of the Communications Act provides that the Commission will resolve mutually exclusive applications accepted for spectrum licenses through competitive bidding, subject to specified exemptions. 47 U.S.C. § 309(j)(1).

Nevertheless, the Commission, consistent with Section 309(j), has the “freedom to consider all available spectrum management tools and the discretion to evaluate which licensing mechanism is most appropriate for the services being offered.” *Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as Amended*, Report and Order and Further Notice of Proposed Rulemaking, 15 FCC Rcd. 22709, 22721, ¶ 25 (citing 47 U.S.C. § 309(j)(3)(D)) (2000). In licensing users of private radio spectrum, the Commission has traditionally limited the filing of mutually exclusive applications where “the frequencies are intensively shared, assigned on a first-come, first-served basis, and/or subject to frequency coordination.” *Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended*, Notice of Proposed Rulemaking, 14 FCC Rcd. 5206, 5216 & n.61 ¶ 13 (1999). Commenters that support exclusive geographic area licensing should assess the costs and benefits of this approach as opposed to a license-by-rule framework. Commenters should also consider whether the entire band should be licensed in this alternative way, or just a portion? Should the whole band be licensed on a nationwide basis, or should it be subdivided into discrete spectrum blocks and/or geographic license areas? Commenters are also encouraged to consider the feasibility of a hybrid model in which geographic area licenses would be issued for public property or outdoor areas, while a license-by-rule approach would be employed in private property or indoor areas. Would such an approach combine benefits of both licensing models? If so, how would our proposed low-power technical rules and the propagation characteristics of the 3.5 GHz Band effectively reduce harmful interference between different kinds of users?

86. *Other Authorization Alternatives.* Alternatively, should we adopt a “licensed light” approach akin to the licensing methodology used in the 3650–3700 MHz band? Or could our three-tiered framework be implemented on an unlicensed basis pursuant to Part 15 of the Commission’s rules? *See, e.g.*, 47 C.F.R. §§ 15.707–717 (allowing the unlicensed use of the TVWS coordinated through a database). We believe that our proposed licensing framework offers certain advantages over these alternative frameworks, including a unified licensing model for both tiers of licensed service, reduced administrative burden, and

the potential for improved economies of scale in the equipment marketplace. Commenters that support an alternative regulatory framework should explain in detail how an alternative approach would be structured, its legal basis, its relative costs and benefits, and the advantages it would have over our license-by-rule proposal.

Notes and Questions

1. If You Can Share Here ... The NPRM suggests in ¶ 6 that the 3.5 GHz is unusually well-suited to sharing (and, relatedly, small cell deployments), and that the commercial wireless industry had a similar view. What metrics should the Commission use to determine whether it should adopt sharing in other bands? Should the Commission propose benchmarks in advance that it will use to evaluate the success of sharing? Should it propose benchmarks for evaluating each of the different approaches in each band? What should those benchmarks be?

2. License-by-Rule. Note that the NPRM proposes a license-by-rule regime,⁴ though it also mentions other possibilities. Is that too permissive? Too restrictive? What would you need to know in order to determine whether that was the best approach?

3. Is This Really Permissible under § 307(e)? Look at the language of § 307(e). Does the term “citizens band radio service” encompass what the FCC is proposing here? How much extra leeway is provided by the language in § 307(e) stating that “‘citizens band radio service’ ... shall have the meanings given [it] by the Commission by rule” Is there any limit to what it can call “citizens band radio service”? How would you articulate that limit, and on what basis?

4. Tiers. On what grounds should the Commission choose between two tiers and three tiers (or four, for that matter)? Who would favor three tiers and who would favor two, and why?

5. Who Gets Priority? A key decision will be who gets priority access. How should that decision be made? What should be the key criteria? Elsewhere in the NPRM, the Commission suggests that Priority Access “could include hospitals, utilities, state and local governments, and/or other users with a distinct need for reliable, prioritized access to broadband spectrum at specific, localized facilities.” ¶ 9. Does that make sense? If not, what does? If you are worried that the Commission will adopt a bad definition, is that an argument against having priority access in the first place?

6. Finding Space after Incentive Auctions. The third major initiative with respect to dynamic spectrum use and unlicensed uses involved the broadcast spectrum that was the focus of incentive auctions. The order on page 106 of the casebook permits unlicensed uses of unused spectrum (often called white spaces), but some urban areas did not have white space channels. And a repacking of the broadcast spectrum as part of the incentive auctions, by using the broadcast spectrum more efficiently, would impact (and possibly shrink) the white spaces that did exist. One possible area for white spaces devices is guard bands—narrow bands of frequencies that separate two wider frequency ranges in order to minimize interference between them. Guard bands would be necessary between spectrum still devoted to broadcast television and spectrum newly devoted to new flexible uses, so they presented an obvious opportunity for unlicensed devices. In addition to guard bands, the government might choose to devote some of the former television broadcast spectrum to unlicensed uses. So two obvious possibilities for unlicensed devices were A) broadcast spectrum devoted to unlicensed uses and B) large guard bands that would ensure the

4. The Commission explains elsewhere in this NPRM that “A license-by-rule approach would provide individuals, organizations, and service providers with ‘automatic’ authorization to deploy small cell systems, in much the same way that our Part 15 unlicensed rules have allowed widespread deployment of Wi-Fi access points.” ¶ 11.

availability of white spaces in every community. In the Spectrum Act, Congress weighed in. Section 6403(c)(1) requires a forward auction in which “the Commission assigns licenses for the use of the spectrum that the Commission reallocates.” In other words, the Commission must license the frequencies relinquished in the reverse auction, so it cannot leave some of them unlicensed. As to guard bands, § 6407(a) of the Spectrum Act provides that notwithstanding § 6403(c), the Commission can create guard bands, and § 6407(c) states that the Commission may permit the use of guard bands for unlicensed use. But § 6407(b) provides that “guard bands shall be no larger than is technically reasonable to prevent harmful interference between licensed services outside the guard bands.” Below is a portion of the discussion in the FCC’s Incentive Auctions NPRM on white space and unlicensed uses.

Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions

Notice of Proposed Rulemaking, 27 FCC Rcd. 12,357 (2012)

VIII. WHITE SPACE AND UNLICENSED OPERATIONS

231. The National Broadband Plan recognized the need for additional unlicensed spectrum and recommended that the Commission free up new contiguous spectrum for unlicensed use within the next 10 years. Currently, some urban markets do not have channels available for white space use. To address this issue, the National Broadband Plan recommended that, as the FCC seeks to provide additional spectrum for broadband services, it make available for exclusive or predominant use by unlicensed devices sufficient spectrum to enable innovators to try new ideas for increasing broadband access and efficiency, and to enable new unlicensed broadband access providers to serve rural and unserved communities.

232. *Overview.* Taken together, our proposals will enable a substantial amount of spectrum use by unlicensed devices, a significant portion of which use will be available on a nationwide basis. In doing so, we believe that they will help to create certainty for the unlicensed industry and promote greater innovation in new services, including increased access for broadband services across the country. We seek comment on these proposals, including the technical and economic benefits and disadvantages on all relevant industries—the unlicensed industry, the wireless industry and broadcasters—and consumers. We also seek comment on how to balance making spectrum available for use by unlicensed devices with our central goals in this proceeding of repurposing the maximum amount of UHF band spectrum for flexible use while preserving a healthy, diverse broadcast television service.

233. *White Space Devices.* We begin by addressing operation of white space devices in the broadcast television band spectrum that is not repurposed for flexible use by new licensed services as a result of the broadcast television spectrum incentive auction. We propose to continue to allow the operation of white space devices in the broadcast television spectrum on unused channels that are not repurposed for other uses under the current rules governing white space devices in the television bands. When spectrum is repurposed as a result of the incentive auction, the amount of broadcast television spectrum that will continue to be available for these white space devices may be reduced to some extent, in different markets, depending on the amount of spectrum that is recovered and other factors. Because unlicensed white space devices can adjust to whatever channels are available at any given location according to the white space database, however, the devices should be

able to adapt to any reductions or changes in the available channels. Given that there is considerable white space available now in many areas—more than 100 megahertz in some markets—we expect that there will still be a substantial amount of spectrum available for use by these devices in the remaining broadcast television channels after the incentive auction. We also expect that there will continue to be more spectrum available in areas outside of the central urban areas of the largest markets than within those areas. We seek comment on these views. It is our intent to continue to allow both the use of white space devices and the development of devices for various applications that operate in the broadcast television bands after the incentive auction.

234. *Guard Band Availability for Unlicensed Use.* A significant benefit of the white space spectrum access technology is that it can allow existing unlicensed white space devices to use guard band frequencies in the 600 MHz spectrum as well as unused channels in the spectrum that will remain in use for broadcasting. [T]he Spectrum Act constrains the FCC to guard bands “no larger than is technically reasonable to prevent harmful interference between licensed services outside the guard bands,” and requires a forward auction in which “the Commission assigns licenses for the use of the spectrum that the Commission reallocates.” Spectrum Act §§ 6403(c), 6407(b). Under these provisions, we must license the spectrum we recover through the broadcast television spectrum reorganization, with the exception of guard bands. Our proposed 600 MHz band plan includes guard band spectrum. Specifically, we propose six megahertz guard bands between television operations and 600 MHz uplink operations and between television operations and 600 MHz downlink operations. We also propose to add to the guard bands the 0 to 4 megahertz of “remainder” spectrum in any given market for each half of the duplex pairing under our proposed band plan because TV broadcast stations operate on 6 megahertz wide channels and the downlink and uplink 600 MHz bands will each be organized into 5 megahertz blocks.⁵ [P]roviding additional guard band protection beyond 6 megahertz would further improve any potential interference concerns, and therefore, we propose to add this remainder spectrum to the guard bands. We propose to make this guard band spectrum available for unlicensed white space device use on a non-interference basis. We believe that this proposal could increase the spectrum available for unlicensed use in the urbanized areas of major markets where there may be little or no white space spectrum available now, spurring deployment, use and a national market for unlicensed devices and applications. We invite comment on this premise. We also seek comment on our proposal to make the guard bands available for unlicensed use, and any alternative approaches for the guard bands.

238. *Possible Availability of Channels Designated for Wireless Microphones.* The current rules for white space devices in the television bands designate two channels (when available) in all locations for use by wireless microphones. White space devices are not permitted

5. [From ¶ 175 of this NPRM:] The downlink and uplink 600 MHz bands would each be organized into 5 megahertz blocks, which can be aggregated by licensees into larger contiguous blocks as needed. Because 5 megahertz blocks match the prevailing channelization increments of modern cellular systems, this block size could enable a greater quantity of usable licensed blocks in any given market as compared to other approaches. The cleared TV broadcast stations operate on 6 megahertz wide channels, however, and some spectrum from broadcasters’ relinquished spectrum usage rights must serve as guard bands. Therefore, to determine the number of wireless spectrum blocks available for downlink and for uplink in each market, we look at the total amount of spectrum cleared, divide that number by 2, subtract the guard band, divide by 5 (megahertz), and round down. Because we must round down to a number divisible by 5 to create the wireless spectrum blocks, we will have 0 to 4 megahertz of “remainder” spectrum in any given market for each half of the duplex pairing.

to operate on these channels, preventing them from using 12 megahertz of spectrum that could otherwise be available for their use. We invite comment as to whether the Commission should maintain the designation of two channels for wireless microphones following the broadcast television spectrum incentive auction or whether this spectrum should be made available for unlicensed use.

Notes and Questions

1. Constraints. ¶ 231 notes that the 2010 National Broadband Plan had recommended that the Commission “make available for exclusive or predominant use by unlicensed devices sufficient spectrum to enable innovators to try new ideas for increasing broadband access and efficiency.” As the Incentive Auctions NPRM also notes, §§ 6403(c) and 6407(b) put significant constraints on the FCC’s ability to fulfill that goal. Did the Commission do enough to enable unlicensed uses? Should it have done more? Could it have done more, in light of §§ 6403(c) and 6407(b)? Conversely, was the Commission more aggressive in making room for unlicensed uses than is desirable? Was it more aggressive than is permissible under the Spectrum Act? What do you need to know in order to answer these questions?

2. Substitutes. There are other frequencies on which unlicensed devices can operate, such as the 5 GHz where they do operate. The appeal of these frequencies for unlicensed devices is that these lower frequencies have different, and in many ways more attractive, propagation characteristics. But, of course, that also makes them more valuable for licensed devices — and more valuable for the federal treasury, via the auction proceeds they generate. Which way do these points cut, in terms of the desirability of devoting more of this spectrum to unlicensed uses?

3. Competition. Broadway theaters, sports arenas, and movie studios, among others, rely on wireless microphones. Wireless microphones users (and manufacturers, of course) would like spectrum dedicated for wireless microphones (without buying it at auction, of course). Users and manufacturers of other unlicensed devices, meanwhile, would like to have the broadest range of frequencies for *their* devices. Thus the conflicting interests with respect to ¶ 238 are pretty straightforward. What would you say in a comment to persuade the FCC if you represented one side or the other? That is, what do you think will persuade the Commission? What *should* persuade it?

Chapter 5

Structuring and Assigning Licenses

Insert on page 137 at the end of note 8:

9. License Transfers in Mobile Services. The FCC has used its authority over license transfers to evaluate the competitive characteristics of the mobile wireless market, as demonstrated by the conditions it imposed on Verizon Wireless's acquisition of licenses from Spectrum Co. *See Applications of CellCo Partnership d/b/a/ Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC for Consent To Assign AWS-1 Licenses*, 27 FCC Rcd. 10,698 (2012). We discuss this issue and this Order more fully below in the supplement to Chapter 19.

Chapter 6

Public Trustee Obligations

Insert on page 262 at the end of note 3:

4. The Supreme Court vacated the Second Circuit's opinion in *FCC v. Fox Television Stations, Inc.* in the following opinion:

FCC v. Fox Television Stations, Inc.

132 S. Ct. 2307 (2012)

KENNEDY, J., delivered the opinion of the Court, in which ROBERTS, C.J., and SCALIA, THOMAS, BREYER, ALITO, and KAGAN, JJ., joined. GINSBURG, J., filed an opinion concurring in the judgment. SOTOMAYOR, J., took no part in the consideration or decision of the cases.

Justice KENNEDY delivered the opinion of the Court:

[The Court laid out the history presented on pages 242–50 of the casebook, emphasizing that “[e]ven though the incidents at issue in these cases took place before the *Golden Globes Order*, 19 FCC Rcd. 4975 (2004), the Commission applied its new policy regarding fleeting expletives and fleeting nudity. It found the broadcasts by respondents Fox and ABC to be in violation of this standard.”]

II

A fundamental principle in our legal system is that laws which regulate persons or entities must give fair notice of conduct that is forbidden or required. This requirement of clarity in regulation is essential to the protections provided by the Due Process Clause of the Fifth Amendment. It requires the invalidation of laws that are impermissibly vague.

Even when speech is not at issue, the void for vagueness doctrine addresses at least two connected but discrete due process concerns: first, that regulated parties should know what is required of them so they may act accordingly; second, precision and guidance are necessary so that those enforcing the law do not act in an arbitrary or discriminatory way. When speech is involved, rigorous adherence to those requirements is necessary to ensure that ambiguity does not chill protected speech.

These concerns are implicated here because, at the outset, the broadcasters claim they did not have, and do not have, sufficient notice of what is proscribed. And leaving aside any concerns about facial invalidity, they contend that the lengthy procedural history set forth above shows that the broadcasters did not have fair notice of what was forbidden.

Under the 2001 Indecency Policy Statement, 16 FCC Rcd. 7999 (2001), in force when the broadcasts occurred, a key consideration was “whether the material dwell[ed] on or repeat[ed] at length” the offending description or depiction. *Fox Television Stations, Inc. v. FCC*, 613 F.3d 317, 322 (2d Cir. 2010). In the 2004 *Golden Globes Order*, issued after the broadcasts, the Commission changed course and held that fleeting expletives could be a statutory violation. In the challenged orders now under review the Commission applied the new principle promulgated in the *Golden Globes Order* and determined fleeting expletives and a brief moment of indecency were actionably indecent. This regulatory history, however, makes it apparent that the Commission policy in place at the time of the broadcasts gave no notice to Fox or ABC that a fleeting expletive or a brief shot of nudity could be actionably indecent; yet Fox and ABC were found to be in violation. The Commission’s lack of notice to Fox and ABC that its interpretation had changed so the fleeting moments of indecency contained in their broadcasts were a violation of 18 U.S.C. § 1464 as interpreted and enforced by the agency “fail[ed] to provide a person of ordinary intelligence fair notice of what is prohibited.” *See United States v. Williams*, 553 U.S. 285, 304 (2008). This would be true with respect to a regulatory change this abrupt on any subject, but it is surely the case when applied to the regulations in question, regulations that touch upon “sensitive areas of basic First Amendment freedoms,” *Baggett v. Bullitt*, 377 U.S. 360, 372 (1964).

[I]t is true that the Commission declined to impose any forfeiture on Fox, *see FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 513 (2009), and in its order the Commission claimed that it would not consider the indecent broadcasts either when considering whether to renew stations’ licenses or “in any other context,” *Complaints Regarding Various Television Broads. Between Feb. 2, 2002, and Mar. 8, 2005, Order*, 21 FCC Rcd. 13,299, 13,321, 13,326 (2006). This “policy of forbearance,” as the Government calls it, does not suffice to make the issue moot. Brief for Petitioners 31. Though the Commission claims it will not consider the prior indecent broadcasts “in any context,” it has the statutory power to take into account “any history of prior offenses” when setting the level of a forfeiture penalty. *See* 47 U.S.C. § 503(b)(2)(E). Just as in the First Amendment context, the due process protection against vague regulations “does not leave [regulated parties] . . . at the mercy of *noblesse oblige*.” *United States v. Stevens*, 130 S. Ct. 1577, 1591 (2010).

