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CHAPTER 1

POWER

p.30, add at the end of the dagger footnote (re *Chevron*):

The Supreme Court recently added that *Chevron* deference also applies to an agency's interpretation of a statutory ambiguity regarding its own jurisdiction. *See City of Arlington, TX v. FCC*, 133 S. Ct. 1863 (2013).

 CHAPTER 2

 ENTRY

p.102, replace first ¶ with:

The wireless terrain today. According to the most recent FCC figures, at the end of 2011, there were 298.3 million subscribers of mobile telephony services.^{*} This widespread penetration has encouraged households to drop wireline telephony: approximately 34% of all households had wireless telephony only.[†] As of August 2013, there were four mobile telephone operators with nationwide coverage: AT&T Inc.; Verizon Wireless, LLC[‡]; Sprint Nextel Corp.[§]; and T-Mobile US.^{**} (Smaller regional service providers include: US Cellular and Leap Wireless.^{††}) In terms of market share as measured by percentage of service revenues, in 2012 Q2, Verizon earned 34.3%, AT&T 32.3%, Sprint Nextel 15.8%, and T-Mobile 9.7%.^{‡‡} The FCC estimates that 93.2 % of the US population live in census blocks that offer 4 or more mobile telephony providers.^{§§}

^{*} See Sixteenth Report, *Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, Including Commercial Mobile Services*, 28 FCC Rcd. 3700, 3708 (2013).

[†] *Id.* at 3724.

[‡] Verizon Wireless is a joint venture, 55% owned by Verizon Communications, Inc. and 45% owned by Vodafone Group PLC.

[§] Sprint Nextel was created from the merger of Sprint Corp. and Nextel Communications, Inc. In July 2013, SoftBank (a Japanese corporation) acquired Sprint Nextel.

^{**} T-Mobile US is a wholly-owned subsidiary of Deutsche Telekom AG. In March 2011, AT&T announced its acquisition of T-Mobile, but ran into FCC skepticism, which led the parties to end the proposed transaction by December. T-Mobile then bought MetroPCS, which was one of the largest regional service providers. The merger completed in May 2013.

^{††} In 2013, AT&T announced its purchase of Leap Wireless, a smaller regional service provider.

^{‡‡} See 16th Report, Table 12.

^{§§} See *id.* at Table 7.

p.117, insert new Note between Notes 6 and 7 and renumber accordingly:

7. *Economic incentives.* According to the FCC, in 2013 dollars, collocation costs a carrier an average of \$25,000 to \$30,000. By contrast, building a new tower is approximately ten times more expensive.* Does this suggest that when a carrier insists on a new tower, it must have good reason?

pp.125-26, replace text starting with “AWS (Advanced Wireless Services)” up to “Notes & Questions”:

AWS-1 (Advanced Wireless Services). In the Commercial Spectrum Enhancement Act of 2005,[†] Congress transferred spectrum in the 1.7 GHz and 2.1 GHz regions from federal users (such as the Department of Defense) to commercial services. Ninety MHz of spectrum was auctioned off in 2006, and raised \$13.7 billion. Big winners included T-Mobile, Verizon, SpectrumCo (Sprint’s joint venture with various cable companies), and MetroPCS. The spectrum has subsequently been resold to various parties and is currently being used to provide 3G/4G services.*700 MHz band auction.* In March 2008, the FCC raised \$19.6 billion by auctioning off the 700 MHz band (698-806 MHz), which is “beachfront property” returned by television broadcast licensees after their conversion from analog to digital transmissions. (This band has excellent propagation characteristics compared to higher frequencies.) Winning bidders have used this spectrum to provide 4G services. Two aspects of this auction are noteworthy.

First, the FCC tried to create a private/public partnership to build out a national public safety network (“Block D”). A “private” commercial licensee would be entrusted to build out an adjacent “public” safety network operated by a single National Public Safety Broadband Licensee. What would be the incentive? Because the “private” licensee would be able to enjoy secondary access to all that public safety spectrum, as long as public safety communications were granted priority. No bidder met the reserve price of \$1.33 billion. Accordingly, the FCC went back to the drawing board on what to do with this

* See 16th Report, 28 FCC Rcd. 3700, ¶ 331.

[†] Pub L No 108-494, Title 2 (2004) (amending 47 USC § 923).

leftover spectrum and the need for a national public safety communications system.* In February 2012, Congress passed the Middle Class Tax Relief and Job Creation Act of 2012,[†] which created the First Responder Network Authority (FirstNet), an independent authority within the National Telecommunications & Information Administration, which operates within the Department of Commerce. The Act assigned the 700 MHz D Block to FirstNet in order to establish “a nationwide, interoperable public safety broadband network.”[‡]

Second, a 22 MHz band (“Block C”) was auctioned with certain “open access” requirements: licensees must allow customers to use any device or application of their choice (sometimes called “no locking, no blocking”). Google had prominently urged for greater openness, including a wholesale requirement, but the Commission declined to go that far. We will closely examine the policy significance of “open access” or “net neutrality” in CHAPTER 7: ACCESS, *infra*. What result? Verizon won the license, with the bid of \$9.63 billion.

More auctions to come. Everyone agrees that more spectrum is necessary in response to the explosion in mobile Internet devices, such as smart phones and tablets. (We will be formally introduced to the Internet, its technology, and regulation starting in CHAPTER 4: BAD CONTENT.) According to some estimates, mobile data traffic in North America will increase from 20 to 45 times between 2009 and 2014.[§] In its 2010 NATIONAL BROADBAND PLAN, the FCC called for a whopping 500 more MHz to be made available within the next decade.^{**} Since more spectrum can’t be manufactured, there are only a

* In the meantime, the FCC has granted conditional waivers to 21 public safety entities who sought to deploy networks on the public safety spectrum. In order to ensure interoperability, the FCC has mandated the 4G technology of LTE. See 3rd R&O & 4th NPRM, *In the Matter of Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band*, 26 FCC Rcd 733 (January 25, 2011).

[†] Middle Class Tax Relief and Job Creation Act of 2012, P.L. 112-96, § 6204.

