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# **Competitive Issues in Special Access Markets**

**Revised Edition**

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**with Dr. Robert Loube**

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This report is available electronically at  
[http://nrri.org/pubs/telecommunications/NRRI\\_spcl\\_access\\_mkts\\_jan09-02.pdf](http://nrri.org/pubs/telecommunications/NRRI_spcl_access_mkts_jan09-02.pdf).

## **Errata**

Page 71, Table 13: The adjusted rate of return for AT&T has been corrected to 35%.

## Executive Summary

The National Association of Regulatory Commissioners (NARUC) passed a resolution in 2007 commissioning a study of special access. This report was prepared by NRRI under contract with NARUC. It summarizes data collected in 2007 and 2008, under the supervision of NARUC, from both buyers and sellers of special access.

This report addresses whether ILECs have market power over wholesale special access services in some or all areas and, if they do, whether that market power harms customers or competition. The report also addresses whether the FCC's current regulatory policies are effective at protecting consumers and sustaining a competitive market. Finally, the report addresses the FCC's knowledge of special access markets and how the FCC might improve data collections to support more effective regulatory policies.

"Special access" is non-switched point-to-point telecommunications service provided over the public switched network by incumbent local exchange carriers (ILECs); it is often called "private line" or "dedicated" service. Special access is a growing business, producing rapidly increasing revenues on which ILECs increasingly rely to offset declines in switched services revenues. Special access is also important to wholesale buyers as a major cost component of their own retail telecommunications services.

Overall, the evidence does not support a simple "thumbs-up" or "thumbs-down" judgment on market power for special access markets. We found that certain markets are more competitive than others and that the level of competition varies by location, circuit capacity, and service component, as well as over time. We do conclude that ILECs still have strong market power in most geographic areas, particularly for channel terminations and DS-1 services. The main exception is relatively compact downtown areas, which generate the largest volume of special access business.

Our conclusions rely on the high continuing market concentration of formerly monopolistic markets. Concentrations are particularly high for channel terminations (the special access equivalent of the local loop) and for DS-1 services. Our conclusions also rely on earnings. Even after adjustment for separations problems, RBOC earnings on special access are well above the 11.25% rate most recently set by the FCC. In the case of AT&T and Qwest, earnings are about three times that rate.

We also found some evidence for effective competition. Frequent bidding by large customers, with multiple bid responses, is a positive indicator of increased competition, at least within the market sectors devoted to enterprise and wholesale customers.

We also evaluated market power in special access using the theory of contestable markets, but it produced mixed results. Landline competitors can possibly (and in some areas already have) become a competitive force for the transport component between major

communication nodes. Landline competitors are unlikely ever to be a strong competitive force in channel termination markets outside of high-density downtown areas.

Cable television and fixed wireless have low entry and exit costs where their networks are currently established, and each can provide substitutable dedicated services to many customers. Overall, these competitors are still acting on the fringes of special access markets, but they have larger roles in some locations and their market shares appear to be growing. These newer technologies may be poised to become major competitors and are increasingly constraining ILEC behavior; but they have not yet grown beyond fringe competitors in most markets.

Our analysis of pricing trends (nominal dollars) gave inconclusive results. Seller data suggested stable or rising prices. Buyer data suggested that prices had declined between 2006 and 2007.

Customers who purchased under discount plans received large discounts from rack rates, ranging from 33% for DS-1 channel terminations to 68% for DS-3 channel terminations. This disparity between average rack rates and average discount rates raises a question about whether the relatively few customers who buy at rack rates are paying supracompetitive prices.

High rack rates also may increase seller leverage to add terms and conditions in discount plans. We found some of the penalties for over-purchasing and under-purchasing circuits to be surprisingly large. We also found a pattern of terms in some discount plans that may allow ILECs unreasonably to cement their market power by limiting buyers from shifting circuits to competitors who may have better products, lower prices, or both. We also found cases in which discount contracts for pricing flexibility areas included provisions limiting the buyer's purchase of UNEs, a right guaranteed to some carriers under the 1996 Act.

We found almost no evidence of the validity of the FCC's current policy equating special access competition with the presence of collocation in ILEC central offices. Market concentration for channel terminations remains high in all areas, regardless of pricing flexibility. This suggests that markets are not conforming to the FCC's predictions. The FCC collocation proxy consistently overestimates the competitiveness of the DS-1 and DS-3 channel termination markets.

Customers purchasing under discount contracts are paying slightly higher prices for channel terminations in Phase II areas, and market forces in these areas are not reducing rates. As a result, the FCC's policy of using collocation activity as a proxy for competition provides a weak foundation for decisions to grant pricing flexibility for channel terminations.

We make several recommendations for FCC action:

- Improve data collection by regularly collecting special access market concentration and pricing data. The FCC should also evaluate the possible benefits of routinely collecting location data regarding the facilities of competitive providers.

- Improve current methods for determining where competition is effective. The FCC should measure the presence of non-PSTN technologies that do not rely on collocation in ILEC central offices, recognize that competition can decrease as well as increase over time, recognize that circuit capacity is an important variable in competition, differentiate between markets for channel terminations and markets for interoffice transport, and adopt a finer geographic scale than the MSA for measuring the competitiveness of special access markets.
- Open a proceeding, following contested case procedures, to reset the special access rates of AT&T, Qwest, and Verizon. This proceeding should address the relationship between rack rates and discount rates as well whether some penalties in discount contracts are excessive and whether some terms and conditions may be unreasonably impairing competition. As an interim measure, we recommend that the FCC consider reestablishing price caps for DS-1 and DS-3 channel terminations sold by these three carriers.
- Consider removing use qualifications that prevent wireless carriers from making UNE purchases.

Finally, we offer a recommendation regarding intrastate special access. We suggest that states consider reducing the rates of intrastate special access so that it is priced no higher than comparable interstate services. Such action likely would increase the volume of intrastate special access sales. Jurisdiction over a larger share of the market would in turn give ILECs more intrastate revenue, which in turn might reduce pressure on other intrastate rates. It would also give the states more opportunity to address directly some of the issues raised above, such as the relationship between rack and discount rates and whether particular terms and conditions of sale are just and reasonable.

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## **I. Background – Special access and this study**

### **A. The Project**

In February of 2007, the National Association of Regulatory Utility Commissioners (NARUC) passed a resolution directing its Committee on Telecommunications, together with the Subcommittee on Federal Regulation, to “examine the competitive issues involving special access in selected markets.”

The resolution stated that the substantial majority of special access services are provided by the regional Bell Operating Companies, which, after recent mergers and consolidations, consist of two large vertically and horizontally integrated companies with national reach and one company with a regional footprint in the western states. The resolution summarized FCC policies applicable to special access rates and noted that the FCC had recently issued a notice to refresh the record in its ongoing special access proceeding. In its conclusion, the resolution asserted that NARUC has

a long-standing interest in ensuring that sufficient competition exists in local exchange markets so that market-based rates can apply to wholesale services such as special access, and where competition is judged not to be sufficient, regulatory policies should be adopted that prevent dominant carriers with excessive market power from operating in a manner that harms competition.

The special access project (Project) began work soon thereafter under the direction of the Subcommittee on Federal Regulation. Early on, Project leaders decided that their primary concern was geographic areas with “Phase II pricing flexibility” from the FCC. In these areas, which the FCC has declared competitive, incumbent carriers may raise special access prices above the level set by previously established price cap mechanisms.<sup>1</sup> The Project swiftly decided that it would not examine competitive access to particular buildings, an area examined in a previous report from the General Accounting office,<sup>2</sup> because the Project would be forced to rely on the same disputed data as the GAO and because more resources would be needed than were available.

### **B. NRRI’s role**

In April 2008, the National Regulatory Research Institute (NRRI) agreed to assist the Project. NRRI agreed to conduct an analysis of the existing data focusing on whether incumbent local exchange carriers (ILECs) have market power over wholesale point-to-point services in

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<sup>1</sup> Pricing flexibility is explained below in section III.B.2.

<sup>2</sup> The GAO report discussion appears below in section VI.B.

some or all areas and, if so, whether ILECs are using that market power to increase prices above competitive levels, particularly in areas subject to maximum (Phase II) FCC regulatory flexibility.

NRRI also agreed to submit this report to address wholesale special access issues.<sup>3</sup> If the data supported conclusions of regulatory significance, NRRI promised to assess the extent of wholesale point-to-point competition in major urban areas of the U.S., focusing upon whether ILECs have market power and, if so, whether they are using that power to increase prices above competitive levels. Otherwise, NRRI promised to make recommendations regarding how state commissions or the FCC might improve their data collection to support more effective regulatory policies.

NRRI subcontracted with Dr. Robert Loube, who actively participated in data analysis and in writing the report. NRRI reviewed materials filed at the FCC, including voluminous confidential filings filed by the RBOCs and several other parties. With authorization from the NARUC Project managers, NRRI conducted a second data collection in 2008.<sup>4</sup>

### **C. The issues**

This study addresses several questions about wholesale point-to-point special access markets in large metropolitan areas. The first area of inquiry is the geographic scope of each market. Are these markets competitive? If some markets are competitive and some are not, which are which? Are the markets always competitive, or only under some circumstances? Do ILECs have market power over wholesale point-to-point services in some or all areas?

Where markets are not competitive, the second area of inquiry is whether sellers are using their market power to increase prices above competitive levels, particularly in areas where the FCC has granted ILECs maximum pricing flexibility.

If markets are not competitive, the third area of inquiry concerns the kinds of regulation that can effectively ensure that rates and terms of service are just, reasonable, and nondiscriminatory. Are existing regulatory structures adequate? Should there be changes to the forms of regulation?

If the available data are inadequate to answer the preceding questions, the final question is whether and how state commissions or the FCC might improve data collections to support more effective regulatory policies.

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<sup>3</sup> Special access circuits are also sold at retail to end users. This report does not fully address the retail market.

<sup>4</sup> The 2008 data request is described below in section VIII.B.

## II. Special access and its market

### A. What is special access?

“Special access” is a generic term describing point-to-point communications circuits that are carried over the public switched telephone network. Special access circuits continuously connect two or more points, and for that reason they are sometimes called “dedicated” circuits. The FCC has used the term “access” to describe various kinds of wholesale interconnection and transport services provided by one carrier to another. The distinctive feature of special access circuits is that they are not switched. They provide no dial tone, and they cannot respond to a dialed telephone number.<sup>5</sup>

Special access circuits are connected to a telephone company wire center or “central office.” At the wire center, the customer’s circuit may then be connected to another carrier’s network, or passed to another wire center. If a customer connects two sites by special access, some carriers call that “two-point” service, as distinguished from “multipoint” service that connects three or more points.

Special access has been around for decades. Older forms used analog technology. For example, most carriers still offer dedicated voice circuits that carry the usual frequency range for speech of 300 to 3,000 cycles per second. Some carriers provide even older forms of service, such as “telegraph grade circuits” capable of carrying 150 bits per second.<sup>6</sup>

Today, most special access circuits convey data in digital format. In the U.S., most digital circuits use the “T-carrier” standard. Most people have heard of “T-1” or “DS-1” lines, which carry data at a rate of 1.544 megabits per second (mbps). A DS-1 can be used for a single data stream, or it can be “channelized” into 24 independent “DS-0” circuits using “multiplexing.” When multiplexed, each DS-0 circuit can carry a single voice conversation in digital format. Customers also frequently buy “T-3” or “DS-3” circuits. A DS-3 circuit carries 45 mbps, which is equal to 28 DS-1 or 672 DS-0 circuits.

Light fibers can carry much more information than wires, and they have a distinct set of “Optical Carrier Network” (OCn or OC) standards.<sup>7</sup> The smallest OCn circuit, an “OC-3,”

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<sup>5</sup> The FCC’s separations rules use “special access” and “private lines” synonymously. See 47 C.F.R. §§ 36.154, 36.377(a)(4). Separations rules sometimes also refer to switched services as “message” services, *e.g.*, 47 C.F.R. § 36.126(d)(2).

<sup>6</sup> *E.g.* AT&T Tariff No. 2 § 7.1.1.

<sup>7</sup> “OC” lines typically rely on “SONET” or “Synchronous Optical Networking” standards.

carries 155 mbps, about the same as three DS-3 circuits. OCn circuits can have very large capacities. For example, “OC-192” circuits used for Internet backbones carry the equivalent of 129,024 voice channels.<sup>8</sup>

Special access services are highly reliable, particularly when they are physically located on self-healing fiber rings. In addition, special access can be more secure than some forms of competing services that rely on shared physical networks. Finally, because it is a stable technology, special access can be used to connect virtually any two points in the country, even in different regions served by different telecommunications providers.

Special access service is typically billed monthly at fixed rates, regardless of usage. Customers ordinarily pay extra for longer circuits. By contrast, switched retail services often are billed on a per-minute-of-usage basis.

Not all special access services raise regulatory issues of equal importance. This project focuses primarily on DS-1 and DS-3 services. These services are most commonly purchased, produce the most revenue for sellers, and generate the greatest controversy.

## **B. Special access terminology**

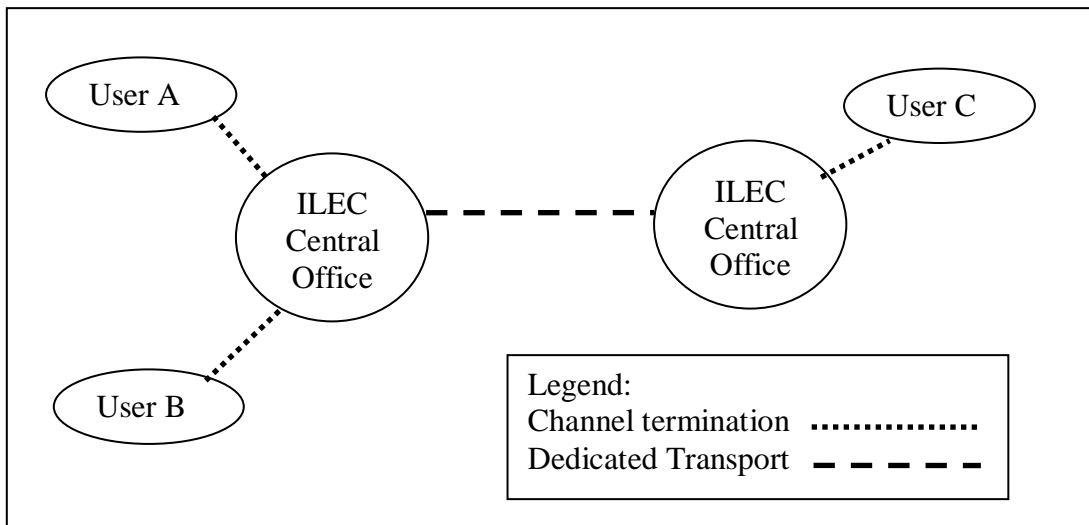
Special access circuit components have distinct names. A “channel termination” or “local distribution channel” is the special access element that connects the customer to the local telephone company office. A “channel termination” is as essential to special access service as a “loop” is essential to switched services. While every switched customer needs at least one loop, most special access customers need two channel terminations, one at each end of the dedicated circuit.

If two channel terminations serve nearby points, a telephone company will connect each to the company’s nearest central office. If the customer wants to communicate with a more distant location, the second channel termination will be served from a different central office. In that case, the customer must also buy “dedicated transport” (transport) between the two central offices. Transport is often called “channel mileage.”<sup>9</sup> Channel terminations and transport are portrayed schematically in Figure 1.

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<sup>8</sup> The capacity of an OC-192 circuit is 9,953 mbps.

<sup>9</sup> *E.g.*, FCC, *Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25, Order and Notice of Proposed Rulemaking, 20 FCC RCD 1994, ¶ 8; AT&T Ameritech Tariff No. 2 § 7.1.2.



*Figure 1. Channel Terminations and Dedicated Transport*

Channel terminations typically are sold under a single monthly rate, regardless of the distance between the customer and the central office. Dedicated transport ordinarily has a two-part monthly rate that includes a “fixed” charge for the circuit and a variable or “mileage” charge proportional to the distance between the ILEC central offices.<sup>10</sup> Special access sellers also collect many kinds of additional charges, including charges for multiplexing (“muxes”), charges for setting up and conditioning circuits, and charges for higher reliability.

### **C. Special access customers**

End users purchase many special access circuits. Special access circuits sold to retail customers often are called “private lines.” In the 1980s and 1990s, special access circuits were used primarily by large corporate and government customers as a way to reduce toll calling costs. These retail customers (or their interexchange carriers) bought special access to interconnect the customer’s voice lines with the toll carrier’s point of presence.<sup>11</sup> The customer would install a private branch exchange (PBX) switch in their offices to concentrate voice calls. The customer would then pass the concentrated voice traffic over a special access circuit to a competitive toll or a local exchange carrier’s point of presence (POP). From there, the traffic would travel to a termination point on the public switched network.

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<sup>10</sup> Sometimes the mileage charge is called “channel mileage.” Some carriers have mileage “bands” in which mileage is first grouped into categories and then priced.

<sup>11</sup> Some special access revenue was generated by older services, such as voice-grade circuits and WATS lines.

Today, special access circuits also serve as links in large general-purpose data networks. A manufacturing company today might use a special access circuit to interconnect the computer networks at two of its plants, and it might use another special access circuit to connect computers in its home office to its Internet Service Provider. A bank may use special access circuits to support an automated teller machine network. In some cases, these advanced services, which are data-centric, are provided over leased-line networks that were installed years ago for voice traffic.<sup>12</sup>

Most special access circuits are sold to other telecommunications carriers and are used to move large volumes of voice or data traffic. Verizon, for example, derives over 90% of its special access revenue from carrier customers.<sup>13</sup> In communications jargon, “special access” is a form of “exchange access,” a service that permits one carrier to use another carrier’s local exchange network.<sup>14</sup>

Competitive local exchange carriers (CLECs) often use special access as upstream components in wide-area networks that carry both voice and data. CLECs typically offer fiber-based services to their retail customers. If a customer requires service in multiple locations, however, the CLEC usually must purchase special access circuits from the incumbent LEC. The alternative, building facilities to a customer’s site, can be prohibitively expensive, even if the customer is willing to make a long-term commitment to repay the cost.

Wireless carriers also purchase a large volume of special access services. One way to understand cell phone networks is as a landline telephone service in which the traditional “last mile” copper loop has been replaced by a two-way radio. Seen in that light, wireless carriers need a wireline network almost as extensive as a CLEC. Most wireless carriers have purchased their own backbone transport facilities, but independent wireless companies cannot generally justify the expense of building dedicated facilities to every one of their cell towers. Instead, wireless carriers purchase “backhaul” special access circuits for this purpose, mainly from ILECs. Wireless carriers buy hundreds of thousands of special access backhaul circuits, mostly from incumbent LECs. Typically, a single cell site requires one or two DS-1 lines, although increasingly sophisticated services require greater capacity.

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<sup>12</sup> See FCC comments of AdHoc Coalition - Selwyn at ii.

<sup>13</sup> Verizon submission “List of Key Data Points.”

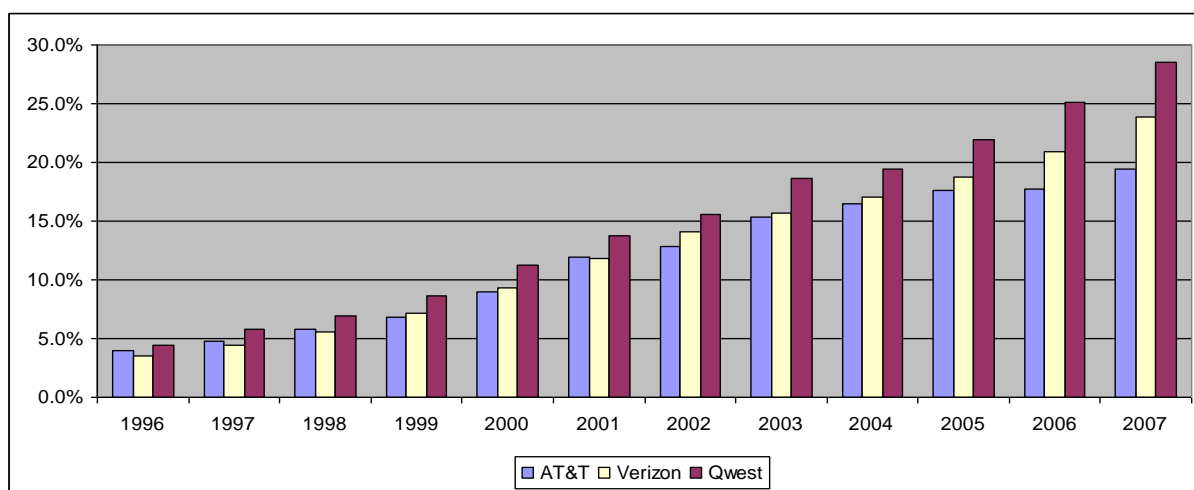
<sup>14</sup> In that sense, “access payments” are wholesale payments from one telecommunication carrier to another for access to the latter’s network. See 47 C.F.R. §§ 69.2(b), 69.2(bb)(2) (“access service” defined as services and facilities provided for the origination or termination of any interstate or foreign telecommunication and to exclude any part of a line, trunk, or switch that is not owned or leased by a telephone company).

Wireless carriers also buy special access for other purposes. They often need special access circuits to interconnect with ILECs or other wireless carriers. In some densely populated areas, wireless carriers also purchase special access circuits for their 911 traffic.

Data networks also rely heavily on special access circuits. Internet service providers (ISPs) traditionally support their “dial-up” service through a modem bank capable of handling many customer calls concurrently. After consolidating this traffic, the ISP then uses a special access circuit to deliver it to an Internet backbone connection point. For similar reasons, some rural local exchange companies purchase special access circuits to transport data between their DSL customers and an Internet backbone access point.

#### D. The growing special access market

Chart 1 shows the special access share of total revenues for the three largest Bell carriers (RBOCs) from 1996 through 2007.<sup>15</sup>



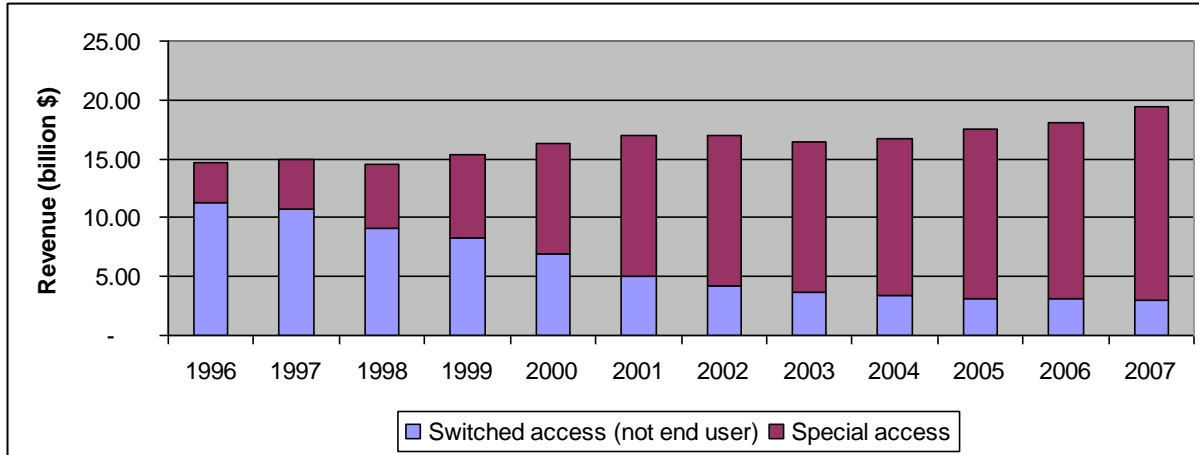
*Chart 1. RBOC interstate special access revenue as percent of total revenue – AT&T, Qwest, and Verizon*

Chart 2 shows the dollar value of wholesale revenues for the same period for all large ILECs reporting to ARMIS, divided between special access and switched access.<sup>16</sup>

<sup>15</sup> We understand that some carriers are reporting DSL revenues as special access revenue. DSL, while a digital service, is not a point-to-point service and has different security and reliability features.

<sup>16</sup> End user switched access revenues have been excluded to eliminate retail sales. A small but undetermined portion of special access revenues shown here are from retail sales.





*Chart 2. RBOC interstate revenues from switched and special access (not end-user) – Large reporting ILECs*

The charts demonstrate the rapid growth of interstate special access, both in dollar value and as a share of the ILEC’s total landline business. By 2007, special access revenue for large ILECs amounted to more than \$16 billion, or 22% of the large companies’ total revenues. Over the twelve-year period from 1996 through 2007, the average annual growth rate was 16.4 percent. As shown in Chart 1, among the three large RBOCs, Qwest currently draws the greatest proportion of its total revenues from special access.

Special access growth has several causes. The most important is the continuing rapid growth of data networks, which generate both retail and wholesale demand. The wireless industry is also buying more special access. Every year wireless carriers add new cell towers and serve millions of new customers. They also are acquiring more special access capacity to serve existing sites.<sup>17</sup>

Chart 2 also offers a second lesson: that special access is now the dominant ILEC service to wholesale customers. As the chart illustrates, interstate intercarrier revenues have risen slightly during the twelve-year period, from about \$15 billion to about \$19 billion. But this relatively stable total hides fundamentally shifting components. In 1996, three of every four dollars of intercarrier revenue came from switched access. By 2007, the positions had reversed, and special access generated 85% of reported intercarrier revenues.

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<sup>17</sup> As wireless carriers offer advanced data-oriented services, they sometimes support multiple protocols at a single site. One vendor estimated that by 2010, a cell site that offers multi-generation services could require the equivalent of 19 DS-1 lines. Fiber Tower presentation on April 1, 2008 to CTIA Wireless Show, slide 30, available at: <http://www.fibertower.com/corp/downloads/CTIA%20Deck%200408.ppt> .

## **E. Advanced data services**

Special access can be a platform for more advanced services. The PSTN version of these services are often called “ATM”<sup>18</sup> and “Frame Relay,” and they often entail using DS-1 and DS-3 circuits as components. Many non-PSTN vendors sell still other kinds of complex data services that also use these same special access components.

“Ethernet” technology originally was developed for local area computer networks, but it also has proven useful for wide area networks.<sup>19</sup> “Gigabit Ethernet” services are offered by all the major ILECs, and they are increasingly replacing traditional DS-1 and DS-3 services. Cable television providers also use a specialized version of Ethernet technology. Finally, some wireless carriers are considering converting their backhaul networks from DS-1 networks to Ethernet-based circuits.

The Ethernet protocol has been adapted to optical fibers. Major ILECs and other companies today offer optical-fiber based Ethernet systems for customers who need very high capacity systems.<sup>20</sup>

## **III. Federal regulation of special access**

### **A. The contamination rule, dominance of interstate services**

As explained above, special access circuits can be used to carry multiple voice calls from a company’s PBX to the public switched network. A special access circuit, therefore, can carry both intrastate and interstate telecommunications. Nevertheless, since 1989 the FCC has classified special access circuits jurisdictionally using a special rule that treats each circuit as being solely interstate or solely intrastate. If intrastate, the service is tariffed (if at all) with the state commission, the rate is subject to review and approval (if at all) solely by the state commission, and the carrier records all revenue from the circuit as intrastate. For interstate circuits, the service is tariffed (if at all) at the FCC, the rate is subject to review and approval (if at all) solely by the FCC, and the carrier records all revenue from the circuit as interstate.

The jurisdiction of each special access circuit is determined by an FCC rule often called the so-called “contamination rule.” Under this rule, if 10% or more of the traffic on a special

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<sup>18</sup> “ATM” means Asynchronous Transfer Mode, a telephone protocol for data networks. It does not refer to banking machines known as Automatic Teller Machines.