In addition, when combined with the legal consequence described above, reputational injury provides further reason for granting relief to Fox. As respondent CBS points out, findings of wrongdoing can result in harm to a broadcaster’s “reputation with viewers and advertisers.” Brief for Respondent CBS Television Network Affiliates Ass’n et al. 17. This observation is hardly surprising given that the challenged orders, which are contained in the permanent Commission record, describe in strongly disapproving terms the indecent material broadcast by Fox, *see, e.g.*, 21 FCC Rcd. at 13,310–13,311, ¶ 30 (noting the “explicit, graphic, vulgar, and shocking nature of Ms. Richie’s comments”), and Fox’s efforts to protect children from being exposed to it, *see id.* at 13,311, ¶ 33 (finding Fox had failed to exercise “reasonable judgment, responsibility, and sensitivity to the public’s needs and tastes to avoid [a] patently offensive broadcast[.]”). Commission sanctions on broadcasters for indecent material are widely publicized. The challenged orders could have an adverse impact on Fox’s reputation that audiences and advertisers alike are entitled to take into account.

With respect to ABC, the Government with good reason does not argue no sanction was imposed. The fine against ABC and its network affiliates for the seven seconds of nudity was nearly \$1.24 million. The Government argues instead that ABC had notice that the scene in *NYPD Blue* would be considered indecent in light of a 1960 decision where

the Commission declared that the “televising of nudes might well raise a serious question of programming contrary to 18 U.S.C. § 1464.” Brief for Petitioners 32 (quoting *Enbanc Programming Inquiry*, 44 FCC 2303, 2307 (1960) (internal quotation marks omitted)). This argument does not prevail. An isolated and ambiguous statement from a 1960 Commission decision does not suffice for the fair notice required when the Government intends to impose over a \$1 million fine for allegedly impermissible speech. The Commission, furthermore, had released decisions before sanctioning ABC that declined to find isolated and brief moments of nudity actionably indecent. *See, e.g.*, *Application of WGBH*, 69 F.C.C. 2d 1250, 1251, 1255 (1978) (declining to find broadcasts containing nudity to be indecent and emphasizing the difference between repeated and isolated expletives); *WPBN/WTOM License Subsidiary, Inc.*, 15 FCC Rcd. 1838, 1840 (2000) (finding full frontal nudity in *Schindler’s List* not indecent). This is not to say, of course, that a graphic scene from *Schindler’s List* involving nude concentration camp prisoners is the same as the shower scene from *NYPD Blue*. It does show, however, that the Government can point to nothing that would have given ABC affirmative notice that its broadcast would be considered actionably indecent. It is likewise not sufficient for the Commission to assert, as it did in its order, that though “the depiction [of nudity] here is not as lengthy or repeated” as in some cases, the shower scene nonetheless “does contain more shots or lengthier depictions of nudity” than in other broadcasts found not indecent. *Complaints Against Various Television Licensees Concerning Their February 24, 2003 Broadcast of the Program “NYPD Blue”*, 23 FCC Rcd. 3147, 3153 (2008). This broad language fails to demonstrate that ABC had fair notice that its broadcast could be found indecent. In fact, a Commission ruling prior to the airing of the *NYPD Blue* episode had deemed 30 seconds of nude buttocks “very brief” and not actionably indecent in the context of the broadcast. *See Letter from Norman Goldstein to David Molina*, FCC File No. 97110028 (May 26, 1999). In light of this record of agency decisions, and the absence of any notice in the 2001 Guidance that seven seconds of nude buttocks would be found indecent, ABC lacked constitutionally sufficient notice prior to being sanctioned.

The Commission failed to give Fox or ABC fair notice prior to the broadcasts in question that fleeting expletives and momentary nudity could be found actionably indecent. Therefore, the Commission’s standards as applied to these broadcasts were vague, and the Commission’s orders must be set aside.

III

It is necessary to make three observations about the scope of this decision. First, because the Court resolves these cases on fair notice grounds under the Due Process Clause, it need not address the First Amendment implications of the Commission’s indecency policy. It is argued that this Court’s ruling in *FCC v. Pacifica Foundation*, 438 U.S. 726 (1978) (and the less rigorous standard of scrutiny it provided for the regulation of broadcasters) should be overruled because the rationale of that case has been overtaken by technological change and the wide availability of multiple other choices for listeners and viewers. The Government for its part maintains that when it licenses a conventional broadcast spectrum, the public may assume that the Government has its own interest in setting certain standards. These arguments need not be addressed here. In light of the Court’s holding that the Commission’s policy failed to provide fair notice it is unnecessary to reconsider *Pacifica* at this time.

This leads to a second observation. Here, the Court rules that Fox and ABC lacked notice at the time of their broadcasts that the material they were broadcasting could be found actionably indecent under then-existing policies. Given this disposition, it is unnecessary

for the Court to address the constitutionality of the current indecency policy as expressed in the *Golden Globes Order* and subsequent adjudications. The Court adheres to its normal practice of declining to decide cases not before it.

Third, this opinion leaves the Commission free to modify its current indecency policy in light of its determination of the public interest and applicable legal requirements. And it leaves the courts free to review the current policy or any modified policy in light of its content and application.

JUSTICE SOTOMAYOR took no part in the consideration or decision of these cases.

JUSTICE GINSBURG, concurring in the judgment.

In my view, the Court's decision in *FCC v. Pacifica Foundation*, 438 U.S. 726 (1978), was wrong when it issued. Time, technological advances, and the Commission's untenable rulings in the cases now before the Court show why *Pacifica* bears reconsideration. Cf. *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 532–35 (2009) (THOMAS, J., concurring).

Notes and Questions

1. **Fair Notice.** The year is 2003, and you are advising a broadcaster. Do you think you would advise that the broadcaster was running a serious risk of a big fine if it allowed a performer to say “fuck” or “shit” on the air, particularly if those words seemed gratuitous? If you showed nude buttocks for seven seconds in a scene that could fairly be characterized as titillating? If the answer to either question is yes, does that mean that at least one of these broadcasters in fact had fair notice?

2. **Avoiding *Pacifica*.** The FCC's handling of Cher's and Nicole Richie's language resulted in two Supreme Court oral arguments that addressed *Pacifica* at some length and two Supreme Court opinions that managed to avoid any holding on, or even discussion of, *Pacifica*. What, if anything, should we make of that?

3. **Where To From Here?** The opinion pointedly leaves much undecided. (Indeed, the case was decided on the narrowest of the grounds presented to the Court.) What advice would you give to: (a) a member of Congress who wanted to regulate broadcast indecency as much as the First Amendment allows? (b) an FCC Commissioner who wanted to have some enforceable and meaningful limits on broadcast indecency? (c) a television broadcaster who wanted to air as much indecency as possible without being subject to huge fines?

Chapter 10

Universal Service After the 1996 Act

Insert on page 383 after note 3:

4. Finally Shrinking. In 2012, the FCC took a number of measures designed to shrink the size of the universal service program for voice, which would enable funds to be shifted to broadband universal service. The centerpiece of the FCC's effort was its order, *Lifeline and Link Up Reform and Modernization, Report and Order and Further Notice of Proposed Rulemaking*, 27 FCC Rcd. 6656 (2012). The order established minimum federal eligibility standards, thus restricting the states' ability to expand universal service with federal dollars. The order also put in place a number of measures to ensure that households received only one universal service support. In early 2013, the FCC reported that these measures were on track to save almost \$2 billion by the end of 2014. FCC Reports: Major Reforms to Lifeline Program on Track to Cut at Least an Additional \$400 Million in Waste, Fraud, and Abuse in 2013; Reforms on Schedule to Save more than \$2 Billion by End of 2014 (Feb. 12, 2013) (http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-318892A1.pdf).

5. Connect America Fund. In November 2011, the Commission released its major Connect America Fund order, beginning the significant changes promised by the National Broadband Plan and the CAF notice printed in the casebook. As in the casebook, we here set out a brief excerpt covering the reforms to intercarrier compensation and the effects on traditional universal service funds. We focus on an overview of the changes, as well as some challenges that were presented to the Commission's legal authority to overhaul the Universal Service System so completely. In the Supplement for Chapter Eighteen, the excerpt contains the heart of the order concerning broadband support.

Connect America Fund

Report and Order and Further Notice of Proposed Rulemaking,
26 FCC Rcd. 17,663 (2011)

I. INTRODUCTION

1. Today the Commission comprehensively reforms and modernizes the universal service and intercarrier compensation systems to ensure that robust, affordable voice and broadband service, both fixed and mobile, are available to Americans throughout the nation. We adopt fiscally responsible, accountable, incentive-based policies to transition

these outdated systems to the Connect America Fund, ensuring fairness for consumers and addressing the communications infrastructure challenges of today and tomorrow. We use measured but firm glide paths to provide industry with certainty and sufficient time to adapt to a changed regulatory landscape, and establish a framework to distribute universal service funding in the most efficient and technologically neutral manner possible, through market-based mechanisms such as competitive bidding.

2. One of the Commission's central missions is to make "available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges." 47 U.S.C. § 151. For decades, the Commission and the states have administered a complex system of explicit and implicit subsidies to support voice connectivity to our most expensive to serve, most rural, and insular communities. Networks that provide only voice service, however, are no longer adequate for the country's communication needs.

6. Our existing universal service and intercarrier compensation systems are based on decades-old assumptions that fail to reflect today's networks, the evolving nature of communications services, or the current competitive landscape. As a result, these systems are ill equipped to address the universal service challenges raised by broadband, mobility, and the transition to Internet Protocol (IP) networks.

9. The intercarrier compensation (ICC) system is similarly outdated, designed for an era of separate long-distance companies and high per-minute charges, and established long before competition emerged among telephone companies, cable companies, and wireless providers for bundles of local and long distance phone service and other services. Over time, ICC has become riddled with inefficiencies and opportunities for wasteful arbitrage. And the system is eroding rapidly as consumers increasingly shift from traditional telephone service to substitutes including Voice over Internet Protocol (VoIP), wireless, texting, and email. As a result, companies' ICC revenues have become dangerously unstable, impeding investment, while costly disputes and arbitrage schemes have proliferated. The existing system, based on minutes rather than megabytes, is also fundamentally in tension with and a deterrent to deployment of IP networks. The system creates competitive distortions because traditional phone companies receive implicit subsidies from competitors for voice service, while wireless and other companies largely compete without the benefit of such subsidies. Most concerning, the current ICC system is unfair for consumers, with hundreds of millions of Americans paying more on their wireless and long distance bills than they should in the form of hidden, inefficient charges. We need a more incentive-based, market-driven approach that can reduce arbitrage and competitive distortions by phasing down byzantine per-minute and geography-based charges. And we need to provide more certainty and predictability regarding revenues to enable carriers to invest in modern, IP networks.

B. Intercarrier Compensation Reform

33. Immediate ICC Reforms. We take immediate action to curtail wasteful arbitrage practices, which cost carriers and ultimately consumers hundreds of millions of dollars annually:

- Access Stimulation. We adopt rules to address the practice of access stimulation, in which carriers artificially inflate their traffic volumes to increase ICC payments. Our revised interstate access rules generally require competitive carriers and rate-of-return incumbent local exchange carriers (LECs) to refile their interstate switched access tariffs at lower rates if the following two conditions are met: (1) a LEC has a revenue sharing agreement and (2) the LEC either has (a) a three-to-one ratio of terminating-

to-originating traffic in any month or (b) experiences more than a 100 percent increase in traffic volume in any month measured against the same month during the previous year. These new rules are narrowly tailored to address harmful practices while avoiding burdens on entities not engaging in access stimulation.

- **Phantom Traffic.** We adopt rules to address “phantom traffic,” i.e., calls for which identifying information is missing or masked in ways that frustrate intercarrier billing. Specifically, we require telecommunications carriers and providers of interconnected VoIP service to include the calling party’s telephone number in all call signaling, and we require intermediate carriers to pass this signaling information, unaltered, to the next provider in a call path.

34. **Comprehensive ICC Reform.** We adopt a uniform national bill-and-keep framework as the ultimate end state for all telecommunications traffic exchanged with a LEC. Under bill-and-keep, carriers look first to their subscribers to cover the costs of the network, then to explicit universal service support where necessary. Bill-and-keep has worked well as a model for the wireless industry; is consistent with and promotes deployment of IP networks; will eliminate competitive distortions between wireline and wireless services; and best promotes our overall goals of modernizing our rules and facilitating the transition to IP. Moreover, we reject the notion that only the calling party benefits from a call and therefore should bear the entire cost of originating, transporting, and terminating a call. As a result, we now abandon the calling-party-network-pays model that dominated ICC regimes of the last century. Although we adopt bill-and-keep as a national framework, governing both inter- and intrastate traffic, states will have a key role in determining the scope of each carrier’s financial responsibility for purposes of bill-and-keep, and in evaluating interconnection agreements negotiated or arbitrated under the framework in sections 251 and 252 of the Communications Act. We also address concerns expressed by some commenters about potential fears of traffic “dumping” and seek comment in the FNPRM on whether any additional measures are necessary in this regard.

35. **Multi-Year Transition.** We focus initial reforms on reducing terminating switched access rates, which are the principal source of arbitrage problems today. This approach will promote migration to all-IP networks while minimizing the burden on consumers and staying within our universal service budget. For these rates, as well as certain transport rates, we adopt a gradual, measured transition that will facilitate predictability and stability. First, we require carriers to cap most ICC rates as of the effective date of this Order. To reduce the disparity between intrastate and interstate terminating end office rates, we next require carriers to bring these rates to parity within two steps, by July 2013. Thereafter, we require carriers to reduce their termination (and for some carriers also transport) rates to bill-and-keep, within six years for price cap carriers and nine for rate-of-return carriers. The framework and transition are default rules and carriers are free to negotiate alternatives that better address their individual needs. Although the Order begins the process of reforming all ICC charges by capping all interstate rate elements and most intrastate rate elements, the FNPRM seeks comment on the appropriate transition and recovery for the remaining originating and transport rate elements. States will play a key role in overseeing modifications to rates in intrastate tariffs to ensure carriers are complying with the framework adopted in this Order and not shifting costs or otherwise seeking to gain excess recovery. The FNPRM also seeks comment on interconnection issues likely to arise in the process of implementing a bill-and-keep methodology for ICC.

36. **New Recovery Mechanism.** We adopt a transitional recovery mechanism to mitigate the effect of reduced intercarrier revenues on carriers and facilitate continued

investment in broadband infrastructure, while providing greater certainty and predictability going forward than the status quo. Although carriers will first look to limited increases from their end users for recovery, we reject notions that all recovery should be borne by consumers. Rather, we believe, consistent with past reforms, that carriers should have the opportunity to seek partial recovery from all of their end user customers. We permit incumbent telephone companies to charge a limited monthly Access Recovery Charge (ARC) on wireline telephone service, with a maximum annual increase of \$0.50 for consumers and small businesses, and \$1.00 per line for multi-line businesses, to partially offset ICC revenue declines. To protect consumers, we adopt a strict ceiling that prevents carriers from assessing any ARC for any consumer whose total monthly rate for local telephone service, inclusive of various rate-related fees, is at or above \$30. Although the maximum ARC is \$0.50 per month, we expect the actual average increase across all wireline consumers to be no more than \$0.10–\$0.15 a month, which translates into an expected maximum of \$1.20–\$1.80 per year that the average consumer will pay. We anticipate that consumers will receive more than three times that amount in benefits in the form of lower calling prices, more value for their wireless or wireline bill, or both, as well as greater broadband availability. Furthermore, the ARC will phase down over time as carriers' eligible revenue decreases, and we prevent carriers from charging any ARC on Lifeline customers or further drawing on the Lifeline program, so that ICC reform will not raise rates at all for these low-income consumers. We also seek comment in the FNPRM about reassessing existing subscriber line charges (SLCs), which are not otherwise implicated by this Order, to determine whether those charges are set at appropriate levels.

37. Likewise, although we do not adopt a rate ceiling for multi-line businesses customers, we do adopt a cap on the combination of the ARC and the existing SLC to ensure that multi-line businesses do not bear a disproportionate share of recovery and that their rates remain just and reasonable. Specifically, carriers cannot charge a multi-line business customer an ARC when doing so would result in the ARC plus the existing SLC exceeding \$12.20 per line. Moreover, to further protect consumers, we adopt measures to ensure that carriers must apportion lost revenues eligible for ICC recovery between residential and business lines, appropriately weighting the business lines (i.e., according to the higher maximum annual increase in the business ARC) to prevent carriers that elect not to receive ICC CAF from recovering their entire ICC revenue loss from consumers. Carriers may receive CAF support for any otherwise-eligible revenue not recovered by the ARC. In addition, carriers receiving CAF support to offset lost ICC revenues will be required to use the money to advance our goals for universal voice and broadband.

38. In defining how much of their lost revenues carriers will have the opportunity to recover, we reject the notion that ICC reform should be revenue neutral. We limit carriers' total eligible recovery to reflect the existing downward trends on ICC revenues with declining switching costs and minutes of use. For price cap carriers, baseline recovery amounts available to each price cap carrier will decline at 10 percent annually. Price cap carriers whose interstate rates have largely been unchanged for a decade because they participated in the Commission's 2000 CALLS plan will be eligible to receive 90 percent of this baseline every year from ARCs and the CAF. In those study areas that have recently converted from rate-of-return to price cap regulation, carriers will initially be permitted to recover the full baseline amount to permit a more gradual transition, but we will decline to 90 percent recovery for these areas as well after 5 years. All price cap CAF support for ICC recovery will phase out over a three-year period beginning in the sixth year of the reform.

39. For rate-of-return carriers, recovery will be calculated initially based on rate-of-return carriers' fiscal year 2011 interstate switched access revenue requirement, intrastate access revenues that are being reformed as part of this Order, and net reciprocal compensation revenues. This baseline will decline at five percent annually to reflect combined historical trends of an annual three percent interstate cost and associated revenue decline, and ten percent intrastate revenue decline, while providing for true ups to ensure CAF recovery in the event of faster-than-expected declines in demand. Both recovery mechanisms provide carriers with significantly more revenue certainty than the status quo, enabling carriers to reap the benefits of efficiencies and reduced switching costs, while giving providers stable support for investment as they adjust to an IP world.