[‡] Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, PS Docket No. 12-94, DA 12-1462, Report and Order (PSHSB, adopted September 7, 2012).

[§] See FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 76 Exhibit 5-A (2010).

^{**} *Id.* at 75.

few possible strategies. First, the federal government is moving spectrum that was previously allocated to the government into the commercial zone. That's what explains, for example, the spectrum that was freed up for the 2006 AWS auction, discussed above.

Second, the government is trying to persuade current licensees to relinquish voluntarily bandwidth that they don't really need. TV broadcasters in the UHF Band (600 MHz) are the prime target. The idea is to create *incentive auctions* in which their channels can be auctioned off to new mobile licensees in exchange for the broadcasters receiving a cut of the profits.^{*} Of course, it's technically possible for the FCC to reclaim unused spectrum through various legal procedures. However, given the political infeasibility of such a strategy, the government is hoping to get buy-in from the broadcasters through financial incentives.

In the Middle Class Tax Relief and Job Creation Act of 2012, Congress gave the FCC specific authority to conduct incentive auctions.[†] The FCC is currently engaged in a rulemaking to create the procedures by which that auction will be held, with the goal of conducting the auction sometime in 2014.[‡] These auctions raise complex and challenging questions because they will, for the first time, combine a *reverse auction* (to set the price at which broadcasters will voluntarily relinquish their licenses) and the traditional *forward auction* (to set the price at which mobile companies will buy licenses). Broadcasters who sell their licenses will have the option to go off the air entirely, share a channel with another broadcaster (since 6 MHz is plenty of bandwidth to broadcast multiple channels), or move from the VHF spectrum down to the UHF spectrum band. Finally, broadcasters can simply choose to opt out and not participate in the incentive auction at all, which means that the spectrum freed up

^{*} See *id.* at 81-82.

[†] See 47 U.S.C. § 309(j)(8)(G).

[‡] See NPRM, *Expanding the Economic and Innovations Opportunities of Spectrum through Incentive Auctions*, 27 FCC Rcd. 12357 (2013).

will not be geographically uniform given different numbers of holdouts in different territories.*

p.139, replace Note 4a with:

4. *Commons.*

a. *Current assignment practices.* As the Report suggests, leaving spectrum in some form of commons is not entirely new. In the first part of this chapter, we focused on licenses assigned individually to a unique party—the case of the broadcaster or mobile telephony operator. But certain frequency bands have historically been licensed more lightly. For example, under Part 97 of the FCC’s rules, amateur radio operators do need an individual license but they can receive one simply by passing an examination.† Under Part 95, other services, such as CB (citizens band) radio are “licensed by rule” to an entire class, for collective use.‡ This sort of licensing is specifically authorized in 47 U.S.C. § 307(e).

47 U.S.C. § 307(e) Operation of certain radio stations without individual licenses

(1) Notwithstanding any license requirement established in this chapter, 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) the citizens band radio service . . .

(3) For purposes of this subsection, the terms “citizens band radio service”, “radio control service” . . . shall have the meanings given them by the Commission by rule.

* See generally FCC Staff Summary, *The Broadcast Television Spectrum Incentive Auction: Innovation in Policy to Ignite Innovation for Consumers and Business*, available at <http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-318455A1.pdf>.

† See generally 47 C.F.R. Part 97 (“Amateur Radio Services”); § 97.17 (“Application for new license grant”).

‡ See 47 C.F.R. Part 95 (“Personal Radio Service”); § 95.404 (“You do not need an individual license to operate a CB station. You are authorized by this rule to operate your CB station in accordance with the rules in this subpart.”).

Finally, some uses of spectrum do not require a license at all. Consider, for example, the ubiquitous 802.11 “Wi-Fi” networks, as well as cordless phones, garage door openers, and remote controls. Instead of obtaining a license, the individual devices need only comply with 47 C.F.R. Part 15, which allows use of particular frequencies at low power so as to minimize interference.

pp.140-43, replace Note 6 with:

6. *Toward private property.* Since the 2002 Report, the FCC has pursued various elements of both the exclusive use and commons model. If it’s really my property, I should be able to lend it to someone if I’m not using it. For instance, if I have a guest house that’s not being used, shouldn’t I be able to rent it out and make some money? One could ask the same question about underused spectrum. Historically, the FCC has been wary of such leases, and demanded separate approval for any such transfers of spectrum.* However, since 2003, the FCC has sought to develop *secondary markets*, in which original licensees can more easily lease out spectrum as long as they continue to exercise some control.†

7. *Towards Commons.*

a. *Smarter spectrum devices and use.* Soon after the Spectrum Policy Task Force Report, the Commission pursued various proceedings on interference temperature,‡ cognitive radio,§ and ultrawideband (which the Spectrum Report referenced repeatedly as part of a potential *underlay* for current

* See 47 U.S.C. § 310(d).

† The FCC announced a policy in favor of secondary markets back in 2000. See *Principles for Promoting Efficient Use of Spectrum By Encouraging the Development of Secondary Markets, Policy Statement, 15 FCC Rcd 24178 (2000) (Secondary Markets Policy Statement)*. The first two important Report & Orders were issued in 2003 and 2008. See *In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, 2nd R&O, 19 FCC Rcd 17503 (2008)*.

‡ See *In the matter of Establishment of an Interference Temperature Metric to Quantify and Manage Interference, 18 FCC Rcd 25309 (2003)*.