<sup>19</sup> Some carriers are even making internal conversions of their own networks to use Ethernet as the native underlying transport technology.

<sup>20</sup> For example, AT&T offers “OPT-E-MAN” service, an optical Ethernet metropolitan area network.

access circuit is interstate, the circuit is considered contaminated with interstate traffic, and the circuit is classified as 100% interstate. Conversely, if the circuit has interstate usage of less than 10%, that usage is treated as *de minimis* and the circuit is 100% intrastate.<sup>21</sup>

In practice, the choice of jurisdiction is left to the customer.<sup>22</sup> When a customer first orders the circuit, the ILEC sales representative asks the customer to declare the intended use. The customer's decision controls the jurisdiction of the circuit and the tariff from which it is purchased.

Many customers decide to purchase special access from the jurisdiction offering the lower price, and they declare a level of interstate usage necessary to comply with the FCC classification rule.

Under this system, the great majority of special access services are sold in the interstate jurisdiction. AT&T, Verizon, and Qwest each report at least 89% of their special access revenues as attributable to the interstate jurisdiction.<sup>23</sup>

“Common facilities” are used for both interstate and intrastate traffic. Loops and switches are common facilities, and their costs are allocated to the two jurisdictions by separations factors found in FCC rules. For example, 75% of the cost of a common loop is assigned to the state jurisdiction.<sup>24</sup> By contrast, since special access circuits are either wholly interstate or wholly intrastate, the cost of each circuit is entirely assigned to one jurisdiction or the other. The process of allocating this cost is known as “direct assignment.”<sup>25</sup> As discussed in more detail below, the direct assignment process has been affected by a “freeze” of separations factors and categories.<sup>26</sup>

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<sup>21</sup> FCC, *MTS and WATS Market Structure, Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board*, CC Docket Nos. 78-72 and 80-286, Decision and Order, FCC 89-224, 4 FCC Rcd 5660 (1989); see 47 C.F.R. § 36.154(a) (private lines and WATS lines treated as subcategory 1.1 if less than 10% interstate traffic, and otherwise treated as subcategory 1.2).

<sup>22</sup> Interconnection agreements may require the purchase of intrastate special access because the circuit is used to exchange local traffic.

<sup>23</sup> Source: ARMIS, authors' calculations.

<sup>24</sup> 47 C.F.R. § 36.154(c).

<sup>25</sup> 47 C.F.R. § 36.154(a), (b).

<sup>26</sup> See section IX.D below.

## B. Regulation of interstate special access by the FCC

### 1. Price caps

The FCC has an obligation to ensure that rates charged by telecommunications carriers are just and reasonable, and that they are nondiscriminatory.<sup>27</sup> Before 1991, the FCC used rate-of-return principles to limit each carrier's rates. This method was often criticized for removing carrier incentives to reduce costs and improve productivity.

In 1991, the FCC adopted a new regulatory regime for large carriers, called "price caps." The new system focused on limiting the prices that ILECs could charge rather than their earnings.<sup>28</sup> It allowed carriers to change rates for individual services within limits set by formulas.

To limit cross-subsidies among services, the FCC grouped services into "baskets," "service categories," and "service subcategories." Today there are five baskets: common line, traffic sensitive, trunking, special access, and interexchange.<sup>29</sup> The FCC's rules then defined the revenues available within each basket or category and gave carriers limited authority to adjust rates within baskets or categories.<sup>30</sup> Each basket's revenue target was adjusted from year to year by a price cap index (PCI) that indicates the maximum level that LECs may charge for services in each basket.<sup>31</sup> For many years the PCI was adjusted annually by a measure of inflation minus a "productivity factor," or "X-factor."<sup>32</sup>

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<sup>27</sup> 47 U.S.C. § 201(b).

<sup>28</sup> The new system was applied only to large incumbent firms, thereby creating the distinction, often mentioned today, between "price cap" carriers and "rate-of-return" carriers.

<sup>29</sup> 47 C.F.R. § 61.42(d). The FCC has included in the special access basket some point-to-point services, such as DSL, and some switched services, like "WATS." See *GTE Telephone Operating Cos. GTOC Tariff No. 1, GTOC Transmittal No. 1148*, 13 FCC Rcd 22466, ¶¶ 16-32 (1998) (ADSL service offering was interstate); 47 C.F.R. § 69.5(c) (Wide Area Telephone Service (WATS) lines treated as special access).

<sup>30</sup> See 47 C.F.R. § 69.114 (charges for all special access subelements "designed to produce total annual revenue equal to the projected annual revenue requirement for the Special Access element"); *CALLS Order, below* at 12968-69, para. 16 n. 15.

<sup>31</sup> See 47 C.F.R. § 61.45.

<sup>32</sup> A second component of price cap regulation consisted of limits on the degree to which individual service prices could be moved. Within the special access basket, individual services could be moved up or down within "pricing bands." The pricing bands for special access allow annual 5% increases. See 47 C.F.R. § 61.47(e).

The FCC revised the price cap system in 2001 when it adopted a modified version of the “CALLS” plan for access.<sup>33</sup> Under that decision, price cap rates for special access declined by 3% in 2000 and 6.5% each year in 2001, 2002, and 2003. Since 2004, the productivity reduction has been fully offset by the inflation increase. The result is that the price cap limits on special access nominal rates have been frozen since 2004.<sup>34</sup> Although the FCC originally intended the CALLS order to remain in place for only five years, the FCC has not made any further systematic changes.

## 2. Regulatory relief and pricing flexibility

In 1999, the FCC revised its price cap rules<sup>35</sup> by granting what it called “regulatory relief”<sup>36</sup> or “pricing flexibility.” Regulatory relief dramatically changed the rules regarding how ILECs can set special access prices.

Regulatory relief is granted or denied on a Metropolitan Statistical Area (MSA) basis.<sup>37</sup> The FCC considered using a smaller scale, but it rejected that choice because it would have increased administrative burdens.<sup>38</sup> As a result, a single seller’s rates and terms can vary from

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<sup>33</sup> *Access Charge Reform*, CC Docket Nos. 96-262, 94-1, 99-249, 96-45, Sixth Report and Order in CC Docket Nos. 96-262 and 94-1, Report and Order in CC Docket No. 99-249, Eleventh Report and Order in CC Docket No. 96-45, 15 FCC Rcd 12962 (2000) (*CALLS Order*) (subsequent history omitted).

<sup>34</sup> 47 C.F.R. § 61.45(b)(1)(iv) (“Starting in the 2004 annual filing, X shall be equal to GDP-PI for the special access basket.”).

<sup>35</sup> FCC, *Access Charge Reform*, CC Docket No. 96-262, Fifth Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 14221 (1999) (*Pricing Flexibility Order*), aff’d, *WorldCom, Inc. v. FCC*, 238 F.3d 449 (D.C. Cir. 2001). Price-cap incumbents must file a petition seeking pricing flexibility. 47 C.F.R. § 1.774.

<sup>36</sup> The term “regulatory relief” is used in 47 C.F.R. § 69.727.

<sup>37</sup> 47 C.F.R. § 69.707. The United States Office of Management and Budget publishes a list of Metropolitan Statistical Areas. The definition is available from the U.S. Census Bureau at <http://www.census.gov/population/www/metroareas/aboutmetro.html>.

<sup>38</sup> *Pricing Flexibility Order*, ¶ 74 (defining geographic areas smaller than MSAs would force incumbents to file additional pricing flexibility petitions that might produce a more finely-tuned picture of competitive conditions but did not justify the increased expenses and administrative burdens).

one MSA to another. By November of 2006, some level of pricing flexibility had been granted to the four major price cap incumbents in 215 of 369 MSAs in the United States and Puerto Rico.<sup>39</sup>

**a. Phase I and Phase II**

In 1999 the FCC created two brands of regulatory relief, “Phase I” and “Phase II.” Phase I flexibility means that a carrier has authority to offer individually negotiated contracts (“contract tariffs”). Under contract tariffs, a seller has what amounts to downward pricing flexibility and can offer volume and term discounts. Contract tariffs are filed on one day’s notice, but must be offered to all similarly situated customers.<sup>40</sup> Customers who do not sign up for contracts still may purchase at price-capped prices, which may also include term and volume discounts.

In Phase II flexibility areas, ILECs have permission to raise or lower their list prices and to sell under contract without regard to their normal price cap rate.<sup>41</sup> Phase II flexibility is the more controversial policy, because it allows sales at prices above the price cap limit. Also, once Phase II flexibility is granted, price cap LECs no longer need to offer their generally available price cap tariffs.<sup>42</sup> The FCC has granted Phase II pricing flexibility for channel terminations in more than 100 MSAs and for transport in more than 200 MSAs.<sup>43</sup> Each decision was based on facts presented in a petition filed by the affected ILEC.

**b. Measuring competition by proxy**

The 1999 Order also described in detail where the FCC was willing to grant pricing flexibility. The FCC premise was that regulatory relief could be granted where competitors had made “irreversible investments in the facilities needed to provide the services at issue, thus discouraging incumbent LECs from successfully pursuing exclusionary strategies.”<sup>44</sup> Once these investments were made, the FCC asserted that it no longer needed to protect competition from exclusionary pricing behavior by incumbent LECs, “because efforts to exclude competitors are unlikely to succeed.”<sup>45</sup>

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<sup>39</sup> Government Accountability Office, *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, GAO 07-80 at 6.

<sup>40</sup> 47 C.F.R. § 69.727(a).

<sup>41</sup> 47 C.F.R. § 69.727(b).

<sup>42</sup> 2005 NPRM (*below*) ¶ 71.

<sup>43</sup> S. Wallsten, *Has Deregulation Affected Investment in Special Access?*, Progress and Freedom Foundation, July 16, 2007.

<sup>44</sup> *Pricing Flexibility Order* ¶ 69.

<sup>45</sup> *Pricing Flexibility Order* ¶ 77.

To put this principle into practice, the FCC adopted what it called a “proxy test” with measurable data inputs. The FCC’s goal was to develop an easily verifiable, “bright-line test” that would be administratively simple and readily verifiable while at the same time producing a clear picture of competitive conditions.<sup>46</sup>

The FCC chose to measure the frequency of wire center “collocation.” A collocation occurs when a competitive carrier sets up a physical “cage” (or an equivalent kind of virtual presence) in an ILEC central office and interconnects its own network to the ILEC network.<sup>47</sup> MSAs with a large percentage of collocation were considered more competitive, and the FCC granted the ILECs in these MSAs greater pricing flexibility.

Under the FCC rules, an ILEC can measure collocation frequency in an MSA in two different ways: (1) the percentage of wire centers in an MSA that have a collocator; and (2) the percentage of transport revenue generated by wire centers with collocation in the MSA. For each variable, the FCC defined minimum thresholds or “triggers” at which flexibility could be granted. An ILEC can achieve a given level of pricing flexibility by satisfying either the percentage of wire center trigger or the percentage of revenue trigger. Separate triggers were established for Phase I and Phase II relief and for channel terminations and transport. The eight numerical triggers are listed in Table 1.

FCC Collocation Triggers	Dedicated Transport (channel mileage) <sup>48</sup>		Channel Terminations <sup>49</sup>	
	Phase I	Phase II	Phase I	Phase II
Minimum % of wire centers within MSA; or	15%	50%	50%	65%
Minimum % of transport revenue generated within MSA	30%	65%	65%	85%

*Table 1. Triggers for FCC deregulation of special access*

The logic of the table can be understood by reading from left to right. As collocation increases, the triggers first provide Phase I flexibility for transport. With more collocation, the triggers provide both Phase II flexibility for transport and Phase I flexibility for Channel Terminations. Eventually, at the highest threshold, channel terminations receive Phase II flexibility.

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<sup>46</sup> *Pricing Flexibility Order* ¶ 78, 84.

<sup>47</sup> Under the FCC rules, a collocation only counts if the competitor uses interoffice transport provided by a transport provider other than the incumbent LEC. *Pricing Flexibility Order* ¶ 77.

<sup>48</sup> See 47 C.F.R. § 69.709.

<sup>49</sup> See 47 C.F.R. § 69.711.

The *Pricing Flexibility Order* contains a detailed rationale as to why collocation frequency would predict competition generally. The FCC observed that in many cases collocation indicates that the collocator owns transmission facilities terminating at the ILEC central office.<sup>50</sup> Because of the time and expense involved in establishing these collocations, the FCC concluded that the presence of a collocation was a good indicator of irreversible competitive entry.<sup>51</sup> The investment would likely remain available indefinitely to provide competition to the incumbent LEC, even if the new entrant were to go out of business.<sup>52</sup>

In the *Pricing Flexibility Order* the FCC recognized possible differences in competition for interoffice transport and for channel terminations. While the FCC claimed collocation would be a good predictor of interoffice or “trunk side” facilities, it also acknowledged that the fit might not be as good for channel terminations. Competitors, said the FCC “will probably wait to invest in line-side facilities until they have all or most of their trunk-side facilities in place.”<sup>53</sup> More basically, the FCC acknowledged that collocation “does not provide direct evidence of sunk investment by competitors in channel terminations between the end office and the customer premises.”<sup>54</sup>

Despite these misgivings, the FCC affirmed its belief that collocation eventually would be a valid predictor of competition for channel terminations.

[I]t seems likely that a new market entrant would provide channel terminations through collocation and leased LEC facilities only on a transitional basis and *will eventually extend its own facilities to reach its customers*. It also seems likely, therefore, that the extent to which competitors have collocation arrangements in an MSA is probative of the degree of sunk investment by competitors in channel terminations between the end office and the customer premises throughout the MSA.<sup>55</sup>

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<sup>50</sup> *Pricing Flexibility Order* ¶ 81.

<sup>51</sup> *Pricing Flexibility Order* ¶ 80.

<sup>52</sup> “If a competitive LEC has made a substantial sunk investment in equipment, that equipment remains available and capable of providing service in competition with the incumbent, even if the incumbent succeeds in driving that competitor from the market. Another firm can buy the facilities at a price that reflects expected future earnings and, as long as it can charge a price that covers average variable cost, will be able to compete with the incumbent LEC.” *Pricing Flexibility Order* ¶ 80.

<sup>53</sup> *Pricing Flexibility Order* ¶ 81.

<sup>54</sup> *Pricing Flexibility Order* ¶ 103.

<sup>55</sup> *Pricing Flexibility Order* ¶ 104 (italics added).



Although it acknowledged doubts about the validity of equating collocation with channel termination competition, the FCC did not require any direct measurements of the latter. Indeed, the FCC expressly rejected the obvious alternative of using market power data. Non-dominance showings, said the FCC, “are neither administratively simple nor easily verifiable.”<sup>56</sup> Moreover, requiring parties to provide evidence on market shares, and evaluating that evidence at the FCC, would be “administratively burdensome.”<sup>57</sup> Acknowledging that one party had asked the FCC to collect better data under formal reporting requirements, the FCC said it was not willing to delay regulatory relief even long enough to seek comment on that proposal.<sup>58</sup>

The FCC also expressed concern about how requiring the filing of more geographically comprehensive data might inappropriately delay regulatory relief. For example, the FCC rejected a proposal that it withhold pricing flexibility until customers have “a competitive alternative for access to each and every end user.” Waiting for competition to reach this level, said the FCC, would allow a competitor to “distort the operation of the market” and deny ILECs pricing flexibility simply by refraining from entering certain parts of an MSA.<sup>59</sup>

Rather than adopting a direct measurement of competition for channel termination business, the FCC concluded that collocation was the “best measure available” at that time.<sup>60</sup> Moreover, the FCC stated that any misfit between collocation frequency and channel termination investment would be “transitional” and would end after an “initial” period.<sup>61</sup> The order did not predict how long this transitional period might last.

[W]e cannot time the grant of regulatory relief to coincide precisely with the advent of competitive alternatives for access to each individual end user. We conclude that the costs of delaying regulatory relief outweigh the potential costs of granting it before [interexchange carriers]<sup>62</sup> have a competitive alternative for each and every end user.<sup>63</sup>

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<sup>56</sup> *Pricing Flexibility Order* ¶ 90.

<sup>57</sup> *Pricing Flexibility Order* ¶ 103.

<sup>58</sup> *Pricing Flexibility Order* ¶ 103.

<sup>59</sup> *Pricing Flexibility Order* ¶ 142.

<sup>60</sup> *Pricing Flexibility Order* ¶ 103.

<sup>61</sup> *Pricing Flexibility Order* ¶¶ 103, 104.

<sup>62</sup> In 1999, much of the special access market consisted of purchases by interexchange carriers, and interexchange carriers were building direct facilities to some customers. Since that time, several larger interexchange carriers have merged with ILECs.

<sup>63</sup> *Pricing Flexibility Order* ¶ 144.

If the FCC rejected direct measurement of competition for channel terminations, it did adjust the triggers. As noted from Table 1 above, Phase II triggers for channel terminations require the highest frequency of collocation. The FCC said the higher triggers would “account for the limitations inherent in this trigger.”<sup>64</sup>

The *Pricing Flexibility Order* also addressed network bypass. The order recognized that some competitors can wholly bypass collocation in ILEC wire centers, preferring instead to interconnect with non-ILEC facilities. Under a trigger that depends on collocations in ILEC offices, bypass would lead the FCC to underestimate the level of competition actually present in an MSA. Once again, while the FCC recognized the problem, it declined to develop a direct measurement. Instead, the FCC lowered the numerical trigger for Phase I transport flexibility, making it easier for incumbents to get this form of regulatory relief.<sup>65</sup>

### C. The 2005 Special Access NPRM

In January 2005, the FCC issued a Notice of Proposed Rulemaking on special access. The notice was broad, seeking comment not only on traditional price cap issues, but also on the FCC’s special access pricing flexibility rules. The FCC acknowledged that in the 1999 *Pricing Flexibility Order* it had made some assumptions about supply responsiveness and entry barriers. The *2005 NPRM* sought comment on whether “actual marketplace developments” had validated what it characterized as those 1999 “predictive judgments.”<sup>66</sup>

The *2005 NPRM* posed a wide range of issues. The FCC asked many questions about both the price and cost of special access services, including how costs for special access facilities should be estimated.<sup>67</sup> The FCC sought comment on the basic features of price cap regulation, and it asked about the effects of Phase II pricing flexibility, including whether there had been substantial and sustained price increases,<sup>68</sup> whether special access markets should be differentiated by capacity,<sup>69</sup> and whether the existing proxy triggers adequately measured

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<sup>64</sup> *Pricing Flexibility Order* ¶ 104.

<sup>65</sup> *Pricing Flexibility Order* ¶ 95.

<sup>66</sup> FCC, *Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25, Order and Notice of Proposed Rulemaking, 20 FCC RCD 1994 (*2005 NPRM*) ¶ 5, 6.

<sup>67</sup> *2005 NPRM* ¶ 65.

<sup>68</sup> *2005 NPRM*, ¶ 76.

<sup>69</sup> *2005 NPRM*, ¶ 83 (i.e., whether DS-1 channel terminations are different from DS-3 and OCn channel terminations).

competition for channel terminations to customer premises.<sup>70</sup> Finally, the FCC asked whether sellers were exercising market power through exclusionary conduct in setting tariff terms and conditions.<sup>71</sup>

The 2005 NPRM also sought comment on the price cap system that still applied to some special access services in some MSAs. As explained above, under the 2001 CALLS order, special access prices had been frozen in 2004, but CALLS was intended only as a five-year plan. In the *Pricing Flexibility Order*, the FCC tentatively concluded that there should be no change to the method of adjusting price cap rates from year to year.<sup>72</sup>

Thousands of pages of comments were filed in 2005. In 2007, the FCC issued a notice asking parties to refresh the record,<sup>73</sup> and still more thousands of pages were filed. Yet the FCC still has not acted directly on the 2005 NPRM. As a result, price-capped rates remain at 2004 levels, and ILECs still have pricing flexibility in many MSAs under the rules set out in 1999.

#### **D. Mergers**

Recent mergers between ILECs and other carriers have dramatically changed the competitive landscape. The AT&T merger with SBC changed the market by removing a large national independent competitor with an extensive fiber network. Before the merger, AT&T had been an interexchange carrier, and it was an aggressive critic of ILEC special access pricing.<sup>74</sup> SBC then acquired AT&T, with the combined entity retaining the AT&T name. Most of the facilities that AT&T had previously owned in SBC collocation cages became the property of the

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<sup>70</sup> 2005 NPRM, ¶ 89.

<sup>71</sup> 2005 NPRM, ¶ 114.

<sup>72</sup> NPRM, ¶ 30.

<sup>73</sup> FCC, *Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25, Parties Asked to Refresh Record, FCC 07-123, released July 9, 2007 (*Special Access 2007 Notice*).

<sup>74</sup> For example, in 2002 AT&T, then an interexchange carrier, filed a petition at the FCC challenging the special access prices offered by ILECs. AT&T complained that the RBOCs were charging supranormal rates and were using pricing flexibility to maintain or raise rates, not to lower rates in response to predicted competitive entry. AT&T asked the FCC to reinitialize Phase II rates at an 11.25% rate of return and impose a temporary moratorium on further pricing flexibility applications.

combined company, thereby reducing facilities-based competition in many SBC wire centers.<sup>75</sup> Verizon's merger with MCI also reduced the number of independent special access providers and buyers.<sup>76</sup>

Merger conditions have also generated important limitations on ILEC pricing of special access. In December 2006, the FCC approved a merger of AT&T with BellSouth. The FCC imposed a condition, known as "Special Access Commitment 6," that limited special access prices that the merged entity could charge in Phase II areas.<sup>77</sup> Condition 6 required the merged company to offer DS-1 and DS-3 channel terminations and transport, as well as Ethernet transport, at rates no higher than the rates it charged in other areas. At a minimum, this meant that AT&T had to reduce rates in Phase II areas to no higher than the price cap rate. In addition, the FCC directed the company to reduce its Ethernet rates by 15%.<sup>78</sup> This price restriction was originally imposed for 48 months, but the FCC later reduced the term.<sup>79</sup> The pricing limitation will expire on June 30, 2010.

## IV. How ILECs sell special access

### A. Rate elements

Special access services typically include several kinds of recurring charges. The most common element is the channel termination charge. Customers also pay a monthly recurring charge for each transport termination port, sometimes called "channel mileage" or "transport charges." Transport is often sold with a two-part fee—a fixed monthly charge per circuit and a per-mile charge based on the distance between the two interconnected central offices.

Carriers impose many other kinds of special access charges. Many customers pay for multiplexing, which divides a single special access circuit into multiple logical circuits, or the reverse. Traditionally, multiplexing was used to make a single special access circuit usable for

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<sup>75</sup> The FCC denied AT&T's petition in 2005. *2005 NPRM*, ¶ 6.

<sup>76</sup> See *GAO Special Access Report* at 7.

<sup>77</sup> FCC, *AT&T Inc. and BellSouth Corporation, Application for Transfer of Control*, WC Docket No. 06-74, Memorandum Opinion and Order, 22 FCC Rcd 5662 (*BellSouth Merger Order*).

<sup>78</sup> *BellSouth Merger Order*, Appendix F. Originally, the price guarantee applied only to other carriers that took certain steps to establish reciprocity. That limit was removed upon reconsideration. See below.

<sup>79</sup> FCC, *AT&T Inc. and BellSouth Corporation, Application for Transfer of Control*, WC Docket No. 06-74, Order on Reconsideration, 22 FCC Rcd. 6285, 6289, Appendix.

multiple voice conversations. Today, multiplexing is also used by CLECs to step up multiple DS-1 circuits to the DS-3 level before connecting traffic to a larger regional or metropolitan fiber ring.

Customers usually pay nonrecurring charges for new circuits. Customers may also pay additional charges for guarantees of circuit reliability, often called “grooming” charges.

## **B. Rate plans**

### **1. Rack rates**

ILECs have filed federal tariffs listing the recurring and nonrecurring rates that are available to all customers. These rates, often called “rack rates,” are most often used by smaller customers and by wholesale customers who, for any of several reasons, are unwilling to make comprehensive commitments about future purchases of a particular circuit.

Most carriers offer the same rack rates throughout their entire footprint,<sup>80</sup> although some carriers define several “zones” with different rates. For example, AT&T-Ameritech has five separate rate zones in each of its states. Zone 1 is the most urbanized zone and has the lowest prices.

The simplest form of the generally available rate is the so-called “month-to-month” rate. This rate routinely is the highest rate available for a given service. “Rack rate” is often used synonymously with these month-to-month rates.

### **2. Term commitment plans**

Large carriers also typically offer several term commitment plans,<sup>81</sup> and wholesale buyers use these plans frequently. Of the special access revenue that Verizon derives from other carriers, over 90% is received under discount pricing plans.<sup>82</sup>

Sellers like term commitment plans because they produce more reliable revenue. Buyers like the plans because they provide substantial discounts, which vary from a few percentage

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<sup>80</sup> AT&T identifies different rates by state in the former Ameritech region, but the rates in each state are identical.

<sup>81</sup> Rack rate tariffs sometimes offer month-to-month rates and term discounts. Typical term lengths are one, three, and five years. These discounts do not require any overall level of commitment by buyers, but are otherwise similar to term commitment plans. The difference between term-discounted rack rates and discount plan rates is not always clear, except that the latter tend to be described in separate tariff subsections.

<sup>82</sup> Verizon submission “List of Key Data Points.”

points to more than half off the rack rate.<sup>83</sup> Buyers have a powerful financial incentive to participate in plans when discounts are this large.

Many term commitment plans include “portability” provisions that increase customer freedom to move circuits from one location to another. Portability provisions can allow a buyer to avoid termination liability when cancelling a particular circuit and installing another.<sup>84</sup> Portability also can sometimes give buyers the right to avoid nonrecurring installation charges when moving circuits from one location to another.

Volume commitment plans and “service level” plans are similar to term discount plans, except that they commit the buyer to purchase an overall number of circuits or to make a minimum monthly payment for a fixed term. These plans sometimes include portability provisions that waive termination penalties and reduce or eliminate nonrecurring charges.<sup>85</sup>

Most discount plans allow buyers to “upgrade” by ending one discount plan without penalty and entering another. Generally, upgrades require the buyer to enhance the seller’s expectations of committed future revenues.

### **3. Pricing flexibility overlays**

In areas in which the FCC has granted pricing flexibility, large ILECs offer additional discounts through temporary promotions and individually negotiated contracts.<sup>86</sup> Promotions

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<sup>83</sup> Verizon reports that its discounts range from 5% to 65% off standard month-to-month rates. Verizon submission “Overview of Verizon’s Discount Plans and Service Level Agreements, at 3. A customer under a typical AT&T Term Pricing Plan who makes a five-year commitment receives a 53% discount off the monthly channel termination rate and slightly smaller discounts for dedicated transport. AT&T SBC Tariff No. 73 §§ 7.3.10(F)(1), 7.3.10(F)(10.4)(1).

<sup>84</sup> Some plans abbreviate the period of time that can generate unavoidable termination fees. For example, Verizon East’s Term and Volume plans offer discounts based on a customer’s commitment to maintain a certain number of special access services with Verizon for a specific term without regard to whether any particular circuit is kept in service during the customers’ selected term. Nevertheless, a penalty is imposed if the individual circuit is not kept in service for a “minimum period” that is less than the term length. Verizon submission “Overview of Verizon’s Generally Available Discount Plans, and Pricing Flexibility Promotions and Contract Tariffs And Service Level Agreement Plans For Special Access Services” at 5.

<sup>85</sup> For example, Verizon East offers a “Commitment Discount Plan” under which a newly installed service generates only a nominal nonrecurring charge of \$1.00. Verizon FCC Tariff No. 1, § 7.4.1(C)(1).