40. Treatment of VoIP Traffic. We make clear the prospective payment obligations for VoIP traffic exchanged in TDM [time-division multiplexing, the traditional non-IP telephone protocol] between a LEC and another carrier, and adopt a transitional framework for VoIP intercarrier compensation. We establish that default charges for "toll" VoIP-PSTN traffic will be equal to interstate rates applicable to non-VoIP traffic, and default charges for other VoIP-PSTN traffic will be the applicable reciprocal compensation rates. Under this framework, all carriers originating and terminating VoIP calls will be on equal footing in their ability to obtain compensation for this traffic.

41. CMRS-Local Exchange Carrier (LEC) Compensation. We clarify certain aspects of CMRS-LEC compensation to reduce disputes and address existing ambiguity. We adopt bill-and-keep as the default methodology for all non-access CMRS-LEC traffic. To provide rate-of-return LECs time to adjust to bill-and-keep, we adopt an interim transport rule for rate-of-return carriers to specify LEC transport obligations under the default bill-and-keep framework for non-access traffic exchanged between these carriers. We also clarify the relationship between the compensation obligations in section 20.11 of the Commission's rules and the reciprocal compensation framework, thus addressing growing concerns about arbitrage related to rates set without federal guidance. Further, in response to disputes, we make clear that a call is considered to be originated by a CMRS provider for purposes of the intraMTA rule only if the calling party initiating the call has done so through a CMRS provider. Finally, we affirm that all traffic routed to or from a CMRS provider that, at the beginning of a call, originates and terminates within the same MTA, is subject to reciprocal compensation, without exception.

42. IP-to-IP Interconnection. We recognize the importance of interconnection to competition and the associated consumer benefits. We anticipate that the reforms we adopt will further promote the deployment and use of IP networks, and seek comment in the accompanying FNPRM regarding the policy framework for IP-to-IP interconnection. We also make clear that even while our FNPRM is pending, we expect all carriers to negotiate in good faith in response to requests for IP-to-IP interconnection for the exchange of voice traffic.

2. [Bill-and-Keep] Legal Authority

760. Our statutory authority to implement bill-and-keep as the default framework for the exchange of traffic with LECs flows directly from sections 251(b)(5) and 201(b) of the Act. Section 251(b)(5) states that LECs have a "duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications." Section 201(b) grants the Commission authority to "prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act." In *AT&T v. Iowa Utils. Bd.*, 525 U.S. 366, 378 (1999), the Supreme Court held that "the grant in § 201(b) means what it says: The FCC has rulemaking authority to carry out the 'provisions of this Act,' which include §§ 251 and 252." As discussed below, we may exercise this rulemaking au-

thority to define the types of traffic that will be subject to section 251(b)(5)'s reciprocal compensation framework and to adopt a default compensation mechanism that will apply to such traffic in the absence of an agreement between the carriers involved.

761. *The Scope of Section 251(b)(5)*. Section 251(b)(5) imposes on all LECs the “duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications.” The Commission initially interpreted this provision to “apply only to traffic that originates and terminates within a local area.” Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, 11 FCC Rcd. 15,499, 16,013, ¶ 1034 (1996) (Local Competition First Report and Order). In the 2001 ISP Remand Order, however, the Commission noted that its initial reading is inconsistent with the statutory terms. The Commission explained that section 251(b)(5) does not use the term “local,” Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Intercarrier Compensation for ISP-Bound Traffic, Order on Remand and Report and Order, 16 FCC Rcd. 9151, 9166–67, ¶ 34 (2001) (ISP Remand Order), but instead speaks more broadly of the transport and termination of “telecommunications,” *id.* at 9165–66, ¶¶ 31–32. As defined in the Act, the term “telecommunications” means the “transmission, between or among points specified by the user, of information of the user’s choosing, without change in the form or content of the information as sent and received,” 47 U.S.C. § 153(43), and thus encompasses communications traffic of any geographic scope (e.g., “local,” “intrastate,” or “interstate”) or regulatory classification (e.g., “telephone exchange service,” *see id.* § 153(47), “telephone toll service,” *see id.* § 153(48), or “exchange access,” *see id.* § 153(16)). The Commission reiterated this interpretation of section 251(b)(5) in its 2008 Order and ICC/USF FNPRM, and we proposed in the ICC/USF Transformation NPRM to make clear that section 251(b)(5) applies to “all telecommunications, including access traffic,” Notice of Proposed Rulemaking and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 4554, 4712–13, ¶ 514 (2011) (USF/ICC Transformation NPRM).

762. After reviewing the record, we adopt our proposal and conclude that section 251(b)(5) applies to traffic that traditionally has been classified as access traffic. Nothing in the record seriously calls into question our conclusion that access traffic is one form of “telecommunications.” By the express terms of section 251(b)(5), therefore, when a LEC is a party to the transport and termination of access traffic, the exchange of traffic is subject to regulation under the reciprocal compensation framework.

763. We recognize that the Commission has not previously regulated access traffic under section 251(b)(5). The reason, as the Commission has previously explained, is section 251(g). Section 251(g) is a “transitional device,” *WorldCom v. FCC*, 288 F.3d 429, 430 (D.C. Cir. 2002), that requires LECs to continue “provid[ing] exchange access, information access, and exchange services for such access to interexchange carriers and information service providers in accordance with the same equal access and nondiscriminatory interconnection restrictions and obligations (including receipt of compensation)” previously in effect “until such restrictions and obligations are explicitly superseded by regulations prescribed by the Commission,” 47 U.S.C. § 251(g). Section 251(g) thus preserved the pre-1996 Act regulatory regime that applies to access traffic, including rules governing “receipt of compensation,” and thereby precluded the application of section 251(b)(5) to such traffic “unless and until the Commission by regulation should determine otherwise,” *ISP Remand Order*, 16 FCC Rcd. at 9169, ¶ 39.

764. In this Order, we explicitly supersede the traditional access charge regime and, subject to the transition mechanism we outline below, regulate terminating access traffic in accordance with the section 251(b)(5) framework. Consistent with our approach to comprehensive reform generally and the desire for a more unified approach, we find it ap-

propriate to bring all traffic within the section 251(b)(5) regime at this time, and commenters generally agree. Doing so is key to advancing our goals of encouraging migration to modern, all IP networks; eliminating arbitrage and competitive distortions; and eliminating the thicket of disparate intercarrier compensation rates and payments that are ultimately borne by consumers. Even though the transition process detailed below is limited to terminating switched access traffic and certain transport traffic, we make clear that the legal authority to adopt the bill-and-keep methodology described herein applies to all intercarrier compensation traffic. As noted below, we seek comment on the transition and recovery for originating access and transport in the accompanying FNPRM.

765. We reject arguments that section 251(b)(5) does not apply to intrastate access traffic. Like other forms of carrier traffic, intrastate access traffic falls within the scope of the broad term “telecommunications” used in section 251(b)(5). “Had Congress intended to exclude certain types of telecommunications traffic,” such as “local” or “intrastate” traffic, “from the reciprocal compensation framework, it could have easily done so by using more restrictive terms to define the traffic subject to section 251(b)(5),” USF/ICC Transformation NPRM, 26 FCC Rcd. at 4712, ¶ 513. Nor do we believe that section 2(b) of the Act, which generally preserves state authority over intrastate communications, bears on our interpretation of section 251(b)(5). As the Supreme Court noted, “[s]uch an interpretation [of section 2(b)] would utterly nullify the 1996 amendments, which clearly ‘apply’ to intrastate services, and clearly confer ‘Commission jurisdiction’ over some matters,” *Iowa Utils. Bd.*, 525 U.S. at 380. Indeed, if section 2(b) limited the scope of section 251(b)(5), we could not apply the reciprocal compensation framework even to local traffic between a CLEC and an ILEC—the type of traffic that has been subject to our reciprocal compensation rules since the Commission implemented the 1996 Act. We see no reason to adopt such an absurd reading of the statute.

766. We also reject arguments that sections 251(g) and 251(d)(3) somehow limit the scope of the “telecommunications” covered by section 251(b)(5). Whatever protections these provisions provide to state access regulations, it is clear that those protections are not absolute. As noted above, section 251(g) preserves access charge rules only during a transitional period, which ends when we adopt superseding regulations. Accordingly, to the extent section 251(g) has preserved state intrastate access rules against the operation of section 251(b)(5) until now, this rulemaking Order supersedes that provision.

767. Section 251(d)(3) states that “[i]n prescribing and enforcing regulations to implement the requirements of this section, the Commission shall not preclude the enforcement of any regulation, order, or policy of a State commission that— (A) establishes access and interconnection obligations of local exchange carriers; (B) is consistent with the requirements of this section; and (C) does not substantially prevent implementation of the requirements of this section and the purposes of this part,” 47 U.S.C. § 251(d)(3). As the Commission has previously observed, “section 251(d)(3) of the Act independently establishes a standard very similar to the judicial conflict preemption doctrine,” *BellSouth Telecommunications, Inc. Request for Declaratory Ruling that State Commissions May Not Regulate Broadband Internet Access Services by Requiring BellSouth to Provide Wholesale or Retail Broadband Services to Competitive LEC UNE Voice Customers*, Memorandum Opinion and Order and Notice of Inquiry, 20 FCC Rcd. 6830, 6839, ¶ 19 (2005), and “[i]ts protections do not apply when the state regulation is inconsistent with the requirements of section 251, or when the state regulation substantially prevents implementation of the requirements of section 251 or the purposes of sections 251 through 261 of the Act,” *id.* at 6842, ¶ 23. Moreover, “in order to be consistent with the requirements

of section 251 and not ‘substantially prevent’ implementation of section 251 or Part II of Title II, state requirements must be consistent with the FCC’s implementing regulations,” Local Competition First Report and Order, 11 FCC Rcd. at 15,550, ¶ 103. In other words, section 251(d)(3) instructs the Commission not to preempt state regulations that are consistent with and promote federal rules and policies, but it does not protect state regulations that frustrate the Act’s policies or our implementation of the statute’s requirements. As discussed in this Order, we are bringing all telecommunications traffic terminated on LECs, including intrastate switched access traffic, into the section 251(b)(5) framework to fulfill the objectives of section 251(b)(5) and other provisions of the Act. Consequently, we find that, to the extent section 251(d)(3) applies in this context, it does not prevent us from adopting rules to implement the provisions of section 251(b)(5) and applying those rules to traffic traditionally classified as intrastate access.

768. Finally, we reject the view of some commenters that the pricing standard set forth in section 252(d)(2)(A) limits the scope of section 251(b)(5). As the Commission explained in the 2008 Order and ICC/USF FNPRM, section 252(d)(2)(A)(i) “deals with the mechanics of who owes what to whom, it does not define the scope of traffic to which section 251(b)(5) applies,” Order on Remand and Report and Order and Further Notice of Proposed Rule-making, 24 FCC Rcd. 6475, 6481, ¶ 12 (2008) (2008 Order and ICC/USF FNPRM). The Commission noted that construing “the pricing standards in section 252(d)(2) to limit the otherwise broad scope of section 251(b)(5),” *id.* at 6480, ¶ 11, would nonsensically suggest that “Congress intended the tail to wag the dog,” *id.* We reaffirm that conclusion here.

769. *Authority To Adopt Bill-and-Keep as a Default Compensation Standard.* We conclude that we have the statutory authority to establish bill-and-keep as the default compensation arrangement for all traffic subject to section 251(b)(5). That includes traffic that, prior to this Order, was subject to the interstate and intrastate access regimes, as well as traffic exchanged between two LECs or a LEC and a CMRS carrier.

770. Section 201(b) states that “[t]he Commission may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act,” 47 U.S.C. § 201(b). As the Supreme Court held in *Iowa Utilities Board*, section 201(b) of the Act “means what it says: The FCC has rulemaking authority to carry out the ‘provisions of this Act,’ which include §§ 251 and 252,” *Iowa Utils. Bd.*, 525 U.S. at 378. Moreover, section 251(i) of the Act states that “[n]othing in this section [§ 251] shall be construed to limit or otherwise affect the Commission’s authority under section 201.” Section 251(i) “fortifies [our] position,” *Core Commc’ns. Inc. v. FCC*, 592 F.3d 139, 143 (D.C. Cir. 2010), that we have authority to regulate the default compensation arrangement applicable to traffic subject to section 251(b)(5).

771. We conclude that we have statutory authority to establish bill-and-keep as a default compensation mechanism with respect to interstate traffic subject to section 251(b)(5). Section 201 has long conferred authority on the Commission to regulate interstate communications to ensure that “charges, practices, classifications, and regulations” are “just and reasonable” and not unreasonably discriminatory. Indeed, the D.C. Circuit recently upheld the Commission’s authority under section 201 to establish interim rates for ISP-bound traffic, which the Commission had found to also be subject to section 251(b)(5).

772. In any event, we conclude that we have authority, independent of our traditional interstate rate-setting authority in section 201, to establish bill-and-keep as the default compensation arrangement for all traffic subject to section 251(b)(5), including intrastate traffic. Although section 2(b) has traditionally preserved the states’ authority to regulate intrastate communications, after the 1996 Act section 2(b) has “less practical effect” because “Congress, by extending the Communications Act into local competition, has removed

a significant area from the States' exclusive control." *Iowa Utils. Bd.*, 525 U.S. at 381–82 n.8. Thus, "[w]ith regard to the matters addressed by the 1996 Act," Congress "unquestionably" "has taken the regulation of local telecommunications competition away from the States," *id.* at 378–79 n.6, and, as the Supreme Court has held, "the administration of the new federal regime is to be guided by federal-agency regulations," *id.* Our rulemaking authority in section 201(b) "explicitly gives the FCC jurisdiction to make rules governing matters to which the 1996 Act applies," *id.* at 380, and thereby authorizes our adoption of rules to implement section 251(b)(5)'s directive that LECs have a "duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications."

773. We reject the argument of some commenters that sections 252(c) and 252(d)(2) limit our authority to adopt bill-and-keep. Section 252(c) provides that states conducting arbitration proceedings under section 252 shall "establish any rates for interconnection, services, or network elements according to" section 252(d). Section 252(d)(2), in turn, states in relevant part that "[f]or the purposes of compliance by an incumbent local exchange carrier with section 251(b)(5), a State commission shall not consider the terms and conditions for reciprocal compensation to be just and reasonable" unless they: (i) "provide for the mutual and reciprocal recovery by each carrier of costs associated with the transport and termination on each carrier's network facilities of calls that originate on the network facilities of the other carrier;" and (ii) determine such costs through a "reasonable approximation of the additional costs of terminating such calls." Section 252(d)(2) also states that the pricing standard it sets forth "shall not be construed . . . to preclude arrangements . . . that waive mutual recovery (such as bill-and-keep arrangements)." Although the Supreme Court made clear that the Commission may, through rulemaking, establish a "pricing methodology" under section 252(d) for states to apply in arbitration proceedings, *Iowa Utils. Bd.*, 525 U.S. at 378, 384, the Eighth Circuit has held that "[s]etting specific [reciprocal compensation] prices goes beyond the FCC's authority to design a pricing methodology and intrudes on the states' right to set the actual rates pursuant to § 252(c)(2)," *Iowa Utils. Bd. v. FCC*, 219 F.3d 744, 757 (8th Cir. 2000). Commenters who cite section 252(d) as a limitation on the Commission's authority to adopt bill-and-keep argue that bill-and-keep intrudes on states' ratesetting authority by effectively setting a compensation rate of zero.

774. We disagree for two reasons. First, the pricing standard in section 252(d) simply does not apply to most of the traffic that is the focus of this Order — traffic exchanged between LECs and IXC. Section 252(d) applies only to traffic exchanged with an ILEC, so CLEC-IXC traffic is categorically beyond its scope. Even with respect to traffic exchanged with an ILEC, section 252(d) applies only to arrangements between carriers where the traffic "originate[s] on the network facilities of the other carrier," i.e., the carrier sending the traffic for transport and termination. IXCs, however, typically do not originate (or terminate) calls on their own network facilities but instead transmit calls that originate and terminate on distant LECs. Accordingly, to the extent our bill-and-keep rules apply to LEC-IXC traffic, the rules do not implicate any question of the states' authority under section 252(c) or (d) or the Eighth Circuit's interpretation of those provisions.

775. Second, and in any event, bill-and-keep is consistent with section 252(d)'s pricing standard. Section 252(d)(2)(B) makes clear that "arrangements that waive mutual recovery (such as bill-and-keep arrangements)" are consistent with section 252(d)'s pricing standard. As explained in the Local Competition First Report and Order, this provision precludes any argument that "the Commission and states do not have the authority to mandate bill-and-keep arrangements," Local Competition First Report and Order, 11 FCC Rcd. at 16,054, ¶ 1111, or that bill-and-keep is permissible only if it is voluntarily agreed to by the carriers involved. Bill-and-keep also ensures "recovery of

each carrier of costs” associated with transport and termination. The Act does not specify from whom each carrier may (or must) recover those costs and, under the approach we adopt today, each carrier will “recover” its costs from its own end users or from explicit support mechanisms such as the federal universal service fund. Thus, bill-and-keep will not limit the amount of a carrier’s cost recovery, but instead will alter the source of the cost recovery—network costs would be recovered from carriers’ customers supplemented as necessary by explicit universal service support, rather than from other carriers.