§ See *In the Matter of Facilitating Opportunities for Flexible, Efficient, and Reliable Spectrum Use Employing Cognitive Radio Technologies, R&O, 20 FCC Rcd 5486 (2005)*.

spectrum assignments).^{*} But then the FCC started to get cold feet about “thinking smart.” For example, in 2007, the FCC terminated its interference temperature proceeding, without prejudice on the substantive merits.[†] The reason? The Commission suggested that commenters generally thought the proposal unworkable and that the technical record had grown stale.

b. *More “lightly licensed” spectrum: Part 90 Subpart Z.* In 2005, the FCC authorized nationwide, non-exclusive licensing of terrestrial transmitters in the 3650-3700 band, which should especially benefit wireless ISPs (WISPs) serving rural areas.[‡] (Think of this as Wi-Fi with extreme power and range.) This is not the same as unlicensed. Rather, it is a non-exclusive license, which requires licensees to register and to use “smart” devices that minimize interference using “contention-based protocol,” and has reasonable power and emission limits. The FCC codified these regulations under Part 90 (“Private Land Mobile Radio Services”), new subpart Z (“3650 MHz Wireless Broadband Services”).

c. *More “licensed by rule” spectrum: Part 95.* In December 2012, the FCC proposed creating a new Citizens Broadband Service in the 3550-3650 MHz band, which is currently used for military and satellite services. The goal would be to use small cells (low-powered wireless base stations) and spectrum sharing to allow three coordinated tiers of users: “incumbent access,” which is afforded full interference protection; “protected access,” which privileges hospitals, government facilities, and public safety entities; and “general authorized access,” which provides general usage constrained by the requirement of checking a dynamically updated database for possible interference. This service would be licensed by rule under Part 95, similar to CB radio.

^{*} See 1st R&O, *Revision of Part 15 of the Commission’s Rules Regarding Ultra-Wideband Transmission Systems*, 17 FCC Rcd 7435 (2002) (permitting marketing and operation of certain UWB devices).

[†] See *In the Matter of Establishment of an Interference Temperature Metric to Quantify and Manage Interference and to Expand Available Unlicensed Operation in Certain Fixed, Mobile and Satellite Frequency Bands*, 22 FCC Rcd 8938 (2007).

[‡] *In the Matter of Wireless Operations in the 3650-3700 MHz Band*, 20 FCC Rcd 6502 (2005). See generally 47 CFR Part 90, Subpart Z (Wireless Broadband Services in the 3650-3700 MHz Band). See also § 90.1319(a) (“shared basis only and will not be assigned for the exclusive use of any licensee”); (b) (“must employ a contention-based protocol”).

d. *More unlicensed spectrum: Part 15, u-NII.* In 2003, the FCC opened up 255 MHz of spectrum for unlicensed-National Information Infrastructure devices (u-NII).^{*} The most prominent u-NII devices[†] are wireless network devices (Wi-Fi products) that meet 802.11(a) industry standards. (This is why newer Wi-Fi routers operate in both the 5 GHz band as well as the traditional 2.4 GHz band). These devices must satisfy the Commission's Part 15 rules, chief among them a requirement of low power transmission. In 2013, the FCC announced plans to release up to 195 MHz more spectrum in the 5 GHz band on the same unlicensed basis.[‡]

e. *More unlicensed spectrum: Part 15, White spaces.* When broadcast television was originally rolled out, the FCC sought to minimize interference. It did so crudely, by leaving vacant the channels on either side of a broadcast licensee. It also made sure that nearby cities had nonoverlapping channels. This means that a huge amount of spectrum is (intentionally) not used. However, as explained above, the technologies to avoid interference have gotten much better. On this basis, the FCC in 2008 authorized unlicensed TV band devices (TVBDs) to operate in *white spaces*, broadcast TV bands that are not being used by licensees.[§] Of course, the biggest concern is interference with existing television broadcast stations (as well as wireless microphones). The National Association of Broadcasters filed a petition for review with the D.C. Circuit Court of Appeals in 2009, which stayed proceedings until the Com-

^{*} See, e.g., *In the matter of Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz band*, 18 FCC Rcd 24484 (2003) (opening up 255MHz of spectrum for u-NII devices, which will assist the growth of wireless ISPs (WISPs))

[†] U-NII devices are defined as "intentional radiators operating in the frequency bands 5.15-5.35 GHz and 5.725-5.825 GHz that use wideband digital modulation techniques and provide a wide array of high data rate mobile and fixed communications for individuals, businesses, and institutions." 47 C.F.R. § 15.403(s).

[‡] See NPRM, *Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, 28 FCC Rcd. 1769 (2013).

[§] See *In the Matter of Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices, Below 900 MHz and in the 3 GHz, 2nd R&O and MO&O*, 23 FCC Rcd 16807 (2008) (allowing both fixed and portable devices to operate in white spaces on an unlicensed basis under particular circumstances that avoid interference).

mission ruled on various petitions for reconsideration filed directly with the agency. In 2010, the FCC released a 2nd Memorandum Opinion & Order, which upheld the prior 2008 decision but made various minor tweaks in the regulations.* In order to avoid interference, TVBDs must check a dynamically updated database, and in June 2013, one of those databases, maintained by Google, was approved for use.†

8. *Hybrid: private commons.* In its 2nd Report & Order in the *Secondary Market* proceeding,‡ the FCC green-lighted a secondary market arrangement called “private commons.” Licensees with exclusive use licenses could open up their unused spectrum under this model, which would permit only “peer-to-peer communications between devices in a non-hierarchical network arrangement that does not utilize the network infrastructure of the licensee (or spectrum lessee).”§ The basic idea is that the licensee could set the technical parameters for devices to be used. Just as the FCC has adopted Part 15 rules for unlicensed devices to operate at various spectrum bands (consider cordless phones and 802.11 networks), a private party with excess spectrum could adopt private rules for devices to operate freely within its excess spectrum bands. The FCC held out the possibility that private commons could be an antidote to the tragedy of the commons since private commons could be “less susceptible to overcrowding.”**

* See *In the Matter of Unlicensed Operation in the TV Bands*, 2nd MO&O, 25 FCC Rcd. 18661 (2010).

† See *Office of Engineering and Technology Announces the Approval of Google, Inc.’s TV Bands Database System for Operation*, Public Notice, 28 FCC Rcd. ET Docket No. 04-186, DA 13-1472 (June 28, 2013).

‡ See *In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, 19 FCC Rcd 17503 (2004).

§ *Id.* at ¶ 91.