<sup>86</sup> Because Verizon submitted data and explanations to the Project, its explanation is summarized here. Other carriers do not appear to take materially different approaches.

that apply to new installations or specific types of services typically offer discounts of 10% to 20%.<sup>87</sup>

Individually negotiated contracts are often called “contract tariff” plans, because they are both negotiated with the buyer and filed as a tariff at the FCC, or “total billed revenue” plans, because they require buyers to meet minimum monthly payment requirements. Verizon estimates the range of additional discounts available from these overlay tariffs at 5% to 30%.<sup>88</sup> Contract tariffs are widely used by major wireless carriers and large CLECs, and Verizon reports that it has entered into almost 70 such contracts since 2001.<sup>89</sup>

Pricing flexibility overlays are typically negotiated between a single ILEC and a single wireless carrier or CLEC. The plans are then filed at the FCC as tariffs, but without mentioning the buyer’s name. Theoretically, these contract terms are available to other buyers, but specific qualification terms can limit their use by others.

Buyers generally like having a choice of plans. Some buyers prefer nationwide plans because that kind of plan increases the buyer’s ability to offset lost customers in one region with new customers in another region. Plans with larger geographic scope often also waive some charges for moving circuits from one location to another. Other buyers may prefer smaller-scale MSA-wide plans. These smaller plans require more management because they are more numerous than a single nationwide plan, but they may also create greater opportunities to shift business to competitors on a city-by-city basis.

The variety of plans complicated our analysis. Each plan typically occupies dozens of pages of tariff language, and the plans tend to be replaced every few years. Basic RBOC tariffs for special access include rack rates and these discount plans, and they often run to 700 pages or more.<sup>90</sup> In addition, as individual contracts are negotiated, those are also filed as tariffs, and the

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<sup>87</sup> Verizon submission “Overview of Verizon’s Generally Available Discount Plans, and Pricing Flexibility Promotions and Contract Tariffs And Service Level Agreement Plans For Special Access Services” at 9.

<sup>88</sup> Verizon submission “Overview of Verizon’s Generally Available Discount Plans, and Pricing Flexibility Promotions and Contract Tariffs And Service Level Agreement Plans For Special Access Services” at 8. Verizon was the only ILEC to provide this kind of information.

<sup>89</sup> Verizon submission AT&T SBC Tariff No. 73 § at 10-11.

<sup>90</sup> AT&T also has separate special access tariffs for the former SBC area, the former Ameritech area, the former Pacific Telephone area, the former Nevada Bell area, and the former Southern New England Telephone area. To take one example, the SBC tariff has been built up with successive overlays, and it now describes, in intermingled subsections, a largely obsolete discount plan called “High Capacity Term Pricing Plan,” a different discount plan called the “DS1 Term Payment Plan,” and a variant of the DS1 Term Pricing Plan that includes a separate “portability commitment.” Each of these plans has different entry requirements, monitoring

overall structure becomes even more complicated, voluminous, and difficult to parse. In this study we have made substantial efforts to compare and contrast these plans across carriers, and we make some findings and recommendations below. The topic has by no means been exhausted, however, and it could well merit a still more comprehensive study.

## V. Market power

Market power for a seller is the ability to profitably maintain prices above competitive levels for a significant period, without significant customer loss and without attracting entry by competitors.<sup>91</sup> Market power can be exercised by a sole monopoly provider or by one or more of a group of sellers.

A firm with market power can exercise that power in a number of ways. One obvious way is to increase prices, thereby transferring wealth to the seller and producing a misallocation of resources. A firm that uses market power to raise prices creates what economists call a “deadweight loss” because it suppresses consumption of a good or service below the level that would prevail with a market-driven price. Deadweight loss represents a loss to society as a whole, not simply a loss to consumers. Another way to exercise market power is to lessen competition on product quality, service, or innovation.

A firm may theoretically have market power and yet refrain from harming consumers. Before government intervenes in a market, it should find that market power exists and that it has been used in a way that harms consumers. However, in most instances the existence of market power is not recognized until the entities that possess it actually use it.

Market power has always been a contentious topic, both in academia and in the courts. Sharp disputes exist over how market power arises, how to measure market power, and, perhaps most important and difficult to resolve, when market power is harmful to consumers or to competition itself. Traditionally, economists assessing market power have placed great importance on market concentration. These economists tend to see market power in many parts of the economy and believe that entry barriers are largely responsible. Market concentration is examined in part IX.A below.

Other economists believe that high market concentrations, *per se*, do not necessarily indicate the presence of market power that is excessive or damaging to consumers. These

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provisions, adjustment mechanisms, exit options, and penalty provisions. AT&T SBC Tariff No. 73 §§ 7.2.20, 7.2.22.

<sup>91</sup> United States Department of Justice, Federal Trade Commission, Horizontal Merger Guidelines, § 0.1, available at <http://www.usdoj.gov/atr/public/guidelines/hmg.htm#15>.



economists often argue that market power is often transitory and that competitive forces, including new firms entering the market, quickly negate any exercise of market power. These economists focus their attention on various market structures and other topics such as the “contestability” of markets, a topic discussed in part IX.B below. They also point out that market power exists in many markets without government intervention because the harm to consumers is minimal.

## **VI. Independent studies of special access competition**

### **A. The Uri and Zimmerman report**

In 2004, two FCC economists published an article reviewing the trends in special access tariffs during the first four years of pricing flexibility.<sup>92</sup> Uri and Zimmerman reviewed tariffed rates filed at the FCC and carrier earnings reported to the FCC through the ARMIS system. They concluded that price cap ILECs have market power in supplying special access service and have taken advantage of that power.<sup>93</sup>

The Uri and Zimmerman study examined trends in tariffed rates on file at the FCC. The study contrasted rack rates in July 1, 2000, a date just before the first pricing flexibility orders were granted, with prices charged in February 2003.

Overall, Uri and Zimmerman found that in areas still under price caps, prices had declined. By contrast, many rates had risen in areas with pricing flexibility. For example:

- States served by Southwestern Bell and Ameritech “increased the pricing flexibility rates for channel termination and channel mileage (fixed and variable) for DS-1 and DS-3 special access services under their term (optional payment) plan in the order of 15%. In no instance, however, did rates decline for any of the rate elements under pricing flexibility relative to the conventional month-to-month rates.”<sup>94</sup>

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<sup>92</sup> Uri and Zimmerman, Market Power and the Deregulation of Special Access Service by the Federal Communications Commission, 13 Information & Telecommunications Technology Law No. 2 at 129 (2004).

<sup>93</sup> *Id.* at 135, 170.

<sup>94</sup> *Id.* at 150.

- “Pacific Bell special access rates for both DS-1 and DS-3 services saw an increase for both month-to-month rates and optional payment plan rates with no reductions in any pricing flexibility rates over their conventional rate counterpart.”<sup>95</sup>
- “Qwest’s DS-1 special access service saw both channel termination and channel mileage rates increased. . . . The increase for both the fixed and variable components of channel mileage for both the conventional rates and the rate under an optional payment plan topped 25%. . . . In no instance did rates decline for any of the rate elements under pricing flexibility.”<sup>96</sup>

Uri and Zimmerman contended that in a competitive market, as more carriers enter the market, prices would generally fall, not increase. Their pricing analysis led them to “one unambiguous conclusion”:

LECs subject to price caps who have been granted pricing flexibility have taken advantage of the opportunity. These LECs have been given a chance to increase rates for special access service without raising the ire of the Federal Communications Commission. . . . The fact that no rates have declined and that many have increased is further evidence that the price cap LECs are exercising market power and that the market for special access service is not competitive.<sup>97</sup>

Uri and Zimmerman also criticized the FCC’s proxy tests for competition. They concluded that the FCC’s rules had a “fatal flaw” because competition cannot succeed if it does not cover the “last mile” to the customer’s premises. They concluded that the FCC standards, which focus on the presence of collocation in wire centers, are not adequate measures of loop deployment by competitors.<sup>98</sup> Collocation can be used to estimate interoffice transport deployment by competitors, but not loop deployment by competitors. In the extreme, Uri and Zimmerman explained that a price cap ILEC can be granted pricing flexibility for its channel termination rates in an MSA even if no collocator has deployed a single loop in the MSA. In other words, the FCC proxy test “identifies only the possibility of competitive facilities” between the price cap ILEC and its competitor and “nothing about the potential for competition between the collocator and the customer.”<sup>99</sup>

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<sup>95</sup> *Id.* at 168.

<sup>96</sup> *Id.* at 168.

<sup>97</sup> *Id.* at 168-169.

<sup>98</sup> *Id.* at 169.

<sup>99</sup> *Id.* at 170.

In conclusion, Uri and Zimmerman recommended that the FCC make “some provision for accounting for the availability of the last mile transmission facilities.”<sup>100</sup> They also recommended that the FCC revisit the pricing flexibility order, carefully examine the product market for special access services, and change the proxy test in a way that measures the existence of last mile competition.<sup>101</sup>

## **B. The GAO study**

In November of 2006, a few months before the passage of the NARUC resolution, the Government Accountability Office (GAO) published a report on special access.<sup>102</sup> The report addressed several aspects of special access competition.

### **1. Competition at customer locations**

First, the GAO examined facilities-based competition at customer locations in cities where the FCC had granted pricing flexibility. The GAO examined competition in 16 metropolitan areas, four from each RBOC area.<sup>103</sup> In each area, the GAO examined commercially available data regarding the availability of competitive facilities.<sup>104</sup> The GAO concluded that competition at the building level was very limited, particularly for lower-capacity services:

- In buildings where customer demand was limited to a single DS-1 line, less than 6 percent had competitive alternatives.
- In buildings likely to generate at least a single DS-3 level of demand, about 15 percent had fiber-based competitors.
- In buildings likely to require 2 DS-3s, about 24 percent had fiber-based competitors.

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<sup>100</sup> *Id.* at 170.

<sup>101</sup> *Id.* at 171.

<sup>102</sup> Government Accountability Office, *FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services*, GAO 07-80 (*GAO Special Access Report*) at 6.

<sup>103</sup> At the time, BellSouth was still an independent company.

<sup>104</sup> GAO analyzed data from Telcordia® Technologies, Inc., which it called “a leading global provider of telecommunications network software and services,” and GeoResults, which it described as “a firm that the telecommunications industry has used extensively to analyze Telcordia data.”

The GAO also found that the theoretically more competitive Phase II areas generally had less frequent competitive presences than Phase I areas. Based on this, the GAO suggested that the FCC's competitive triggers were not accurately predicting competition at the building level.<sup>105</sup> The GAO noted that a variety of factors could limit competition at the building level, including the high sunk costs of constructing local networks, the cost of local government regulations, and limited access to buildings.<sup>106</sup>

The GAO also examined trends in collocation at ILEC wire centers. As of July 2006, the GAO found that the number of collocation sites had declined approximately 10% since pricing flexibility petitions were first granted. The GAO was unsure whether this decline arose from mergers with former competitors or from the increased bypass of ILEC central offices.<sup>107</sup>

## 2. The effects of deregulation on prices

The second part of the GAO report examined how list FCC pricing rules had affected prices and average seller revenues under Phase II pricing flexibility. The GAO collected and reviewed rack rate data, the contracts of large carriers, and average revenue data from the four major RBOC sellers. The GAO was not able to collect average price data from buyers other than the federal government, nor did it obtain any pricing or revenue data from non-ILEC sellers.

The GAO made two specific findings about the trend of list prices (nominal dollars) over time. The GAO compared 2006 prices with what it called the "initial prices" that predated pricing flexibility.<sup>108</sup>

- In areas without Phase II flexibility, average list prices had *declined*, largely due to the CALLS order, but also possibly as the result of competition.<sup>109</sup> For example, the month-to-month mean list price for a DS-1 channel termination in density zone 1 had dropped by \$1.20 per month.<sup>110</sup>
- In areas with Phase II flexibility, average list prices had *increased*. For example, the month-to-month mean list price for a DS-1 channel termination in density

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<sup>105</sup> *GAO Special Access Report* at 19.

<sup>106</sup> *GAO Special Access Report* at 26.

<sup>107</sup> *GAO Special Access Report* at 24.

<sup>108</sup> The initial prices are for 2001. *GAO Special Access Report* at 68.

<sup>109</sup> *GAO Special Access Report* at 13, 27, 28. This conclusion was true for DS-1 and DS-3 service, for channel terminations, fixed charges for transport and variable charges for transport, for monthly, three-year and five-year terms, and regardless of rate zone.

<sup>110</sup> *GAO Special Access Report* at 67 (Appendix II, Table 11).

zone 1 had increased by \$17.76 per month.<sup>111</sup> The GAO expressed surprise at this finding because the FCC has predicted the greatest competition in Phase II areas.<sup>112</sup>

The GAO also took a snapshot of 2006 rack rates. In Phase II areas the prices were almost always higher than in price-cap and Phase I areas.<sup>113</sup> For example, in Phase II areas the month-to-month mean list price for a DS-1 channel termination in density zone 1 was \$18.96 higher than in other areas.<sup>114</sup>

The GAO recognized that many large buyers of special access purchase under discount contracts. Because many contracts provide for fixed percentage discounts off the list price, the GAO concluded that effective prices for dedicated access under these contracts in Phase II areas were generally higher than Phase I areas because Phase II list prices were higher, on average.<sup>115</sup>

The GAO also evaluated prices based on average ILEC revenue data for special access services. Once again, the GAO reported trends, in this case comparing 2005 average revenues with initial period revenues.<sup>116</sup>

- In areas without Phase II flexibility, mean revenues had *declined*. For example, the average revenue drawn from DS-1 channel terminations decreased by \$26.15 per month.<sup>117</sup>
- In areas with Phase II flexibility, mean revenues prices had also *declined, though by a smaller amount*. For example, the revenue from a DS-1 channel termination had decreased by \$8.52 per month.<sup>118</sup>

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<sup>111</sup> *GAO Special Access Report* at 67 (Appendix II, Table 11).

<sup>112</sup> *GAO Special Access Report* at 13.

<sup>113</sup> “[C]omparison of 1,152 prices found that, as of June 2006, the price-flex list price was on average higher than the price-cap price, regardless of whether the price was for channel terminations, interoffice mileage, DS-1 or DS-3 service, different term arrangements, or different density zones.” *GAO Special Access Report* at 28.

<sup>114</sup> *GAO Special Access Report* at 67 (Appendix II, Table 11).

<sup>115</sup> *GAO Special Access Report* at 30.

<sup>116</sup> The prior-to-flexibility data applied to 2000 for Verizon, 2001 for AT&T and BellSouth, and 2002 for Qwest. *GAO Special Access Report* at 63.

<sup>117</sup> *GAO Special Access Report* at 63 (Appendix II, Table 7).

<sup>118</sup> *GAO Special Access Report* at 63 (Appendix II, Table 7).

The GAO also took a snapshot of 2005 average revenues per circuit for channel terminations. In 2005, average revenue in Phase II areas was higher, on average, than in Phase I areas and Price Cap areas.<sup>119</sup> For example, the average revenue for a DS-1 channel termination in a Phase II area was 4% higher than in other areas.<sup>120</sup> For DS-3 service, average revenue in a Phase II area was 24% higher than in other areas.<sup>121</sup>

Broadly, the GAO concluded that list prices and revenue are higher on average for circuit components in areas under Phase II flexibility (areas where competitive forces are presumed to be greatest) than in areas under Phase I flexibility or under price caps.<sup>122</sup>

### 3. Data collection at the FCC

In the third portion of its report, the GAO recommended that the FCC improve its data collection and analysis relating to the extent of competition in special access markets. The GAO noted that promoting competition is an important role for the FCC under the 1996 Act, and that the

stated outcomes of this policy objective are to lower prices and increase the quality of telecommunications services available to American telecommunications consumers as well as promote the rapid deployment of new telecommunications technologies.<sup>123</sup>

The GAO found that most of the data used by the FCC to assess competition have significant limitations in their ability to describe the presence, extent, or change in competition in any given area.<sup>124</sup> There were two fundamental problems identified by the GAO:

- Once a price flexibility decision is issued, the FCC does not revisit or update the underlying competitive facts, even though competitors may enter bankruptcy or be bought by another firm.<sup>125</sup>

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<sup>119</sup> *GAO Special Access Report* at 28.

<sup>120</sup> In 2005, the average revenue for a DS-1 channel termination in a Phase II area was \$131.77. In other areas, it was \$126.20. *GAO Special Access Report* at 63 (Appendix II, Table 7).  $4.4\% = (\$131.77 / \$126.20) - 1$ .

<sup>121</sup> In 2005, the average revenue for a DS-3 channel termination in a Phase II area was \$1,329.65. In other areas, it was \$1,069.58. *GAO Special Access Report* at 63 (Appendix II, Table 7).  $24.3\% = (\$1,329.65 / \$1,069.58) - 1$ .

<sup>122</sup> *GAO Special Access Report* at 27.

<sup>123</sup> *GAO Special Access Report* at 37.

<sup>124</sup> *GAO Special Access Report* at 36.

- The FCC has no method for collecting comprehensive and reliable data on competition. The FCC uses rulemaking proceedings to collect data from external parties, “but those parties generally have no obligation to provide data, and the FCC has limited mechanisms to verify the reliability or accuracy of any data submitted. For example, as part of its rulemaking proceeding on dedicated access, the FCC requested data on price indices in price flexibility areas to determine how prices have changed in areas with varying levels of price deregulation; however, no incumbent firm provided data.”<sup>126</sup>

The GAO concluded that without more complete and reliable measures of competition, the FCC was unable to determine whether its deregulatory policies were achieving their goals. The GAO recommended that the FCC “develop measures and methods to monitor competition on an ongoing basis that more accurately represents market developments and customer choice.”<sup>127</sup>

#### 4. FCC response

The GAO report included a letter response from the FCC.<sup>128</sup> The FCC’s broadest criticism of the GAO report was that, taken as a whole, it “appears to imply the need for a return to price control policies that the Commission abandoned in 1999.”<sup>129</sup> The GAO disagreed with the FCC’s characterization. The GAO acknowledged that the FCC must balance the additional costs of gathering more data with the potential benefit that might result from additional data. Nevertheless, the GAO reiterated its opinion that to better meet its regulatory responsibilities the FCC needed a more accurate measure of effective competition and needed to collect more meaningful data.<sup>130</sup>

The FCC’s letter concluded by saying that the FCC continues to monitor “the extent to which markets are open to competitive entry.”<sup>131</sup> The GAO disagreed, stating that the FCC’s

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<sup>125</sup> *GAO Special Access Report* at 14.

<sup>126</sup> *GAO Special Access Report* at 15.

<sup>127</sup> *GAO Special Access Report* at 15.

<sup>128</sup> *See GAO Special Access Report* at 71-72.

<sup>129</sup> *GAO Special Access Report* at 71.

<sup>130</sup> *GAO Special Access Report* at 15.

<sup>131</sup> *GAO Special Access Report* at 75.

pending rulemaking proceeding on dedicated access would not be sufficient to allow the FCC to evaluate pricing behavior.<sup>132</sup> The FCC also maintained:

- That “the public interest is better served by permitting market forces to govern the rates for the access services,” and “even if competition [has] not fully developed, the cost of regulating special access pricing was still greater than the benefits.”
- If a seller did charge an “unreasonably high rate for access to an area that lacks a competitive alternative, that rate will induce competitive entry, and that entry will in turn drive rates down.”
- It is not possible to measure effective competition on a granular basis consistent with the deregulatory goals of the 1996 Act. The proxy triggers are satisfactory because granular findings of non-dominance would be “neither administratively simple nor easily verifiable.” Performing a “building-specific impairment analysis would be impracticable and unadministrable.”
- Regulating the prices charged by incumbents would deter investment by both incumbents and new entrants alike.

## VII. Interests of the states and the industry

### A. Buyers

Both wholesale and retail buyers of special access have an obvious interest in low prices and flexible terms and conditions. Wholesale buyers have been particularly active at NARUC and in working with the Project. These wholesale buyers—CLECs and independent wireless carriers—see special access as a major cost. Sprint, for example, has stated publicly that one-third of its total cell site operating costs go to special access expenses.<sup>133</sup>

For a CLEC, special access is an upstream input, and its price affects which customers the CLEC can serve. CLECs with their own facilities can always serve *some* customers without using the local ILEC. But many customers have multiple locations, some of which are likely to

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<sup>132</sup> *GAO Special Access Report* at 46.

<sup>133</sup> TR Daily, December 4, 2008, reporting a speech by Sprint CEO Dan Hesse at the Practising Law Institute’s Annual Institute on Telecommunications Policy & Regulation in Washington, D.C.



be in cities or towns where the CLEC has no facilities.<sup>134</sup> CLECs report that their customers are increasingly demanding that CLECs meet all their telecom needs at multiple locations.

For wireless, special access pricing affects profitability and competitiveness. Lower special access prices can produce an economic advantage against landline competitors, including those providing special access services. Special access pricing also affects the ability of a wireless carrier to serve remote areas.

Most buyers would like the FCC to limit or eliminate Phase II pricing flexibility. Some seek restoration of some form of price cap limits. Buyers contend that sellers have market power and use it in unreasonable ways, in part through high prices and in part by imposing unreasonable terms and conditions.

## **B. Sellers**

For ILEC sellers, special access is a profitable and growing market. Special access has become more important to the health of the ILEC industry, particularly for the large ILECs that serve major business areas and particularly as profits from switched services have declined.

ILECs maintain that special access is increasingly competitive and that the FCC's policies of allowing widespread pricing flexibility are sound. Verizon, for example, argues that its special access services face increasing competition from traditional carriers and fiber suppliers such as Level 3 and TW Telecom; cable operators such as Comcast, Cox, and Time Warner Cable; and fixed wireless providers such as Tower Cloud. Verizon also argues that market pressures are the reason that most of its special access sold to other carriers is priced at discount rates under generally available discount plans, pricing flexibility promotions, or contract tariffs.

Sellers also point out that special access services frequently require large investments. ILECs generally must provide this service on demand anywhere within the ILEC's service footprint. This obligation extends to high-cost areas in which CLECs and wireless carriers have found that they cannot afford to build facilities. In that sense, the competitors are building their own facilities to the most profitable areas, and then demanding special access to other, costlier areas so that they may provide comprehensive services to multi-location customers. To provide this service without a subsidy, ILECs contend their rates must be sufficient to support constructing and maintaining these circuits.

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<sup>134</sup> *E.g.*, TW Telecom comments to FCC, Taylor at 8.

## **C. The state interest in special access**

### **1. Intrastate services**

As explained above, about 10% of special access falls within the intrastate jurisdiction. States have a direct interest in the rates, terms, and conditions of these services. States are also legitimately concerned with their availability, affordability, and quality, as well as possible price discrimination or price fixing. Finally, state decisions inevitably benefit from FCC programs that collect and report data on the competitive conditions within special access markets.

In exercising their own authority, state commissions can be influenced by the FCC's orders and methods. A state that is considering setting intrastate special access rates at parity with interstate rates would be encouraged if it could gain confidence in the justness of those interstate rates.<sup>135</sup> Also, a state might want to parallel the FCC's decisions granting pricing flexibility, and it would be encouraged if it could gain confidence in the FCC's methods.

### **2. Interstate services**

The states also have interests regarding interstate special access services. While indirect, the states' interest arises from the size of interstate special access markets and the markets' inevitable effects on the telecommunications network and the economy.

#### **a. Competition**

States have an interest in promoting effective competition in telecommunications markets. The 1996 Act made competitive telecommunications a joint responsibility of the states and the federal government. Many states have welcomed this duty to promote competition and have adopted specific policies in support of meaningful competition. The 2007 NARUC resolution recognized that NARUC has:

a long-standing interest in ensuring that sufficient competition exists in local exchange markets so that market-based rates can apply to wholesale services such as special access, and where competition is judged not to be sufficient, regulatory policies should be adopted that prevent dominant carriers with excessive market power from operating in a manner that harms competition.

Wholesale buyers view special access as an essential component of their own retail services. For CLECs, the price not only affects which customers can be served but which markets are financially viable. States therefore have an interest in ensuring that CLECs can buy special access at just and reasonable prices.

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<sup>135</sup> Likewise, a state may want to use cost studies that were initially developed for FCC proceedings.

**b. Sound economy**

States have an interest in a sound economy. Business customers increasingly rely on CLECs and other communications “integrators.” The retail price that a business pays therefore increasingly depends on the upstream costs faced by its CLEC or integrator. Higher input costs can depress production in both upstream and downstream markets, and that harms society as a whole by creating deadweight losses.

One party to the FCC proceeding, representing buyers, characterized the importance of special access as follows:

Special access is to the information economy what highways and other transportation infrastructure are to manufacturing industries; they are the lifelines that connect US businesses and government to the rest of world. . . . Special access is also the “last mile” link between individual business, governmental and institutional telecom users and worldwide voice and data communications networks.<sup>136</sup>

**c. Ubiquitous service**

States have an interest in maintaining ubiquitous PSTN service. As noted above, special access is becoming a more important product as ILECs lose switched access lines and revenues. A primary issue underlying this report is whether interstate special access rates are too high. Nevertheless, if those prices were to be reduced, and if they fell below just and reasonable levels, the risk of ILEC failures could increase. States therefore have an interest in ensuring that special access rates are neither too high nor too low.

**VIII. NARUC’s Data Collections**

**A. The 2007 data collection**

The NARUC Project was formed immediately after the passage of the 2007 resolution, and it soon decided to seek new data from the industry. The GAO report had analyzed building-level data in 16 MSAs, but the results had been criticized as incomplete. The NARUC Project decided that its resource limitations prevented it from collecting building-level data. The Project

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<sup>136</sup> FCC Comments of Ad Hoc Coalition, Statement of Selwyn at ii.

leaders made this decision after considering the difficulty of collecting volunteered data from carriers and the much greater cost and difficulty of collecting and analyzing sub-MSA data.<sup>137</sup>

Instead, the NARUC Project sought new and more comprehensive data at the MSA level. In some ways the NARUC data collection was more ambitious than the GAO's. The NARUC collection sought data on average prices paid by purchasers, something that the GAO had not attempted. Also, while the GAO had collected data on 16 selected MSAs, the Project decided to seek circuit count and pricing data for the largest 50 MSAs.

Special access is sold with a bewilderingly complex set of elements and options. To simplify the task, the Project decided to limit data collections to DS-1 and DS-3 circuits. These are the most commonly purchased special access services, and, because they have the lowest prices, are the least likely to benefit from competition.

NARUC sent out a buyer's survey in May 2007. Most of the survey's 14 questions sought quantitative responses for each of the 50 MSAs in which the respondent provided service. The questions sought data for each year from 2001 through 2006. The survey asked about the portion of special access circuits that were self-provisioned. Among purchased circuits, it asked about market shares for ILEC-sellers and for non-ILEC sellers. The survey also asked for total buyer payments in each MSA, expecting that this would allow calculations of average prices. NARUC received responses from McLeod USA, Sprint, Time Warner Telecom, T-Mobile, and XO Communications.

Portions of most responses were subject to claims of confidentiality under a protective agreement signed by Project staff. Responses took varied formats. Four of the five responses had significant limitations.<sup>138</sup>

In June of 2007, the Project sent a survey to large ILECs who sell special access in the largest 50 MSAs. AT&T's response provided only a small portion of the requested information,<sup>139</sup> and it interposed several objections to the format and meaning of the survey. No other sellers responded to the survey.<sup>140</sup>

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<sup>137</sup> The GAO recognized that, regarding customer-location studies, "no single public or private data source is universally recognized as comprehensive." *GAO Special Access Study* at 22.

<sup>138</sup> One carrier filed national aggregate data, but nothing by MSA. One carrier filed detailed circuit counts but no pricing information. One carrier did not file data for 2006. One carrier did not file data for 2001 to 2003.