776. Finally, even assuming section 252(d) applies, our adoption of bill-and-keep as a default compensation mechanism would not intrude on the states’ role to set rates as interpreted by the Eighth Circuit. To the extent the traffic at issue is intrastate in nature and subject to section 252(d)’s pricing standard, states retain the authority to regulate the rates that the carriers will charge their end users to recover the costs of transport and termination to ensure that such rates are “just and reasonable,” 47 U.S.C. § 252(d)(2)(A). Moreover, states will retain important responsibilities in the implementation of a bill-and-keep framework. An inherent part of any rate setting process is not only the establishment of the rate level and rate structure, but the definition of the service or functionality to which the rate will apply. Under a bill-and-keep framework, the determination of points on a network at which a carrier must deliver terminating traffic to avail itself of bill-and-keep (sometimes known as the “edge”) serves this function, and will be addressed by states through the arbitration process where parties cannot agree on a negotiated outcome. Depending upon how the “edge” is defined in particular circumstances, in conjunction with how the carriers physically interconnect their networks, payments still could change hands as reciprocal compensation even under a bill-and-keep regime where, for instance, an IXC pays a terminating LEC to transport traffic from the IXC to the edge of the LEC’s network. Consistent with their existing role under sections 251 and 252, which we do not expand or contract, states will continue to have the responsibility to address these issues in state arbitration proceedings, which we believe is sufficient to satisfy any statutory role that the states have under section 252(d) to “determin[e] the concrete result in particular circumstances,” *Iowa Utils. Bd.*, 525 U.S. at 384, of the bill-and-keep framework we adopt today.

777. *Originating Access.* Some parties contend that the Commission lacks authority over originating access charges under section 251(b)(5) because that section refers only to transport and termination. Other commenters urge the Commission to act swiftly to eliminate originating access charges. Although we conclude that the originating access regime should be reformed, at this time we establish a transition to bill-and-keep only with respect to terminating access charge rates. The concerns we have with respect to network inefficiencies, arbitrage, and costly litigation are less pressing with respect to originating access, primarily because many carriers now have wholesale partners or have integrated local and long distance operations.

778. As discussed above, section 251(g) provides for the continued enforcement of certain pre-1996 Act obligations pertaining to “exchange access” until “such restrictions and obligations are explicitly superseded by regulations prescribed by the Commission.” Exchange access is defined to mean “the offering of access to telephone exchange services or facilities for the purpose of the origination or termination of telephone toll services,” 47 U.S.C. § 153(16). Thus, section 251(g) continues to preserve originating access until the Commission adopts rules to transition away from that system. At this time, we adopt transition rules only with respect to terminating access and seek comment in the FNPRM on the ultimate transition away from such charges as part of the transition of all access

charge rates to bill-and-keep. In the meantime, we will cap interstate originating access rates at their current level, pending resolution of the issues raised in our FNPRM.

779. *Section 332 and Wireless Traffic.* With respect to wireless traffic exchanged with a LEC, we have independent authority under section 332 of the Act to establish a default bill-and-keep methodology that will apply in the absence of an interconnection agreement. Although we have not previously exercised our authority under section 332 to reform intercarrier compensation charges paid by or to wireless providers, we have clear authority to do so, and this authority extends to both interstate and intrastate traffic. The Eighth Circuit has construed the Act to authorize the Commission to set reciprocal compensation rates for CMRS providers. In reaching that decision, the court relied on: (a) section 332(c)(1)(B), which obligates LECs to interconnect with wireless providers “pursuant to the provisions of section 201;” (b) section 2(b), which provides that the Act should not be construed to apply or to give the Commission jurisdiction with respect to charges in connection with intrastate communication service by radio “[e]xcept as provided in . . . section 332;” *id.* § 152(b); and (c) the preemptive language in section 332(c)(3)(A), which prohibits states from regulating the entry of or the rates charged by CMRS providers. The D.C. Circuit likewise recently acknowledged the Commission’s authority in this regard, observing that the Commission historically had elected to leave intrastate access rates imposed on CMRS providers to state regulation, and recognizing: “That the FCC can issue guidance does not mean it must do so,” *MetroPCS California, LLC v. FCC*, 644 F.3d 410, 414 (D.C. Cir. 2011). Accordingly, we conclude that we have separate authority under sections 201 and 332(c) to establish rules governing the exchange of both intrastate and interstate traffic between LECs and CMRS carriers.

780. *Section 254(k).* We also reject the claims of some commenters that a bill-and-keep approach would violate section 254(k) of the Act. Section 254(k) of the Act states that a telecommunications carrier “may not use services that are not competitive to subsidize services that are subject to competition,” and that the Commission “shall establish any necessary cost allocation rules, accounting safeguards, and guidelines to ensure that services included in universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services.” Some parties express concern that, under a bill-and-keep regime, retail voice telephone services subject to universal service support would bear more than “a reasonable share of the joint and common costs.”

781. The United States Court of Appeals for the Eighth Circuit previously considered and rejected similar arguments concerning the reallocation of loop costs between end users and IXCs. Specifically, the court considered whether the recovery of joint and common costs must be borne mutually by end-users and by IXCs, and whether a shift in cost recovery from IXCs to end-users violated section 254(k) of the Act. As to the first provision of section 254(k), the court found that “[s]ection 254(k) was not designed to regulate the apportionment of loop costs between end-users and IXCs because this allocation does not involve improperly shifting costs from a competitive to a non-competitive service,” even if “a LEC allocates all of its local loop costs to the end-user,” *Southwestern Bell Tel. Co. v. FCC*, 153 F.3d 523, 559 (8th Cir. 1998). Further, the court disagreed that an increase in the SLC price cap violates the second part of 254(k) by causing services included in the definition of universal service to bear more than a reasonable share of the joint and common costs of facilities used to provide those services. The court explained that the “SLC is a method of recovering loop costs, not an allocation of costs between supported and unsupported services,” *id.*, in violation of section 254(k). We concur with the Eighth Circuit’s analysis and conclude that it applies equally in this context. A bill-and-

keep framework resolves whether a carrier will recover its costs from its end users or from other carriers; the underlying service whose costs are being recovered is the same, however, so no costs are being improperly shifted between competitive and non-competitive services for purposes of section 254(k).

Notes and Questions

1. The End of the End? The FCC's clear direction is to eliminate access charges and other vestiges of the intercarrier compensation regime that traditionally supported universal service. What were the forces that drove the FCC in this direction? Local competition? Regulatory arbitrage by clever players (phantom traffic and access stimulation)? Better economics? The decreased strength of rural lobbies as the country became more urban? All of these?

2. A New Beginning. Although we have separated the issues of intercarrier compensation reform and the funding of broadband universal service, keep in mind that they are intimately related—indeed, they are two parts of the very same order. The FCC in following the National Broadband Plan is placing a high priority on broadband networks, and even says that plain old voice services will be provided over broadband networks. That may be correct generally, but deploying new broadband networks is more expensive than continuing in place old voice service, which may do the job just fine (depending of course on what the “job” is). Is the FCC being paternalistic? Is there a way to gauge what the market wants?

3. Legal Authority and the States. What role is left for the States after this Order? The FCC asserts that its scheme of intercarrier compensation applies to intrastate traffic, and this is a significant change from the traditional scheme in which the FCC regulated interstate access charges and left the matter of intrastate access charges to the States. The 1996 Act did (at least under *Iowa Utility Board's* view of section 201(b)'s regulatory authority extending to all matters in sections 251, etc.) diminish the State role, but this is an important further step. As we have asked on several occasions, should the States have any continuing role?

Chapter 14

Shared Content

Insert on page 497 after note 3:

4. Unrelenting Technological Pressure on Regulatory Distinctions. As noted, Congress's solution to the *Fortnightly* approach was to provide that retransmission by a cable system constituted copyright infringement and to grant cable systems a compulsory license over broadcast content, but also give broadcasters the right (under retransmission consent) to withhold that content from cable systems. This system allows broadcasters that have desirable content to charge cable companies for the right to carry that content. In other words, because almost 90% of U.S. households watch television over an MVPD (and not over-the-air), this scheme allows broadcasters the same dual revenue stream (both subscription fees and advertising) that cable systems and cable networks enjoy.

Enter Barry Diller and his newest disruptive company, Aereo, Inc., which was designed to exploit *Fortnightly* and allow subscribers to stream broadcast content over the Internet. Aereo attached many small antennas to an Internet service that allowed anyone with an Internet connection to select one of the antennas to receive broadcast content. Broadcast television networks sued on copyright grounds, but a New York federal district court denied their motion for a preliminary injunction and a divided Second Circuit affirmed. *WNET, Inc. v. Aereo, Inc.*, 712 F.3d 676 (2d Cir. 2013). A District Court in California reached the opposite conclusion and granted the broadcast television plaintiffs an injunction, saying that Ninth Circuit law differed from that of the Second. *See Fox Television Stations, Inc. v. BarryDriller Content Sys., PLC*, ___ F. Supp. 2d ___, 2012 WL 6784498 (C.D. Cal., Dec. 27, 2012). Several other suits are pending in other jurisdictions.

Who will ultimately lose in this fight? Copyright holders and networks want to be in control of Internet streaming, in order to garner whatever revenues are to be had. But they are not (yet? ever?) in a position to forego the revenues from cable systems' distribution. And neither the FCC nor the networks' affiliates would be happy about broadcast networks taking their content off the air. Can you design a system that is technologically neutral but also does not leave everyone at the mercy of enormous transactions costs?

Chapter 16

Structural Regulation of Media

Insert on page 620 at the end of § 16.C.2:

In 2012, the FCC issued an order in which it “decline[d] to extend the exclusive contract prohibition section of the program access rules beyond its October 5, 2012 sunset date.” Revision of the Commission’s Program Access Rules, Report and Order and Further Notice of Proposed Rulemaking, 27 FCC Rcd. 12,605 ¶ 1 (2012). The Commission summarized its decision and approach for the future as follows:

2. We find that a preemptive prohibition on exclusive contracts is no longer “necessary to preserve and protect competition and diversity in the distribution of video programming” considering that a case-by-case process will remain in place after the prohibition expires to assess the impact of individual exclusive contracts. 47 U.S.C. § 548(c)(5). [B]ecause the current market presents a mixed picture (with the cable industry now less dominant at the national level than it was when the exclusive contract prohibition was enacted, but prevailing concerns about cable dominance and concentration in various individual markets), we find that extending a preemptive ban on exclusive contracts sweeps too broadly. Rather, this mixed picture justifies a case-by-case approach in applying our program access rules (consistent with the case-by-case inquiries we undertake in the terrestrial programming and program carriage contexts), with special account taken of the unique characteristics of Regional Sports Network (“RSN”) programming. In addition to allowing us to assess any harm to competition resulting from an exclusive contract, this case-by-case approach will also allow us to consider the potentially procompetitive benefits of exclusive contracts in individual cases, such as promoting investment in new programming, particularly local programming, and permitting MVPDs to differentiate their service offerings. Accordingly, consistent with Congress’s intention that the exclusive contract prohibition would not remain in place indefinitely and its finding that exclusive contracts can have procompetitive benefits in some markets, we decline to extend the preemptive prohibition beyond its October 5, 2012 sunset date.

3. We recognize that the potential for anticompetitive conduct resulting from vertical integration between cable operators and programmers remains a concern. For example, in some markets, vertical integration may result in exclusive contracts between cable operators and their affiliated programmers that preclude competitors in the video distribution market from accessing critical programming needed to attract and retain subscribers and thus harm competition. While the amount of satellite-delivered, cable-affiliated programming among the most popular cable networks has declined since 2007, some of that programming may still be critical for MVPDs to compete in the video distribution mar-

ket. Congress has provided the Commission with the authority to address exclusive contracts on a case-by-case basis. We thus conclude that, in the context of present market conditions, such an individualized assessment of exclusive contracts in response to complaints is a more appropriate regulatory approach than the blunt tool of a prohibition that preemptively bans all exclusive contracts between satellite-delivered, cable-affiliated programmers and cable operators. This case-by-case consideration of exclusive contracts involving satellite-delivered, cable-affiliated programming will mirror our treatment of terrestrially delivered, cable-affiliated programming, including the establishment of a rebuttable presumption that an exclusive contract involving a cable-affiliated RSN has the purpose or effect prohibited in Section 628(b) of the Act. As demonstrated by our recent actions on complaints involving withholding of terrestrially delivered, cable-affiliated programming, the Commission is committed to exercising its authority under Section 628 of the Act to require cable-affiliated programmers to license their programming to competitors in appropriate cases.

Notes and Questions

1. Sports Are Special. Note the “rebuttable presumption that an exclusive contract involving a cable-affiliated RSN has the purpose or effect prohibited in Section 628(b) of the Act” (established in an earlier order and broadened here). This concern about regional sports was also central to the Commission’s review of the transfer to News Corp. on page 621 of the casebook. Why the focus on these sports networks? As the order on page 621 indicates, it turns out that for many viewers, watching their local sports teams is must-have programming.

2. Case-by-Case. In this order the FCC replaces a broad prohibition with a case-by-case approach. Should the FCC make that switch more broadly? That is, what are the advantages and disadvantages of the Commission replacing bright-line rules with more flexible standards? Are there reasons why the move to a case-by-case approach is more attractive here than in other contexts?

Chapter 18

Broadband Universal Service

Insert on page 726 after note 3:

4. **The ITU and the Internet.** As we noted in Chapter Two, the International Telecommunications Union (ITU), a treaty organization of the United Nations, has long played a role in spectrum matters and in standardization of telephone networks. In December 2012, at its World Conference on International Telecommunications, ITU delegations attempted to negotiate a treaty (and, then, a nonbinding resolution) that would have included certain Internet issues. Following extended negotiations, the United States essentially refused to sign any document that mentioned the Internet, and several other significant countries then also withheld their signatures. The final documents (adopted by approximately 89 of 144 possible signatory countries) can be found at <http://www.itu.int/en/wcit-12/Pages/default.aspx>.

U.S. resistance to ITU involvement in Internet regulation has a number of different dimensions. At the broadest level is the private-sector ethos that, while it has long governed communications in the United States, is particularly strong concerning the Internet (which of course has felt little FCC involvement). Many in the U.S. were concerned that ITU engagement would strengthen and legitimize government control over the Internet—and this concern manifested itself as concern over both greater government content regulation and greater government economic control.

Other countries saw the U.S. position less benignly (even apart from some countries' desire for content control). Much international Internet traffic transits through the United States (even if its origin and destination are offshore), and some accused the U.S. of being interested in maintaining its ability to eavesdrop on that traffic. Other parties noted that U.S. companies wanted to resist strengthening foreign government control, which might have resulted in traffic delivery charges similar to the international settlement regime for telephone calls. Given that U.S. companies are often the largest deliverers of traffic, these parties accused the U.S. of having a parochial economic interest.

Much of the FCC's official engagement with WCIT 2012 can be found at <http://www.fcc.gov/encyclopedia/world-conference-international-telecommunications-wcit-12>.

Insert on page 752 at the end of the chapter:

Below we set out an excerpt from the Commission's November 2011 Connect America Fund Order adopting most of the Notice printed in the casebook and adopting a new

priority on broadband deployment and the funding mechanisms to do so. (An excerpt concerning intercarrier compensation reform is in the materials supplementing Chapter Ten.) We provide the high-level overview from the Order's Executive Summary, as well as the Commission's discussion of its legal authority to reorient universal service funding towards broadband deployment.

Connect America Fund

Report and Order and Further Notice of Proposed Rulemaking,
26 FCC Rcd. 17,663 (2011)

I. INTRODUCTION

1. Today the Commission comprehensively reforms and modernizes the universal service and intercarrier compensation systems to ensure that robust, affordable voice and broadband service, both fixed and mobile, are available to Americans throughout the nation. We adopt fiscally responsible, accountable, incentive-based policies to transition these outdated systems to the Connect America Fund, ensuring fairness for consumers and addressing the communications infrastructure challenges of today and tomorrow. We use measured but firm glide paths to provide industry with certainty and sufficient time to adapt to a changed regulatory landscape, and establish a framework to distribute universal service funding in the most efficient and technologically neutral manner possible, through market-based mechanisms such as competitive bidding.

2. One of the Commission's central missions is to make "available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges," 47 U.S.C. § 151. For decades, the Commission and the states have administered a complex system of explicit and implicit subsidies to support voice connectivity to our most expensive to serve, most rural, and insular communities. Networks that provide only voice service, however, are no longer adequate for the country's communication needs.

3. Fixed and mobile broadband have become crucial to our nation's economic growth, global competitiveness, and civic life. Businesses need broadband to attract customers and employees, job-seekers need broadband to find jobs and training, and children need broadband to get a world-class education. Broadband also helps lower the costs and improve the quality of health care, and enables people with disabilities and Americans of all income levels to participate more fully in society. Community anchor institutions, including schools and libraries, cannot achieve their critical purposes without access to robust broadband. Broadband-enabled jobs are critical to our nation's economic recovery and long-term economic health, particularly in small towns, rural and insular areas, and Tribal lands.

4. But too many Americans today do not have access to modern networks that support broadband. Approximately 18 million Americans live in areas where there is no access to robust fixed broadband networks. And millions of Americans live, work, or travel in areas without access to advanced mobile services. There are unserved areas in every state of the nation and its territories, and in many of these areas there is little reason to believe that Congress's desire "to ensure that all people of the United States have access to broadband capability," American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115, 516, § 6001(k)(2)(D), will be met any time soon with current policies.

5. The universal service challenge of our time is to ensure that all Americans are served by networks that support high-speed Internet access—in addition to basic voice serv-

ice—where they live, work, and travel. Consistent with that challenge, extending and accelerating fixed and mobile broadband deployment has been one of the Commission's top priorities over the past few years. We have taken a series of significant steps to better enable the private sector to deploy broadband facilities to all Americans. The Commission has provided the tools to promote both wired and wireless solutions by offering new opportunities to access and use spectrum, removing barriers to infrastructure investment, and developing better and more complete broadband and spectrum data. Today's Order focuses on costly-to-serve communities where even with our actions to lower barriers to investment nationwide, private sector economics still do not add up, and therefore the immediate prospect for stand-alone private sector action is limited. We build on the Rural Utilities Service's (RUS's) Broadband Initiatives Program (BIP) and the National Telecommunications and Information Administration's (NTIA's) Broadband Technology Opportunities Program (BTOP), through which Congress appropriated over \$7 billion in grants and loans to expand broadband deployment and adoption in unserved and underserved areas. We also build on federal and state universal service programs that have supported networks in rural America for many years.