** *Id.* at ¶ 99.

CHAPTER 3**PRICING**

p.167, replace Note 8b with:

b. *Interstate access charges.* The FCC continues to regulate the *interstate* component of access charges that LECs charge to IXCs for originating and terminating calls. This is done mostly under a price-cap method although smaller, often rural LECs have stayed under rate-of-return regulation. We will learn far more about access charges in our study of universal service later in this chapter. In the meantime, you should know that although interstate access charges are still regulated, there's been some deregulation. The basic rationale, as always, is that increased competition makes pricing regulation unnecessary. One of the principal goals of the 1996 Telecommunications Act was to increase competition in the local exchange—in other words, to have consumers have choices among multiple LECs and not just the incumbent LEC. Due to some increased competition, the FCC adopted the *Pricing Flexibility Order** in 1999, which gave LECs some immediate flexibility in pricing and set competition triggers that would further relax pricing regulations.

c. *Special access.* Recall the promise at the beginning of this chapter: understanding telephony would help you understand the Internet. Although our formal study of the Internet starts in the next chapter, we should flag here one important policy issue regarding “special access.” The sort of interstate access charges that we've been discussing above is known more specifically as “switched access,” which uses the LEC's *switch* to connect to the IXC's POP. There is, however, another type of access called “special access,” which does not use any local switches and instead connects end-users *directly*

* Fifth Report and Order and Further Notice of Proposed Rulemaking, *In re Access Charge Reform*, 14 FCC Rcd. 14221 (1999).

to their IXC's POP using dedicated high-bandwidth circuits.^{*} It turns out that to provide broadband Internet services to large businesses, universities, hospitals, and to mobile users, Internet service providers require these "special access" lines as a necessary input. The annual spending for special access lines runs anywhere from \$12 to \$18 billion dollars.

The *Pricing Flexibility Order* partly deregulated pricing for both switched and special access. Not surprisingly, the sellers of special access (big, incumbent LECs, such as Verizon and AT&T) have been trying to gain pricing flexibility per the triggers established in the Order. By contrast, buyers of special access, such as Sprint and T-Mobile (who need special access lines for their backhaul from cell towers), have complained to the FCC that they are being fleeced. In August 2012, the FCC suspended its automatic grants of pricing flexibility for special access services and launched a massive data collection effort[†] to gauge better the degree of competition that truly exists.

p.191, insert before "2. Challenging Subsidies":

Significant changes in 2011: Connect American Fund. In late 2011, the FCC adopted a significant Order that restructured both universal service and intercarrier compensation.[‡] (Inter-carrier compensation is the fee that one carrier pays to another when it hands off traffic. Interstate access charges, which we studied above, is just one example of intercarrier compensation. We will explore the details of this Order at the end of the chapter, but for now, you should know that it created a new Connect America Fund (which replaced the High Cost fund), and added broadband Internet access and mobile voice and data to the list of communications services that Americans should be able to access universally.

^{*} See 47 C.F.R. Part 69.

[†] See *In the Matter of Special Access for Price Cap Local Exch. Carriers*, 27 FCC Rcd. 10557 (2012).

[‡] See R&O and FNPRM, *In the Matter of Connect Am. Fund*, 26 FCC Rcd. 17663 (2011).

pp.197 (starting with Note 6) – 201 (before end of chapter), replace all text with:

6. *The real impact.* According to the FCC, writing a decade later, the real impact of the *CALLS Order* was to catalyze innovative pricing amongst mobile telephony providers:

As a result of the *CALLS Order*, retail toll charges fell sharply, bringing average customer expenditures per minute of interstate toll calling down 18 percent during the year 2000. However, rather than merely reducing per-minute rates, wireless carriers started offering a new form of pricing, a fixed fee for a “bucket” of minutes, and ended distance-based pricing. As a result of these price declines, the gains in consumer surplus for wireless users in the United States from the *CALLS Order* were estimated to be about \$115 billion per year.*

7. *Things in flux: The National Broadband Plan of 2010.* As part of the American Recovery and Reinvestment Act of February 2009, Congress instructed the FCC to submit a national broadband plan to ensure access to broadband capability by all Americans at affordable prices.[†] In March 2010, after dozens of workshops and field hearings, the FCC satisfied that request by delivering CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN (“BROADBAND PLAN”).[‡] The FCC’s goal is to have each household and business have access to actual download speeds of 4Mbps and actual upload speeds of 1 Mbps by 2020. In order to do that, the FCC explicitly recognized the need to work through complex universal service and intercarrier compensation issues.

* See R&O and FNPRM, *In the Matter of Connect Am. Fund*, 26 FCC Rcd. 17663, at ¶ 751 (2011).

[†] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 6001(k), 123 Stat. 115, 515-16 (2009) (ARRA).

[‡] FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN 135 (2010).

NOTE: CONNECT AMERICA FUND

According to the FCC's BROADBAND PLAN, 24 million Americans (one in thirteen) live in areas with no access to broadband Internet of any sort. A natural governmental response would be to target universal service funds toward the rollout of broadband in those areas. Unfortunately, the USF that was created after the 1996 Telecommunications Act was limited to voice telephone service.

In the BROADBAND PLAN, the FCC changed course and recommended replacing the current high-cost program component of the USF (targeted to rural and high-cost areas) and the implicit subsidies still embedded in interstate access charges (as well as other forms of intercarrier compensation) with a new Connect America Fund (CAF) that would help address the broadband availability gap. In November 2011, the FCC released a significant Order that did just that.*

First, the FCC adopted a new universal service principle, which adoption is specifically authorized under 47 U.S.C. § 254(b)(7): support for modern, broadband-capable networks.

Second, it created a new Connect America Fund (CAF) to replace the High Cost Fund. The goals of CAF include not only universal service of voice telephony but also universal availability of modern networks that can provide broadband Internet service as well as advanced mobile services (both voice and data). It's worth highlighting that the FCC is paying explicit attention to mobile services. Indeed, the Commission created a targeted CAF 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."[†] Finally, the FCC adopted a goal of keeping prices reasonably comparable in all regions of the nation.

Third, the FCC adopted a specific budget for CAF, with annual funding capped at \$4.5 billion over the next six years. In the past, there had been

* See *In the Matter of Connect Am. Fund*, 26 FCC Rcd. 17663 (2011).

[†] *Id.* at ¶ 28.

many complaints and anxieties about fraud and waste within various components of the USF, and the FCC made clear its desire to increase financial accountability.