<sup>139</sup> AT&T did not provide requested information regarding the number of circuits it sells in each city, nor did it provide information requested about UNE prices or average revenue by

## B. The 2008 data collection

Under supervision of NARUC Project leaders, NRRI made a second data request in 2008. Once again we surveyed buyer and seller using different instruments and elicited information on circuit counts and prices. Unlike the 2007 request, we sought average unit prices within each MSA, not total payments by MSA for each circuit type. The survey was designed to allow responses to be analyzed by geographic area, by year, by service level, by type of charge, and by regulatory classification. We intended to use seller data primarily to verify pricing and circuit count data submitted by buyers, but also to identify the growth in higher-capacity markets and facilities. The details of the 2008 survey instruments are described in Appendix B.

Our report was delayed because buyers and sellers were unable to submit data within the time limits we requested.<sup>141</sup> In the end, several independent wireless and large CLEC carriers did submit data. We received buyer data from Covad,<sup>142</sup> Sprint,<sup>143</sup> T-Mobile,<sup>144</sup> TW Telecom,<sup>145</sup>

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city. AT&T provided data on one variety of undiscounted prices, and it summarized its price-flex status in each of its cities. As the survey had requested, AT&T reported prices for a bare channel termination as well as the rate for what we had defined as a “standard circuit” (two channel terminations and 10 miles of transport). Also as requested, AT&T provided data for 2001 and 2006 and for both DS-1 and DS-3 services.

<sup>140</sup> Verizon, Qwest, and Rochester Telephone did not respond. Verizon spoke to the Project chairman and reported that it was compiling data for an FCC filing at the time.

<sup>141</sup> The survey was distributed on August 11, 2008. Originally, responses were requested by September 26, 2008. Because carriers were all busy with filings at the FCC, we extended that deadline until October 31, 2008. The last data submission was on November 11, 2008.

<sup>142</sup> Covad submitted item counts for all services for 2006 and 2007. Covad submitted pricing data for DS-3 in 2006 and 2007.

<sup>143</sup> Sprint submitted three separate data sets, one for its wireline business, one for its CDMA wireless business, and a third for its IDEN wireless business. Sprint also submitted detailed responses to an unstructured question regarding terms and conditions in special access tariffs.

- Sprint wireline data submitted item counts for 2001 and item counts and pricing for 2006 and 2007.
- Sprint’s CDMA wireless submitted DS-1 item counts and pricing for 2006 and 2007, and DS-3 item counts and pricing for 2007.
- Sprint’s IDEN wireless submitted DS-1 item counts and pricing for 2006 and 2007.

and XO.<sup>146</sup> On the seller side, Embarq<sup>147</sup> and Verizon<sup>148</sup> were the only ILECs to submit data. TW Telecom also submitted seller data,<sup>149</sup> and it was the only carrier to submit both buyer and seller data. As in 2007, the details of responses were confidential under protective agreements.

Many carriers ultimately did not provide data. AT&T, Qwest, and Windstream explicitly declined to submit any data and wrote to Project leaders explaining their positions. As mentioned above, TW Telecom was the only CLEC to submit seller data. No wireless broadband provider or cable TV provider submitted any seller or buyer data. Likewise, no CLECs or wireless carriers affiliated with major ILECs submitted any buyer data.<sup>150</sup> The limited data submissions constrained our analysis in some ways.

- Pricing data were too incomplete to support a comprehensive analysis of long-term pricing trends between 2001 and 2006.<sup>151</sup>

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<sup>144</sup> T-Mobile submitted item counts and pricing for the 10 largest MSAs for 2002, 2006, and 2007. In four MSAs, T-Mobile also divided its responses by seller, providing us with separate item counts and prices for each seller.

<sup>145</sup> TW Telecom submitted item counts pricing data for DS-1 and DS-3 in 2007. TW Telecom's pricing data was limited to footnoted statements about the discount percentages from rack prices at which TW Telecom purchases and, in one case, a statement about the term of a TW Telecom discount plan.

<sup>146</sup> XO submitted item counts and pricing data for DS-1 and DS-3 in 2006 and 2007.

<sup>147</sup> Embarq submitted item counts and pricing data for all services in all years.

<sup>148</sup> Verizon submitted complete seller data for eleven MSAs in the East within the former Bell Atlantic and NYNEX serving areas. These MSAs include Baltimore, Boston, Buffalo, New York, Philadelphia, Pittsburgh, Providence, Richmond, Rochester, Virginia Beach, and Washington, D.C. Verizon did not separately report any sales as special contracts, and instead reported all non-rack-rate sales as generally available discount sales. Verizon did not submit any buyer's data for Verizon Wireless, its wireless affiliate. Verizon submitted a number of additional exhibits, including an affidavit from a Verizon Wireless interconnection employee.

<sup>149</sup> TW Telecom submitted item counts and pricing data for all services in 2007.

<sup>150</sup> Verizon's filing did include an affidavit and some statements that pertained to Verizon Wireless's buying patterns.

<sup>151</sup> Embarq and Verizon did provide 2001 seller pricing data, but these data were not sufficient to support extrapolation to nationwide conclusions. No buyers provided pricing data for 2001. T-Mobile provided pricing in 10 MSAs from 2002.

- Absence of seller data from competitive fiber providers, from broadband wireless providers, and from cable TV providers limited our ability to verify market concentrations and to verify buyer reports on the prices charged by non-ILEC sellers.
- Absence of seller data from AT&T and Qwest limited our ability to compare rates across RBOCs, to determine whether and how FCC pricing flexibility is affecting rates, and to verify buyer price reports regarding prices charged by RBOC sellers.<sup>152</sup>
- Absence of buyer data from AT&T Mobility and Verizon Wireless limited our sample of wireless buyer data and prevented us from comparing the purchasing behaviors of, and prices paid by, affiliated and non-affiliated wireless buyers.

## **IX. Findings and Discussion**

Each of the next five subsections of this report examines a different kind of evidence. Each subsection addresses one or both of the following questions:

- Is there market power? If so, is market power is being used to harm consumers or foreclose effective competition in special access markets and in vertically related industries?
- Is the FCC's regulatory regime effective at protecting consumers and sustaining a competitive market?

### **A. Market concentration**

If a market has one seller or has two sellers with a large combined market share, those sellers may have an opportunity to behave in noncompetitive ways. Economists often use two measures, HHI and market share values, as indicators of the existence of market power. Both kinds of measures are presented below.

#### **1. HHI analysis**

The Herfindahl-Hirschman Index (HHI) is a measure of the concentration within a market. HHI is defined as the sum of the squares of the market shares of each firm in the market.

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<sup>152</sup> Each data point describing an average price can have hidden problems, such as whether the price describes only zone 1 data, as we requested, or includes data from all pricing zones. Similarly, carriers in some cases may have included multiplexing costs or penalty payments, contrary to our instructions.

HHI can range from 10,000 in the case of a pure monopoly to a number approaching zero in the case of an atomistic market. If a market had 5 firms, each with an equal market share, the market HHI would be 2,000.<sup>153</sup>

Another way of understanding HHI results is to translate the HHI value for a market into a number of “effective firms” in that market. The number of effective firms is calculated by dividing the HHI into 10,000. For example, a market with an HHI of 5,000 has two effective firms. A market with an HHI of 2,000 has 5.0 effective firms.<sup>154</sup>

The U.S. Department of Justice and the Federal Trade Commission have adopted Horizontal Merger Guidelines (Merger Guidelines).<sup>155</sup> The guidelines rely on the HHI to provide general standards for evaluating horizontal mergers among similar firms. The standards describe three levels of market concentration.<sup>156</sup>

- If the post-merger HHI is less than 1,000 (ten effective firms), the market is considered “unconcentrated.” Proposed mergers are unlikely to have adverse competitive effects and ordinarily receive no further analysis.
- If the post-merger HHI is between 1,000 and 1,800 (10 to 5.5 effective firms), the market is considered “moderately concentrated.” Mergers in these markets “potentially raise significant competitive concerns” if they would increase the HHI by more than 100 points.
- If the post-merger HHI is above 1,800 (less than 5.5 effective firms), then the market is considered “highly concentrated.” If a proposed merger would increase HHI by 50 points or more, the guidelines state that a proposed merger “may potentially raise significant competitive concerns.” If the merger would increase HHI by 100 points or more, it is presumed “likely to create or enhance market power or facilitate its exercise.”

While the Merger Guidelines nominally relate only to evaluating mergers, the values are useful in evaluating market power for other purposes as well.

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<sup>153</sup>  $2,000 = 20^2 + 20^2 + 20^2 + 20^2 + 20^2$ .

<sup>154</sup>  $10,000 / 1,800 = 5.5$ .

<sup>155</sup> United States Department of Justice, Federal Trade Commission, Horizontal Merger Guidelines, § 0.1, available at <http://www.usdoj.gov/atr/public/guidelines/hmg.htm#15>. This study is not evaluating a merger, and the Merger Guidelines therefore do not nominally apply. Nevertheless, the Merger Guidelines show that HHI can be used to evaluate a market’s overall competitiveness.

<sup>156</sup> Merger Guidelines, § 1.51 General Standards.



As explained above, special access buyers in 2008 provided NRRI with the numbers of channel terminations and transport units that they self-provided and that they purchased from each of three different sources. This data allowed us to estimate HHI for each MSA.

We calculated HHI values for each of four special access product markets. We differentiated channel termination markets from transport markets, since the two services require different kinds of investment and can be used for different purposes, and since the buyer data suggested different purchasing behaviors. We also differentiated DS-1 level service from DS-3 level service, because the two services have different customer bases and generate different levels of revenue and because the buyer data suggested different behaviors.

In every MSA we assumed that there were up to four firms providing special access. The first firm was the buyer itself, calculated as though the buyer had purchased all self-provisioned circuits in a market. The second firm was the RBOC. The third firm was all non-RBOC ILECs. The fourth firm was all non-ILEC sellers. We aggregated data by MSA from all buyers and calculated an HHI for each of the four markets. This method should produce a reasonable estimate of the true HHI, although it does introduce some systematic errors that can overstate true HHI<sup>157</sup> or understate true HHI.<sup>158</sup> Overall, the method is more likely to understate HHI than to overstate HHI.

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<sup>157</sup> This method overstates HHI to the extent that more than one buyer reported self-provisioned circuits in a single MSA. This possible error did not occur here because our data did not include any cases where more than one buyer reported self-provisioned circuits in any MSA.

This method overstates HHI to the extent that non-ILEC circuits in a single MSA are actually purchased from more than one firm. For example, if a buyer purchased some circuits from a cable television company, others from a metropolitan fiber provider, and yet others from a wireless broadband provider, our method assumes that all these purchases are from a single firm. The error is small in most MSAs because the market share of circuits purchased from all non-ILECs is small in most MSAs. The median non-ILEC channel termination market share was 0% for DS-1 and 7% for DS-3. Moreover, the HHI formula squares market shares, which further reduces the effect of a small term. For the same reasons, any error that may occur in an individual city has little influence on the national average HHI,

<sup>158</sup> The method understates HHI to the extent that it treats the RBOC and non-RBOC as separate firms that compete throughout the MSA. In all or almost all areas, an RBOC and a non-RBOC ILECs have non-overlapping service areas in a single MSA. The difference is largest in MSAs such as Las Vegas, Louisville, Oklahoma City, and Riverside, California where non-RBOC channel terminations are numerous.

The method may underestimate HHI by assuming that self-provisioned circuits are available in the market. In the extreme case, if an RBOC had a 100% market share in the market for inter-company special access purchase, and if the RBOC were to raise its prices far above cost, and if a wholesale buyer responded by constructing some self-provisioned circuits, then our

The detailed results of our HHI analysis, by city, are shown in Appendices C and D.<sup>159</sup> National average HHI values for the four special access markets are summarized in Table 2.

All MSAs	Median HHI			Number of Effective Firms		
	2001	2006	2007	2001	2006	2007
DS-1 Channel Terminations	8,560	8,512	8,464	1.17	1.17	1.18
DS-1 Transport		8,012	7,554		1.25	1.32
DS-3 Channel Terminations	6,897	7,124	7,717	1.45	1.40	1.30
DS-3 Transport		6,604	5,405		1.51	1.85

*Table 2. Median HHIs for Special Access Services, 2001, 2006, and 2007*

These results show a continuing high concentration for all four services. None of the four markets have as many as two effective firms. These data place all four special access markets far into the zone characterized by the Merger Guidelines as “highly concentrated.” Concentrations are slightly lower for DS-3 level service and for transport.

## 2. ILEC market shares

Another way to view the same data is to consider the percentage of all purchases that are purchased from ILECs. For example, Sprint recently asserted that 96% of its DS-1 and 84% of its DS-3 connections are purchased from AT&T, Inc., Verizon Communications, Inc., or another ILEC.<sup>160</sup> Sprint’s claims are generally consistent with the data we collected from Sprint and other buyers.

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method would produce an HHI below the 10,000 value for a monopoly. We have not reported the calculated HHI in MSAs where the only reported circuits in an MSA are self-provisioned. In these cases, the HHI is automatically 10,000, and we eliminated these results because we are not confident of the completeness of the supplied data.

<sup>159</sup> We excluded from this HHI analysis the circuit counts submitted by XO. XO provided a self-provisioned circuit count for 2007, but none for prior years. This biased our results. Also, XO provided circuit count data for at least one city that appeared unreliable, and we were unable to evaluate the extent of the problem before completing this report.

<sup>160</sup> TR Daily, December 4, 2008, reporting a speech by Sprint CEO Dan Hesse at the Practising Law Institute’s Annual Institute on Telecommunications Policy & Regulation in Washington, D.C.

The detailed ILEC market share results by city are shown in Appendices B and C and are summarized below in Table 3.<sup>161</sup>

<b>Median MSA percent of total circuits purchased from ILECs</b>	<b>2001</b>	<b>2006</b>	<b>2007</b>
DS-1 Channel Terminations	92%	100%	99%
DS-1 Transport		100%	98%
DS-3 Channel Terminations	81%	92%	91%
DS-3 Transport		86%	67%

*Table 3. ILEC shares in median MSA for Special Access Services, 2001, 2006, and 2007*

Once again, the results show a continuing high concentration for all four services. Concentrations are slightly lower for DS-3 channel terminations and substantially lower for DS-3 transport.

### **3. Geographic differences**

We list HHI and ILEC share data in the appendices, with some redactions to protect confidentiality. These tables show considerable variation from city to city. In Table 4 we summarize this variability, showing the percentages of cities where the ILEC had at least an 80% market share in 2007.

<b>Percentage of 50 MSAs where ILECs have at least an 80% market share</b>	<b>2006</b>	<b>2007</b>
DS-1 Channel Terminations	100%	96%
DS-1 Transport	100%	98%
DS-3 Channel Terminations	62%	68%
DS-3 Transport	62%	26%

*Table 4. Percentage of 50 MSAs where ILECs have at least an 80% market share*

Table 4 shows that ILECs maintain a strongly dominant share of DS-1 business in virtually all cities. DS-3 channel terminations remain strongly concentrated, although less so,

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<sup>161</sup> For this measure, units purchased from RBOCs are combined with units purchased from other ILECs in the numerator. Self-provisioned units and units purchased from non-ILECs are excluded from the numerator.

with ILECs in about two-thirds of the cities having an 80% market share or better. Table 4 also shows growing competition for DS-3 transport.<sup>162</sup>

#### 4. Purchaser differences

The buyer data show that CLECs and wireless carriers have different purchasing patterns. In our data, sales of DS-1 services far outnumber DS-3 services, but wireless carriers are the more extreme case. Wireless carriers bought 271 DS-1 channel terminations for each DS-3 channel termination. One reason is that cell towers typically require one or a few DS-1 circuits for backhaul.

CLEC purchases rely much more heavily on DS-3 level services, but they still purchase far more DS-1 circuits than DS-3 circuits.<sup>163</sup> Transport shows a similar pattern, although the imbalance favoring DS-1 purchases is slightly weaker for both buyer groups.<sup>164</sup>

The buyer data can also be classified by service. CLECs buy six in ten DS-1 circuits, and nine in every ten DS-3 circuits. This means that wireless purchasers have a comparatively modest interest in DS-3 prices, terms, and conditions. Both wireless and CLEC buyers share a strong interest in the prices, terms, and conditions of DS-1 circuits.

The buyer data also show some individual differences suggesting greater competition in transport markets.<sup>165</sup> One buyer reported a national average ILEC share for its DS-1 transport purchases equal to 35% and for its DS-3 transport purchases equal to 1%. Other buyers report similar trends toward non-ILEC purchases of transport, although in smaller proportions.

In sum, some buyers, particularly CLECs, are beginning to rely heavily on non-ILEC providers for transport, especially DS-3 transport. No similar pattern appeared for wireless carriers. These differences in buying patterns may arise from having selected different purchasing strategies or target markets, or from having had different experiences with sellers. For example, some CLECs may have more choice of sellers because they entered markets in more cities with metropolitan fiber rings. Also, some CLECs combine multiple DS-1 circuits into DS-3 circuits for transport. CLEC purchasers may also have greater opportunities to bypass

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<sup>162</sup> The large difference between 2006 and 2007 may be due to partial reporting by some buyers who sent only 2007 data.

<sup>163</sup> CLECs bought 18 DS-1 channel termination units for every DS-3 channel termination unit.

<sup>164</sup> The ratio of DS-1 transport purchases to DS-3 transport purchases is 99 for wireless carriers and 21 for CLECs.

<sup>165</sup> This variation by customer does not appear in Appendices C and D because of confidentiality restrictions. The appendices aggregate all buyer data, and where only one buyer reported purchases in an MSA, that cell is redacted.

ILEC transport than wireless carriers. CLECs tend to serve business customers in the larger urban areas where wireline overbuilding and metropolitan fiber routes tend to be available. Wireless carriers, by contrast, must acquire backhaul service for all their cell towers, many of which are located in remote areas.

## 5. Discussion

These market concentration data go far to explain the stridency of the industry debate. On the one hand, ILECs maintain that they are losing business to competition. They are. The recent trend away from ILEC-provided circuits is understandably troubling to ILECs who are losing switched revenues at a rapid pace and who have increasingly relied on special access to fill the breach. Erosion of their DS-3 market must be particularly troubling, because these services still provide a majority of ILEC special access revenues. On the other hand, buyers argue that their markets are still concentrated and that they remain dependent on ILEC special access services. With minor exceptions, the buyers are also correct.

Economic theory generally urges caution in using market concentration data as a proxy for market power. It is certainly possible in non-utility markets for a firm to gain a high market concentration simply by having better and cheaper products than its competitors. As explained above, market concentration does not, by itself, prove that a seller has excessive market power. Moreover, there is no bright-line guide to differentiate between effective competition and excessive market power.

The FCC has expressed strong reservations about using market concentration data. In the *2005 NPRM*, the FCC stated that a snapshot of market share information would not be sufficient to evaluate either market power or the effects of Phase II regulation. The FCC stated that any concentration analysis should be augmented by other factors, especially supply responsiveness. The FCC also suggested that demand responsiveness, growth in demand, market shares before Phase II flexibility was implemented, and pricing trends should also be considered.<sup>166</sup>

While market concentration data cannot establish market power in the general case, it has unusual value for special access markets. The main reason is history. For a century, ILECs had a monopoly over telecommunications services, both in law and in fact. This history caused telephone companies to receive some unique benefits and to carry some unique burdens. Some of those benefits and burdens have disappeared, but many remain.

One unique benefit is that—like power companies, gas distribution utilities and to a lesser extent cable television companies—ILECs have distribution facilities at or near almost every customer location. Economies of scope and scale profoundly affect where wireline competitors can challenge an incumbent. When telecommunications service was a legal monopoly, no market concentration studies were needed to prove the existence of the monopoly. Now that the

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<sup>166</sup> *2005 NPRM* ¶¶ 104-106.

legal and technological environments have changed, different parts of that historical monopoly have retreated at varying speeds.

Regulatory context is another important variable. Economists sometimes use market concentration data in ways not relevant here. The question here is not whether the government should take an antitrust initiative to break up a large company. Nor is the question whether the government should acquiesce to a merger that increases market concentration. Here the law gives the FCC the obligation to ensure that the rates of telecommunications carriers are just and reasonable. On the question of where price regulation should be relaxed or abandoned, market concentration data should be a central consideration.

Information availability is a third consideration. We agree that data regarding supply responsiveness, demand responsiveness, growth in demand, and pricing trends should also be considered, if they are available. But market concentration data should not be disregarded if it cannot be supplemented by additional information such as demand responsiveness.<sup>167</sup> All methods of estimating market power have weaknesses. Concentration is an important piece of information that should not be overlooked, even if it might be more valuable if supplemented by other information. We conclude that market concentration is an important indicator of how rapidly formerly monopolistic special access markets are becoming competitive.

Finally, the FCC should not dismiss market concentration data as inadequate, while at the same time failing to collect the additional data that might make it more meaningful. For example, the FCC has not announced any affirmative steps to collect systematic demand or supply responsiveness data. As explained above, the FCC's only actions have been to request comments from interested parties. A reasonable regulatory body, seeing extremely high measures of market concentration and having its own staff resources, might decide to perform its own market power studies.

We examined market concentration using two different metrics, HHI analysis and ILEC market share analysis. The HHI analysis shows that all four special access markets are "highly concentrated" under the standards contained in the Merger Guidelines. For each of the four markets, HHIs remain at multiples of the concentration at which the Department of Justice would find that even a minor merger would be likely to create or enhance market power or facilitate its exercise. Not one of the special access markets has even 2.0 effective firms. In sum:

1. ILECs maintain strongly dominant market shares for DS-1 channel terminations. Nationally in 2007, this market had 1.18 effective firms, and ILECs provided 99 out of every 100 units of this service. ILECs have at least an 80% market share in every MSA we studied except Oklahoma City and Sacramento.

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<sup>167</sup> We do address demand responsiveness below, indirectly. Demand responsiveness is affected by the nature and degree of entry barriers, a question that we consider in part B below.

2. ILECs maintain dominant market shares for DS-1 transport. Nationally in 2007, this market had 1.32 effective firms, and ILECs provided 98 out of every 100 units of this service. ILECs have at least an 80% market share in every MSA we studied except Rochester.
3. ILECs maintain dominant market shares for DS-3 channel terminations. Nationally in 2007, this market had 1.30 effective firms, and ILECs provided 91 out of every 100 units of this service. The data show that concentration is increasing, and the HHI for DS-3 channel terminations reached its highest level in 2007. ILECs have at least an 80% market share in 68% of the MSAs we studied.
4. ILECs maintain dominant market shares for DS-3 transport. Nationally in 2007, this market had 1.85 effective firms, and ILECs provided 67 out of every 100 units of this service. There is strong geographic variation in market shares for this service, and ILECs have an 80% market share or better in only 26% of the MSAs we studied.

This summary suggests two general trends. First, DS-3 services may be somewhat less concentrated than DS-1 services. Second, transport is somewhat less concentrated than channel terminations. In addition, there is considerable geographic variation from city to city. The combined effect is that DS-3 transport is approaching competitive levels in some MSAs, but not generally. All of the remaining three markets are characterized by generally high concentration.

We also found that ILEC market shares declined from 2006 to 2007, primarily in the DS-3 markets. Nominally this might suggest at least the beginning of a trend toward reduced concentration for the larger capacity circuits. It is, however, too early to reach such a conclusion. Year-to-year differences in the completeness of the data reported to us could equally explain this recent shift.<sup>168</sup>

Other theories can explain these high market concentrations, but they are not persuasive. For example, ILEC services may have better quality. It is certainly true that DS-1 and DS-3 services are mature and are a highly reliable technology. Matching this quality has been a challenge for cable television and fixed wireless competitors, particularly among those customers who need very reliable service. Nevertheless, we found no direct evidence that quality assurance issues have seriously constrained buyers from purchasing special access elsewhere.<sup>169</sup>

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<sup>168</sup> For example, one buyer reported that nearly all of its purchases of dedicated transport in 2007 were purchased from non-ILEC sellers. This carrier did not report any circuit counts for 2006 or 2001.

<sup>169</sup> Further research on this topic would be worth doing, particularly on the characteristics of end-user customers who can and cannot use substitute services such as DSL, cable television packet services, and fixed wireless services.

Overall, the market concentration data portray special access as a dominant firm-competitive fringe market. In this kind of market, one firm, such as the ILEC, dominates, and other providers both individually and collectively have a small market share and little influence on price. Significant geographic exceptions exist, particularly for DS-3 transport.

## 6. Concentration and FCC regulation

The FCC assumed in 1999 that a city with many collocated wire centers was likely to be a city with a competitive special access market. For channel terminations, we tested whether the HHI of Phase II pricing flexibility areas is statistically different from Phase I areas. Our analysis was limited to 44 cities with valid data.

The FCC assumed in 1999 that frequent central office collocation would lead to horizontal competition for both channel terminations and transport. If that assumption had proven accurate, we would expect to find HHIs in Phase II areas much lower than in Phase I areas. Indeed, we would expect the concentration in Phase II areas to approach the lower limit of the DOJ standards for a highly concentrated market, with 5.5 effective firms.

Table 5 shows our results for channel terminations, converted from raw HHI values into the number of effective firms in each market.<sup>170</sup>

Effective Firms for Channel Terminations				
	2006		2007	
	Phase I	Phase II	Phase I	Phase II
DS-1	1.16	1.23	1.20	1.25
DS-3	1.39	1.49	1.26	1.47

*Table 5. Pricing flexibility and market concentration for channel terminations in 2006 and 2007*

As we hypothesized, in both years and for each service level, the Phase II channel termination markets are less concentrated than the Phase I markets. However, three of the four comparisons were not statistically significant at the 95% level. The only significantly different concentration was for DS-3 in 2007. Moreover, in none of the cases does the number of effective firms approach 5.5, the minimum number of effective firms at which Justice guidelines suggest that a market is not highly concentrated.

The data suggest that channel termination markets do not have fundamentally different dynamics in Phase I areas and Phase II areas. Overall, the concentration data are inconsistent

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<sup>170</sup> We did not perform a similar analysis of dedicated transport because there were insufficient MSAs that lacked Phase II pricing flexibility.



with any claim that the channel termination markets where the FCC has granted pricing flexibility are workably competitive for channel termination markets.

## **B. Contestable markets**

### **1. General theory**

We discussed this project with representatives of all the major incumbent LECs.<sup>171</sup> We also read their letters explaining their decision not to file data with us and their FCC filings. The story the major ILECs want told, it seems, is that they face real competition in many forms and from many sources. This section discusses the nature and effects of that competitive pressure.

The theory of “contestable markets” posits that a market may be served by a single firm or a dominant small number of firms, but that firm may refrain from raising prices or otherwise using its market power in order to avoid entry by competitors.<sup>172</sup> Under this theory, any firm making supernormal profits opens up opportunities for new entrants to come into the market, undercut existing prices, and take the profit for themselves. If the incumbent then lowers prices to compete, the new entrant can exit the market and recoup its original expenditures. In theory, a rational incumbent will seek to prevent this kind of “hit and run” competition, will refrain from raising prices above marginal cost, and thus will not use market power in a way that harms consumers. If firms do behave in this way, government has less reason to intervene in regulating a contestable market, even if that market is concentrated.

A key element of a contestable market is the ability of a new competitor to reverse an entry decision without cost. A market therefore would not be contestable if a new entrant who decides to exit would face large financial losses, such as by abandoning sunk investments. Also, nonfinancial entry barriers, such as the incumbent’s economies of scale and difficulties in gaining access to customers, can reduce a new firm’s ability to enter at will.

Contestable market theory has been criticized on several grounds.<sup>173</sup> Foremost is the argument that the conditions of costless exit seldom exist, if ever. Critics also contend that the theory unrealistically assumes that a new entrant can fully establish itself before an incumbent makes a price response or makes other moves against the new entrant. Third, while actual

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<sup>171</sup> Our meetings were facilitated by the United State Telecom Association.