6. Our existing universal service and intercarrier compensation systems are based on decades-old assumptions that fail to reflect today's networks, the evolving nature of communications services, or the current competitive landscape. As a result, these systems are ill equipped to address the universal service challenges raised by broadband, mobility, and the transition to Internet Protocol (IP) networks.

7. With respect to broadband, the component of the Universal Service Fund (USF) that supports telecommunications service in high-cost areas has grown from \$2.6 billion in 2001 to a projected \$4.5 billion in 2011, but recipients lack any obligations or accountability for advancing broadband-capable infrastructure. We also lack sufficient mechanisms to ensure all Commission-funded broadband investments are prudent and efficient, including the means to target investment only to areas that require public support to build broadband. Due in part to these problems, a "rural-rural" divide persists in broadband access—some parts of rural America are connected to state-of-the-art broadband, while other parts of rural America have no broadband access, because the existing program fails to direct money to all parts of rural America where it is needed.

8. Similarly, the Fund supports some mobile providers, but only based on cost characteristics and locations of wireline providers. As a result, the universal service high-cost program provides approximately \$1 billion in annual support to wireless carriers, yet there remain areas of the country where people live, work, and travel that lack even basic mobile voice coverage, and many more areas that lack mobile broadband coverage. We need dedicated mechanisms to support mobility and close these gaps in mobile coverage, and we must rationalize the way that funding is provided to ensure that it is cost-effective and targeted to areas of need.

10. Under these circumstances, modernizing USF and ICC from supporting just voice service to supporting voice and broadband, both fixed and mobile, through IP networks is required by statute. The Communications Act directs the Commission to preserve and advance universal service: "Access to advanced telecommunications and information services should be provided in all regions of the Nation," 47 U.S.C. § 254(b)(2). It is the Commission's statutory obligation to maintain the USF consistent with that mandate and to continue to support the nation's telecommunications infrastructure in rural, insular, and high-cost areas. The statute also requires the Commission to update our mechanisms to reflect changes in the telecommunications market. Indeed, Congress explicitly defined universal service as "an evolving level of telecommunications services . . . taking into ac-

count advances in telecommunications and information technologies and services,” *id.* § 254(c)(1). More recently, Congress required the Commission to report annually on the state of broadband availability, and to develop the National Broadband Plan, “to ensure that all people of the United States have access to broadband capability,” American Recovery and Reinvestment Act of 2009, 123 Stat. 516.

11. Upon the release of the National Broadband Plan last year, the Commission said in its Joint Statement on Broadband, “[USF] and [ICC] should be comprehensively reformed to increase accountability and efficiency, encourage targeted investment in broadband infrastructure, and emphasize the importance of broadband to the future of these programs,” Joint Statement on Broadband, 25 FCC Rcd. 3420, 3421 (2010). Consistent with the Joint Statement and the Broadband Plan, we proposed in the USF/ICC Transformation NPRM to be guided in the USF-ICC reform process by the following four principles, rooted in the Communications Act:

- *Modernize USF and ICC for Broadband.* Modernize and refocus USF and ICC to make affordable broadband available to all Americans and accelerate the transition from circuit-switched to IP networks, with voice ultimately one of many applications running over fixed and mobile broadband networks. Unserved communities across the nation cannot continue to be left behind.
- *Fiscal Responsibility.* Control the size of USF as it transitions to support broadband, including by reducing waste and inefficiency. We recognize that American consumers and businesses ultimately pay for USF, and that if it grows too large this contribution burden may undermine the benefits of the program by discouraging adoption of communications services.
- *Accountability.* Require accountability from companies receiving support to ensure that public investments are used wisely to deliver intended results. Government must also be accountable for the administration of USF, including through clear goals and performance metrics for the program.
- *Incentive-Based Policies.* Transition to incentive-based policies that encourage technologies and services that maximize the value of scarce program resources and the benefits to all consumers.

We have also sought to phase in reform with measured but certain transitions, so companies affected by reform have time to adapt to changing circumstances.

12. There has been enormous interest in and public participation in our data-driven reform process. We have received over 2,700 comments, reply comments, and ex parte filings totaling over 26,000 pages, including hundreds of financial filings from telephone companies of all sizes, including numerous small carriers that operate in the most rural parts of the nation. We have held over 400 meetings with a broad cross-section of industry and consumer advocates. We held three open, public workshops, and engaged with other federal, state, Tribal, and local officials throughout the process. We are appreciative of the efforts of many parties, including the State Members of the Federal-State Universal Service Joint Board, to propose comprehensive solutions to the challenging problems of our current system.

13. The reforms we adopt today build on the input of all stakeholders, including Tribal leaders, states, territories, consumer advocates, incumbent and competitive telecommunications providers, cable companies, wireless providers (including wireless Internet service providers—WISPs), satellite providers, community anchor institutions, and other technology companies. We have taken a holistic view of the entire record, and have

adopted—though often with modifications designed to better serve the public interest—a number of elements from various stakeholder proposals.

14. Our actions today will benefit consumers. In rural communities throughout the country our reforms will expand broadband and mobility significantly, providing access to critical employment, public safety, educational, and health care opportunities to millions of Americans for the first time. It has been more than a decade since the Commission has comprehensively updated its USF and ICC rules. Those prior efforts helped usher in significant reductions in long distance rates and the proliferation of innovative new offerings, such as all-distance and flat-priced wireless calling plans, with substantial consumer benefits. We expect that today's ICC actions will have similar pro-consumer, pro-innovation results, providing over \$1.5 billion annually in benefits for wireless and all long-distance customers. These benefits may take many forms, including cost savings, more robust wireless service, and more innovative IP-based communications offerings. Given these effects, we project that the average consumer benefits of our reforms outweigh any costs by at least 3 to 1—and of course, by much more for the millions of consumers that will get broadband for the first time. Eliminating implicit subsidies also helps level the competitive playing field by allowing consumers to more accurately compare service offerings from telephone companies, cable companies, and wireless providers. In addition, we adopt a number of safeguards to protect consumers during the reform process, placing clear limits on end-user charges and putting USF on a firm budget to help stabilize the contribution burden on consumers.

15. We recognize that USF and ICC are both hybrid state-federal systems, and it is critical to our reforms' success that states remain key partners even as these programs evolve and traditional roles shift. Over the years, we have engaged in ongoing dialogue with state commissions on a host of issues, including universal service. We recognize the statutory role that Congress created for state commissions with respect to eligible telecommunications carrier designations, and we do not disturb that framework. We know that states share our interest in extending voice and broadband service, both fixed and mobile, where it is lacking, to better meet the needs of their consumers. Therefore, we do not seek to modify the existing authority of states to establish and monitor carrier of last resort (COLR) obligations. We will continue to rely upon states to help us determine whether universal service support is being used for its intended purposes, including by monitoring compliance with the new public interest obligations described in this Order. We also recognize that federal and state regulators must reconsider how legacy regulatory obligations should evolve as service providers accelerate their transition from the Public Switched Telephone Network (PSTN) to an all IP world.

16. We believe that the framework adopted today provides all stakeholders with a clear path forward as the Commission transitions its voice support mechanisms to expressly include broadband and mobility, from the PSTN to IP, and toward market-based policies, such as competitive bidding. We will closely monitor the progress made and stand ready to adjust the framework as necessary to protect consumers, expand broadband access and opportunities, eliminate new arbitrage or inefficient behavior, ensure USF stays within our budget, and continue our transition to IP communications in a competitive and technologically neutral manner.

II. EXECUTIVE SUMMARY

A. Universal Service Reform

17. *Principles and Goals.* We begin by adopting support for broadband-capable networks as an express universal service principle under section 254(b) of the Communica-

tions Act, and, for the first time, we set specific performance goals for the high-cost component of the USF that we are reforming today, to ensure these reforms are achieving their intended purposes. The goals are: (1) preserve and advance universal availability of voice service; (2) ensure universal availability of modern networks capable of providing voice and broadband service to homes, businesses, and community anchor institutions; (3) ensure universal availability of modern networks capable of providing advanced mobile voice and broadband service; (4) ensure that rates for broadband services and rates for voice services are reasonably comparable in all regions of the nation; and (5) minimize the universal service contribution burden on consumers and businesses.

18. *Budget.* We establish, also for the first time, a firm and comprehensive budget for the high-cost programs within USF. The annual funding target is set at no more than \$4.5 billion over the next six years, the same level as the high-cost program for Fiscal Year 2011, with an automatic review trigger if the budget is threatened to be exceeded. This will provide for more predictable funding for carriers and will protect consumers and businesses that ultimately pay for the fund through fees on their communications bills. We are today taking important steps to control costs and improve accountability in USF, and our estimates of the funding necessary for components of the Connect America Fund (CAF) and legacy high-cost mechanisms represent our predictive judgment as to how best to allocate limited resources at this time. We anticipate that we may revisit and adjust accordingly the appropriate size of each of these programs by the end of the six-year period, based on market developments, efficiencies realized, and further evaluation of the effect of these programs in achieving our goals.

19. *Public Interest Obligations.* While continuing to require that all eligible telecommunications carriers (ETCs) offer voice services, we now require that they also offer broadband services. We update the definition of voice services for universal service purposes, and decline to disrupt any state carrier of last resort obligations that may exist. We also establish specific and robust broadband performance requirements for funding recipients.

20. *Connect America Fund.* We create the Connect America Fund, which will ultimately replace all existing high-cost support mechanisms. The CAF will help make broadband available to homes, businesses, and community anchor institutions in areas that do not, or would not otherwise, have broadband, including mobile voice and broadband networks in areas that do not, or would not otherwise, have mobile service, and broadband in the most remote areas of the nation. The CAF will also help facilitate our ICC reforms. The CAF will rely on incentive-based, market-driven policies, including competitive bidding, to distribute universal service funds as efficiently and effectively as possible.

21. *Price Cap Territories.* More than 83 percent of the approximately 18 million Americans that lack access to residential fixed broadband at or above the Commission's broadband speed benchmark live in areas served by price cap carriers—Bell Operating Companies and other large and mid-sized carriers. In these areas, the CAF will introduce targeted, efficient support for broadband in two phases.

22. *Phase I.* To spur immediate broadband buildout, we will provide additional funding for price cap carriers to extend robust, scalable broadband to hundreds of thousands of unserved Americans beginning in early 2012. To enable this deployment, all existing legacy high-cost support to price cap carriers will be frozen, and an additional \$300 million in CAF funding will be made available. Frozen support will be immediately subject to the goal of achieving universal availability of voice and broadband, and subject to obligations to build and operate broadband-capable networks in areas unserved by an unsubsidized competitor over time. Any carrier electing to receive the additional support will be required to deploy broadband and offer service that satisfies our new public interest obli-

gations to an unserved location for every \$775 in incremental support. Specifically, carriers that elect to receive this additional support must provide broadband with actual speeds of at least 4 Mbps downstream and 1 Mbps upstream, with latency suitable for real-time applications and services such as VoIP, and with monthly usage capacity reasonably comparable to that of residential terrestrial fixed broadband offerings in urban areas. In addition, to ensure fairness for consumers across the country who pay into USF, we reduce existing support levels in any areas where a price cap company charges artificially low end-user voice rates.

23. *Phase II.* The next phase of the CAF will use a combination of a forward-looking broadband cost model and competitive bidding to efficiently support deployment of networks providing both voice and broadband service for five years. We expect that the CAF will expand broadband availability to millions more unserved Americans.

24. We direct the Wireline Competition Bureau to undertake a public process to determine the specific design and operation of the cost model to be used for this purpose, with stakeholders encouraged to participate in that process. The model will be used to establish the efficient amount of support required to extend and sustain robust, scalable broadband in high-cost areas. In each state, each incumbent price cap carrier will be asked to undertake a “state-level commitment” to provide affordable broadband to all high-cost locations in its service territory in that state, excluding extremely high cost areas as determined by the model. Importantly, the CAF will only provide support in those areas where a federal subsidy is necessary to ensure the build-out and operation of broadband networks. The CAF will not provide support in areas where unsubsidized competitors are providing broadband that meets our definition. Carriers accepting the state-level commitment will be obligated to meet rigorous broadband service requirements—with interim build-out requirements in three years and final requirements in five years—and will receive CAF funding, in an amount calculated by the model, over a five-year period, with significant financial consequences in the event of non- or under-performance. We anticipate that CAF obligations will keep pace as services in urban areas evolve, and we will ensure that CAF-funded services remain reasonably comparable to urban broadband services over time. After the five-year period, the Commission will use competitive bidding to distribute any universal service support needed in those areas.

25. In areas where the incumbent declines the state-level commitment, we will use competitive bidding to distribute support in a way that maximizes the extent of robust, scalable broadband service subject to an overall budget. In the Further Notice of Proposed Rulemaking (FNPRM) that accompanies today’s Order, we propose a structure and operational details for the competitive bidding mechanism, in which any broadband provider that has been designated as an ETC for the relevant area may participate. The second phase of the CAF will distribute a total of up to \$1.8 billion annually in support for areas with no unsubsidized broadband competitor. We expect that the model and competitive bidding mechanism will be adopted by December 2012, and disbursements will ramp up in 2013 and continue through 2017.

26. *Rate-of-Return Reforms.* Although they serve less than five percent of access lines in the U.S., smaller rate-of-return carriers operate in many of the country’s most difficult and expensive areas to serve. Rate-of-return carriers’ total support from the high-cost fund is approaching \$2 billion annually. We reform our rules for rate-of-return companies in order to support continued broadband investment while increasing accountability and incentives for efficient use of public resources. Rate-of-return carriers receiving legacy universal service support, or CAF support to offset lost ICC revenues, must offer broadband service meeting initial CAF requirements, with actual speeds of at least 4 Mbps

downstream and 1 Mbps upstream, upon their customers' reasonable request. Recognizing the economic challenges of extending service in the high-cost areas of the country served by rate-of-return carriers, this flexible approach does not require rate-of-return companies to extend service to customers absent such a request.

27. Alongside these broadband service rules, we adopt reforms to: (1) establish a framework to limit reimbursements for excessive capital and operating expenses, which will be implemented no later than July 1, 2012, after an additional opportunity for public comment; (2) encourage efficiencies by extending existing corporate operations expense limits to the existing high-cost loop support (HCLS) and interstate common line support (ICLS) mechanisms, effective January 1, 2012; (3) ensure fairness by reducing HCLS for carriers that maintain artificially low end-user voice rates, with a three-step phase-in beginning July 1, 2012; (4) phase out the Safety Net Additive (SNA) component of HCLS over time; (5) address Local Switching Support (LSS) as part of comprehensive ICC reform; (6) phase out over three years support in study areas that overlap completely with an unsubsidized facilities-based terrestrial competitor that provides voice and fixed broadband service, beginning July 1, 2012; and (7) cap per-line support at \$250 per month, with a gradual phasedown to that cap over a three-year period commencing July 1, 2012. In the FNPRM, we seek comment on establishing a long-term broadband-focused CAF mechanism for rate-of-return carriers, and relatedly seek comment on reducing the interstate rate-of-return from its current level of 11.25 percent. We expect rate-of-return carriers will receive approximately \$2 billion per year in total high-cost universal service support under our budget through 2017.

28. *CAF Mobility Fund.* Concluding that mobile voice and broadband services provide unique consumer benefits, and that promoting the universal availability of such services is a vital component of the Commission's universal service mission, we create the Mobility Fund, the first universal service mechanism dedicated to ensuring availability of mobile broadband networks in areas where a private-sector business case is lacking. Mobile broadband carriers will receive significant legacy support during the transition to the Mobility Fund, and will have opportunities for new Mobility Fund dollars. The providers receiving support through the CAF Phase II competitive bidding process will also be eligible for the Mobility Fund, but carriers will not be allowed to receive redundant support for the same service in the same areas. Mobility Fund recipients will be subject to public interest obligations, including data roaming and collocation requirements.

- *Phase I.* We provide up to \$300 million in one-time support to immediately accelerate deployment of networks for mobile voice and broadband services in unserved areas. Mobility Fund Phase I support will be awarded through a nationwide reverse auction, which we expect to occur in third quarter 2012. Eligible areas will include census blocks unserved today by mobile broadband services, and carriers may not receive support for areas they have previously stated they plan to cover. The auction will maximize coverage of unserved road miles within the budget, and winners will be required to deploy 4G service within three years, or 3G service within two years, accelerating the migration to 4G. We also establish a separate and complementary one-time Tribal Mobility Fund Phase I to award up to \$50 million in additional universal service funding to Tribal lands to accelerate mobile voice and broadband availability in these remote and underserved areas.

- *Phase II.* To ensure universal availability of mobile broadband services, the Mobility Fund will provide up to \$500 million per year in ongoing support. The Fund will expand and sustain mobile voice and broadband services in communities in which service would be unavailable absent federal support. The Mobility Fund will include

ongoing support for Tribal areas of up to \$100 million per year as part of the \$500 million total budget. In the FNPRM we propose a structure and operational details for the ongoing Mobility Fund, including the proper distribution methodology, eligible geographic areas and providers, and public interest obligations. We expect to adopt the distribution mechanism for Phase II in 2012 with implementation in 2013.

29. *Identical Support Rule.* In light of the new support mechanisms we adopt for mobile broadband service and our commitment to fiscal responsibility, we eliminate the identical support rule that determines the amount of support for mobile, as well as wireline, competitive ETCs today. We freeze identical support per study area as of year end 2011, and phase down existing support over a five-year period beginning on July 1, 2012. The gradual phase down we adopt, in conjunction with the new funding provided by Mobility Fund Phase I and II, will ensure that an average of over \$900 million is provided to mobile carriers for each of the first four years of reform (through 2015). The phase down of competitive ETC support will stop if Mobility Fund Phase II is not operational by June 30, 2014, ensuring approximately \$600 million per year in legacy support will continue to flow until the new mechanism is operational.