Fourth, eligible telecommunications carriers (ETCs) who receive USF monies must not only provide voice telephony services but also broadband services to their customers.

Fifth, the FCC adopted various phase-in timetables depending on whether the territory is served by LECs rate regulated under “price caps” (large carriers) or “rate-of-return” (smaller carriers, operating in more difficult and expensive areas to serve). The phase-in details are beyond the scope of the text.

Since the 2011 Order, various orders and Further NPRMs have been issued. No doubt the details will take a lot of time and litigation to work through. The bigger picture to keep in mind, however, is the FCC’s decision to add broadband Internet as well as mobile voice and data to the list of services deemed worthy of universal service. Of course, universal service cannot be rationalized without addressing the intertwined issue of intercarrier compensation.

NOTE: INTERCARRIER COMPENSATION

Recall our careful study of interstate access charges. Well, these access charges are just a subset of the more general problem of intercarrier compensation. Back when AT&T was effectively a monopoly, things were so much simpler. Now, the modern “telephone” environment comprises heterogeneous networks owned by different firms. Therefore, completing a simple phone call often requires networks to hand off traffic to other networks. When those bits of information exchange, are pennies exchanged as well? And if so, who or what sets the prices?

LEC \leftrightarrow *IXC*: *Access Charges*. We have already learned that LECs provide exchange access to interexchange carriers (IXCs) to originate and terminate calls. For such services, IXCs have to pay LECs *access charges*. As we have already discussed, the FCC has regulated the rates of interstate access charges.

You might assume that the FCC treats incumbent LECs (ILECs) differently from competitive LECs (CLECs): after all, CLECs are newer entrants in the local telephone business, and they lack the historical market dominance of the incumbent. But this misunderstands the nature of the power wielded by all LECs, whether they be incumbents or new entrants. Even CLECs enjoy a terminating access monopoly for all its subscribers. Put another way, suppose that a long-distance caller wants to contact someone who subscribes to a CLEC with tiny market share. Regardless of how small the CLEC's market share, the caller's IXC must still pay access charges to that terminating CLEC—there's no way to avoid this party if the call is to be completed. In the 1990s, some CLECs tariffed exorbitant fees for terminating long distance calls and insisted that IXCs pay the filed rates. The FCC adjudicated some of these rates as unjust and unreasonable under 47 U.S.C. § 201.^{*} To avoid similar ploys, in 2001, the FCC adopted a general rule that capped CLEC interstate access charges to the price charged by ILECs.[†]

Finally, don't forget the federalism wrinkles. Although the FCC sets interstate access charges, the state PUCs have historically set *intrastate* access charges. Since 1996, the FCC has tried aggressively to push down interstate access charges to their actual cost. By comparison, states generally have been much slower to follow suit. That's why interstate access charges tend to be lower than intrastate access charges.

LEC ←→ LEC: Reciprocal Compensation. Now suppose you live in a downtown loft and are calling a nearby office building. Your wireline telephone provider is Verizon, but the office building is serviced by a competitive LEC (CLEC) called TelePacific. In order to complete the call, somehow the signal must traverse Verizon's network onto TelePacific. Are there access charges here too?

Although this handoff between LECs seems technologically and conceptually similar to the IXC-LEC handoff inherent in long distance, the access charge regime does not apply. Instead, in the parlance of the 1996 Telecom-

^{*} See, e.g., *In the Matters of AT&T Corp., Complainant, v. Business Telecom, Inc.*, MO&O, 16 FCC Rcd 12312 (2001) (holding that BTI's rate of 7.18 cents per minute violated § 201(b)).

[†] See 47 CFR § 61.26(b).

munications Act, it's called "reciprocal compensation." Section 251(b)(5) specifically requires all LECs to establish "reciprocal compensation arrangements for the transport and termination of telecommunications." The rates that LECs might charge each other is governed by private negotiated agreement between the carriers or set by state PUCs, which must regulate in a manner consistent with the FCC's pricing methodology. In magnitude, these reciprocal compensation payments tend to be lower than either intra- or interstate access charges.

At this point, you can already see the potential arbitrariness of intercarrier compensation. Access charges arose from the break-up of AT&T, and are different depending on whether they are intra- or interstate. By contrast, reciprocal compensation agreements arose from the Telecommunications Act of 1996, as it tried to induce competition in the local loop. Things get even crazier if we add cell phones (CMRS)* and the Internet. As the FCC recently put it:

As a result of this long history, today, there are two primary types of intercarrier compensation regulation: (1) access charges; and (2) reciprocal compensation. However, the rates that apply to traffic under these systems continue to depend on a number of factors including: (1) where the call begins and ends (interstate, intrastate, or "local"); (2) what types of carriers are involved (incumbent LECs, competitive LECs, interexchange carriers (IXCs), wireless); and (3) the type of traffic (wireline voice, wireless voice, ISP-bound, data). The resulting

* Roughly speaking, CMRS providers cannot demand "access charges" from IXCs who terminate long distance calls to cell phones. They're, of course, free to negotiate private agreements if they can do so. See *In the Matter of Petitions of Sprint PCS and AT&T Corp., For Declaratory Ruling Regarding CMRS Access Charges*, 17 FCC Rcd 13192, ¶¶ 8-9 (2002). If a CMRS terminates "local" traffic from a nearby LEC (or vice versa) in the same Metropolitan Trading Area (MTA), then the reciprocal compensation regime applies. Any such compensation, if there is any, must involve the sending network paying the receiving network for terminating calls. See 47 C.F.R. § 20.11(a)(b) (principle of "mutual compensation"). Don't fret over the details since the FCC is in the process of revamping all these rules.

patchwork of rates and regulations is inefficient, wasteful and slowing the evolution to IP [Internet Protocol] networks.*

Gaming the system. This crazy patchwork has led to gaming and arbitrage. Consider for example “access stimulation” where the goal is to drive calls to a terminating LEC that can charge high interstate access charges. Various “free” services such as “free telephone conference” numbers and adult chat lines are free to end-users like you and me because they’re making a killing from our IXCs who have to pay per minute access charges. As the FCC explains:

[A]ccess stimulation [involves] arrangements in which carriers, often competitive carriers, profit from revenue-sharing agreements by operating in an area where the incumbent carrier has a relatively high per-minute interstate access rate. Under our existing rules, the competitive carrier benchmarks its rate to that of the incumbent rural carrier, but the revenue-sharing arrangement results in a volume of traffic that is more consistent with a larger carrier. A competitive carrier could, for example, generate millions of dollars in revenues each month from other carriers simply by entering into a revenue sharing arrangement with a company that operates a chat line.†

Or consider “phantom traffic,” which is a call whose true origin is unknown or disguised in order to avoid various intercarrier connection charges. For example, if intrastate access charges (historically set by the state PUC) are higher than interstate access charges (set by the FCC), an IXC will have the incentive to make an intrastate long distance call appear as an interstate long distance call. In FCC filings, various parties have complained that phantom traffic is a substantial problem, with estimates suggesting that anywhere from 3 to 20% of all traffic is “phantom.”‡

Intercarrier Compensation Reform 2011. You should now have a sense of why intercarrier compensation has to be comprehensively overhauled. In the

* *In the Matter of Connect America Fund*, NPRM & Further NPRM, 26 FCC Rcd 4554, 4707 ¶ 502 (2011).

† *Id.* at ¶ 36.

‡ 26 FCC Rcd. at ¶ 703.

same Order that restructured universal service and created the Connect American Fund, the FCC adopted just such an overhaul and embraced a unified intercarrier compensation regime. The FCC took immediate steps to end access stimulation (by creating clear conditions for what counts as stimulation, e.g., a revenue sharing agreement, or a 3-to-1 interstate terminating-to-originating traffic ratio within a calendar month)^{*} and phantom traffic (by modifying call signaling rules to require the calling party number).

Next, it adopted a uniform “bill-and-keep” framework for all telecommunications traffic exchanged with a LEC, including access charges paid by IXC’s and reciprocal compensation payments paid by other LEC’s or CMRS providers. “Bill-and-keep” means that a carrier does not charge another carrier for sending or receiving traffic. Instead, a carrier recovers costs solely by billing its own subscriber. This approach differs substantially from the more traditional calling-party-network-pays model.

To charge subscribers (instead of other carriers), the Commission authorized LEC’s to initiate a new limited monthly charge, called the Access Recovery Charge (ARC) on wireline telephony service, with various caps to protect consumers. If subscriber revenue isn’t enough, the LEC can then look to the Universal Service Fund as well as state universal service funds for further subsidies. Given the enormous change, the FCC has planned the transition in multiple steps, over a six to nine year glide path, depending on the circumstances. In justifying this framework, the FCC repeatedly pointed out that a bill-and-keep framework would ease the transition to more modern phone networks based on Internet Protocol (the language of the Internet), promote competitive discipline (since the subscriber has a direct contractual relationship with the carrier), decrease arbitrage opportunities, and promote administrative simplicity.

The FCC located its legal authority to adopt the bill-and-keep framework in various statutory provisions, including 47 U.S.C. §§ 251(b)(5). Recall that § 251(b)(5) required LEC’s to establish reciprocal compensation agreements. Although the FCC in the past had interpreted this provision to cover only

^{*} *Id.* at ¶ 667.

LEC-to-LEC transfers within the same local area, the FCC has since then interpreted the section more broadly, to include exchanges of all telecommunications traffic, including LEC-IXC handoffs. Importantly, under the FCC's interpretation, this includes not only interstate but also intrastate exchanges of telecommunications. This is why the FCC felt comfortable adopting the unified framework of bill-and-keep not only for interstate access charges, which the FCC has always controlled, *but also intrastate access charges, which has historically been set by state PUCs.*^{*} This ambitious attempt to reform intercarrier compensation will spawn extensive litigation in the coming years.

^{*} Another source of power claimed by the FCC was 47 U.S.C. § 332, which governs mobile telephony. *See id.* at ¶ 779.

CHAPTER 4**BAD CONTENT**

p.237, insert at the end of Note 7:

The Supreme Court granted cert. again, but managed to avoid the direct First Amendment issue. Instead, in *FCC v. Fox, Inc. (Fox II)*,* the Court decided the case on Fifth Amendment vagueness grounds. The Court first explained the void-for-vagueness doctrine:

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. *Grayned v. City of Rockford* (1972). When speech is involved, rigorous adherence to those requirements is necessary to ensure that ambiguity does not chill protected speech.[†]

Applying this standard to the facts, the Court concluded that the broadcasters were not granted “fair notice . . . that fleeting expletives and momentary nudity could be found actionably indecent.”[‡] The majority opinion, authored by Justice Kennedy, made explicit that it was not addressing the First Amendment argument or reconsidering *Pacifica*. Justice Ginsburg, who concurred in the judgment, specifically stated that *Pacifica* was wrongly decided. Justice Sotomayor did not participate in the deliberations.

* 132 S.Ct. 2307 (2012).

[†] *Id.* at 2317.

[‡] *Id.* at 2320.

 CHAPTER 5

GOOD CONTENT

p.434, insert before section starting “b. Direct Broadcast Satellite...”:

Our focus on the *Turner* case and the historical context that produced “must carry” regulation might lead you to believe that broadcasters are still trying to force themselves onto unwilling cable operators. Actually, the tables have now turned, and broadcasters are instead demanding payment for “retransmission consent.”* As explained above, every three years, broadcasters can insist on retransmission consent from cable operators as well as MVPDs instead of must-carry:

47 U.S.C. § 325. False, fraudulent, or unauthorized transmissions

(a). False distress signals; rebroadcasting programs

No person within the jurisdiction of the United States shall knowingly utter or transmit, or cause to be uttered or transmitted, any false or fraudulent signal of distress, or communication relating thereto, nor shall any broadcasting station rebroadcast the program or any part thereof of another broadcasting station without the express authority of the originating station.