<sup>172</sup> W. J. Baumol, "Contestable Markets: An Uprising in the Theory of Industrial Structure," *American Economic Review* (March 1982), 72, 1-15; W. J. Baumol, C. Panzar, and D. Willig, *Contestable Markets and the Theory of Industry Structure* (New York: Harcourt Brace Jovanovich, 1988).

<sup>173</sup> E.g., W. G. Shepherd, *The Economics of Industrial Organization*, 3<sup>rd</sup> edition, Prentice Hall (1990), 282-285.

competitors certainly do change an incumbent's behavior, critics charge that the theory overstates the effect that potential competitors have on incumbents.

Contestable market theory does not apply where a new entrant's marginal cost is higher than the incumbent's. In that case the incumbent might establish a price above its own marginal cost but below the new entrant's expected post-entry cost. This pricing strategy would generate supranormal profits for the incumbent and simultaneously discourage entry by new competitors. Moreover, even where an incumbent sets a price above the new entrant's cost, the incumbent can still discourage entry merely by threatening to lower prices below the new entrant's marginal cost. The result is that competitive entry is not viable, yet prices may still be excessive. An ILEC can use these strategies whenever it has a cost advantage over the potential entrant. That cost advantage can arise from any source, including the incumbent's economies of scale.

This report does not seek to resolve this debate among economists. Instead, we use contestability theory as a framework within which we explore whether actual and potential competition is constraining the exercise of market power by ILECs. Largely due to data limitations, our findings are less quantitative than the previous section.<sup>174</sup>

## 2. Special access competitors

Verizon was one of the two ILEC sellers that responded to our 2008 seller survey. In its submission, Verizon included a file displaying dozens of screen shots taken from the web sites of competitive providers. As explained above, none of these providers responded to our questionnaire for sellers, so we cannot make comprehensive findings regarding the extent of their facilities or their market shares. Yet Verizon's information proved very useful in understanding at least the kinds of competitive challenges that face the ILECs.

The largest telecommunications carriers do not provide network maps on their web sites, but they do advertise a wide range of services. AT&T, for example, advertises everything from voice private lines up to 10 gigabit Ethernet transport between AT&T's central offices. AT&T also offers more traditional digital services, such as ATM and frame relay.

Smaller landline fiber companies also show a wide range of services, often including dark fiber and multi-vendor brokering. These smaller providers do frequently provide a schematic map of their networks. Some are essentially national carriers. For example:

- Global Crossing operates a network that interconnects nearly all major U.S. cities and has international links to Canada, Mexico, Asia, Europe, and South America.

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<sup>174</sup> As mentioned above, we received seller survey data from only two incumbent LECs and one competitive provider. Also, we did not receive buyer data from the wireless affiliates of any incumbent LEC.

- Level 3 facilities serve dozens of cities along the Atlantic coast, and its network extends to major cities in the rest of the USA and Europe.
- PAETEC serves over 80 percent of the top 100 MSAs in the U.S. with data and voice services.
- TW Telecom offers services throughout the U.S., excluding New England and some states in the northern plains and mountain west. TW Telecom offers DS-1 and DS-3 service, and was the only non-incumbent to complete our seller questionnaire.
- XO is a CLEC that provides service in 75 markets, and reported revenues of \$1.4 billion in 2007.

The Verizon file also contained information from regional and metropolitan fiber providers. These carriers operate networks in many regions of the country, such as Florida and the Pacific coast.<sup>175</sup>

Non-PSTN services can also compete with special access. Within its geographic footprint, an advanced cable television system can offer a low-cost alternative to ILEC channel terminations. Packet-based transport protocols, running on managed IP cable networks, can replicate most of the key features of special access, including service quality.

Wireless technology offers another alternative to special access. Fixed wireless systems are competing directly with landline special access. Point-to-point wireless broadband can extend a company's communications for miles at relatively low cost. More common are wireless multipoint networks, including WiMAX.<sup>176</sup>

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<sup>175</sup> 360 Networks offers intercity fiber routes among most large cities in the mountain west and the Pacific coast, and it also connects Chicago and Dallas. Alpheus Data Services owns and operates regional and metropolitan fiber optic networks in eastern Texas. Edison Carrier Solutions maintains a network in southern California that has more than 3,000 route miles of fiber. FPL Fibernet operates a statewide fiber ring in Florida, and metropolitan rings in several Florida cities. ITC^Deltacom's network connects cities in the southeast U.S., and its network extends to San Antonio, Miami, and New York. Lightower operates a fiber ring throughout Massachusetts and metropolitan rings in several Massachusetts cities. One Communications has an extensive fiber network interconnecting approximately 50 cities in the northeast.

<sup>176</sup> WiMAX is a set of high-speed wireless broadband standards that can operate on a variety of licensed frequencies. WiMAX technology operates many times faster than current wireless networks. See <http://www.wimaxforum.org/documents/>, retrieved on Dec. 6, 2007. WiMAX has local scope and presently is marketed primarily as a substitute for Internet access and less so as a substitute for special access channel terminations.

Verizon's submission described numerous fixed wireless providers that compete with landline special access.

- Airband is a fixed wireless provider that uses WiMAX technology. Airband claims to offer rapid installation, scalable bandwidth up to 1 gigabit per second, path diversity, and Ethernet connectivity. Airband reports serving customers in 14 major MSAs and provides signal coverage maps online.
- Clearwire is a wireless high-speed Internet access provider that has combined its network with Sprint. The new company is focused on using WiMAX technology to serve a variety of markets. Clearwire offers service in 50 markets, covering more than 400 cities and towns.
- FiberTower is a backhaul and access transport provider focused primarily on the wireless carrier market. FiberTower claims to operate "carrier-class" microwave and fiber networks in 13 major markets and to serve 5,800 customer locations with 22,500 DS-1 equivalent circuits.<sup>177</sup>
- Nextlink is a sister company of XO Communications. It offers voice and data services at connection speeds ranging from DS-1 to Gigabit Ethernet up to 800 megabits per second. Nextlink claims to cover 81 of the top markets in the U.S.

For fixed wireless technology, the road to entry of special access markets has not been entirely smooth. FiberTower, for instance, had EBITDA losses of \$53 million in 2007,<sup>178</sup> and it announced plans in 2008 to reduce its workforce by more than ¼ as it refocused its business away from new markets.<sup>179</sup> Despite these setbacks, FiberTower continues to increase the number of its deployed sites, customer locations, and billing sites.<sup>180</sup>

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<sup>177</sup> FiberTower News Release *FiberTower Reports 2008 Third Quarter Results*, Nov. 6, 2008. See [http://www.fibertower.com/corp/downloads/press\\_releases/Q3\\_2008\\_Earnings\\_ReleaseB.pdf](http://www.fibertower.com/corp/downloads/press_releases/Q3_2008_Earnings_ReleaseB.pdf), retrieved on Dec. 6, 2008 (*FiberTower 10Q 2008Q3*).

<sup>178</sup> Fiber Tower SEC filing 10-K for 2007 at 37, available at <http://www.fibertower.com/corp/downloads/investors/10K2007.pdf>, retrieved on Dec. 29, 2008.

<sup>179</sup> FiberTower News Release, *FiberTower Reports 2008 First Quarter Results*, May 8, 2008.

<sup>180</sup> *FiberTower 10Q 2008Q3*, above.

Overall, the fixed wireless industry has so far had only a fringe effect on markets. For example, FiberTower anticipates outsourced fixed wireless backhaul to increase from 1% of a \$3 billion market in 2006 to 5% of a \$10 billion market in 2011.<sup>181</sup>

### 3. Fiber maps

In the FCC proceedings, Verizon also provided detailed maps of numerous cities showing the locations of collocated central offices as well as known CLEC fiber routes.<sup>182</sup> The maps also show known locations where a competitor provides a direct connection with its own facilities (direct CLEC service)<sup>183</sup> and locations where a competitor serves a customer using Verizon special access (indirect CLEC service).

Verizon's maps demonstrate that CLECs have built fiber rings and meshes in city after city, covering major portions of the urban areas. The maps also show that competitors have established direct service at hundreds of customer locations.

In areas where CLECs provide direct service using their own facilities, the Verizon maps also show that Verizon still has many special access customer locations, in some cities the majority of customer locations. This ability of ILECs to retain customers in overbuilt areas could arise from superior ILEC service quality, ILEC price competitiveness, limited CLEC entry into selected market sectors (such as DS-1 channel terminations), or all three.

The maps also illustrate that competition is far from ubiquitous. In virtually every mapped MSA, direct CLEC service (entirely using the CLEC's own facilities) is provided over a much smaller footprint than indirect CLEC service (using special access or UNEs purchased from others). Direct CLEC service is typically limited to downtown areas and a few major roads into the suburbs. Therefore, the areas with indirect CLEC service are typically far larger than the areas with direct CLEC service.

In other words, for large portions of each metropolitan area, the maps show that the "last mile" connection between the customer and the central office still depends exclusively on ILEC special access. Therefore, even where a CLEC gets to be the provider for a multi-location retail customer, ILEC special access is still likely to be an important upstream input.

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<sup>181</sup> FiberTower PowerPoint presentation, *FiberTower Investor Day*, presented April 1, 2008 to CTIA Wireless Show, slide 10, available at: <http://www.fibertower.com/corp/downloads/CTIA%20Deck%200408.ppt>, retrieved on Dec. 29, 2008.

<sup>182</sup> The maps were filed as confidential under a protective order and are not available to the general public.

<sup>183</sup> Verizon maps termed this "CLEC lit buildings."

It is worth noting that geographically limited competition is a natural response to a geographically concentrated customer base. Verizon reports that it derives 80% of its special access revenues (DS-1 and DS-3) from 15% of its wire centers.<sup>184</sup> It is perfectly rational for a landline competitor to build its facilities to serve only in the 15% of wire centers that produce 80% of market revenues.

#### **4. Discussion**

Contestable market theory suggests that a competitor with low entry and exit costs can restrain an incumbent from exercising its market power. Verizon's captured screen shots demonstrate that many firms compete in special access markets, including wireline CLECs, cable television providers, and fixed wireless providers. These competitors are claiming larger market shares.

Reports of competitive bidding practices also provide anecdotal evidence that competition is strong, at least for high-volume customers. Competitive bidding is used by carriers who buy large volumes of special access circuits and by some high-volume retail customers. We heard consistent reports that these competitive bid opportunities often draw multiple offers.<sup>185</sup> Such behavior suggests that at least some special access consumers are well informed, shop around, and work hard to buy at a lower price. The behavior does not prove anything, however, regarding smaller customers who are less aggressive and who are not likely to run bid proceedings for their special access purchases.<sup>186</sup>

Contestable market theory drives to quite different conclusions regarding landline competitors and competitors who use newer technologies.

##### **a. Landline competition**

Contestability theory focuses on the entry and exit costs of a new entrant. Combining contestability theory with our understanding of landline costs leads to a conclusion that landline competitors can possibly become a competitive force for transport between major

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<sup>184</sup> Verizon comments to FCC, Garzillo Declaration at 2.

<sup>185</sup> Verizon reported that when Verizon Business participated in requests for proposals for major special access contracts, there was an average of two other competitive bidders per contract, and some had as many as 11 competitive bidders. Moreover, approximately 70% of the competing bids were from non-AT&T companies. Also, on average, two to three bidders respond to most of Verizon Wireless' requests for proposals for special access services. Verizon submission "List of Key Data Points." Verizon Business did not file buyer data with us.

<sup>186</sup> Examining the results of completed bidding processes was beyond the scope of our study here, but it could provide additional insight into market behavior.

communication nodes, but landline competitors are unlikely ever to be a strong competitive force in channel termination markets outside downtown areas.

The channel termination problem is financial. A landline competitor that builds fiber or copper distribution systems can seldom generate enough revenue to justify the incremental investment in new cables or new light fibers often needed to serve a new customer. The GAO identified the elements of this problem in its 2006 report to Congress:

Constructing a local telecommunications network can be extremely capital intensive. Most communications equipment has no other use and therefore cannot be reused for alternative purposes. Because these investments would have virtually no alternative value if the business fails, competitors must have a certain level of expected revenue to extend their networks. The level of demand required for a competitor to build out its own facilities varied across the firms we interviewed depending on the extent to which the firm had already invested in the market, and the distance of the potential customer from the competitor's network.<sup>187</sup>

Volume is at least as important as geography, and a large account can draw competitors to almost any location. If a new entrant builds facilities to serve a new customer, the construction costs are quite similar, per mile, for a small DS-1 and for a high-capacity light fiber. Yet these two services can generate vastly different levels of revenue. Therefore new entrants can build longer circuits to customers who will buy high-capacity circuits.

In Verizon's comments to the FCC, it asserted that a CLEC can build a "lateral" channel termination of up to ¼ mile in length in a major urban area for less than \$100,000.<sup>188</sup> At that cost, a new customer would have to generate revenues of approximately \$3,400 per month, and even then the carrier might demand a five-year commitment from the customer.<sup>189</sup> We find below that buyers acquire DS-1 channel terminations at rack rates from RBOCs at about \$150 per month. This is about 4% of the break-even point on a \$100,000 investment.

We also find below that the average DS-3 channel termination price offered by RBOCs in 2007 was about \$2,000.00 per month. It is easy to see how a carrier would build to a customer who wants several of the \$2,000 items, but not to a customer who wants one of the \$150 items. The GAO summarized the industry view on this problem:

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<sup>187</sup> *GAO Special Access Report* at 26.

<sup>188</sup> Verizon comments to FCC, Brown declaration at 6.

<sup>189</sup> A company with typical debt/equity ratio, earning 11.25% on net plant, would require \$2,390 per month to pay debt, reward equity investors, pay taxes, and depreciate the plant in five years. With the addition of 12% overhead (on \$100,000 investment) per year for marketing, maintenance, and overhead, total cost equals \$3,400 per month.

Based purely on the expected returns on their capital investment and ignoring other potential barriers, representatives from one firm estimated that they would need three to four DS-1s of demand, while representatives from two other firms estimated demand of greater than 2 DS-3s was required.<sup>190</sup>

Channel terminations benefit from economies of scale and scope, a fact that can benefit ILECs and prevent competitive entry.<sup>191</sup> Because most customer locations in the U.S. already take telephone service, ILECs already have multi-strand copper cables<sup>192</sup> or fiber nodes near almost every possible customer location. Many customers can be served from existing facilities or from short additional construction runs. Even where a new customer requires upgraded feeder or distribution cables, the new construction can produce other scope economies such as higher-quality transmission for switched traffic and a greater capability to provide Internet services to other customers.

New entrants also face a variety of other entry barriers, including legal restrictions that limit building access. As the GAO noted, a competitor's access to a customer may be limited by local government regulations and even by building landlords.<sup>193</sup> A CLEC may have a fiber route passing an office building and yet be unable to serve the customers in that building because of limited physical access.

Costless exit is the central assumption in contestable market theory, but economies of scale and scope also affect exit costs. When a carrier loses a customer, the probable financial loss is lower if the carrier is likely to reuse the same facilities. That in turn depends on customer density. When an ILEC customer switches to another carrier or goes out of business, the ILEC is likely to have nearby customers and is therefore likely to reuse the cable strands and fiber facilities that served the lost customer. In contrast, a new entrant ordinarily has fewer customers per mile and is therefore more likely to find that the investment remains unusable. Except for competitors using UNE loops, it is hard to see how a new landline entrant could cease serving a channel termination customer without bearing a substantial risk of losing most of its cable and wire investment.

Advertising and other promotional costs also are sunk costs that cannot be recovered if market entry is unsuccessful. These costs provide another reason why contestable market theory has limited applicability to special access markets.

The fiber maps in the FCC record show that the competition for channel terminations is geographically limited. Despite widespread construction of metropolitan fiber systems in the

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<sup>190</sup> *GAO Special Access Report* at 26.

<sup>191</sup> *See 2005 NPRM* ¶ 26.

<sup>192</sup> A standard DS-1 circuit runs on four copper wires.

<sup>193</sup> *GAO Special Access Report* at 26.



larger cities, landline technologies have generated competition only in small portions of these metropolitan areas. CLECs seem to limit construction of “last mile” facilities only in the most densely settled areas with the highest concentration of enterprise customers. Contestable market theory explains this behavior in light of the entry and exit costs associated with those facilities. Our cost analysis suggests that wireline competitors are likely to remain a competitive force primarily in those relatively compact areas with a high density of customers who generate high revenue volumes.

In the preceding section we found that market concentration is lower for transport, particularly DS-3 transport. Contestable market theory also helps explain this finding. Transport connects two wire centers. Once transport is installed, it can serve many retail customers and even provide wholesale services to other carriers. A new entrant that already is providing transport between two offices has a low marginal cost of serving an additional customer. Moreover, since transport facilities can serve many customers, transport investment generates lower business risk from the loss of a single customer.

#### **b. Cable and wireless technologies**

The economic forces that limit landline competition for channel terminations have little or no bearing on newer technologies. These technologies can provide acceptable substitutes for special access channel terminations, and their providers can have lower entry and exit costs.

Digital cable television systems can be modified to offer substitutes for special access. While these services may not meet every special access customer’s needs,<sup>194</sup> they are attractive to many. Moreover, entry cost is low. As cable TV companies have begun to offer cable modems, they have adopted packet transport as their underlying technology. Once a cable television provider has made this transition, it can offer a substitute for special access at a small incremental cost.

Cable television systems also have low exit costs for special access, so long as they remain in the underlying cable business. If a cable television provider wanted to offer special access over an existing digital network, its incremental investment might be limited solely to electronic control equipment and interconnection costs. If the provider then were to exit the special access market, some or all of the additional electronic equipment would be reusable.

Cable television systems have low entry costs only in locations where they already provide service. While cable television systems today pass the majority of American homes and businesses, millions of homes in rural areas are still not served by cable. Yet ILECs provide special access in many of these same areas, including remote areas that have rural cell towers.

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<sup>194</sup> For example, cable systems generally cannot provide physically distinct transmission paths, a feature that some customers require.

Therefore, both cable and CLECs face a similar limitation as competitors: both have high marginal costs to serve additional customers outside their existing network footprint.<sup>195</sup>

Fixed wireless service can also provide a substitute for special access service. A fixed wireless carrier can install broadcast antennas that serve multiple customers, producing a relatively low entry cost even in low-density areas. Since wireless transmitters can be used simultaneously for multiple customers, the cost of serving a single additional customer is usually very low. Likewise, where a provider serves multiple customers from a single broadcast unit, the provider faces little financial risk from losing a single customer.

In sum, cable television-based systems have strong potential to compete with special access in areas where the cable service already provides service, but poor prospects elsewhere. Fixed wireless is a competitor of growing importance, but to date it has earned only a modest market share. Fixed wireless may have a large market share in five years, particularly if WiMAX proves reliable and if these carriers can attract sufficient capital to expand.

The question here is whether these new entrants have yet constrained ILEC behavior. Our overall conclusion is that competitors are still generally acting on the fringes of special access markets, but that conclusion could change over time. Certainly contestable market theory explains why transport markets are more competitive than channel termination markets. Even in channel terminations markets, competitors may be exerting meaningful constraints in some MSAs and in some sub-MSA areas.

## **C. Price**

### **1. Background**

Price trends can provide evidence of market power, or its absence. A market can be considered noncompetitive if, once having been competitive, and without costs rising, a dominant participant imposes substantial and sustained price increases.<sup>196</sup> Conversely, observed price decreases in a formerly monopolistic market can argue that markets are becoming more competitive.

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<sup>195</sup> We asked the National Cable and Telecommunications Association to communicate with its members about providing us with data. NCTA did not further respond.

<sup>196</sup> The FCC has said that a price increase is not substantial unless rates rise above just and reasonable levels, and this depends on cost. *See 2005 NPRM ¶¶ 73-74.* Under this standard, sellers could always argue that their prices are below cost and therefore a price increase is not substantial. Yet the FCC has not said what rates are reasonable since it adopted the CALLS plan in 2001; therefore, there is no announced cost standard. This suggests that it would have been difficult to persuade the 2005 FCC that any sustained price increase was due to the exercise of market power.

As explained above, our surveys generated a great deal of pricing data. We anticipated that these data could answer a number of questions regarding market power and the effectiveness of FCC regulation at limiting prices in Flex II areas. The Uri and Zimmerman study was limited to examining rack rates, yet all market participants agree that rack rates are only one of several important factors in understanding prices. We also hoped that by collecting average sale prices from buyers, we could avoid some of the data problems that arose from the GAO's use of average revenues derived from sellers.

## 2. Trends in price

The GAO found that both list prices and average revenues for special access declined from 2001 to 2006. The following sections evaluate pricing trend data collected for the Project.

### a. Buyer data

We asked buyers to provide price data for 2001, 2006, and 2007. Buyers submitted no buyer price data for 2001.<sup>197</sup> Therefore, the only price data available for a trend analysis concern 2006 and 2007. Table 6 shows the rack rate trends reported by buyers between 2006 and 2007.

Service Level	DS-1			DS-3		
	2006	2007	Pct. Change	2006	2007	Pct. Change
RBOC channel terminations <sup>198</sup>		\$150.91		\$ 2,079.87	\$ 2,016.32	-3%
ILEC channel terminations	\$161.87	158.23	-2%	720.53	1,090.62	51%
RBOC transport - fixed charges	67.21	58.10	-14%	475.10	511.65	8%
RBOC transport - variable charges	18.26	16.59	-9%	67.22	96.03	43%

Table 6. Price trends from 2006 to 2007- rack rates – Buyer data

The data show some increases and some decreases. All DS-1 rack prices declined from 2006 to 2007. Yet for DS-3 services, most rates increased. Buyers reported higher rates in 2007

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<sup>197</sup> One buyer did provide data for 2002 for ten large cities, but this was not sufficient to support a meaningful trend analysis.

<sup>198</sup> The buyer data showed a large increase in DS-1 RBOC channel termination rack rates in 2007. This appears to be a reporting error, because the rack rate reported for 2006 was lower than the average discount price. Accordingly, that result has been redacted.

for DS-3 channel terminations purchased from non-RBOC ILECs, and increases in transport rates from RBOCS. Finding that the DS-3 transport rate increased is troubling because that increase appears to contradict our notion that DS-3 transport may be the most competitive of the four markets we examined.

Table 7 shows similar buyer data for discounted rates.<sup>199</sup> Data in this table are the best estimate of the actual prices paid by large wholesale purchasers because these customers purchase a high percentage of their circuits at discounted rates.

Service Level	DS-1			DS-3		
	2006	2007	Pct. Change	2006	2007	Pct. Change
RBOC channel terminations	\$113.64	\$100.47	-12%	\$878.61	\$638.97	-27%
ILEC channel terminations	122.51	107.40	-12%	798.12	611.02	-23%
RBOC transport - fixed charges	40.53	36.90	-9%	529.78	477.50	-10%
RBOC transport - variable charges	8.22	7.12	-13%	37.93	31.18	-18%

*Table 7. Price trends from 2006 to 2007- discounted rates – Buyer data*

Each of the discounted rates we measured declined from 2006 to 2007. One possible explanation is that competition is driving prices down for customers purchasing at discounted prices. We do not reach a firm conclusion on this point because we lack more than one year’s data and we lack confirmation from comprehensive seller data.

**b. Seller data**

**(1) Verizon**

Verizon provided seller data for eleven MSAs and for 2001, 2006, and 2007, as we had requested. Table 8 summarizes the trends in Verizon’s average pricing data. It is important to

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<sup>199</sup> We discovered that respondents found difficult our request to differentiate between “generally available discounts” and “special contracts.” Some respondents reported all circuits in the former category. Others reported only a few units sold under special contracts. Because different respondents seemed to interpret this distinction in different ways, some of the following analysis collapses these two categories into a single “discounted rates” category.

note that a changing average rate can be produced by changes in the rate itself and by a shift in the volumes sold to high-rate and low-rate customers.

To simplify the comparisons, we defined a standard circuit as consisting of one unit of channel termination, one unit of transport, and ten units (miles) of variable transport. As is true throughout this report, prices are shown in nominal dollars.<sup>200</sup>

Period		2001-06		2006-07	
Service Level		DS-1	DS-3	DS-1	DS-3
Channel Termination					
	Retail	-5%	9%	3%	1%
	Rack	-6%	-12%	1%	2%
	Discounted	-2%	-11%	-1%	1%
Dedicated Transport Fixed Rates					
	Retail	-2%	13%	0%	-4%
	Rack	6%	10%	-6%	1%
	Discounted	8%	-4%	0%	-2%
Dedicated Transport Variable Rates					
	Retail	15%	13%	1%	-8%
	Rack	9%	15%	-6%	3%
	Discounted	15%	-2%	0%	-2%
Standard Circuit					
	Retail	3%	11%	2%	-3%
	Rack	2%	0%	-3%	2%
	Discounted	6%	-6%	0%	-1%

*Table 8. Verizon average price changes 2001-2007 (11 cities)*

Table 8 shows a complex picture, with some rates increasing and some decreasing. From 2001 to 2006, Verizon's prices for a standard circuit generally increased, except that discount wholesale DS-3 customers saw a 6% decrease. From 2006 to 2007, Verizon's price changes were small and of mixed direction.

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<sup>200</sup> Although we had not requested that it do so, Verizon submitted inflation-adjusted prices. We removed the inflation adjusters to make Verizon's data comparable to other price data in this report and to avoid controversy as to which of several adjusters is most appropriate.

Verizon claimed that its prices have been declining, both DS-1 and DS-3 levels, “by 4% and 5% annually on a real basis, respectively, between 2001 and 2007.”<sup>201</sup> While we do not dispute Verizon’s claim, when Verizon’s inflation adjuster is removed, we reach a quite different conclusion. Overall, the Verizon prices showed a mixture of small increases and decreases, except that the price of DS-3 circuits sold to discount customers declined throughout the entire period.

**(2) Embarq**

Embarq provided seller data for 19 MSAs, and for 2001, 2006, and 2007, as we had requested. Table 9 summarizes the Embarq pricing data by reporting average rates, weighted by units sold. As is true throughout this report, prices are shown in nominal dollars.

Period		2001-06		2006-07	
Service Level		DS-1	DS-3	DS-1	DS-3
Channel Termination					
	Retail	11%	31%	7%	-5%
	Rack	-27%	-58%	-14%	-1%
	Discounted	-5%	-51%	7%	4%
Dedicated Transport Fixed Rates					
	Retail	4%	-18%	3%	-1%
	Rack	-10%	-29%	-8%	4%
	Discounted	1%	-12%	1%	0%
Dedicated Transport Variable Rates					
	Retail	-17%	-14%	2%	3%
	Rack	-21%	-1%	-34%	5%
	Discounted	5%	-25%	4%	0%
Standard Circuit					
	Retail	2%	4%	5%	-2%
	Rack	-20%	-29%	-17%	3%
	Discounted	-1%	-33%	4%	1%

*Table 9. Embarq average price changes 2001-2007 (19 cities)*

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<sup>201</sup> Verizon submission “List of Key Data Points.” Verizon’s assertion is true only with inflation-adjusted prices.

Table 9 again shows a complex picture, with some average prices increasing and others decreasing. In the 2001-06 period, all of Embarq's rack rates decreased, as did its DS-3 discount rates. On the other hand, DS-1 standard circuit rates to discount customers changed very little between 2001 and 2006. In the 2006-07 period, Embarq reduced its rack rates for DS-1 service, but its retail prices increased.

Overall, the Embarq prices show past decreases, combined with a possible new trend to raise prices. The 2007 data would not support a claim that Embarq's special access prices currently are decreasing.