30. *Remote Areas Fund.* We allocate at least \$100 million per year to ensure that Americans living in the most remote areas in the nation, where the cost of deploying traditional terrestrial broadband networks is extremely high, can obtain affordable access through alternative technology platforms, including satellite and unlicensed wireless services. We propose in the FNPRM a structure and operational details for that mechanism, including the form of support, eligible geographic areas and providers, and public interest obligations. We expect to finalize the Remote Areas Fund in 2012 with implementation in 2013.

31. *Reporting and Enforcement.* We establish a national framework for certification and reporting requirements for all universal service recipients to ensure that their public interest obligations are satisfied, that state and federal regulators have the tools needed to conduct meaningful oversight, and that public funds are expended in an efficient and effective manner. We do not disturb the existing role of states in designating ETCs and in monitoring that ETCs within their jurisdiction are using universal service support for its intended purpose. We seek comment on whether and how we should adjust federal obligations on ETCs in areas where legacy funding is phased down. We also adopt rules to reduce or eliminate support if public interest obligations or other requirements are not satisfied, and seek comment on the appropriateness of additional enforcement mechanisms.

32. *Waiver.* As a safeguard to protect consumers, we provide for an explicit waiver mechanism under which a carrier can seek relief from some or all of our reforms if the carrier can demonstrate that the reduction in existing high-cost support would put consumers at risk of losing voice service, with no alternative terrestrial providers available to provide voice telephony.

III. ADOPTION OF A NEW PRINCIPLE FOR UNIVERSAL SERVICE

43. Section 254(b) of the Communications Act sets forth six “universal service principles” and directs the Commission to “base policies for the preservation and advancement of universal service on” these principles. In addition, section 254(b)(7) directs the Commission and the Federal-State Joint Board on Universal Service to adopt “other principles” that we “determine are necessary and appropriate for the protection of the public interest, convenience, and necessity and are consistent with” the Act.

44. In November 2010, the Federal-State Joint Board on Universal Service recommended that the Commission “specifically find that universal service support should be directed where possible to networks that provide advanced services, as well as voice serv-

ices,” and adopt such a principle pursuant to its 254(b)(7) authority. Federal-State Joint Board on Universal Service, Lifeline and Link Up, Recommended Decision, 25 FCC Rcd. 15,598, 15,625, ¶ 75 (2010). The Joint Board believes that this principle is consistent with section 254(b)(3) and would serve the public interest. We agree. Section 254(b)(3) provides that consumers in rural, insular and high-cost areas should have access to “advanced telecommunications and information services . . . that are reasonably comparable to those services provided in urban areas.” Section 254(b)(2) likewise provides that “Access to advanced telecommunications and information services should be provided in all regions of the Nation.” Providing support for broadband networks will further all of these goals.

45. Accordingly, we adopt “support for advanced services” as an additional principle upon which we will base policies for the preservation and advancement of universal service. For the reasons discussed above, we find, per section 254(b)(7), that this new principle is “necessary and appropriate.” Consistent with the Joint Board’s recommendation, we define this principle as: “Support for Advanced Services— Universal service support should be directed where possible to networks that provide advanced services, as well as voice services.”

IV. GOALS

46. *Background.* Consistent with the Government Performance and Results Act of 1993 (GPRA), clear performance goals and measures for the Connect America Fund, including the Mobility Fund, and existing high-cost support mechanisms will enable the Commission to determine not just whether federal funding is used for the intended purposes, but whether that funding is accomplishing the intended results—including our objectives of preserving and advancing voice, broadband, and advanced mobility for all Americans. Moreover, performance goals and measures may assist in identifying areas where additional action by state regulators, Tribal governments, or other entities is necessary to achieve universal service. Performance goals and measures should also improve participant accountability.

47. In the USF-ICC Transformation NPRM, the Commission proposed several performance goals and measures to improve program accountability. While commenters generally supported the concept of reorienting the universal service program to support broadband, we received limited comment on the specific goals and measures we proposed in the NPRM. No commenter objected to the proposed goals, and the Mercatus Center describes them as “excellent intermediate outcomes to measure,” Mercatus USF/ICC Transformation NPRM Comments 17.

48. *Discussion.* We adopt the following performance goals for our efforts to preserve and advance service in high cost, rural, and insular areas through the Connect America Fund and existing support mechanisms: (1) preserve and advance universal availability of voice service; (2) ensure universal availability of modern networks capable of providing voice and broadband service to homes, businesses, and community anchor institutions; (3) ensure universal availability of modern networks capable of providing mobile voice and broadband service where Americans live, work, and travel; (4) ensure that rates are reasonably comparable in all regions of the nation, for voice as well as broadband services; and (5) minimize the universal service contribution burden on consumers and businesses. We also adopt performance measures for the first, second, and fifth of these goals, and direct the Wireline Competition Bureau and the Wireless Telecommunications Bureau (Bureaus) to further develop other measures. We delegate authority to the Bureaus to finalize performance measures as appropriate consistent with the goals we adopt today.

49. *Preserve and Advance Voice Service.* The first performance goal we adopt is to preserve and advance universal availability of voice service. In doing so, we reaffirm our commitment to ensuring that all Americans have access to voice service while recognizing

that, over time, we expect that voice service will increasingly be provided over broadband networks.

50. As a performance measure for this goal, we will use the telephone penetration rate, which measures subscription to telephone service. The telephone penetration rate has historically been used by the Commission as a proxy for network deployment and, as a result, will be a consistent measure of the universal service program's effects. We will also continue to use the Census Bureau's Current Population Survey (CPS) to collect data regarding telephone penetration. Although CPS data does not specifically break out wireless, VoIP, or over-the-top voice options available to consumers, a better data set is not currently available. In recognition of the limitations of existing data, the Commission is considering revising the types of data it collects, and we anticipate further Commission action in this proceeding, which may provide more complete information that we can use to evaluate this performance goal.

51. *Ensure Universal Availability of Voice and Broadband to Homes, Businesses, and Community Anchor Institutions.* The second performance goal we adopt is to ensure the universal availability of modern networks capable of delivering broadband and voice service to homes, businesses, and community anchor institutions. All Americans in all parts of the nation, including those in rural, insular, and high-cost areas, should have access to affordable modern communications networks capable of supporting the necessary applications that empower them to learn, work, create, and innovate.

52. As an outcome measure for this goal, we will use the number of residential, business, and community anchor institution locations that newly gain access to broadband service. As an efficiency measure, we will use the change in the number of homes, businesses, and community anchor institutions passed or covered per million USF dollars spent. To collect data, we will use the National Broadband Map and/or Form 477. We will also require CAF recipients to report on the number of community anchor institutions that newly gain access to fixed broad-band service as a result of CAF support. Although these measures are imperfect, we believe that they are the best available to us. Other options, such as the Mercatus Centers' suggestion of using an assessment of what might have occurred without the programs, are not administratively feasible at this time. But we direct the Bureau to revisit these measures at a later point, and to consider refinements and alternatives.

53. *Ensure Universal Availability of Mobile Voice and Broadband Where Americans Live, Work, or Travel.* The third performance goal we adopt is to ensure the universal availability of modern networks capable of delivering mobile broadband and voice service in areas where Americans live, work, or travel. Like the preceding parallel goal, our third performance goal is designed to help ensure that all Americans in all parts of the nation, including those in rural, insular, and high-cost areas, have access to affordable technologies that will empower them to learn, work, create, and innovate. But we believe that ensuring universal advanced mobile coverage is an important goal on its own, and that we will be better able track program performance if we measure it separately.

54. We decline to adopt performance measures for this goal at this time but direct the Wireless Telecommunications Bureau to develop one or more appropriate measures for this goal.

55. *Ensure Reasonably Comparable Rates for Broadband and Voice Services.* The fourth performance goal we adopt is to ensure that rates are reasonably comparable for voice as well as broadband service, between urban and rural, insular, and high cost areas. Rates must be reasonably comparable so that consumers in rural, insular, and high cost areas have meaningful access to these services.

56. We also decline to adopt measures for this goal at this time. Although the Commission proposed one outcome measure and asked about others in the USF/ICC Transformation NPRM, we received only limited input on that proposal. The Mercatus Center agrees that “[t]he ratio of prices to income is an intuitively sensible way of defining ‘reasonably comparable,’” Mercatus USF/ICC Transformation NPRM Comments 14–15, but cautions that, again, the real challenge is crafting measures that distinguish how the programs affect rates apart from other factors. The Bureaus may seek to further develop the record on the performance and efficiency measures suggested by the Mercatus Center, the Commission’s original proposals, and any other measures commenters think would be appropriate. In undertaking this analysis, we direct the Bureau to develop separate measures for (1) broadband services for homes, businesses, and community anchor institutions; and (2) mobile services.

57. *Minimize Universal Service Contribution Burden on Consumers and Businesses.* The fifth performance goal we adopt is to minimize the overall burden of universal service contributions on American consumers and businesses. With this performance goal, we seek to balance the various objectives of section 254(b) of the Act, including the objective of providing support that is sufficient but not excessive so as to not impose an excessive burden on consumers and businesses who ultimately pay to support the Fund. As we have previously recognized, “if the universal service fund grows too large, it will jeopardize other statutory mandates, such as ensuring affordable rates in all parts of the country, and ensuring that contributions from carriers are fair and equitable,” Order on Remand and Memorandum Opinion and Order, 25 FCC Rcd. 4072, 4087, ¶ 28 (2010).

58. As a performance measure for this goal, we will divide the total inflation-adjusted expenditures of the existing high-cost program and CAF (including the Mobility Fund) each year by the number of American households and express the measure as a monthly dollar figure. This calculation will be relatively straightforward and rely on publicly available data. As such, the measure will be transparent and easily verifiable. By adjusting for inflation and looking at the universal service burden, we will be able to determine whether the overall burden of universal service contribution costs is increasing or decreasing for the typical American household. As an efficiency measure, the Mercatus Center suggests comparing the estimate of economic deadweight loss associated with the contribution mechanism to the deadweight loss associated with taxation. We anticipate that the Bureaus may seek further input on this option and any others commenters believe would be appropriate.

59. *Program Review.* Using the adopted goals and measures, the Commission will, as required by GPRA, monitor the performance of our universal service program as we modernize the current high-cost program and transition to the CAF. If the programs are not meeting these performance goals, we will consider corrective actions. Likewise, to the extent that the adopted measures do not help us assess program performance, we will revisit them as well.

V. LEGAL AUTHORITY

60. In this section, we address our statutory authority to implement Congress’s goal of promoting ubiquitous deployment of, and consumer access to, both traditional voice calling capabilities and modern broadband services over fixed and mobile networks. As explained below, Congress has authorized the Commission to support universal service in the broadband age. Section 254 grants the Commission clear authority to support telecommunications services and to condition the receipt of universal service support on the deployment of broadband networks, both fixed and mobile, to consumers. Section 706 provides the Commission with independent authority to support broadband net-

works in order to “accelerate the deployment of broadband capabilities” to all Americans. Recently, moreover, Congress has reaffirmed its strong interest in ubiquitous deployment of high speed broadband communications networks: the 2008 Farm Bill directing the Chairman to submit to Congress “a comprehensive rural broadband strategy,” including recommendations for the rapid buildout of broadband in rural areas and for how federal resources can “best . . . overcome obstacles that impede broadband deployment”; the Broadband Data Improvement Act, to improve data collection and “promote the deployment of affordable broadband services to all parts of the Nation,” Broadband Data Improvement Act, Pub. L. No. 110-385, 122 Stat. 4096 (2008) (codified at 47 U.S.C. § 1301 *et seq.*); and the Recovery Act, which required the Commission to develop the National Broadband Plan to ensure that every American has “access to broadband capability and . . . establish benchmarks for meeting that goal,” *see* American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009); 47 U.S.C. § 1305(k)(2). By exercising our statutory authority consistent with the thrust of these provisions, we ensure that the national policy of promoting broadband deployment and ubiquitous access to voice telephony services is fully realized.

61. *Section 254.* The principle that all Americans should have access to communications services has been at the core of the Commission’s mandate since its founding. Congress created this Commission in 1934 for the purpose of making “available . . . to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges,” 47 U.S.C. § 151. In the 1996 Act, Congress built upon that longstanding principle by enacting section 254. Section 254 sets forth six principles upon which we must “base policies for the preservation and advancement of universal service,” *id.* § 254(b). Among these principles are that “[q]uality services should be available at just, reasonable, and affordable rates,” that “[a]ccess to advanced telecommunications and information services should be provided in all regions of the Nation,” and that “[c]onsumers in all regions of the Nation . . . should have access to telecommunications and information services, including . . . advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas” and at reasonably comparable rates. *Id.* § 254(b)(1)–(3).

62. Under section 254, we have express statutory authority to support telecommunications services that we have designated as eligible for universal service support. Section 254(c)(1) of the Act defines “[u]niversal service” as “an evolving level of telecommunications services that the Commission shall establish periodically under this section, taking into account advances in telecommunications and information technologies and services.” As discussed more fully below, in this Order, we adopt our proposal to simplify how we describe the various supported services that the Commission historically has defined in functional terms (e.g., voice grade access to the PSTN, access to emergency services) into a single supported service designated as “voice telephony service,” USF/ICC Transformation NPRM, 26 FCC Rcd. at 4590, ¶ 95. To the extent carriers offer traditional voice telephony services as telecommunications services over traditional circuit-switched networks, our authority to provide support for such services is well established.

63. Increasingly, however, consumers are obtaining voice services not through traditional means but instead through interconnected VoIP providers offering service over broadband networks. As AT&T notes, “[c]ircuit-switched networks deployed primarily for voice service are rapidly yielding to packet-switched networks,” AT&T USF/ICC Transformation NPRM Comments, which offer voice as well as other types of services. The data bear this out. As we observed in the Notice, “[f]rom 2008 to 2009, interconnected VoIP subscriptions increased by 22 percent, while switched access lines decreased by 10 per-

cent,” USF/ICC Transformation NPRM, 26 FCC Rcd. at 4560, ¶ 8. Interconnected VoIP services, among other things, allow customers to make real-time voice calls to, and receive calls from, the PSTN, and increasingly appear to be viewed by consumers as substitutes for traditional voice telephone services. Our authority to promote universal service in this context does not depend on whether interconnected VoIP services are telecommunications services or information services under the Communications Act.

64. Section 254 grants the Commission the authority to support not only voice telephony service but also the facilities over which it is offered. Section 254(e) makes clear that “[a] carrier that receives such [universal service] support shall use that support only for the provision, maintenance, and upgrading of facilities and services for which the support is intended.” By referring to “facilities” and “services” as distinct items for which federal universal service funds may be used, we believe Congress granted the Commission the flexibility not only to designate the types of telecommunications services for which support would be provided, but also to encourage the deployment of the types of facilities that will best achieve the principles set forth in section 254(b) and any other universal service principle that the Commission may adopt under section 254(b)(7). For instance, under our longstanding “no barriers” policy, we allow carriers receiving high-cost support “to invest in infrastructure capable of providing access to advanced services” as well as supported voice services, *see* Federal-State Joint Board on Universal Service, Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers, Fourteenth Report and Order, Twenty-Second Order on Reconsideration, and Further Notice of Proposed Rulemaking, 16 FCC Rcd. 11,244, 11,322, ¶ 200 (2001). That policy, we explained, furthers the policy Congress set forth in section 254(b) of “ensuring access to advanced telecommunications and information services throughout the nation,” Federal-State Joint Board on Universal Service, Order and Order on Reconsideration, 18 FCC Rcd. 15,090, 15,096, ¶ 13 (2003). While this policy was enunciated in an Order adopting rule changes for rural incumbent carriers, by its terms it is not limited to such carriers. The “no-barriers” policy has applied, and will continue to apply, to all ETCs, and we codify it in our rules today. Section 254(e) thus contemplates that carriers may receive federal support to enable the deployment of broadband facilities used to provide supported telecommunications services as well as other services.

65. We further conclude that our authority under section 254 allows us to go beyond the “no barriers” policy and require carriers receiving federal universal service support to invest in modern broadband-capable networks. We see nothing in section 254 that requires us simply to provide federal funds to carriers and hope that they will use such support to deploy broadband facilities. To the contrary, we have a “mandatory duty” to adopt universal service policies that advance the principles outlined in section 254(b), and we have the authority to “create some inducement” to ensure that those principles are achieved, *Qwest Corp. v. FCC*, 258 F.3d 1191, 1200, 1204 (10th Cir. 2001). Congress made clear in section 254 that the deployment of, and access to, information services—including “advanced” information services—are important components of a robust and successful federal universal service program. Furthermore, we are adopting today the recommendation of the Federal-State Joint Board on Universal Service to establish a new universal service principle pursuant to section 254(b)(7) “that universal service support should be directed where possible to networks that provide advanced services, as well as voice services,” 47 U.S.C. §§ 254(b)(2), (b)(3). In today’s communications environment, achievement of these principles requires, at a minimum, that carriers receiving universal service support invest in and deploy networks capable of providing consumers with access to modern broadband capabilities, as well as voice telephony services. Accordingly, as

explained in greater detail below, we will exercise our authority under section 254 to require that carriers receiving support—both CAF support, including Mobility Fund support, and support under our existing high-cost support mechanisms—offer broadband capabilities to consumers. We conclude that this approach is sufficient to ensure access to voice and broadband services and, therefore, we do not, at this time, add broadband to the list of supported services, as some have urged.