(b) Consent to retransmission of broadcasting station signals

(1) No cable system or other multichannel video programming distributor shall retransmit the signal of a broadcasting station, or any part thereof, except

(A) with the express authority of the originating station;

In the past, a cable operator often acquired retransmission consent rights in exchange for in-kind benefits, such as carriage of other channels affiliated

* 47 U.S.C. § 325(b)(1)(A). The FCC recently fined a cable operator, TV Max, Inc., \$2.25 million for retransmitting the signals of six television broadcast stations without retransmission consent. *See* Press Release, FCC, FCC Proposes \$2.25 Million Forfeiture Against TV Max, Inc. For Retransmission Consent Violations (June 25, 2013), <http://www.fcc.gov/document/fcc-proposes-225-million-forfeiture-against-tv-max-inc>.

with the broadcaster on the cable system or advertising time. However, broadcasters are now insisting on direct financial payments. Bickering between the local cable operator and local broadcast station over the financial terms of retransmission consent have produced customer confusion and ire. In 2011, the FCC launched an NPRM^{*} to try to provide more guidance on “good faith” negotiation, which the law requires.[†] In the same NPRM, the FCC suggested eliminating the network non-duplication and syndicated exclusivity rules because of concerns that they might give too much power to the local broadcast affiliate.

^{*} NPRM, *In the Matter of Amendment of the Commission’s Rules Related to Retransmission Consent*, 26 FCC Rcd. 2718 (2011).

[†] See 47 U.S.C. § 325(b)(3)(C); 47 CFR §76.65. The retransmission consent requirement and good faith negotiations requirement apply not only to cable operators but to all MVPDs.

CHAPTER 7**ACCESS**

p.558, insert at bottom of page:

Program Access. The above rules concerned “program carriage,” which try to make sure that cable operators do not strong-arm or otherwise mistreat unaffiliated programming networks. The goal is to make sure that independent networks can get *carried* on the cable operator without giving up too much. There is, however, another set of rules called “program access,” which is designed to protect competing MVPDs from being shut out of content that the cable operator has some ownership stake in.^{*} In other words, the goal is to ensure that competitor MVPDs are able to *access* programming that is somehow owned by a cable operator. One of these program access rules prohibited “^{exclusive} contracts” (in areas served by the cable operator) between the cable operator and satellite-delivered programming vendors[†] that the cable operator has an ownership interest in.[‡] The goal here was to ensure that content from these vendors could be purchased by other MVPDs who are competing with the cable operator in the same geographical market. Recently, the FCC allowed this categorical ban to expire because it was deemed no longer necessary in the public interest. The Commission agreed to hear complaints instead on a case-by-case basis.[§]

^{*} See 47 U.S.C. § 538; 47 C.F.R. § 76.1002.

[†] The statute only applied to programming transmitted or retransmitted by satellite for reception by cable operators. Back in 1992, this was nearly the exclusive way that cable operators received their programming.

[‡] 47 U.S.C. § 548(c)(2)(D); 47 C.F.R. § 76.1002(c)(2).

[§] See R&O, *In the matter of Revision of the Commission’s Program Access rules*, 27 FCC Rcd. 12605 (2012).

p.599, insert after Note 9:

10. *Mobile telephony?* The discussion above focused on wireline telephony, but a conceptually similar question could be asked of mobile telephony. Given that CMRS providers compete against each other in terms of network coverage, should a competitor have any right to have its customers “access” or “roam” on another mobile provider’s network? In 2007, the FCC determined that as common carriers, governed by 47 U.S.C. §§ 201 and 202 of Title II, CMRS providers had an obligation to allow automatic roaming for *voice* services upon reasonable request, on a just, reasonable, and non-discriminatory basis.* In 2011, the FCC added that facilities-based CMRS providers must also offer *data* roaming arrangements to other providers on commercially reasonable terms.† AT&T and Verizon, the two largest providers, opposed this requirement. All other providers supported it, with many of them complaining that the major nationwide providers had refused to negotiate 3G roaming agreements in good faith. The FCC adopted the data roaming regulation under its Title III authority.‡

* See R&O and NPRM, *Reexamination of Roaming Obligations of Commercial Mobile Radio Service Providers*, 22 FCC Rcd 15817, 15818 ¶ 1 (2007).

† 2nd R&O, *Reexamination of Roaming Obligations of Commercial Mobile Radio Serv. Providers & Other Providers of Mobile Data Servs.*, 26 FCC Rcd. 5411, 5418 ¶ 13 (2011).

‡ See *id.* at ¶ 62.

CHAPTER 8**CLASSIFICATION**

p.691, insert after Note 5:

6. *The 700 MHz C Block.* AT&T tried to make a big deal about the C Block licenses, which had attached to them some “openness” requirements. It was arguing that by negative implication, all other licenses lacked these requirements. AT&T also argued that because of the strings attached, Verizon was permitted to win the auction at a cheaper price. Well, recently, Verizon ended up paying a little bit more. Verizon uses the C Block to provide 4G LTE services that provide mobile data. It tried to suppress Internet “tethering” apps, which allows the phone’s Internet access to be used by a linked laptop. But the C Block rules specifically require customers to be able to use whatever devices and apps they choose. For violating the openness requirements, Verizon was fined \$1.25 million.*

p.709, add after last sentence of Note 8 (and replace existing Note 9):

. . . Also, some states are legislating on this front. California recently enacted a law that prohibits its PUC from regulating VoIP until Jan. 2020.†

9. *Domesticating VoIP?* We may not know definitively what VoIP is. That said, the FCC has incrementally applied certain obligations associated with common carriers. To summarize:

- May 2005: 911 emergency calling requirements (issued under Title I and § 251(e));*

* Press Release, FCC, *Verizon Wireless To Pay \$1.25 Million To Settle Investigation* (July 31, 2012) (available at <http://www.fcc.gov/document/verizon-wireless-pay-125-million-settle-investigation>).

† See Act of September 28, 2012, ch. 733, 2012 Cal. Legis. Serv. 6011 (West) (codified at Cal. Pub. Util. § 239).