### 3. Rack and discount prices

One purpose in collecting price data was to assess the difference between rack and non-rack rates. Table 10 shows these differences for various services in 2007, as reported by buyers.<sup>202</sup>

Service Level	DS1			DS-3		
	Rack	NonRack	Discount	Rack	NonRack	Discount
Channel Termination Rate - RBOC	\$150.91	\$100.47	33%	\$2,016.00	\$638.97	68%
Channel Termination Rate - ILEC	158.23	107.40	32%	1,090.62	611.02	44%
Dedicated Transport fixed charge - RBOC	58.10	36.90	36%	511.65	477.50	7%
Dedicated Transport variable charge - RBOC	16.59	7.12	57%	96.03	31.18	68%

*Table 10. Plan discounts offered by RBOCs and other ILECS in 2007*

These data show that both RBOCs and other ILECs offer substantial discounts to customers willing to participate in discount plans. At the DS-1 service level, where most wireless carriers buy, the discounts are between one-third and one-half off. At the DS-3 level, where ILECs get most of their revenue and where we would expect competition to be most intense, the discount on channel terminations is more than two-thirds.

### 4. RBOC and other ILEC prices

Table 11 arrays some of these same prices to show the differences between RBOC average prices and the average prices of other ILECs for channel terminations.<sup>203</sup>

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<sup>202</sup> Dedicated transport sold by non-RBOCs is not shown because of the small number of reported data entries.

Channel Termination Service Level	DS1			DS-3		
	RBOC	Other ILEC	ILEC Difference	RBOC	Other ILEC	ILEC Difference
Rack Rate	\$150.91	\$158.23	5%	\$2,016.32	\$1,090.62	-46%
Discounted Rate	100.47	107.40	7%	638.97	611.02	-4%

Table 11. Channel termination prices from RBOCs and other ILECS in 2007.

Other ILECs seem to have prices quite similar to RBOCs for DS-1 service, and also have similar discounted prices for DS-3 circuits. For DS-3, RBOCs have much higher rack rates.<sup>204</sup>

### 5. ILEC and non-ILEC prices

We had hoped to use buyer data to evaluate whether ILEC prices are generally lower than non-ILEC prices. All else being equal, one would presume that new entrant prices would be noticeably lower than incumbent prices. For example, FiberTower claims to offer 15% to 30% discount from ILEC rates.<sup>205</sup> In actuality, not all is equal.

CLECs can maintain such a price differential by limiting their entry geographically. We discussed above that competitive LECs tend to concentrate their investment in high-density areas where the revenue opportunities are greatest, such as downtown areas with dense enterprise customer sites. CLECs thus have the advantage of building only where investment is likely to produce a return.<sup>206</sup> This should produce a lower average cost for CLECs and lower measured CLEC rates.

<sup>203</sup> Dedicated transport is not listed because of the small number of reported data entries for sales by non-RBOCs.

<sup>204</sup> These DS-3 data should be interpreted with caution because of the relatively small number of purchases from other ILECs. For example, for DS-3 purchases in 2007, buyers reported only 147 channel terminations from other ILECs at rack rates and 593 at discount rates. At the DS-1 service level, buyers reported thousands of circuits in both categories.

<sup>205</sup> FiberTower PowerPoint presentation, *FiberTower Investor Day*, presented April 1, 2008 to CTIA Wireless Show, slide 10, available at: <http://www.fibertower.com/corp/downloads/CTIA%20Deck%200408.ppt>, retrieved on Dec. 29, 2008.

<sup>206</sup> *BellSouth Merger Order*, above ¶ 55.



Special access wholesale buyers frequently complain that ILECs sell special access at such high prices that the buyers cannot profitably serve additional retail customers. Yet it is the geographical differences between the ILEC and CLEC networks that generate much of the controversy. Only the ILEC network is ubiquitous. Wholesale buyers need special access precisely because they want to serve customers to whom they cannot afford to build their own channel terminations. Under these circumstances, a higher ILEC price may well be just and reasonable.

We have not made any findings on this issue because we encountered an unexpected and serious data validity problem. As explained above, our data collection instrument attempted to limit uncontrolled variables by asking separately for the prices of channel terminations and for transport and separately for DS-1 and DS-3 service levels. Based on buyer data that we received, we generated average ILEC prices and average non-ILEC prices in all 50 MSAs.

The preliminary results showed non-ILEC prices for channel terminations that were substantially higher than RBOC rack rates, and much higher than RBOC discount rates. On further investigation we found that at least one buyer had reported both channel termination and transport costs for its non-ILEC circuits in the channel termination column. The reporting carrier explained that this resulted from a generic problem: non-ILEC sellers typically do not separate their charges for transport.<sup>207</sup> This reporting difference prevents us from making findings regarding the differences between ILEC prices and non-ILEC prices.<sup>208</sup>

## **6. Price and FCC regulation**

In 1999 the FCC assumed that a city with many collocated wire centers was likely to be a city with a competitive special access market. Expecting prices to vary with competition, we tested whether prices in Phase II pricing flexibility MSAs are statistically different from Phase I MSAs. Table 12 shows the mean prices for channel terminations in two years, separated by whether the MSA where the service is provided had Phase I or Phase II flexibility.<sup>209</sup> An asterisk is added to each cell where the differences are significant at the 95% confidence level.

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<sup>207</sup> Many competitive sellers do not break out the price in the manner traditional to ILECs.

<sup>208</sup> The problem could be addressed by comparing sample special access circuits. For example, a “standard circuit” price could be developed for both ILEC-provided circuits and non-ILEC circuits.

<sup>209</sup> We did not perform a similar analysis of dedicated transport because there were insufficient MSAs that lacked Phase II pricing flexibility.

	Mean Rack Rate					
	2006			2007		
	Phase I	Phase II	Pct Diff	Phase I	Phase II	Pct Diff
DS-1	\$ 210.84	\$ 191.69	* -9%	\$ 211.80	\$ 183.15	* -14%
DS-3	2,258.60	2,050.50	-9%	2,278.89	2,094.38	-8%

	Mean Discounted Rate					
	2006			2007		
	Phase I	Phase II	Pct Diff	Phase I	Phase II	Pct Diff
DS-1	114.72	125.38	* 9%	116.83	125.82	8%
DS-3	1,055.98	1,077.74	2%	881.83	1,007.71	14%

Table 12. Mean buyer's price for channel terminations, by regulatory status

For rack rates, the direction of the difference is consistent across both years and both service levels. Rack prices were always lower in Phase II areas.<sup>210</sup> This finding is inconsistent with the findings of Uri and Zimmerman, who asserted that carriers had raised rack rates in Flex II areas after 2001. Our finding is also inconsistent with the GAO report. The GAO found that in areas where the FCC had granted full pricing flexibility, list prices tend to be higher than or the same as list prices in areas still under some FCC price regulation.<sup>211</sup>

The rates paid by discount customers showed a completely different pattern. Once again the direction of the difference is consistent across both years and both service levels, but in this case the direction is reversed. Prices to discount customers for channel terminations were always *higher* in Phase II areas. Generally the differences were small between Phase I and Phase II MSAs. The difference was statistically significant at the 95% confidence level only for DS-1 channel terminations in 2006.

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<sup>210</sup> The differences were significant at the 95% confidence level only for DS-1 channel terminations.

<sup>211</sup> *GAO Special Access Report* at 1. One possible difference between our data and that of the other two studies is that we used average rates reported by buyers who purchased at rack rates. This can reflect variables not considered by the other studies, including term discounts and zone differences.

Our finding is consistent with the GAO report. The GAO found that in areas where the FCC had granted full pricing flexibility, average revenues tend to be higher than or the same as list prices and average revenues in areas still under some FCC price regulation.”<sup>212</sup>

We had hypothesized that if competition is limiting price in Phase II areas, we would find significantly lower prices in Phase II areas, both for rack and discounted prices. The ILECs’ asserted practice of offering additional discounts in Phase II areas reinforced this expectation.

Our hypothesis was not supported at the 95% level for any service, except rack rates for DS-1 channel terminations. Moreover, among larger buyers who purchase at discounted rates, the effect was the opposite of what we expected. Areas with greater pricing flexibility actually had higher discount prices, a result strongly refuting our hypothesis. We give weight to the latter findings regarding discounted rates because the great majority of wholesale purchases are made under such discount plans.

Overall, the evidence fails to support a conclusion that sellers are being restrained in Phase II areas by competition to offer lower prices. Instead, it suggests the contrary conclusion, that sellers are using market power in Phase II areas to raise prices to their large wholesale customers.

## 7. UNE prices

The availability of unbundled network elements (UNE) adds new opportunities to evaluate special access prices. UNEs are the functional equivalents of certain dedicated access services.

UNE pricing methods are quite different from special access. Under the structure created by the 1996 Act, UNEs can be priced by agreement among interconnecting carriers. Failing agreement, the Act allows the carriers to seek arbitration of their interconnection disputes. These arbitrations are generally conducted by state commissions under pricing rules established by the FCC. The pricing rules were upheld in the Supreme Court.<sup>213</sup> The FCC rules require the use of “total element long run incremental cost” (TELRIC) pricing methods. Many states therefore have had proceedings to set UNE rates using the TELRIC methodology. Some parties have

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<sup>212</sup> *GAO Special Access Report* at 1.

<sup>213</sup> *Verizon Communications, Inc. v. FCC*, 535 U.S. 46, (2002) (FCC can require state utility commissions to set rates charged by ILECs for lease of network elements to CLECs on a forward-looking basis untied to the incumbents’ historical or past investment).

asserted that in limited circumstances where competition is well established, market prices tend to approach UNE rates.<sup>214</sup>

Comparing UNE prices with substitutable special access services could shed light on whether special access rates are above cost, at least as defined by the TELRIC standard. Some data filed at the FCC tends to show that special access prices are significantly higher than UNE prices.<sup>215</sup> While we recognized that collecting and analyzing such data might be worthwhile, collecting such data was beyond our current scope.

## 8. Discussion

We sought pricing trend data from 2001 to 2007. We did not receive enough buyer data to delineate long-term trends, but we do find changes in the buyer data between 2006 and 2007 that, if sustained, would establish a trend. The buyer data showed that rack rates had generally fallen in 2007, except that rates for DS-3 transport increased. For discounted prices, the buyer data showed a more uniform decline.

Surprisingly, while the buyers' data tended to suggest that competition is increasing and prices are dropping, the sellers' data suggested the contrary. The Verizon data does not show that Verizon's special access prices are generally decreasing. Embarq's data showed that Embarq lowered its rates in the past, but the trends from 2006 to 2007 do not show decreases.

In sum, the data do not support any clear conclusions about price trends. Some data suggest rising prices, while other data suggest declining prices. Data quality could well be the reason for these ambiguities. If the FCC or another body were to conduct repeated price surveys over a longer period, there would be greater opportunity to standardize reporting procedures, to cross-check the submitted data, and to produce clearer results.

We found that both RBOCs and other ILECs offer substantial discounts from rack rates to customers who participate in discount plans. These discounts in some cases were more than 50%, and the lowest was 32%. Such large discounts can create a strong incentive for wholesale buyers to enter discount plans.

RBOCs and other ILECs seem to have similar prices for channel terminations, although RBOC rack rates for DS-3 circuits were much higher. We were not able to compare meaningfully the rates charged by ILECs and the rates charged by non-ILECs.

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<sup>214</sup> See, e.g., FCC Comments of ATX et.al. in FCC Docket No. 05-25, filed Aug. 8, 2007 at 36.

<sup>215</sup> *Id.* at 37 (“based on a sample of Qwest states, for a one-year term Zone 1 DS-1 circuit with two channel terminations and 10 miles of channel mileage, Qwest’s pricing flexibility and price cap rates were 87% and 169% greater, respectively, than the average of UNEs rates offered in Arizona, Minnesota, Colorado, Washington, and Iowa”).

For rack rate customers, channel termination rates in Phase II areas tend to be lower than in Phase I areas, although the differences were statistically significant only for DS-1 circuits. For discount customers, channel termination rates in Phase II areas tend to be higher than in Phase I areas, although most differences were not statistically significant. This pricing evidence shows that market forces are not reducing rates in Phase II areas, as we had hypothesized. Therefore, we also conclude that the FCC's policy of measuring collocation activity provides a weak foundation for differentiating the competitiveness of special access markets and for making regulatory decisions about deregulating those markets.

#### **D. Earnings**

This section evaluates the profits that large ILECs earn from their special access operations. Traditional economic theory asserts that competitive markets drive prices to marginal cost, and that the entry and exit of firms tends to drive that price to average cost, including a normal return on equity. Yet as we discussed above, telecommunications markets have some unique cost structures. ILECs have advantages of scale and scope that can drive their marginal cost lower than that of a new entrant. An ILEC can therefore charge a rate above its marginal cost. In practice, telecommunications carriers generally do price their products to recover not only the marginal costs of serving a new customer, but also to recover a share of their sunk and common costs.<sup>216</sup>

It is also possible for a carrier to charge an even higher rate, provided it has a large enough cost advantage over new entrants. A wise new entrant would avoid entering a market where its projected price is higher than its competitor's lowest possible price. In other words, a new entrant is unlikely to enter a market in which it has a substantial cost disadvantage compared to the incumbent. This dynamic not only explains why CLEC wireline entry has been geographically limited, but also why ILECs have market power. So long as an ILEC has a cost substantially lower than a new entrant's, the ILEC can earn an excessive profit on its special access operations and still avoid competitive entry.

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<sup>216</sup> Professor Baumol asserts that low marginal costs are characteristic not only of telecommunications but of many currently innovative industries: "The industries that are the hallmark of the "new economy" are characterized by a special cost structure. From software to semiconductors, digital entertainment to biotechnology, and in innovative fields more generally, the standard cost pattern entails sunk outlays that are large and must be incurred over and over again, but the marginal cost—the cost of serving an additional customer—is virtually negligible. As economists are well aware, this is only a special case of a more general circumstance, the case of scale economies, where the prices of a firm's products, if set equal to the corresponding marginal costs, will condemn the enterprise to losses." W.J. Baumol, D.G. Swanson, *Symposium On Competitive Price Discrimination: The New Economy And Ubiquitous Competitive Price Discrimination: Identifying Defensible Criteria Of Market Power*, 70 *Antitrust L.J.* 661 (2003) (emphasis added).

## 1. ARMIS Earnings

The FCC's Automated Reporting Management Information System (ARMIS) offers a traditional way to compare price with cost. ARMIS provides enough information to calculate earnings based on fully allocated costs, in which common costs have been allocated over the different bundles of services recognized by the FCC's price caps system.<sup>217</sup>

We found that earning rates on special access are high and have been increasing for a decade. In its 2005 NPRM, the FCC acknowledged that:

In recent years, the BOCs [Bell companies] have earned special access accounting rates of return substantially in excess of the prescribed 11.25 rate of return that applies to rate of return LECs. The BOCs' collective average special access accounting rates of return over the last six years (1998-2003) have been 18, 23, 28, 38, 40, and 44 percent, respectively.<sup>218</sup>

AT&T, Verizon, and Qwest are incumbent providers in 49 of the 50 top MSAs surveyed in the NARUC Project. As illustrated in Chart 3, ARMIS data show a high and increasing rate of earnings on special access net investment for all three.

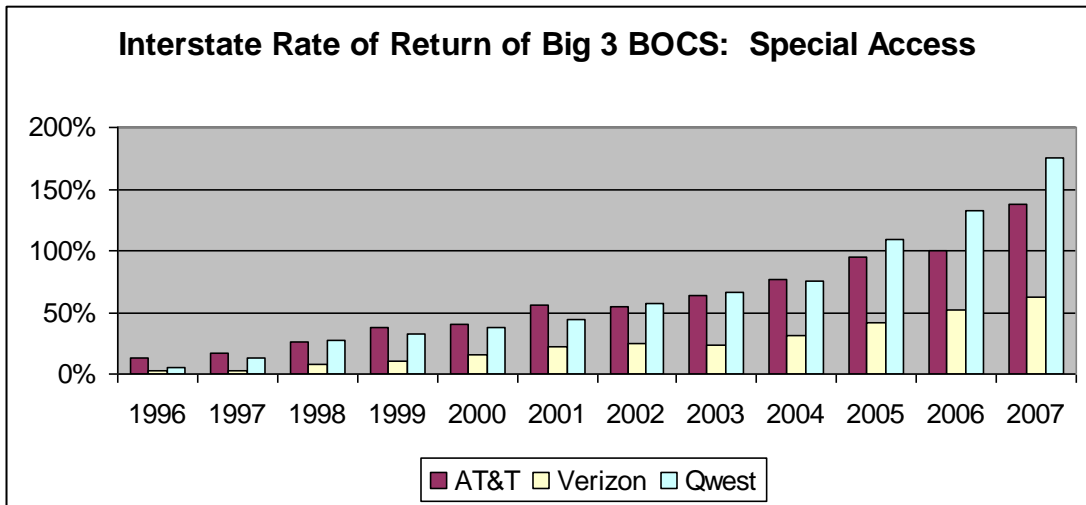


Chart 3. Interstate special access rate of return of three RBOCs.<sup>219</sup>

<sup>217</sup> The FCC has called this an “accounting rate of return” because it is calculated from data in the carriers’ accounting systems.

<sup>218</sup> 2005 NPRM ¶ 35.

<sup>219</sup> Source: ARMIS, authors’ calculations.

Consistent with the FCC findings in 2005, Chart 3 shows that, according to ARMIS, special access earnings for the big three RBOCs continued to increase through 2007.

Buyers have criticized the FCC's current regulatory regime because it has apparently allowed excessive earnings. For their part, the RBOCs contend that the ARMIS figures are virtually meaningless. We agree with the RBOCs. Our reasoning requires discussion of the separations procedures underlying ARMIS.

ILECs record their investments in large asset groups, such as "Cable and Wire Facilities" (C&WF). "Categorization" is the process of dividing these large asset groups into smaller categories. Each category then has a separations "factor" assigned to it that splits the category between the two jurisdictions. One important factor, for example, assigns 75% of joint use customer loops to the state jurisdiction.

Before 2000, special access investment was categorized by what is called "direct assignment." The purpose was to assign 100% of investment for interstate special access to the interstate jurisdiction and 100% of investment for intrastate special access to the state jurisdiction. In practice, direct assignment required carriers to perform studies on how their networks were used. For example, when a carrier installed a new cable, it would simply record the cost as C&WF investment. Later, the carrier would do a separations study to determine which portion of its C&WF investment was used for interstate special access, which portion was used for state special access, and which portion was used in common for switched services.

In 2001, the FCC "froze" separations categories and factors for large companies. At that point, large carriers stopped performing direct assignment studies. Instead, they continued to use the same categorization ratios they had used in 2000. To illustrate, if a carrier had directly assigned 10% of its 2000 C&WF investment to interstate special access, then it also would assign 10% of its 2007 C&WF investment to interstate special access. Since carriers' net C&WF tended to be relatively stable over that period, the directly assigned special access investment and expenses also changed very little.<sup>220</sup>

During this same period, carriers greatly increased their sales of interstate special access, and all of that revenue was assigned to interstate. As a result, interstate special access revenues increase every year, but not interstate special access costs.<sup>221</sup> This imbalance has inflated ARMIS special access earnings reports and made them unreliable.

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<sup>220</sup> Because the carriers are using the same categorization factors, amounts directly assigned to the jurisdictions rise or fall with overall investment.

<sup>221</sup> Many carriers have invested heavily in DSL technology. Some BOCs offer DSL services exclusively through a separate subsidiary, in which case no DSL revenues, expenses, or investment are booked to the interstate special access category. Some other carriers are reporting DSL revenues as special access revenues. *See 2005 NPRM*, ¶ 63 n.171.

## 2. Adjusted earnings

Rather than abandon the earnings issue, we performed an earnings analysis with an adjusted investment base. No adjustment technique is available to us that could match the accuracy of direct assignment studies actually performed by the carriers themselves. Nevertheless, we did find a method that produced an approximate result.

We adjusted plant investment to reflect special access sales growth since 2000. Specifically, we increased 2007 special access investment totals so that they bear the same relationship to total investment that 2007 special access revenue bears to total 2007 regulated revenue. We then reduced other investment categories to maintain constant investment totals and recalculated secondary separations factors such as expenses, general support facilities, and taxes. Based on this new investment and expense profile, we recalculated each carrier's special access earnings. The results are summarized in Table 13.

Calendar 2007	Ratio of Special Access Plant to Total Plant In Service		Special Access Return on Investment	
	Standard ARMIS	Adjusted	Standard ARMIS	Adjusted
AT&T	7.7%	18.0%	138%	35% <sup>222</sup>
Qwest	8.7%	26.0%	175%	38%
Verizon	12.6%	23.7%	62%	15%

*Table 13. RBOC 2007 special access plant and earnings, adjusted and unadjusted*

Our adjustment substantially reduces special access earnings. Even after adjustment, however, all three companies show earning well above the 11.25% authorized return that the FCC last prescribed for price cap carriers. AT&T and Qwest show earnings that are more than three times the authorized level.

This finding supports a conclusion that all three large RBOCs have raised prices above average cost, defined in the traditional accounting sense. We take such high earnings as evidence that the three RBOCs continue to have market power and, at AT&T and Qwest, at least, have made substantial and sustained price increases that are based on the use of market power.

### E. Terms of sale

In this section we address certain terms of sale in discount and pricing flexibility contracts. Our treatment here is less quantitative than in some of the preceding sections, and our conclusions are tentative. Nevertheless, we include this issue because we believe it sheds light

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<sup>222</sup> This number has been corrected from the original edition of this paper.



on whether sellers have and are exercising market power and because sellers may be depriving customers of statutory rights.

### **1. Term commitment plans and penalties**

We found above that discount plans typically allow buyers to save between one-third and two-thirds off the rack rate for a special access service. Buyers therefore have a strong incentive to participate in such discount plans, and most large wholesale buyers actually do participate in one or more discount plans with each of the large RBOCs. One complaint commonly heard from buyers is that the provisions in these discount plans tend to prevent the buyer from shifting special access circuits to competitors who offer better or less costly services.

Some term discount plans identify specific circuits (individual plans). Other plans establish an overall purchase commitment, but they do not identify specific circuits (overall commitment plans).

Individual plans can restrict a buyer's ability to move circuits to a competitor because they may impose penalties for violating a term commitment. When the term expires, however, the buyer is free to move some or all of the covered circuits to a competitor.<sup>223</sup>

Overall commitment plans can restrict a buyer's ability to move circuits to a competitor because the seller imposes penalties for purchasing too many or too few circuits, and the natural variability of business cycles can force a buyer into continually renewing these contracts before they expire. Moreover, when these commitment plans do expire, the seller may impose limits on the volume of sales at which it can be renewed.

Neither individual discount plans nor overall commitment plans are inherently improper. Both kinds of plans can advance the seller's interest in reliable revenues and predictable capital expenditures. Both kinds of plans can advance the buyer's interest in reducing its costs. We did find three provisions commonly appearing in overall commitment plans that, in combination, could be evidence of the exercise of market power by sellers.

The first kind of provision restricts a buyer's possible commitment volumes. Discount plans frequently do not allow buyers to select their own level of service or revenue commitment. Instead, the plans typically require a specific minimum commitment level based on the buyer's current purchases. A plan might, for example, require the buyer to commit to at least 90% of its current purchase volume.

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<sup>223</sup> For regional or national contracts, it is highly unlikely that even multiple competitors could replace all ILEC circuits subject to a contract.

The second kind of provision is an under-purchase penalty. When a buyer purchases too few circuits during the term of the agreement, the agreements require the buyer to pay a fee or penalty.

The third kind of provision is an over-purchase penalty. Where a buyer's purchases increase over time, these provisions create a financial incentive for the buyer to make a new commitment at a higher level.

The following paragraphs explore these issues. First we describe two specific AT&T plans in some detail. Then we describe similar provisions in plans offered by some other companies.

**a. AT&T-Ameritech's Discount Commitment Plan**

AT&T-Ameritech's "Discount Commitment Plan" (DCP) offers buyers a discount if they make a term commitment.<sup>224</sup> Buyers are not free to set their preferred commitment levels. A DCP buyer can commit to no less than 90% of the number of channel terminations in service when it makes the commitment. Once the commitment is made, the buyer must pay a penalty if its purchases fall below the commitment level by even one circuit, and the amount is calculated to hold AT&T harmless from financial harm.<sup>225</sup>

DCP customers who over-purchase also pay a penalty, even for a slight excess. A DCP customer who has made a five-year commitment faces no penalty until its purchases reach 150% of its original commitment. Once beyond that limit, however slightly, the customer loses the discount for all channel terminations above the commitment level.<sup>226</sup> To illustrate, suppose a customer made a five-year commitment to buy 100 DS-1 channel terminations. The customer can buy 150 channel terminations under the contract and receive a discount on all 150. However, if the customer buys 151 channel terminations, only 100 will receive the discount and 51 will be billed at month-to-month rack rates.

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<sup>224</sup> AT&T Ameritech FCC Tariff No. 2 § 7.4.13(B).

<sup>225</sup> The tariff provides that "If a customer's actual in service level falls below the commitment level, the customer will be billed for the commitment level of [channel terminations] at [the plan's] rates." AT&T Ameritech FCC Tariff No. 2 § 7.4.13(B).

<sup>226</sup> AT&T Ameritech Tariff No. 2 § 7.4.13(B).

**b. AT&T-SBC's "Term Payment Plan" (TPP)**

AT&T-SBC offers a "Term Payment Plan" (TPP) for DS-1 circuits.<sup>227</sup> A buyer can enter a TPP either in a basic version or with an overlay called a "portability commitment."

If a buyer makes a portability commitment, that commitment applies throughout the entire SBC region and lasts three years from the date of the commitment.<sup>228</sup> The buyer may not select its own "commitment level" (CL). Instead, AT&T sets the buyers CL at 100% of the number of circuits the buyer currently purchases.

This plan allows buyers to purchase less than their CL, but AT&T imposes a penalty if purchases drop below 80% of the CL.<sup>229</sup> The monthly penalty is equal to the deficiency in circuits (below 80% of CL) times the nonrecurring channel termination rate. In SBC's case, the nonrecurring rate for a DS-1 circuit is \$900.<sup>230</sup> The national average rack rate for a DS-1 circuit is \$150.91.<sup>231</sup> Therefore the monthly penalty for under-purchase, per line, amounts to six times the price at which a buyer could purchase the same circuit at rack prices.

A portability commitment buyer can also face a large penalty for over-purchasing. If the customer purchases in any month more than 124% of its CL, the customer must pay an "adjustment factor" for each channel termination above the 124% threshold. As above, the adjustment factor charge is the nonrecurring charge, \$900 per month.<sup>232</sup>

**c. Other plans**

Verizon offers a "Commitment Discount Plan" that is not circuit-specific. It allows buyers to commit at a level no lower than 90% of the number of circuits currently purchased.<sup>233</sup>

Some programs impose more modest under-purchasing penalties. Under AT&T-SBC's TPP plan, without the "portability commitment" overlay, the termination penalty is a relatively

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<sup>227</sup> AT&T SBC Tariff No. 73 § 7.2.22. The SBC program is very similar to those offered in several other AT&T areas. *E.g.*: AT&T Pacific Bell Tariff No. 1 § 7.4.18.

<sup>228</sup> AT&T SBC Tariff No. 73 § 7.2.22(E). A buyer who makes such a commitment is relieved of all preexisting TPP commitments for DS-1 circuits in the region. *Id.*

<sup>229</sup> AT&T SBC Tariff No. 73 §§ 7.2.22(E)(4)(b).

<sup>230</sup> AT&T SBC Tariff No. 73 § 7.3.10(F)(1).

<sup>231</sup> *See* section IX.C.2.a. above.