66. *Section 706.* We also have independent authority under section 706 of the Telecommunications Act of 1996 to fund the deployment of broadband networks. In section 706, Congress recognized the importance of ubiquitous broadband deployment to Americans' civic, cultural, and economic lives and, thus, instructed the Commission to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans," 47 U.S.C. § 1302(a). Of particular importance, Congress adopted a definition of "advanced telecommunications capability" that is not confined to a particular technology or regulatory classification. Rather, "'advanced telecommunications capability' is defined, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video communications using any technology," *id.* § 1302(d)(1). Section 706 further requires the Commission to "determine whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion" and, if the Commission concludes that it is not, to "take immediate action to accelerate deployment of such capability by removing barriers to infrastructure investment and by promoting competition in the telecommunications market," *id.* § 1302(b). The Commission has found that broadband deployment to all Americans has not been reasonable and timely and observed in its most recent broadband deployment report that "too many Americans remain unable to fully participate in our economy and society because they lack broadband," 2011 Seventh Broadband Progress Report and Order on Reconsideration, 26 FCC Rcd. 8011, ¶ 4 (2011). This finding triggers our duty under section 706(b) to "remov[e] barriers to infrastructure investment" and "promot[e] competition in the telecommunications market" in order to accelerate broadband deployment throughout the Nation.

67. Providing support for broadband networks helps achieve section 706(b)'s objectives. First, the Commission has recognized that one of the most significant barriers to investment in broadband infrastructure is the lack of a "business case for operating a broadband network" in high-cost areas "[i]n the absence of programs that provide additional support," *id.* at 8040, ¶ 66. Extending federal support to carriers deploying broadband networks in high-cost areas will thus eliminate a significant barrier to infrastructure investment and accelerate broadband deployment to unserved and underserved areas of the Nation. The deployment of broadband infrastructure to all Americans will in turn make services such as interconnected VoIP service accessible to more Americans.

68. Second, supporting broadband networks helps "promot[e] competition in the telecommunications market," 47 U.S.C. § 1302(b), particularly with respect to voice services. As we have long recognized, "interconnected VoIP service 'is increasingly used to replace analog voice service,'" Universal Service Contribution Methodology, Federal-State Joint Board on Universal Service, 1998 Biennial Regulatory Review—Streamlined Contributor Reporting Requirements Associated with Administration of Telecommunications Relay Service, Telecommunications Services for Individuals with Hearing and Speech Disabilities, Number Resource Optimization, Telephone Number Portability, Truth-In-Billing and Billing Format, IP-Enabled Services, Report and Order and Notice of Proposed Rulemaking, 21 FCC Rcd. 7518, 7541, ¶ 44 (2006). Thus, we previously explained that re-

quiring interconnected VoIP providers to contribute to federal universal service support mechanisms promoted competitive neutrality because it “reduces the possibility that carriers with universal service obligations will compete directly with providers without such obligations,” *id.* Just as “we do not want contribution obligations to shape decisions regarding the technology that interconnected VoIP providers use to offer voice services to customers or to create opportunities for regulatory arbitrage,” *id.*, we do not want to create regulatory distinctions that serve no universal service purpose or that unduly influence the decisions providers will make with respect to how best to offer voice services to consumers. The “telecommunications market” — which includes interconnected VoIP and by statutory definition is broader than just telecommunications services — will be more competitive, and thus will provide greater benefits to consumers, as a result of our decision to support broadband networks, regardless of regulatory classification.

69. By exercising our authority under section 706 in this manner, we further Congress’s objective of “accelerat[ing] deployment” of advanced telecommunications capability “to all Americans,” 47 U.S.C. § 1302(b). Under our approach, federal support will not turn on whether interconnected VoIP services or the underlying broadband service falls within traditional regulatory classifications under the Communications Act. Rather, our approach focuses on accelerating broadband deployment to unserved and underserved areas, and allows providers to make their own judgments as to how best to structure their service offerings in order to make such deployment a reality.

70. We disagree with commenters who assert that we lack authority under section 706(b) to support broadband networks. While 706(a) imposes a general duty on the Commission to encourage broadband deployment through the use of “price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment,” section 706(b) is triggered by a specific finding that broadband capability is not being “deployed to all Americans in a reasonable and timely fashion.” Upon making that finding (which the Commission has done), section 706(b) requires the Commission to “take immediate action to accelerate” broadband deployment. Given the statutory structure, we read section 706(b) as conferring on the Commission the additional authority, beyond what the Commission possesses under section 706(a) or elsewhere in the Act, to take steps necessary to fulfill Congress’s broadband deployment objectives. Indeed, it is hard to see what additional work section 706(b) does if it is not an independent source of statutory authority.

71. We also reject the view that providing support for broadband networks under section 706(b) conflicts with section 254, which defines universal service in terms of telecommunications services. Information services are not excluded from section 254 because of any policy judgment made by Congress. To the contrary, Congress contemplated that the federal universal service program would promote consumer access to both advanced telecommunications and advanced information services “in all regions of the Nation,” 47 U.S.C. § 254(b)(2). When Congress enacted the 1996 Act, most consumers accessed the Internet through dial-up connections over the PSTN, and broadband capabilities were provided over tariffed common carrier facilities. Interconnected VoIP services had only a nominal presence in the marketplace in 1996. It was not until 2002 that the Commission first determined that one form of broadband — cable modem service — was a single offering of an information service rather than separate offerings of telecommunications and information services, and only in 2005 did the Commission conclude that wireline broadband service should be governed by the same regulatory classification. Thus, marketplace and technological developments and the Commission’s determinations that broadband services may be offered as information services have had the effect of remov-

ing such services from the scope of the explicit reference to “universal service” in section 254(c). Likewise, Congress did not exclude interconnected VoIP services from the federal universal service program; indeed, there is no reason to believe it specifically anticipated the development and growth of such services in the years following the enactment of the 1996 Act.

72. The principles upon which the Commission “shall base policies for the preservation and advancement of universal service” make clear that supporting networks used to offer services that are or may be information services for purposes of regulatory classification is consistent with Congress’s overarching policy objectives. For example, section 254(b)(2)’s principle that “[a]ccess to advanced telecommunications and information services should be provided in all regions of the Nation” dovetails comfortably with section 706(b)’s policy that “advanced telecommunications capability [be] deployed to all Americans in a reasonable and timely fashion.” Our decision to exercise authority under Section 706 does not undermine section 254’s universal service principles, but rather ensures their fulfillment. By contrast, limiting federal support based on the regulatory classification of the services offered over broadband networks as telecommunications services would exclude from the universal service program providers who would otherwise be able to deploy broadband infrastructure to consumers. We see no basis in the statute, the legislative history of the 1996 Act, or the record of this proceeding for concluding that such a constricted outcome would promote the Congressional policy objectives underlying sections 254 and 706.

73. Finally, we note the limited extent to which we are relying on section 706(b) in this proceeding. Consistent with our longstanding policy of minimizing regulatory distinctions that serve no universal service purpose, we are not adopting a separate universal service framework under section 706(b). Instead, we are relying on section 706(b) as an alternative basis to section 254 to the extent necessary to ensure that the federal universal service program covers services and networks that could be used to offer information services as well as telecommunications services. Carriers seeking federal support must still comply with the same universal service rules and obligations set forth in sections 254 and 214, including the requirement that such providers be designated as eligible to receive support, either from state commissions or, if the provider is beyond the jurisdiction of the state commission, from this Commission. In this way, we ensure that our exercise of section 706(b) authority will advance, rather than detract from, the universal service principles established under section 254 of the Act.

Notes and Questions

1. Public Interest Obligations. Note that the FCC requires that carriers, as a condition of receiving support, commit to providing both voice service and broadband service (under specific metrics). The Commission is ensuring the maintenance of voice service, but notes that such service will be provided over broadband network infrastructure.

2. Mobile Services. Why are mobile services those that must be provided for “universal service” values to be promoted? The FCC expressly refers, among other things, to support of service “where people travel.” Is the FCC evolving to an explicit notion of universal service as a universal network and universal connectivity? Does this go far beyond ensuring a minimum level of connectivity for those who cannot otherwise afford it? Is the Commission replacing market mechanisms that (efficiently?) provide different levels of service in different areas?

3. Section 706. Does the Commission need to rely on Section 706 in addition to its authority under section 254 for authority to reorient universal service to support broad-

band deployment? Note that the Commission's authority under 706 is also controversial in the network neutrality context, presented in the next chapters of the casebook. There, the argument is parallel—whether the section gives the Commission general authority to regulate and promote Internet services, or whether the Commission is limited to the specific (deregulatory) tools identified in section 706(a).

Chapter 19

Broadband Jurisdiction and Structural Regulation

Insert on page 786 at the end of § 19.C.1:

A variety of developments in 2012 and 2013 raised to the forefront the competitive landscape of wireless markets. Building on the concerns expressed when AT&T had proposed to merge with T-Mobile (which merger was withdrawn after the Department of Justice sued to block it), several groups argued that markets for mobile wireless services are insufficiently competitive. In March 2013, the FCC issued its 16th Annual Report on competition in the mobile wireless space.

Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services

28 FCC Rcd. 3700 (2013)

I. EXECUTIVE SUMMARY

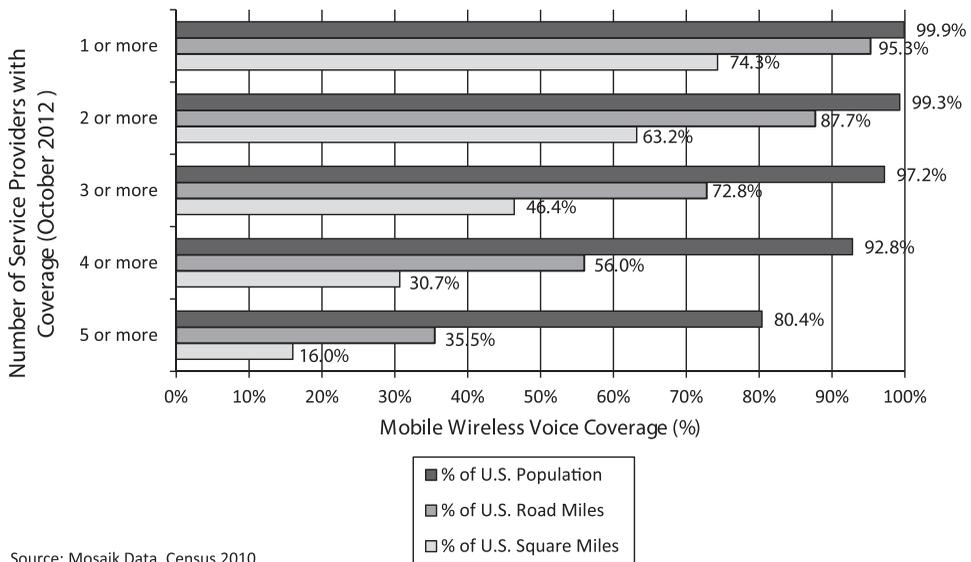
1. This year's sixteenth Mobile Wireless Competition Report (*Sixteenth Report* or *Report*) analyzes mobile wireless service market conditions during 2010 and 2011, as well as during 2012 to the extent data are available.

2. Consistent with the Commission's first seven Annual Commercial Mobile Radio Service (CMRS) Competition Reports, the *Fourteenth* and *Fifteenth Reports* did not reach an overall conclusion regarding whether or not the CMRS marketplace was effectively competitive, but provided an analysis and description of the CMRS industry's competitive metrics and trends. The *Sixteenth Report* follows the same analytical framework used in the *Fifteenth* and *Fourteenth Reports*, with certain improvements based on responses to those *Reports*. The *Sixteenth Report* also makes no formal finding as to whether there is, or is not, effective competition in the industry.

Network Deployment

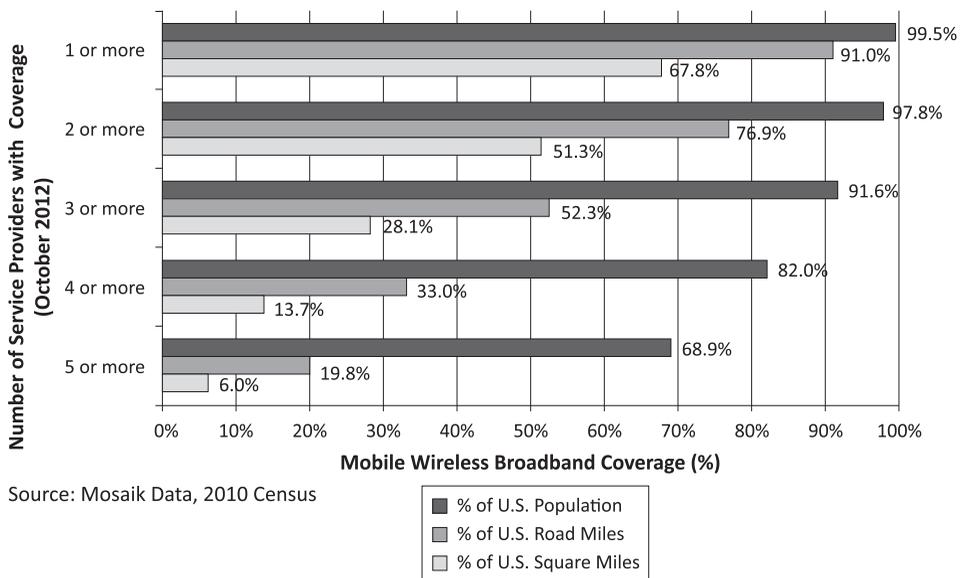
[Eds.: The first chart represents coverage of mobile wireless service; the second shows coverage of mobile wireless services that can provide “wireless broadband” as the FCC has defined it, i.e., 200 kbps data service in both directions.]

Estimated Mobile Wireless Coverage by Census Block, Oct. 2012



Source: Mosaik Data, Census 2010

Estimated Mobile Wireless Broadband Coverage by Census Block, Oct. 2012



Source: Mosaik Data, 2010 Census

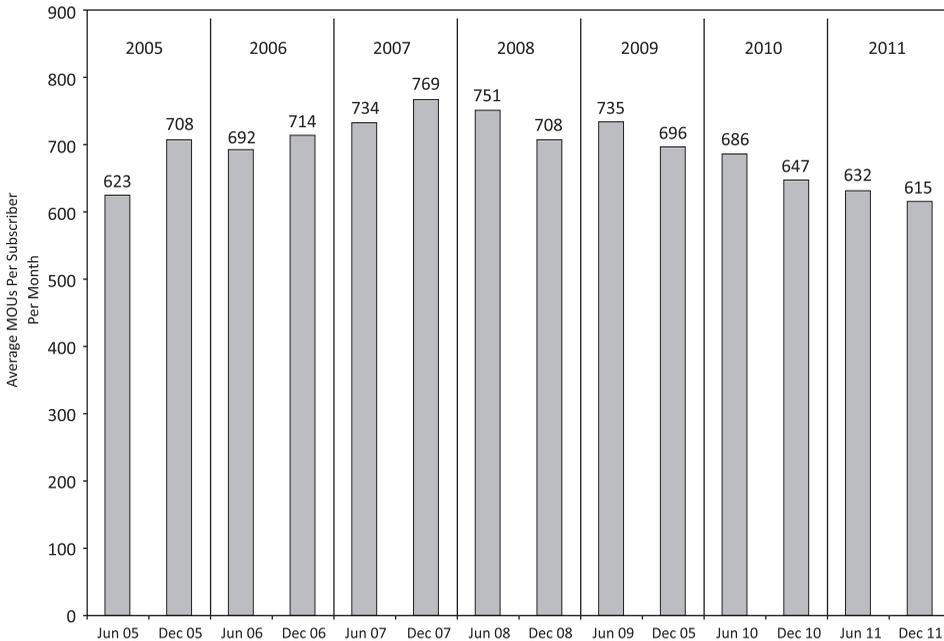
Subscribers, Connections, and Net Adds

[T]he number of mobile wireless connections grew from 290.7 million at the end of 2009 to 317.3 million at the end of 2011. [A]t the end of 2011 there were 298.3 million subscribers to mobile telephone, or voice, service, up from 285.1 million at the end of 2010. At the same time, there were 142.1 million subscribers to mobile Internet access services at speeds exceeding 200 kbps in at least one direction, up from the 97.5 million were reported for the end of 2010, and more than double the 56.3 million reported for year-end 2009.

Usage

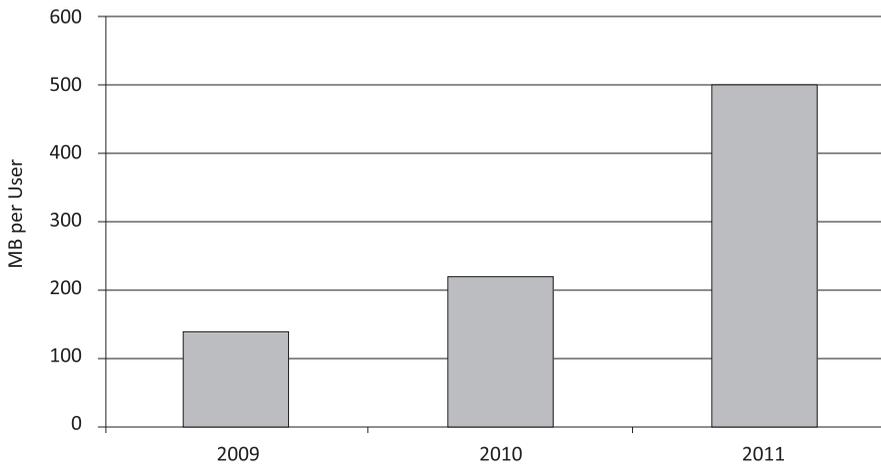
Trends in mobile wireless services showed continuing evolution from being primarily voice-centric to data-centric during the time frame covered by this *Report*. During this period mobile data traffic grew significantly while average billable minutes of use (MOUs), a measure of monthly mobile voice usage per subscriber, continued to decline. Following significant increases in previous years, growth rates for SMS and Multimedia Messaging Service (MMS) usage per customer were steady or declining, although we note the emergence of data services that provide similar functionality to SMS and MMS.