- June 2006: USF contributions (issued under Title I and § 254(d));[†]
- March 2007: Customer Proprietary Network Information (privacy) obligations (issued under Title I);[‡]
- June 2007: disability access requirements under 47 U.S.C. §255 (issued under Title I);[§]
- November 2007: portability of local phone numbers to and from VoIP providers (issued under § 251(e) authority regarding FCC jurisdiction over North American Numbering Plan);^{**}
- May 2009: mandatory notice from VoIP providers before disconnection (issued under Title I);^{††}
- Feb. 2012: reporting of network outages (issued under various sections, including Title I).^{‡‡}

p.719, insert at bottom of page:

5. *Shifting categories.* Recently, there's been some settling on the vocabulary used to describe various video services, including IPTV. In 2012, the FCC started to chunk the entire market for delivered video programming into three strategic groups.

First, there are the venerable *broadcast TV stations*. You might be surprised that this type of video is even counted given that it's "free" TV that is

* See VoIP 911 Order, 20 FCC Rcd at 10246, ¶ 1.

† See Universal Service Contribution Methodology, Report and Order and Notice of Proposed Rulemaking, 21 FCC Rcd 7518, 7538-43, ¶¶ 38-49 (rel. June 27, 2006), aff'd in relevant part, Vonage Holdings Corp., v. FCC, 2007 WL 1574611 (D.C. Cir. June 1, 2007).

‡ See Implementation of the Telecommunications Act of 1996, Report and Order and Further Notice of Proposed Rulemaking, FCC 07-22 (rel. April 2, 2007) (CPNI Order).

§ See Implementation of Sections 255 and 251(a)(2) of The Communications Act of 1934, Report and Order, FCC 07-110 (rel. June 15, 2007).

** See *In the Matter of Tel. No. Requirements for IP-Enabled Servs. Providers Local No. Portability*, 22 FCC Rcd. 19531, 19548-49, ¶ 32 (2007).

†† See *In the Matter of IP-Enabled Servs.*, 24 FCC Rcd. 6039, 6039-40 ¶ 2 (2009).

‡‡ See *The Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Reporting To Interconnected Voice Over Internet Protocol Service Providers and Broadband Internet Service Providers*, Report and Order, 27 FCC Rcd 2650, 2651, ¶ 1 (2012).

advertiser supported. But with the rise of retransmission consent fees, broadcast TV stations are now getting “paid” in ways that resemble the business model of cable programming networks.

Second, there are MVPDs (Multichannel Video Programming Distributors), a term we’ve seen many times before.* This term is broad and includes all entities that sell subscriptions to multiple channels of video programming. It specifically includes cable operators (about 60% of the market), DBS operators (33%), and the video services offered by recent entrants Verizon and AT&T through their FiOS and U-Verse video products (“telephone MVPDs”) (7%).†

Third, the FCC has introduced a new term, “Online Video Distributors” (OVDs), which describes services such as Netflix, Hulu, and YouTube. “An ‘OVD’ is any entity that offers video content by means of the Internet or other Internet Protocol (IP)-based transmission path provided by a person or entity other than the OVD.”‡ Roughly speaking, OVDs provide the content, but you the customer must BYOB (bring your own broadband).

6. *Is an MVPD an OVD?* MVPDs have launched various “TV Everywhere” initiatives, to make their video content available on laptops, tablets, and phones, delivered over the public Internet. Some MVPDs provide this service only to subscribers of their traditional services, whereas other MVPDs are allowing even non-subscribers of their traditional services to purchase at least limited access. According to the FCC, “[a]n OVD does not include an MVPD inside its MVPD footprint or an MVPD to the extent it is offering Online Video Programming as a component of an MVPD subscription to cus-

* See 47 U.S.C. § 522(13) (“a person such as, but not limited to, a cable operator, a multichannel multipoint distribution service, a direct broadcast satellite service, or a television receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming.”).

† The market percentages come from the FCC’s 14th Video Competition report. *In the Matter of Annual Assessment of the Status of Competition in the Mkt. for the Delivery of Video Programming*, 27 F.C.C.R. 8610, 8611, ¶¶ 3-5 (2012).

‡ *Application of Comcast Corporation, General Electric Company and NBC Universal, Inc. for Consent to Assign Licenses and Transfer Control of Licenses*, Memorandum Opinion and Order, 26 FCC Rcd 4238, 4358, App. A (2011) (“Comcast-NBCU Order”) (defining “OVD”).

tomers whose homes are inside its MVPD footprint.”^{*} In other words, as long as the MVPD is operating within its footprint, the delivered video remains within the service category of MVPD even if it’s being offered over the Internet, over facilities that are not owned by the MVPD.

7. *Is an OVD an MVPD?* For various reason, it seems clear that an OVD is *not* a cable operator. By tracing the definition of a “cable operator,” can you explain why? The harder question is whether an OVD counts as an MVPD. If so, then an OVD would be subject to various regulations. On the one hand, some regulations would be beneficial. For example, the OVD would then be able to insist on “program access” rights[†] as well as good faith negotiations in garnering retransmission consent rights from broadcast stations.[‡] What might Netflix do with such rights? On the other hand, some regulations would exact costs. For example, the OVD would be subject to “program carriage” claims,[§] which could be asserted by unaffiliated video programming vendors. This difficult question of whether an OVD is an MVPD has been raised in pending program access complaints.^{**}

^{*} *Id.*

[†] See 47 U.S.C. § 548 (limiting cable operators who own video content from preventing other MVPD reasonable access to that content).

[‡] See 47 U.S.C. §§ 325(b)(3)(C)(ii)-(iii); 47 C.F.R. § 76.65.

[§] See 47 U.S.C. § 536.

^{**} See, e.g., VDC Corp. v. Turner Network Sales, Inc., et al., Program Access Complaint (Jan. 18, 2007); Sky Angel U.S., LLC v. Discovery Communications LLC, et al., Program Access Complaint, MB Docket No. 12-80, CSR-8605-P (Mar. 24, 2010). The FCC is currently seeking comment on the interpretation of the terms “MVPD” and “channel.” See *Media Bureau Seeks Comment On Interpretation of the Terms “Multichannel Video Programming Distributor” and “Channel” as Raised in Pending Program Access Complaint Proceeding*, MB Docket No. 12-83, Public Notice, 27 FCC Rcd. 3079 (2012).