<sup>232</sup> AT&T SBC Tariff No. 73 §§ 7.2.22(E)(4)(c), 7.3.10(F)(1).

<sup>233</sup> Verizon-NYNEX Tariff No. 11 § 25.1.3(A)(5).

modest 40% of the remaining payments due under the original payment plan.<sup>234</sup> For Verizon West’s service territory (covering the former GTE serving areas), liability for under-purchases after the first year is typically limited to a relatively small percentage of the total remaining monthly charges.<sup>235</sup>

Some programs also impose modest over-purchase penalties. Embarq’s Term Discount Plan imposes a penalty when the customer buys more circuits than 130% of its committed number. Yet the penalty is mild. Embarq merely declares all excess circuits ineligible for the plan’s discount.<sup>236</sup>

#### **d. Discussion**

The terms of discount programs raise the question of whether penalties are unreasonably large. It is a basic tenet of contract law that when one party breaches a promise, the other party is entitled to damages. The courts generally allow parties to state a fixed damage amount in advance, because this saves time for the courts and witnesses and reduces the expense of litigation. The practice can be especially useful if the amount in controversy is small and if damages are difficult to measure.

The common law limits an injured party’s ability to collect such predetermined damage amounts. The courts view contract remedies as compensatory, not punitive. Therefore, if a provision fixing damages provides for a payment that appears to punish the breaching party, the courts characterize it as a “penalty” and they decline to enforce it as a matter of public policy.<sup>237</sup> If, however, the provision is reasonable, the courts characterize it as a “liquidated damages” provision and enforce it.

Two factors differentiate an enforceable liquidated damage amount from an unenforceable penalty. The first factor is how the contracted amount relates to the anticipated and actual loss. The amount will usually be judged reasonable if it either approximates the loss anticipated at the time of the making of the contract or approximates the actual loss incurred by the breach.

The second factor in contract law is the difficulty of proof of loss. The greater the difficulty either of proving that loss has occurred or of establishing its amount, the easier it is to show that an amount fixed in advance is reasonable. If the difficulty of proof of loss is great, the

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<sup>234</sup> AT&T SBC Tariff No. 73 § 7.2.22(G).

<sup>235</sup> Verizon submission “Overview of Verizon’s Generally Available Discount Plans, and Pricing Flexibility Promotions and Contract Tariffs And Service Level Agreement Plans For Special Access Services” at 3.

<sup>236</sup> Embarq FCC Tariff No. 1 § 7.4.11(A).

<sup>237</sup> *See generally*, Restatement of the Law, Second, Contracts § 365.

courts allow the parties considerable latitude in approximating anticipated or actual harm. On the other hand, to take an extreme case, if it is clear that no loss at all has occurred, a provision fixing a substantial sum as damages is unenforceable.

The “filed rate doctrine” supplants normal rules of contract law with regard to special access. Under this doctrine, courts may not award relief that would have the effect of imposing any rate other than that reflected in a filed tariff.<sup>238</sup> A special access customer cannot, therefore, ask the courts to invalidate, on general contract principles, a rate that has been filed in a tariff. The customer must instead rely on the FCC for protection.

The filed rate doctrine may be harming special access customers because they might actually have less protection at the FCC than they would have in the courts. Evaluating this question requires consideration of the damages foreseeable by the parties when they form a special access discount contract.

When a buyer under-purchases special access circuits, the seller loses a guaranteed revenue stream. Some of the penalty provisions we reviewed seemed consistent with this harm. Some contracts, for example, provide that the buyer must pay some or all of the difference between the payments the buyer actually does make for purchased circuits and the guaranteed level of payment. Other plans, however, require larger payments. One plan requires repeated payments at several times the rack rate. It is hard to imagine how the parties could anticipate harm at this higher level. Closer investigation by the FCC of the size of some under-purchase penalties is warranted.

When a buyer over-purchases special access circuits, the harm to the seller is harder to define. Even at discounted prices, sellers presumably recover more than their short-term marginal cost for each circuit sold. In some cases, therefore, the harm to sellers from over-purchases might be zero or even negative. Under such facts, the courts would be likely to declare a penalty provision unenforceable.

Capital planning offers an additional consideration for over-purchase penalties. Networks are designed to serve a fixed number of customers, and a seller’s capital spending can be adversely affected if a buyer underestimates its demand. Sellers have a right to plan their capital expenditures and to seek to avoid unexpected load, particularly from their large, regular customers who buy at deeply discounted prices. Nevertheless, many discount plans have “portability” provisions that allow buyers to relocate circuits at reduced cost. It is difficult to see how a seller who allows parties to relocate circuits at no cost could simultaneously claim that its capital planning needs require it to impose a large penalty for over-purchases.

Certainly nothing seems amiss with some over-purchase penalties. Embarq, for example, simply declares excess circuits ineligible for discount. It may even be appropriate to allow

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<sup>238</sup> *Dreamscape Design, Inc. v. Affinity Network, Inc.*, 414 F.3d 665, 669 (7<sup>th</sup> Cir. 2005).

sellers to collect a nonrecurring installation charge, to compensate the seller for harm caused by the buyer's poor capital planning. Other plans, however, require repeated payment of

nonrecurring charges at several times the rack rate for an undiscounted service. It is hard to see how the parties could anticipate harm at this level. Closer investigation by the FCC of the size of some over-purchase penalties is warranted.

We found above that buyers have a financial incentive to participate in discount plans and that some plans have large penalties for under-purchasing or over-purchasing. When combined with restrictions on allowable commitment levels, this raises a second issue. Working together, these provisions could force a buyer to continue purchasing most of its special access circuits from the ILEC.

Consider buyer A, who is entering a commitment level discount program but who anticipates losing 20% of its customers over the next three years. Suppose also that A enters a plan with terms similar to AT&T's Term Payment Plan with a "portability commitment." A may enter the plan only at A's current purchase level. If A then loses 21% of its customers during the next few years, A could be forced to pay a sizeable under-purchase penalty. This contingency would rationally alter A's behavior. To the extent that A is uncertain of its future, A will manage its circuits conservatively, trying always to keep well clear of the penalty zone. A could rationally refrain from shifting circuits to a competitor solely to reduce this penalty risk, even if the competitor offers better service quality, lower price, or both.

Consider also buyer B, whose business is growing but who cannot find a competitor to meet all of its current circuit needs. B is always free to purchase at rack rates, but rack rate purchases would waive the large discounts available under commitment contracts. Suppose also that B enters a plan with terms similar to AT&T's Term Payment Plan with a "portability commitment." If B were to sign a five-year commitment, it would have to guarantee at least 100% of its current circuit volume. But if its business is growing, B could face an over-purchase penalty in the future. At that point the seller would allow B to negotiate a new, larger contract with the ILEC that extends the term of its commitment and increases its volume. B's only alternative would be to pay the over-purchase penalty.

None of the provisions at issue is unreasonable by itself. Each allows the parties either to reduce its cost or its risk. But the combination of provisions—deep discounts, prescribed commitment levels, and large penalties—can have the effect of limiting the ability of a buyer to move circuits to competitors. These terms may allow ILECs unreasonably to cement their market power by limiting buyers from shifting business to competitors who may have better products, lower prices, or both. Closer investigation by the FCC of the effect of these provisions is warranted.

## 2. Limits on UNE purchases

In 2005, AT&T filed several contract tariffs that would be applicable within pricing flexibility MSAs.<sup>239</sup> The plan offered substantial discounts on recurring and nonrecurring charges.<sup>240</sup> The contract tariff restricted the quantity of certain unbundled network elements that the buyer could purchase.<sup>241</sup> Under the tariff, if the value of a buyer's UNE purchases including DS-1 and DS-3 UNE loop purchases<sup>242</sup> should exceed 5% of its special access billing, the buyer is required to pay an additional charge.<sup>243</sup> AT&T is not alone in creating a link between price in a discount plan and the buyer refraining from purchasing UNEs.<sup>244</sup>

Contracting parties should be free to develop mutually agreeable terms in any negotiation. Nevertheless, public policy does declare some contract provisions unenforceable, even among willing parties, for reasons of public policy. The FCC should examine whether it is against public policy for sellers to condition special access discounts on a buyer's willingness to avoid or reduce services guaranteed to the buyer by the 1996 Act.

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<sup>239</sup> The contract was called the "Broadband Plan-Service Offer" and applied to DS-3 circuits and to some optical circuits. AT&T filed similar tariffs on May 31, 2005 for Ameritech, Pacific Bell, Southwestern Bell, and Nevada Bell. *E.g.*, AT&T Ameritech Tariff No. 2 § 22.61 (contract offer No. 61); AT&T Pacific Bell Tariff No. 1, § 33.54 (contract offer No. 54).

<sup>240</sup> For example, a DS-3 channel termination was offered at \$960.00 (or less in some larger cities). AT&T Ameritech Tariff No. 2 § 22.61.7(B). As we found above, the average RBOC rack rate for this service in 2006 was \$ 2,079.87. *See* section IX.C.2.a above.

<sup>241</sup> Wireless buyers are not concerned with this provision, since they are disqualified from purchasing loop UNEs under existing FCC policy.

<sup>242</sup> The tariff uses the term "wholesale billing" for certain UNE purchases. It is defined to include 4-wire Digital Loops that can substitute for DS-1 channel terminations and DS-3 loops that can substitute for DS-3 channel terminations. Other DS1 and DS-3 services are also included. AT&T Ameritech Tariff No. 2 § 22.61.4(F).

<sup>243</sup> AT&T Ameritech Tariff No. 2 § 22.61(F). The tariff itself states the penalty amount in a mathematically equivalent way, requiring that buyers maintain the ratio at 95% or more between: 1) the difference between special access and UNE billing; and 2) special access billing. Algebraically, the two formulations are equivalent, and we use the simpler.

<sup>244</sup> Verizon reports that in 2008 it entered a contract with a similar provision. In this case the provision was stated positively as an additional discount for reducing UNE purchases rather than as a penalty for over-purchases. Verizon states that it offers additional bill credits to a CLEC buyer for "converting an agreed upon percentage (which is less than all . . .) of its DS-1 UNE purchases from Verizon to special access services." Verizon submission "Overview of Verizon's Discount Plans and Service Level Agreements" at 11.

The size of the penalty in the AT&T provision reported above is a separate concern. The tariff states that in any period in which the buyer failed to meet the 5% test, the buyer must make an additional payment sufficient to restore the 5% ratio.<sup>245</sup> Stated in this manner, the penalty sounds reasonable. In actuality, however, the penalty can be quite large. An equivalent way of stating this penalty rule is: For every \$1 the buyer spends on UNEs over the 5% limit, the buyer must pay AT&T an additional \$20.<sup>246</sup> Stated in this fashion, the penalty sounds draconian.

A twenty-to-one ratio might be appropriate if the buyer's behavior was expected to cause widespread damage to the seller's network or to seriously disrupt the seller's capital planning. No comparable risk seems to be present here. Closer investigation by the FCC is warranted regarding the size of penalties in UNE-purchase limitation terms.

## **X. Conclusions**

### **A. ILECs retain market power for some services**

Overall, the evidence does not support a simple "thumbs-up" or "thumbs-down" judgment on market power for special access markets. We found that certain markets are more competitive than others and that the level of competition varies by location, circuit capacity, service component, and over time. We do conclude that ILECs still have strong market power in most geographic areas, particularly for channel terminations and particularly for DS-1 services.

The main exception is relatively compact downtown areas that generate the largest volume of special access business. In city after city, competition is limited to areas that are overbuilt with fiber and, to a lesser extent, areas that are served by high-quality cable television systems or fixed wireless systems. In the surrounding areas, which can be by far the majority of an MSA, the weight of the evidence says that ILECs retain strong market power, particularly for channel terminations.

Our conclusions rely on the high continuing market concentration of formerly monopolistic markets. Concentrations are particularly high for all channel terminations and for DS-1 services. Seller data tend to show stable prices.

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<sup>245</sup> AT&T Ameritech Tariff No. 2 § 22.61.4(F)(4).

<sup>246</sup>  $\$20 = \$1 / 0.05$ . For example, suppose a buyer purchased \$1 million of qualifying special access circuits and \$60,000 of UNEs in one month. That is more than the allowed 5% UNE ratio by \$10,000. The additional payment must increase the monthly special access payment so as to restore the 5% ratio. In this example, the required payment is \$1,200,000 ( $\$60,000 / 0.05$ ). In sum, by purchasing an additional \$10,000 of UNEs above the threshold, the buyer must pay an additional \$200,000 in special access charges.



Our conclusions also rely on earnings. Even after adjustment for separations problems, RBOC earnings on special access are well above the 11.25% rate most recently set by the FCC. In the case of AT&T and Qwest, earnings are about three times that rate.

We also found some evidence for effective competition. Frequent bidding by large customers, combined with multiple responses from sellers, is an indicator of increased competition, at least within the market sectors devoted to enterprise and wholesale customers. Likewise, high-volume customers are purchasing at large discounts off rack rates, and buyer data suggest a declining trend in prices in 2007.

Contestability theory led us to mixed conclusions. Landline competitors can possibly (and in some areas may already have) become a competitive force for transport between major communication nodes, but they are unlikely ever to be a strong competitive force in channel termination markets outside downtown areas.

Cable television and fixed wireless have low entry and exit costs where their networks are currently established, and each can provide substitutable dedicated services to many customers. Overall, these competitors are still acting on the fringes of special access markets, but they have larger roles in some locations and their market shares appear to be growing. Fixed wireless may hold a large market share in five years, particularly if WiMAX proves reliable and if these carriers can attract sufficient capital to expand. These newer technologies may be poised to become major competitors and are increasingly constraining ILEC behavior, but they have not yet grown beyond fringe competitors in most markets.

Our analysis of pricing trends gave inconclusive results. Seller data suggested stable or rising prices. Buyer data suggested that prices had declined between 2006 and 2007.

Customers who purchased under discount plans received large discounts from rack rates—33% for DS-1 channel terminations and 68% for DS-3 channel terminations. Certainly a seller can reasonably discount a price to a customer who makes a term commitment. Sellers also can rationally offer discounts for volume commitments. Yet the discounts here were unexpectedly large. This raised the question of whether the relatively few customers who buy at rack rates are paying supracompetitive prices. Across recently deregulated or liberalized industries, more vigorous competition has often appeared for the large-customer segment of the market. High-volume customers generally are more likely to have a choice of providers and are more likely to make a change due to price differences. Our experience in this study amply confirms that this conclusion applies to telecommunications markets as well.

Small purchasers in many cases have the opposite characteristics. Many small business customers still buy at rack rates. They generally have little bargaining power and often do not have the resources to conduct bidding proceedings. Yet rack rate customers may be paying supracompetitive prices because carriers know that small customers have fewer alternatives and are often less aggressive about price. The FCC should apply heightened scrutiny to protect these smaller consumers, and the issue warrants further investigation.

High rack rates also may be increasing seller leverage to add terms and conditions in discount plans. We found some penalties for over-purchasing and under-purchasing to be surprisingly large. We also found a pattern of terms in some discount plans that may allow ILECs unreasonably to cement their market power by limiting buyers from shifting circuits to competitors who may have better products, lower prices, or both. Closer investigation is warranted as to whether the penalties are excessive and whether the combined terms unreasonably impair competition.

We also found cases in which discount contracts for pricing flexibility areas included provisions limiting the buyer's purchase of UNEs. The right to purchase UNEs is guaranteed to some carriers under the 1996 Act. We found one discount contract that imposes a large penalty on a buyer who purchases too many UNEs. Closer investigation is warranted of tariff terms that limit UNE purchases.

**B. FCC regulation leaves channel termination customers insufficiently protected from market power**

The FCC has adopted a double proxy for competition. First, the FCC equated competition with “irreversible investments in the facilities needed to provide the services at issue.” Then the FCC equated that investment with the frequency of central office collocation. The evidence here shows that much was lost in these two translations.

We found almost no evidence that competition in channel termination markets is related to central office collocation frequency. If the FCC's system were validly identifying competitive areas, HHIs for channel terminations in Phase II areas would have been far lower than in Phase I areas. The data do not show any such large difference. On the contrary, concentrations for channel terminations remain high in both Phase I and Phase II areas.

We also found that market forces are not reducing rates for channel terminations in Phase II areas, as we had hypothesized. Therefore, the FCC's policy of using collocation activity as a proxy for competition provides a weak foundation for decisions to grant pricing flexibility for channel termination markets.

In sum, our evaluation of market concentration and pricing data shows that the FCC proxy consistently overestimates the competitiveness of the DS-1 and DS-3 channel termination markets.

In other contexts, the FCC has recognized that competition for channel terminations is rare and difficult to promote. In the *SBC Merger Order*, the FCC conducted separate analyses of the channel termination and transport markets.<sup>247</sup> Regarding channel terminations, the FCC said:

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<sup>247</sup> *SBC Merger Order* ¶ 28.

[F]or many buildings, there is little potential for competitive entry, at least in the short term. As the Commission has previously recognized, carriers face substantial fixed and sunk costs, as well as operational barriers, when deploying loops, particularly where the capacity demanded is relatively limited. Given these barriers, it appears unlikely that a carrier would be willing to make the significant sunk investment without some assurance that it would be able to generate revenues sufficient to recover that investment. Consistent with this analysis, there is evidence in the record that carriers generally are unwilling to invest in deploying their own loops unless they have a long-term retail contract that will generate sufficient revenues to allow them to recover the cost of their investment. Moreover, even where there is adequate retail demand, the costs of constructing the loop may be sufficiently high, or there may be other operational barriers, that may deter entry.<sup>248</sup>

We also examined how prices for channel terminations vary by type of regulation. We cannot conclude that competition in Phase II areas is restraining prices for channel terminations. For discount customers, channel termination rates in Phase II areas are actually slightly higher than in Phase I areas. Overall, we interpret this pricing evidence as showing that the FCC erred in assuming that collocation is a reliable predictor of special access competition, particularly as applied to channel terminations.

In 1999, the FCC's *Pricing Flexibility Order* acknowledged some doubt about using collocation as a proxy for competition in channel terminations.<sup>249</sup> The FCC admitted that a competitor collocating in a LEC end office might continue to rely on ILECs for channel terminations, "at least initially."<sup>250</sup> Yet the FCC moved forward anyway, accepting collocation because it was the best data available. The FCC tried to compensate by raising the numerical threshold for Phase II flexibility. This was clear error. Raising the value at which an invalid variable takes action cannot improve validity; at best, it can mitigate the damage.

The FCC also has relied on the theory of contestable markets to justify deregulation. In its response to the GAO report, the FCC said that if a seller did charge an unreasonably high rate for access to an area that lacks a competitive alternative, "that rate will induce competitive entry, and that entry will in turn drive rates down."<sup>251</sup> This defined away a problem that the FCC recognizes in many other contexts, namely that high entry barriers and large sunk costs can prevent competitive entry.

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<sup>248</sup> *SBC Merger Order* ¶ 39.

<sup>249</sup> *Pricing Flexibility Order* ¶ 103.

<sup>250</sup> *Pricing Flexibility Order* ¶ 103.

<sup>251</sup> See *GAO Special Access Report* at 72.

In the 1999 *Pricing Flexibility Order*, the FCC seems to have been anticipating a future of ubiquitous horizontal competition, with collocation as its herald. The FCC simply assumed that if a city had numerous collocators in its ILEC wire center, that city soon would have effective competition for special access, through facilities-based overbuilding by CLECs, in networks radiating out from ILEC central offices.

Those FCC commissioners, writing in 1999, could not have anticipated the industry and legal changes actually seen in this decade. 2000 and 2001 saw the bursting of the Internet bubble and enormous contraction within the CLEC industry. Later, the FCC reduced the industry's access to UNEs and advanced facilities. Finally, 2008 saw a worldwide financial crisis and made capital financing much more difficult.

Almost ten years have passed since the *Pricing Flexibility Order*, but no city we examined showed evidence of anything approaching ubiquitous overbuilding of channel terminations by landline carriers. The maps explain why. Even in highly concentrated business areas, fiber overbuilds pass only some customer locations. High entry and exit costs limit these facilities-based carriers from extending their networks to any but the largest or most conveniently served customers.

Today, facilities-based competition seems far from inevitable. It is hard to imagine a plausible scenario in which new entrants will begin building DS-1 channel terminations out to their special access customers in the far corners of urban areas. The FCC erred in predicting an end to CLEC reliance on ILEC channel terminations. The CLEC dependency turned out not to be for an "initial" period at all, but for an indefinite period.

There is still hope for ubiquitous competition, even if today it takes different forms. Channel terminations might indeed become competitive in large areas through cable television or fixed wireless systems. While both of these forms of facilities-based competition are expanding, these newer technologies have had only a fringe effect and have not yet produced the kinds of pricing or concentration shifts that would indicate active competition. We conclude that these new technologies have had only a minimal effect on the behavior of existing special access markets.

In the *Pricing Flexibility Order* the FCC said that that deregulation would generate more benefits than harm, even if deregulation turned out to be premature. Yet the FCC never fully explained its conclusion. Certainly the cost of complying with federal regulation was a major consideration at the FCC, but this benefit falls on sellers, who prefer not to be regulated. The FCC never explained how premature deregulation would help customers, except with the generality that they would somehow benefit from "more vigorous competition."<sup>252</sup> The FCC did not even acknowledge the possibility that eliminating price regulation could lead to a large deadweight economic loss arising from the exercise of market power.

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<sup>252</sup> *Pricing Flexibility Order* ¶ 92.

Collocation activity provides a weak foundation for differentiating the competitiveness of special access markets and making regulatory decisions about deregulating those markets. Collocation seems to have little or nothing to do with competition for channel terminations. As to transport, the evidence is more ambiguous, but it is clear at least that DS-1 transport remains largely uncompetitive. For both channel terminations and transport, the FCC has failed to take any steps to measure directly the actual relationships between collocation and competition. The resulting regulatory structure is too fragile for a market that now dominates ILEC revenues and that is an upstream component for much of the independent telecommunications industry.

## **XI. Recommendations**

The FCC should address some fundamental issues regarding regulation of interstate special access. Most of the following recommendations address possible actions by the FCC. The final recommendation suggests a direct action by states, exercising their jurisdiction over intrastate telecommunications.

The time for additional FCC action is certainly ripe. Special access revenues long ago surpassed switched access revenues. The FCC began evaluating these issues four years ago when it issued an NPRM in January of 2005. In 2006 the GAO report was released, suggesting serious flaws in the FCC's regulations and practices. In 2007, the FCC asked the parties to refresh the record. Although these exercises produced voluminous comments, no FCC orders have followed. Moreover, the FCC used notice and comment procedures that produced only information that interested parties wished to submit. No contested hearings were held, no witnesses testified under oath and were cross-examined, and no factual findings were made, either as to the country as a whole or as to a particular geographic area. The FCC still has not issued substantive orders in response to its own 2005 NPRM. As a condition of approving the merger between AT&T and BellSouth, the FCC did impose some pricing limits on special access markets within AT&T's footprint, but those conditions will expire in mid-2010.

The recommendations that follow do not address every issue raised by the parties in the FCC proceeding. They do, however, address fundamental processes, such as data collection and market definitions. We also suggest standards that should reduce the exercise of market power in discount contract provisions, and we conclude with pricing issues.

### **A. FCC should improve its data collection systems**

As telecommunications markets evolve, FCC monitoring and reporting systems should also evolve. The FCC regularly collects and reports data on activity in the switched telecommunications markets, even as that market shrinks.<sup>253</sup> As special access markets are

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<sup>253</sup> For example, the FCC reports annual data on average interstate rates for switched access. The FCC also collects and reports average local exchange prices for business and

growing, the FCC should expand its monitoring, at both the retail and wholesale levels. Also, to the extent that the FCC deregulates specific geographic areas (such as by granting forbearance or by granting Phase II relief), it should routinely collect and analyze data from those areas to evaluate the effectiveness of its policies.

This recommendation echoes that of the GAO. In 2006 the GAO found that most of the data used by the FCC to assess competition have significant limitations in their ability to describe the presence, extent, or change in competition in any given area.<sup>254</sup> The GAO also criticized the FCC practice of using rulemaking proceedings to collect data because external parties have no obligation to provide data and the FCC has limited mechanisms to verify the reliability or accuracy of any data submitted.<sup>255</sup>

We have collected all the data that carriers would voluntarily give to us. Still, many carriers—even some whole sectors of new entrants—did not respond to our requests for data. Moreover, among the reports we did receive, we found major differences in data quality. Some carriers interpreted our requests in unanticipated ways, and we discovered some ambiguities in our survey instruments that do not affect the validity of the results but do suggest modifications in any subsequent work. If the FCC were to undertake a similar data collection effort, it would expect to receive a far more comprehensive response. Moreover, annualized FCC surveys would improve data reliability and give the FCC the ability to identify multi-year trends.

#### **1. FCC should regularly collect special access market concentration data**

As we discussed above,<sup>256</sup> market concentration can be an important indicator of market power. Even if not conclusive, market concentration data can be valuable for regulators who seek to tailor effective regulations that are neither too intrusive in competitive markets nor too timid for concentrated markets. Knowing that a market has an HHI of 2,000 (suggesting five effective firms), a regulator could take a relaxed approach to government intervention. In another market, an HHI of 5,000 (suggesting two effective firms) suggests the need for vigilance against the possibility of collusion and discriminatory pricing.

Detailed market concentration data can also bring regulators to a deeper understanding of the dynamics of telecommunications markets. A regulator may need to understand, for example, the differences between DS-1 markets and higher capacity markets, or between the channel

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residential customers in 95 major cities. FCC, Industry Analysis and Technology Division, *Trends in Telephone Service*, February, 2007.

<sup>254</sup> *GAO Special Access Report* at 36.

<sup>255</sup> *GAO Special Access Report* at 15.

<sup>256</sup> *See* Part IX.A.

termination and transport markets. Geographic differences in concentration can identify particular areas where existing policies are succeeding or failing, and that in turn can suggest policy refinements. Finally, trends in concentration data can also help regulators assess the general success or failure of regulatory policies and identify particular policy combinations that seem have the best effects.

In this project we collected market share data from several large buyers and two large sellers. If the FCC were to make a similar collection effort, more carriers would respond. The results would be more complete and thereby offer a more comprehensive basis for conclusions.

The FCC has repeatedly said that collecting market share information would be burdensome.<sup>257</sup> We agree that there would be a burden, but not an unreasonable one. Buyers would have to report service units purchased, and sellers would have to report service units sold. In our survey, we found buyers generally cooperative, even if they sometimes were short of resources to actually tabulate the data. Sellers were less cooperative, but the FCC has the authority to fill in the gaps and produce a more comprehensive product. Moreover, we do not believe that the burden imposed by a special access reporting system would be much beyond the burden routinely borne by the industry in reporting switched services data. Finally, the burdens will decrease over time as reporting tasks become routine. The alternative—the possibility of deadweight economic loss arising from the failure to correct market power that otherwise would go undetected—has the potential to be far more costly than the data collection effort.

We recommend that the FCC initiate a new data collection program to collect market share data on a regular basis. Specifically, we recommend that the FCC separately collect market share information from large buyers and large sellers. The data collections should identify at least four separate markets: DS-1 channel termination; DS-1 transport; DS-3 channel termination; and DS-3 transport. In addition, the FCC should collect some information on more advanced services—such as gigabit Ethernet and SONET services—that were beyond the scope of this study. The FCC should provide notice and opportunity for comment on how to collect the most meaningful data at the lowest overall cost. At a minimum, the FCC could seek comment on the NARUC data collection instruments.

Once the data are collected, they should be published. We collected data for the largest 50 MSAs, which should be a minimum for an FCC publication.