Average MOUs Per Subscriber Per Month



Source: CTIA

Average Monthly Data Consumption per User: Nationwide Providers, 2009–2011



Source: Validas

Average Data Consumption Per User

Price Metrics and Average Revenue Per User (ARPU)

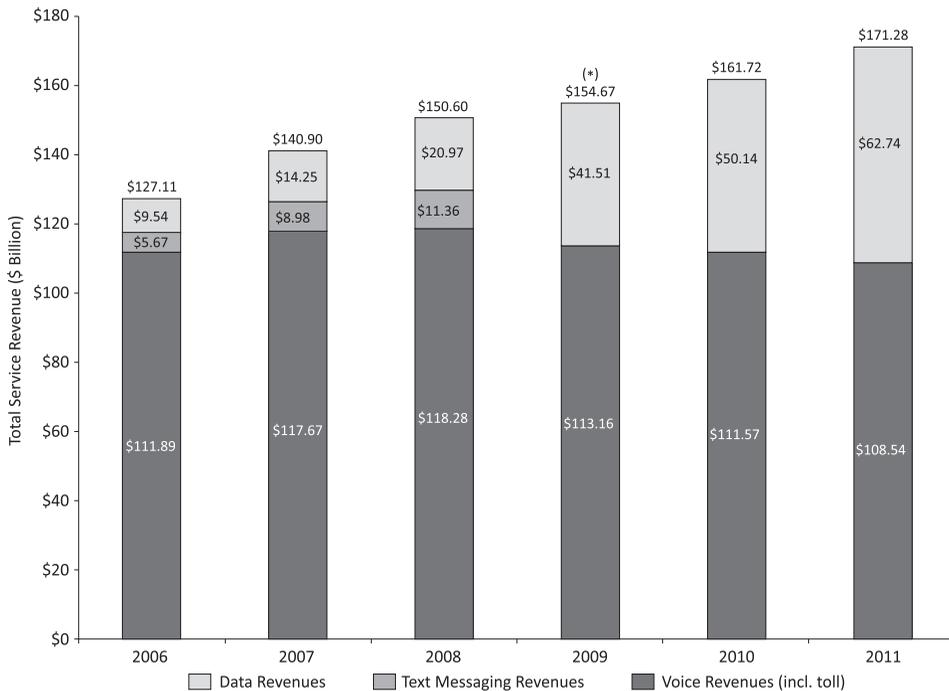
An examination of two key pricing indicators, the Wireless Telephone Services component of the Consumer Price Index and the per-minute price of voice service, shows that mobile wireless prices declined overall in 2010 and 2011. The Wireless Telephone Services CPI declined for two consecutive years, while the per-minute price of voice service remained roughly stable in 2010 and then declined in 2011.

From 2009 to 2010, the annual Wireless Telephone Services CPI decreased by nearly 3 percent while the overall CPI increased by 1.6 percent and the Telephone Services CPI was unchanged. From 2010 to 2011, the annual Wireless Telephone Services CPI decreased by another 3.6 percent, while the overall CPI increased by 3.2 percent and the Telephone Services CPI decreased by 1.1 percent. The Wireless Telephone Services CPI's back-to-back declines in 2010 and 2011 followed an unchanged Wireless Telephone Services CPI in 2009 and a series of much smaller declines in the period from 2002 to 2008.

We also note that Recon Analytics estimates that the effective price per megabyte of data declined from \$0.47 per megabyte in the third quarter of 2008 to about \$0.05 per megabyte in the fourth quarter of 2010, which is roughly an 89 percent decrease.

The total revenue generated by the mobile wireless industry continues to be substantial, with approximately \$171.28 billion in service revenues in 2011, and has been growing consistently. Annual voice revenues continued the decline first noted in 2009 from approximately \$113 billion to \$108 billion in 2011. At the same time, data revenue, including text messaging revenue, has continued to see significant growth, going from \$42 billion to \$63 billion in the same period.

Total Mobile Wireless Industry Revenues



Source: CTIA, *Beginning in 2009 text messaging and data revenues are combined

Spectrum

Access to spectrum is perhaps the most important input for the provision of mobile wireless services. Demand for these services has grown steadily and sharply in recent years and projections indicate such growth will continue unabated. In order for service providers to meet the demand, they will need to put new spectrum to use and make more efficient use of existing holdings. Because spectrum bands vary in their propagation characteristics, service providers may make use of different bands depending on the nature of the service, geography, density, or other factors in their network build-out.

As a general matter, a provider is best positioned if it holds complementary spectrum bands. Spectrum below 1 GHz is considered most suitable for establishing base network coverage, especially for wide area and in-building coverage. Higher frequencies often can best enable providers to increase capacity where needed, especially to provide higher data rates, and to fill in gaps in coverage. Spectrum from 1 GHz through 2.7 GHz is currently often used as capacity spectrum. Verizon Wireless and AT&T together hold approximately 90 percent of Cellular spectrum based on megahertz-POPs (MHz-POPs), which was the first band to be licensed for commercial mobile services and has the most extensive network buildout. In addition, Verizon Wireless holds 45 percent of the MHz-POPs of Cellular and 700 MHz spectrum combined, while AT&T holds approximately 39 percent. No licensee holds more than 25 percent of the combined MHz-POPs in the Broadband PCS (PCS) and Advanced Wireless Services (AWS) spectrum between 1 GHz and 2.5 GHz. T-Mobile holds the greatest amount of those bands. Clearwire, in which Sprint holds a majority interest, has access to the predominant amount of 2.5 GHz spectrum, comprised of the BRS and EBS bands.

Market Concentration

The Herfindahl-Hirschman Index (HHI) employed by the Commission to measure market concentration is the most widely-accepted measure of concentration in competition analysis. The HHI is calculated by summing the squared market shares of all firms in any given market. Antitrust authorities in the United States generally classify markets into three types: Unconcentrated (HHI < 1500), Moderately Concentrated (1500 < HHI < 2500), and Highly Concentrated (HHI > 2500).

In the mobile wireless services industry, the weighted average of HHIs (weighted by population across the 172 Economic Areas in the United States) was 2873 at the end of 2011, essentially unchanged from 2868 at the end of 2010, and an increase from 2811 at the end of 2009. At the end of 2011, the value of the HHI for individual Economic Areas (EAs) ranged from a low of 2008 in EA 108 (covering parts of Wisconsin) to a high of 7178 in EA 146 (covering parts of Montana).

Investment

CTIA reports that incremental capital investment by wireless operators rose to \$24.9 billion in 2010, a 22 percent increase from the \$20.4 billion spent in 2009, and then increased another 1.7 percent to \$25.3 billion in 2011. The increases in 2010 and 2011 follow a one percent increase in capital investment by mobile wireless service providers in 2009, which followed a trend of declining investment from 2006 through 2008. Estimates by the U.S. Census Bureau likewise show an 11 percent increase in total wireless industry capital expenditures to \$23 billion in 2010 following an 18 percent decline to \$20.7 billion in 2009. This pattern of a period of declining investment followed by a period of rising investment is consistent with the cyclical nature of technological adoption in the mobile wireless service industry, with the upswing in capital investment since 2009 likely reflecting the transition from third- to fourth-generation wireless network technologies.

Profitability Metrics

In the absence of the data necessary to estimate economic profits, there are various measures used by industry observers to estimate accounting profits in the wireless industry. One such metric, based on company data reported to the Securities and Exchange Commission, is EBITDA (Earnings before Interest, Taxes, Debt, and Amortization)—which equals accounting profits before deducting interest expenses, corporate income taxes, depreciation, and amortization. In 2011, EBITDA per subscriber ranged from a low of \$4.11 (Sprint Nextel) to a high of \$19.66 (Verizon Wireless). The EBITDA per subscriber of Sprint Nextel has declined significantly over the past several years. The EBITDA minus CAPEX per subscriber of AT&T and Verizon Wireless have decreased relative to 2009, but are above the levels of Sprint Nextel and T-Mobile.

A second indicator of mobile wireless segment profitability is EBITDA margin, which is EBITDA as a percentage of service revenue. Among the selected providers, the difference in 2011 between the provider with the highest EBITDA margin (Verizon Wireless) and the provider with the lowest (Sprint Nextel) was 32.7 percent. Verizon Wireless has remained above 40 percent since 2006. AT&T's EBITDA margin has decreased after 2009, dropping to 28.7 percent in 2011, while T-Mobile's EBITDA margin increased to 30.2 percent in 2011.

Intermodal Competition

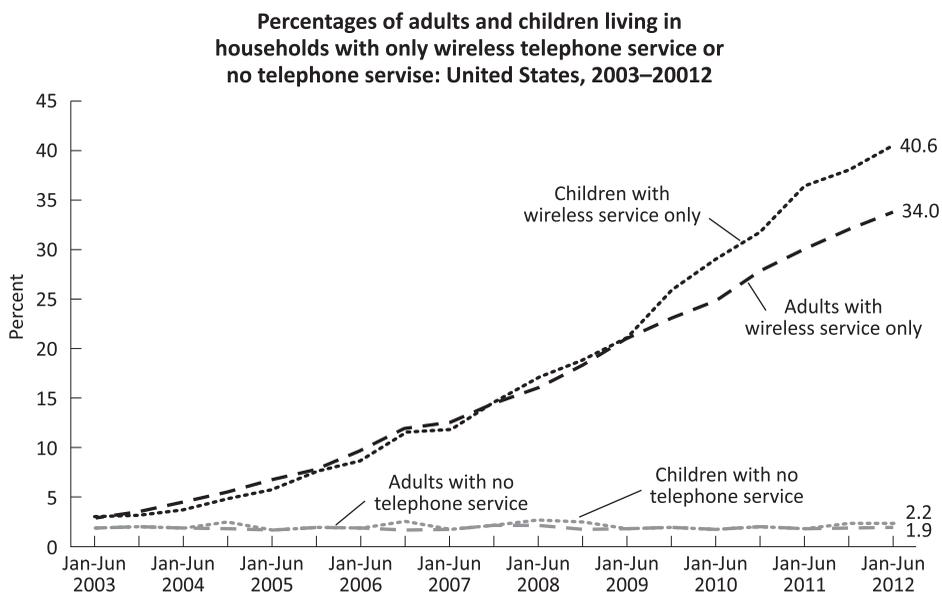
The number of adults who rely exclusively on mobile wireless for voice service has increased significantly in recent years. According to the National Health Interview Survey

(NHIS), approximately 32.3 percent of all adults in the U.S. lived in wireless-only households during the second half of 2011. This compares to 27.8 percent of all adults in the second half of 2010 and 22.9 percent in the second half of 2009. The percentage of households that are wireless-only has been steadily increasing as well. As of the second half of 2011, just over one-third, or approximately 34 percent, of all U.S. households were wireless only, up from 29.7 percent in the second of 2010 and 24.5 percent in the second half of 2009.

Approximately half of all adults aged 18–24 and aged 30–34 lived in wireless-only households, while nearly 60 percent of adults aged 25–29 did so. The percentage of adults living in households with only wireless telephones decreased as age increased beyond 35 years.

Mobile wireless connections represented approximately 62 percent of the 230.4 million data connections with speeds exceeding 200 kbps in the United States in December 2011. In addition, at the end of 2011, there were an estimated 184 million mobile devices in use capable of sending or receiving information at speeds exceeding 200 kbps in at least one direction, up from an estimated 152 million at the end of 2010.

The extent to which wireless broadband services can impose competitive discipline on wireline providers depends on many factors, including technologies, prices, consumer preferences, and the business strategies of providers that offer both wireless and wireline Internet access services. Mobile wireless Internet access service could provide an alternative to wireline service for consumers who are willing to trade speed for mobility, as well as consumers who are relatively indifferent with regard to the attributes, performance, and pricing of mobile and fixed platforms.



NOTE: Adults are aged 18 and over; children are under age 18.

DATA SOURCE: CDC/NCHS, National Health Interview Survey.

Urban-Rural Comparisons

Although mobile voice and mobile broadband network coverage in rural areas has improved since the *Fifteenth Report*, more than 400,000 people in rural areas still had no mobile wireless voice coverage as of October 2012, and 1.3 million lacked access to mobile broadband as of October 2012. In addition while 99.3 percent of the rural population is covered by at least one mobile voice provider, and 96.6 percent has coverage by at least two providers as of October 2012, there is a disparity in the percentage of rural and U.S. population covered by more than two mobile voice provider networks. This disparity is even more pronounced when considering mobile broadband provider networks: 97.7 percent of the total U.S. population in non-rural area is covered by three or more mobile broadband providers, compared to only 65.4 percent of the rural population.

International Comparisons

As in past years the Commission reviewed data from a variety of international markets to identify trends, and compare market structure and performance in the US with selected European and Asian countries with similar income levels. This comparison shows the following: First, market structure is converging to three or four national competitors per market in most countries. Second, the calling party pays system used in most other countries tends to result in lower average voice usage (MOUs) and higher revenue per minute of voice service than the receiving party pays system used in the United States. Third, international differences in regulatory policy and business environment have produced a wide variety of successful models for the mobile sector, with no one model dominating on all dimensions of market performance.

Notes and Questions

- 1. Useful?** The FCC's methodology, as it states, is to gather the best available data on the mobile wireless markets, but the FCC eschews offering conclusions as to whether the market is competitive. Is this an appropriate stance for the expert agency? Why do you think the FCC has adopted this methodology?
- 2. Intermodal.** Given the number of wireless data connections and the number of wireless-only households, is there any question that wireless ought to be included in overall market analysis of communications services? One limit to the FCC's statement of wireless-only households is the FCC's focus on voice, because a household with (for example) cable broadband and wireless phones counts as "wireless only." Recall that, in the National Broadband Plan report, the FCC said that wireless broadband was not fast enough to compete with wireline broadband and therefore did not consider it to be in the same market.
- 3. License Transfer Authority and Competition.** Although the FCC's Report does not draw conclusions concerning the state of competition in the market, the FCC has evaluated competitive effects when asked to approve license transfers in the mobile market. A particularly challenging transaction was resolved by the FCC in 2012. In this multiparty transaction, Verizon and Leap Wireless (the operator of Cricket Wireless) proposed to exchange spectrum licenses such that "Leap would hold an additional 12 megahertz of Lower 700 MHz spectrum in 13 Cellular Market Areas ('CMAs') in the Chicago [area] and Verizon Wireless would hold an additional 10–20 megahertz of PCS spectrum and 10–30 megahertz of AWS-1 spectrum in 202 CMAs." Applications of CellCo Partnership d/b/a/ Verizon Wireless and SpectrumCo LLC and Cox TMI, LLC for Consent to Assign AWS-1 Licenses, Memorandum Opinion and Order and Declaratory Ruling, 27 FCC Rcd.

10,698, 10,704 (2012). Additionally, several cable companies, which had purchased wireless broadband licenses in the AWS-1 auction but had been unable to bring service to market proposed to transfer those licenses to Verizon. These transfers would have given Verizon an additional 20–30 MHz of AWS-1 spectrum in 630 out of 734 CMAs nationwide. *Id.* Additionally, the cable companies and Verizon had entered into joint marketing agreements, where they would offer each other's services in areas in which Verizon had not yet deployed its FIOS product (in those markets, Verizon and the cable companies competed head-to-head).

The FCC ultimately allowed the transactions, subject to significant modifications and conditions. The FCC concluded that Verizon's total acquisition of spectrum would give it more than half of the AWS spectrum in approximately half of the country. As a result, the FCC thought that the transaction might raise the cost of entry for other providers seeking spectrum and could even give Verizon the incentive to hold the spectrum without using it. *Id.* at 10,726–28. As the transaction was reviewed, Verizon attempted to address the FCC's concerns by agreeing to divest significant spectrum to T-Mobile, and this became a condition of the merger. In addition, the FCC imposed build-out requirements on Verizon, conditioned the transaction on changes to the cross-marketing agreements designed to preserve Verizon's incentives to deploy FIOS to new markets, and required Verizon to enter into "commercially reasonable" data roaming agreements with other carriers. *Id.* The issue of data roaming has persisted for some time, with the FCC noting in the National Broadband Plan that carriers' inability to offer national data services reduced competition. The merger condition was designed to expand on (or at least preserve) the FCC's rules on data roaming, which were then being challenged. *See* Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers and Other Providers of Mobile Data Services, 26 FCC Rcd. 5411 (2011), *aff'd*, *CellCo Partnership v. FCC*, 700 F.3d 534 (D.C. Cir. 2012) (upholding the FCC's rules).

Insert on page 799 at the end of note 2:

A 2013 Supreme Court decision suggests that the FCC ought to receive deference. The D.C. Circuit's own case law had in fact said that the FCC did not receive *Chevron* deference on the question of its ancillary jurisdiction. "We note that the FCC's interpretation of the reach of its ancillary jurisdiction is owed no deference, since *Chevron* only applies in instances in which Congress has delegated an agency authority to regulate the area at issue." *Echostar Satellite LLC v. FCC*, 704 F.3d 992, 998 n.3 (2013); *accord* *Motion Picture Ass'n of America, Inc. v. FCC*, 309 F.3d 796, 801 (D.C. Cir. 2002).

In a 2013 opinion issued after the D.C. Circuit's *Echostar* opinion, the Supreme Court held that *Chevron* deference always applies, including when the ultimate question is "whether the agency has stayed within the bounds of its statutory authority." *City of Arlington v. FCC*, ___ S. Ct. ___, 2013 WL 2149789, at *5. The opinion was authored by Justice Scalia, who has always rejected the notion that agency decisions should receive lesser deference at the stage of deciding whether the agency had "jurisdiction" to act. We will not delve into the administrative law questions of whether this decision is correct (the principal issue is whether it is consistent with *United States v. Mead Corp.*, 553 U.S. 218 (2001), a decision in which Justice Scalia found himself in dissent, 8-to-1). *City of Arlington's* significance for our purposes is that by mandating *Chevron* deference for agencies' determinations of their own statutory authority, the opinion increases the chances of a court upholding any FCC exercise of ancillary jurisdiction, including the FCC's assertions of ancillary jurisdiction in its net neutrality regulations.