## **2. FCC should regularly collect pricing data**

Pricing data are also helpful to regulators. It can be important to understand the differences between the prices charged by different seller groups, as well as the prices paid by different buyer groups. Geographic price differences can identify areas where competition is sharpest, and that can lead to more effective regulatory policies. Finally, pricing trends can help

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<sup>257</sup> *E.g.*, 2005 NPRM ¶ 72.

regulators make more refined decisions about which market segments are experiencing greater competition and make overall judgments about whether existing regulatory policies are effective.

We recommend that the FCC routinely collect pricing data from both sellers and buyers. Specifically, the FCC should seek average discounted sale prices from sellers; and average discounted purchase prices from buyers. These reporting requirements should not be imposed on very small carriers, but they should be applied broadly through the industry in order to produce comprehensive data.

As above, we recommend that the data collections separately cover at least four markets: DS-1 channel termination, DS-1 transport, DS-3 channel termination, and DS-3 transport. In addition, the FCC should collect some pricing information on more advanced services (such as gigabit Ethernet and SONET services) that were beyond the scope of this study.

The FCC should provide notice and opportunity for comment on how to collect the most meaningful data at the lowest overall cost. As we explained above, special access includes many rate elements and is sold under many kinds of plans. In a notice of inquiry, the FCC might also inquire about how best to simplify pricing data.

We have already mentioned some problems with our own collection methodology. We found that differences between ILEC pricing structures and non-ILEC pricing structures made it difficult to define a comparable price between these services, even though the services themselves are clearly substitutable. Perhaps an idea such as pricing a “standard circuit” could produce more valid data.

We found that CLECs use DS-3 circuits in unexpected ways. Some carriers use DS-3 circuits in the customary manner, allowing a customer to reach its IXC or to communicate with another location. Yet we found some CLECs to be using DS-3 elements essentially as backbone adapters between customer circuits and metropolitan fiber rings. We did not anticipate this variation in practice, which may justify yet another kind of service category different from standard DS-3 transport service.<sup>258</sup>

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<sup>258</sup> In addition to the suggestions made above, we suggest:

- Combining the columns for 1) “generally available discount” and 2) “special contract.”
- Clarifying rack rate price questions to differentiate between: 1) the average rates for circuits actually bought or sold that were not under a discount plan; and 2) nominal tariff rates for particular services in a particular location.
- To the extent that nominal tariff rates are sought, clarifying whether the FCC seeks rates in the most urban zone (usually called “zone 1”) or MSA-wide averages.



Once the FCC collects the data, they should be published. We collected data for the top 50 MSAs, and that should be a minimum for an FCC publication.

### **3. FCC should explicitly evaluate collecting competitive facilities location data**

During this study, the ILECs asked us to collect data from competitive sellers. They were particularly interested in knowing the location of seller facilities. As explained above, we sought no information below the MSA level, but we did seek from competitive sellers the same kinds of MSA-based information that we were seeking from ILECs. As also explained above, we received almost no response from competitive carriers.

The FCC has authority to require reporting of this kind of information, and would be likely to get a much better response. The fundamental question is whether such data would be useful and whether the benefits would exceed the costs.

One use for location data would be to refine the boundaries of competitive areas. Below we recommend that the FCC consider using a smaller geographic scale for its regulatory reviews and decisions. One option is to use GIS technology to produce maps of competitive areas. Assuming that landline technology remains the dominant form of competition for special access, information on the location of landline facilities would be useful in drawing boundaries on such maps. These data could also be useful for homeland security and emergency response planning.

On the other hand, comprehensive facilities reporting would impose new burdens on carriers unaccustomed to regulation. While competitive fiber and wireless facilities can fundamentally alter the market, the owners of those facilities have not, in general, disclosed the location of those facilities. Yet there is little to gain by mapping only ILEC fiber networks. Incumbent LECs have argued that the current system that collects data from only some carriers leaves a false impression of limited competition. If the FCC does decide to collect geographically precise data, all or nearly all relevant providers should be required to respond.

Collecting location data would also add to the FCC's administrative overhead; indeed, the burden would far exceed the burden of collecting market concentration data. GIS standards would have to be developed, and reporting carriers would need to be familiarized with those standards. In the end, the result might not be significantly more complete or reliable than data already available from commercial sources.

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- Clarifying the extent to which multiplexing costs should be included in price data.

Although we recognize the importance of this issue to some industry segments, we do not recommend action. We cannot say at this point that the benefits of a facilities data collection will outweigh the costs.

**B. FCC should refine its standards for determining when competition is effective**

**1. Deregulation triggers should measure non-PSTN technologies**

The FCC currently measures the percentage of ILEC wire centers with collocation. Yet other non-PSTN services compete directly with special access, and an increasing number of providers operate physically parallel networks that do not require collocation. The FCC's existing proxy therefore understates competitiveness. The validity of collocation as a predictor of competition decreases as packet-based based services increasingly bypass PSTN services.<sup>259</sup>

In other contexts, the FCC has already acknowledged this problem. For example, in the *Omaha Forbearance Order*, the FCC acknowledged that newer competitive carriers with facilities-based systems do not use wire center boundaries.<sup>260</sup> In that case, the FCC simply stated that the level of competition in a market cannot be reliably determined by looking only at "competition provided using identical technology that is currently deployed by the incumbent LECs."<sup>261</sup> Yet that is exactly what the FCC does in evaluating special access markets.

If the FCC retains regulatory distinctions based on market competitiveness, we recommend that it broaden its measure of competitiveness to reflect the importance of non-PSTN services. Doing so will increase the usefulness of any data that the FCC decides to collect on fiber networks, wireless broadband facilities, and digital cable TV routes.

**2. Deregulation triggers should recognize that competition can decrease**

Under current FCC policy, pricing flexibility is a one-way road. Once pricing flexibility is granted, the FCC has no procedure to reverse the decision. A decision granting pricing flexibility remains undisturbed even when the underlying facts have obviously changed, such as

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<sup>259</sup> For example, Fiber Tower asserts that Ethernet formats currently make up only 1% of worldwide mobile backhaul equipment sales. Yet Fiber Tower claims Ethernet is projected to reach 41% of equipment sales by 2011. Fiber Tower show on April 1, 2008 to CTIA Wireless Show, slide 31, available at:

<http://www.fibertower.com/corp/downloads/CTIA%20Deck%200408.ppt>.

<sup>260</sup> FCC, *Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Omaha Metropolitan Statistical Area*, WC Docket No. 05-170, Memorandum Opinion and Order, 20 FCC Rcd 19415 (2005) (*Omaha Forbearance Order*), ¶ 70.

<sup>261</sup> *Omaha Forbearance Order*, ¶ 65 (internal quotations omitted).

when independent collocators cited in a pricing flexibility petition are merged with the ILECs that have obtained pricing flexibility.

The GAO also commented on this problem. The GAO noted that once a price flexibility decision is issued, the FCC does not revisit or update the underlying competitive facts, even though competitors may enter bankruptcy or be bought by another firm.<sup>262</sup>

If the FCC continues to maintain different regulatory regimes in different locations, and if the differences are based on perceived market conditions, then we recommend that the FCC also establish a mechanism by which regulation can respond to market changes that show decreased competition as well as those that show increased competition.

Under current law, regulatory relief is initiated by the ILEC that wants pricing flexibility. A petition to remove pricing flexibility might be filed by a buyer who believes it is not adequately protected by market forces. The FCC should adopt new rules to outline the facts that a buyer would need to prove to negate a past decision granting pricing flexibility. The burden of proof on the buyer seeking to remove pricing flexibility should be comparable to the burden of proof on the seller seeking pricing flexibility.

### **3. Deregulation triggers should recognize the importance of circuit capacity**

When the FCC grants flexibility, it does so for all special access services, regardless of service level. This broad policy fails to recognize the difference between the availability of large-capacity circuits and small-capacity circuits. Even with the relatively small capacity spread between DS-1 and DS-3 markets, we found that the two markets behave differently.

When a customer's demand is large, geography is less important. The revenue from a large circuit can justify a larger initial investment, and a large-volume buyer can draw competitors who will ignore a small-volume buyer.

The GAO study recognized this effect. The GAO found that customers with a demand level of two DS-3 circuits had competitive alternatives in 25% of the cases, while customers needing only a single DS-1 circuit had competitive alternatives in only 6% of the cases.<sup>263</sup>

### **4. Deregulation triggers should continue to differentiate between channel terminations and transport**

The FCC set different thresholds in 1999 for granting pricing flexibility for channel terminations and for transport. Our analysis here confirms the wisdom of keeping that

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<sup>262</sup> *GAO Special Access Report* at 19.

<sup>263</sup> *GAO Special Access Report* at 14.

distinction. “Last mile” channel terminations and interoffice transport are different special access markets. Each is sold to different customers, requires different kinds of investment, has different entry and exit costs, and has different levels of competition.

Despite the FCC’s sweeping conclusion in its 1999 order, there is no good reason to conclude that an MSA with many collocated wire centers will develop widespread and effective competition for channel terminations.<sup>264</sup> Indeed, the converse is quite possible. A CLEC can operate successfully using a business model in which it collocates frequently in order to reduce transport costs, but still relies heavily on ILEC-supplied DS-1 and DS-3 channel terminations. Indeed, a CLEC can own many collocations and no channel terminations.

We recommend that the FCC continue to differentiate channel terminations from transport when deciding on the scope of pricing flexibility.

**5. FCC should adopt a finer scale for market definitions, particularly for channel terminations**

The FCC grants pricing flexibility at the MSA scale. This arrangement is administratively simple, but it can overlook important geographic differences. We recommend that the FCC adopt a finer (more granular) scale in making decisions about the competitiveness of special access markets. Our recommendation applies with particular force to channel terminations.

This section discusses the size of MSAs and how the FCC has used smaller geographic units when analyzing similar markets. The section concludes by describing two different approaches that could more accurately identify the boundaries of special access competition.

**a. A number of MSAs are large and diverse**

MSAs are often defined by county boundaries. A single MSA can include both “central” and “outlying” counties.<sup>265</sup> As a result, many MSAs include some suburban and rural areas. Using the MSA as the smallest geographic unit for regulatory decisions is administratively simple, but it can overlook important market differences.

One diverse MSA is Riverside, California. At 27,400 square miles, the Riverside MSA is larger than the combined areas of New Jersey, Maryland, and Delaware. It includes 3.9 million people. The western part of the Riverside MSA is adjacent to the Los Angeles MSA, and it includes the city of San Bernardino. The eastern border of the Riverside MSA is at the Nevada

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<sup>264</sup> Admittedly the numerical FCC standards for pricing flexibility of channel terminations are higher than the standards for transport. The question, however, is whether the proxy standard is valid, not whether it is high enough.

<sup>265</sup> See <http://www.census.gov/population/www/metroareas/aboutmetro.html>.

border. The eastern part of the MSA includes large desert areas with neither mapped roads nor a substantial population. Few facts about special access markets will be true in both the eastern and western portions of the Riverside MSA.

### **b. Market scales in other proceedings**

In other similar contexts the FCC has used a more finely grained analysis to evaluate special access markets. In its decision approving the merger of SBC and AT&T, the FCC stated simply and unambiguously that:

[T]he relevant geographic market for wholesale special access services is a particular customer's location, since it would be prohibitively expensive for an enterprise customer to move its office location in order to avoid a “small but significant and nontransitory” increase in the price of special access service.<sup>266</sup>

In two other contexts, the FCC has used the ILEC wire center serving area as the geographic unit to measure market competitiveness. In the *Omaha Forbearance* Order, the FCC granted forbearance from competitive obligations for some but not all of the wire center service areas included in the petition. Forbearance was granted in wire center serving areas where the local cable voice provider offered service to a stated percentage of end user locations. The FCC found that in areas satisfying this test, “all of the customers capable of being served by [the ILEC] from that wire center will benefit from competitive rates, terms, and conditions.”<sup>267</sup>

The FCC has also used the wire center as the geographic unit when determining where ILECs must provide competitors with unbundled network elements (UNEs). Under FCC rules adopted in 2004, UNEs are made available, or not, based on a wire-center analysis that uses the number of access lines and fiber collocations in a wire center as proxies to determine impairment for high-capacity loops and transport.<sup>268</sup> Moreover, the FCC has directed the state commissions

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<sup>266</sup> FCC, *SBC Communications Inc. and AT&T Corp. Applications for Approval of Transfer of Control*, Memorandum Opinion and Order, 20 FCC Rcd 18290 (*SBC Merger Order*), ¶¶ 28, 37.

<sup>267</sup> FCC, *Petition of Qwest Corporation for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Omaha Metropolitan Statistical Area*, WC Docket No. 05-170, Memorandum Opinion and Order, 20 FCC Rcd 19415 (2005) (*Omaha Forbearance Order*), ¶ 69.

<sup>268</sup> Competing carriers are deemed impaired without access to: 1) DS-1 transport except on routes connecting a pair of wire centers, where both wire centers contain at least four fiber-based collocators or at least 38,000 business access lines; and 2) DS-3 or dark fiber transport except on routes connecting a pair of wire centers, each of which contains at least three fiber-based collocators or at least 24,000 business lines. Finally, competing carriers are not impaired without access to entrance facilities connecting an incumbent's network with a competitor's network in any instance.

to establish at least three zones for UNE pricing in each state, and the states have generally complied by aggregating ILEC wire centers.<sup>269</sup>

**c. Two more granular options**

If the FCC does contemplate using a smaller geographic scale, we offer two specific options. Each option includes specific parameters that are intended to stimulate debate. As is true for the FCC's current test of granting pricing flexibility for MSAs, the FCC would specify in advance the measured criteria that would be used to test for competition in these areas and the thresholds that would justify reduced regulatory oversight.

**(1) Option 1: Wire center serving areas**

The obvious choice is to use the wire center scale in evaluating market competitiveness. This choice is easily administered, and it does not require maintaining building-by-building data. While not all point-to-point services pass through the PSTN, all or nearly all incumbent LECs still use wire centers to route their traffic, making the wire center an appropriate unit for decision-making (if not for limiting the source of input data). It is also the scale used for UNE impairment analysis.

We propose that the FCC would grant ILECs upward pricing flexibility for DS-1 and DS-3 channel terminations that terminate within a wire center serving area only if both of the following criteria are met within that wire center serving area.

1. Competitors have made adequate investment in channel termination facilities:
  - a. Competitive providers offer DS-1 level point-to-point services in 75% of the serving area that is zoned commercial (or in 75% of the business locations if there is no zoning) using wireline or fiber-based technology or a highly reliable wireless service.
2. Competitors have established a major presence in the channel termination market:
  - a. Non-ILEC sources have a combined market share of at least 60% in the wire center; or
  - b. The HHI in the wire center is below 2,500, indicating that at least four effective firms are in the market.<sup>270</sup>

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<sup>269</sup> 47 C.F.R. § 51.507(f); *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, 95-185, First Report and Order, 11 FCC Rcd 15499, 15882-82, ¶¶ 764-765 (1996) (*Local Competition Order*) (subsequent history omitted).

## (2) Option 2: Pricing flexibility zones

A second option is to define pricing flexibility zones at an even finer scale, using maps produced by a geographic information system (GIS), a technology that facilitates precise and relatively low-cost mapmaking.<sup>271</sup> While working at this smaller scale would be more costly, it would also provide the greatest benefits, matching regulation more precisely to variations in carrier offerings and market behavior.

We propose that the FCC would grant ILECs upward pricing flexibility for DS-1 and DS-3 channel terminations that terminate in any city block or equivalent rural area that meets both of the following requirements:

1. Competitors have made adequate investment in channel termination facilities:
  - a. A competitive fiber provider has a fiber node terminating in the city block or at a point within 100 yards of the block; or
  - b. A cable television provider offers DS-1 or better packet-based transport services to some business customers within the city block; or
  - c. A fixed wireless provider offers highly reliable wireless data service to customers located within the city block.
2. Competitors have established a major presence in the channel termination market:
  - a. Non-ILEC sources together have a combined market share of at least 60% in the block; or
  - b. The HHI in the wire center is below 2,500, indicating that at least four effective firms are in the market.

If desired, the GIS software could also eliminate map irregularities, producing smoother boundaries and reducing holes. For example, the map might declare a city block competitive if it were totally surrounded by competitive blocks.

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<sup>270</sup> An HHI of 2,500 can also be produced by five firms when one has a market share of 40% and the four others each have a market share of 15%.

<sup>271</sup> In the 2005 NPRM, the FCC suggested that line density might be used to define geographic markets in a similar way. *2005 NPRM* ¶¶ 90-93.

**C. FCC should open a proceeding to reset special access rates of the three major carriers**

Many of our conclusions suggest that at least some rates for interstate special access are not currently just and reasonable. We recommend that the FCC address special access rates in a new proceeding in which all three large RBOC sellers are required parties.

**1. Contested case procedures**

We recommend that the FCC undertake this proceeding as a contested case in which parties are allowed to present and cross-examine witnesses. As in most state proceedings, we recommend that the FCC require that direct, responsive, and rebuttal testimony be prefiled in writing. Hearings, therefore, would consist primarily of the cross-examination of witnesses concerning their prefiled testimony.

The FCC should announce a date by which it expects a final decision to be released. We suggest a final order date not later than 18 months from the date of opening the proceeding.

We also recommend that the proceeding be divided into two modules. In the first module, all three RBOCs would be parties, and the FCC would prescribe general principles for establishing rates, including procedures for performing cost studies. The second module would consist of separate proceedings for each RBOC, in each of which the FCC would establish just and reasonable rates.

The FCC should require parties to file incremental cost studies for DS-1 channel terminations, DS-1 transport, DS-3 channel terminations and DS-3 transport. These studies should use the carriers' actual experience to establish the average incremental cost of serving an additional special access customer.

Incremental cost studies can be a useful first step in a rate design proceeding. TELRIC is one incremental cost method that allocates some common costs and has been upheld by the courts.<sup>272</sup> We recognize that an incremental cost study cannot fully answer how common costs should be allocated, and that the majority of ILEC costs are common costs.<sup>273</sup>

We do not presume that the new FCC proceeding will lead to restoration of the current price cap system. Parties to the FCC proceeding have pointed out numerous weaknesses of the current price cap system, including that fact that it has not been actively managed since 2001, when the CALLS plan was adopted, and in some ways not since 1990 when the price cap system

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<sup>272</sup> In *Verizon Communications Inc. v. FCC*, 535 U.S. 467, 501(2002).

<sup>273</sup> Before setting rates, the FCC will have to make difficult judgments about common costs, and those decisions may well have a larger financial impact than the FCC's findings on incremental cost.



was first established. Moreover, the price cap baskets are large, and allow carriers considerable freedom to raise one price while lowering another price in the same basket. If special access services remain subject to price caps at the end of the proceeding, at a minimum the FCC would need to make some adjustments to its current price cap system.

Nor do we presume that the FCC will reestablish rate-of-return regulation. Regardless of the merits of that method, it has been abandoned to some degree by nearly every state. Moreover, the FCC, by granting forbearance petitions, has relieved the three companies of obligations for cost allocation practices that would be necessary to establish special access rates on a rate of return basis.

In sum, we cannot ignore the present facts suggesting that rates may not be just and reasonable, even as we recognize that all of the traditional rate oversight methods face serious objections. Nevertheless, the FCC retains responsibility for ensuring that rates are just and reasonable, and it will face a difficult challenge in designing an appropriate regulatory mechanism.

## **2. FCC should address the relationship between rack rates and discount rates**

We concluded above that the large differences between rack rates and average discount prices are an issue requiring a detailed explanation to the FCC. We recommend that the FCC also explore this issue in its comprehensive proceeding.

We specifically suggest that the FCC make a tentative finding that average discount rates are either at or above market-based rates. Then the FCC could estimate the discounts that are typically available in competitive markets when customers make term and volume commitments. If those discounts were backed out, the result would be a market-based rack rate. So long as the average discount rate at the start of the calculation is at or above market rates, the rack rate produced at the end of the calculation could not be below market rates.

## **3. FCC should investigate some terms and conditions**

We concluded above that a combination of terms in discount plans may be allowing ILECs unreasonably to cement their market power by limiting the ability of buyers to shift special access circuits to competitors who may have better products, lower prices, or both. The three terms involved are large discounts from rack rates, limitations on commitment levels, and large penalties for under-purchases and over-purchases. We recommend that the FCC investigate whether these provisions, in combination, are unreasonably impairing competition. We also recommend that the FCC investigate whether some of the under-purchase and over-purchase penalties are excessive.

In particular, we recommend that the FCC evaluate three specific policy options:

1. Prohibiting sellers from conditioning entry into a discount plan on a buyer's commitment to purchase a quantity of services or provide a monthly payment

that is based on the buyer's current purchases or payments. This would not prohibit a seller from establishing generic volume discount plans that offer the same discounts for all buyers at equal volumes.

2. Prohibiting sellers from imposing per-circuit under-purchase penalties larger than 100% of the revenues lost to the seller by reason of the under-purchase.
3. Prohibiting sellers from imposing per-circuit over-purchase penalties larger than disqualification of additional circuits from being included under the discount plan and imposition of a single nonrecurring charge reasonably related to network investment costs.

We also found cases in which discount contracts for pricing flexibility areas included provisions limiting the buyer's purchase of UNEs. The right to purchase UNEs is guaranteed to certain carriers under the 1996 Act, and one discount plan imposed a large penalty for purchasing too many UNEs. Closer investigation is warranted of the size of UNE-purchase limitation terms.

In suggesting that the FCC review penalties in discount plans, we have in mind that special access is a regulated service and that the filed rate doctrine prevents buyers from receiving the benefits that the courts commonly offer to contracting parties. We recommend that the FCC afford special access customers a level of protection at least equal to that provided by the courts under general laws of contract.

#### **4. FCC should consider reestablishing price caps as an interim measure**

We recognize that a pricing proceeding will take many months. As an interim measure, we recommend that the FCC consider restoring price caps for DS-1 channel terminations and DS-3 channel terminations. We acknowledge that returning to price caps is merely the best of a series of unpleasant choices. We do note, however that price cap rates still apply to switched access rates in many areas without pricing flexibility. We also note that AT&T, as a result of the BellSouth merger commitment, is currently complying with a slightly broader mandate of the same kind that also limits prices on DS-1, DS-3, and Ethernet transport.

#### **D. FCC should consider removing use qualifications from UNE purchases**

Many CLECs buy the UNEs as substitutes for DS-1 and DS-3 special access circuits. In 2004 the FCC ruled that ILECs are not required to make unbundled network elements available to support mobile wireless services.

The FCC reached this decision in 2004 because wireless competition had evolved without UNE access and the wireless market was nevertheless "sufficiently competitive."<sup>274</sup> The FCC

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<sup>274</sup> FCC, *Unbundled Access to Network Elements*, WC Docket No. 04-313, Order on Remand, 20 FCC Rcd 2533, ¶ 34.

reasoned that since the wireless industry had become so competitive and successful, wireless carriers would not be impaired if they were denied loop UNEs at locations where they might want to buy such a service. The FCC's decision was upheld by the courts.

The result of the FCC policy is that a local exchange carrier may buy a high capacity UNE loop from an ILEC only if it demonstrates its purpose to the ILEC. If the carrier admits or it is obvious that the buyer will use the circuit as an upstream component in a wireless network, FCC policy allows the ILEC to decline to provide the service. The buyer's only remaining option at that point is to buy a special access channel termination.

This distinction between wireless and other carriers is increasingly artificial as networks converge. Moreover, the distinction is meaningless for transport, as wireless networks are not actually distinct and higher capacity circuits routinely carry both kinds of traffic. Finally, the distinction is blurring at the customer premise as carriers increasingly offer integrated services that can merge landline and wireless network functions.<sup>275</sup>

Moreover, changes in industry structure alter the factual underpinnings of the FCC's reasoning. Recent mergers have increased the integration between wireless and wireline companies, increasing the pressure on independent wireless companies. The FCC's 2004 conclusion that wireless was "sufficiently competitive" may no longer be true.

Fourth, the FCC's original logic overlooked some important factors. It is certainly still true, as it was in 2004, that the wireless industry, as an entity, has flourished without access to UNEs. Yet a geographically finer analysis produces a less exhilarating conclusion. There are still rural areas in the country without reliable wireless service. It is easy to postulate a rural area without cell service where the difference between special access rates for a DS-1 circuit and a UNE loop rate could mean the difference between a wireless cell tower and no cell tower. In at least some locations, therefore, it seems likely that wireless carriers can actually meet the test that they are "impaired" without access to a digital loop UNE.<sup>276</sup>

We recommend that the FCC reconsider its nationwide ban on allowing carriers to purchase loop UNEs in circumstances to support a wireless network. At a minimum, the FCC should allow UNE digital loop purchases to support wireless backhaul in any area that currently does not have adequate wireless service from at least two independent services.

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<sup>275</sup> For example, Sprint has a device called the "Airave" that creates a CDMA cell signal in the customer's house using licensed spectrum. The customer uses this signal to make his or her cell phone operate at home or work. The device then sends the signals over existing broadband data circuits to the Internet.

<sup>276</sup> See 47 U.S.C. § 251(d)(2)(B) provides that the FCC should consider whether the failure to provide access to such UNEs "would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."

**E. States should consider rate actions that would increase sales of intrastate special access**

As explained above, current law and practice give customers substantial freedom to elect to buy their special access circuits in either the interstate or intrastate jurisdictions. Both services function identically, and customers often choose the less expensive option.

We recommend that states consider reducing their intrastate special access rates to be no higher than interstate rates. Unlike all of our preceding recommendations, which supported advocacy before the FCC, this recommendation proposes that states act directly within their existing jurisdiction.

If states required carriers to reduce intrastate special access rates to a point lower than interstate rates, customers would be more likely to buy intrastate services. Indeed, our buyer data shows that at least one major carrier is already doing this in Chicago and Miami. At that point, state commissions may be able to address directly issues such as whether rack and discount rates are reasonably related and whether particular terms and conditions of sale are just and reasonable.

Increasing the sales of intrastate special access could have additional benefits in states that still use some form of rate-of-return regulation. Since the freeze was instituted in 2001, ARMIS companies have reported a declining intrastate share of total ILEC revenues, even as their revenues for interstate special access revenues have increased several-fold. These revenue trends may be generating pressures at some state commissions to raise intrastate access rates or local exchange rates. If an ILEC is subject to rate of return regulations, a policy that increases an ILEC's intrastate special access revenues can reduce the need to raise rates on other services.

## Appendix A – NARUC Resolution

### *Resolution on Special Access*

**WHEREAS**, Special access is a key input to all telecommunications providers which includes the local loop (channel terminations) and dedicated transport to their end users, including business customers, interexchange carriers (IXCs), competitive local exchange carriers (CLECs), and commercial mobile radio service providers service offerings; *and*

**WHEREAS**, The substantial majority of special access services are provided by the regional Bell Operating Companies (BOCs, or ILECs), which after recent mergers and consolidations, consist of two large, vertically and horizontally integrated companies with national reach, and one company with a regional ILEC footprint in Western States; *and*

**WHEREAS**, The Federal Communications Commission (FCC) in 1999 established certain predictive triggers as what were then considered irreversible evidence of sufficient competition in special access markets, which were primarily based on the number of collocations by competitive carriers in the incumbents' wire centers (Price Flexibility Order); *and*

**WHEREAS**, Using those triggers, the FCC has provided pricing flexibility relief from its price cap rules for the majority of metropolitan statistical areas (MSAs); in fact, as of November 2006, only three of the 100 largest MSAs in the United States have not been granted pricing flexibility; *and*

**WHEREAS**, The Government Accountability Office issued a report in November 2006 ("FCC Needs to Improve its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services," GAO-07-80), and concludes that "in the 16 major metropolitan areas we examined, facilities-based competition for dedicated access services exists in a relatively small subset of buildings," and that the FCC needs to improve its data collection and analysis in order to determine the true extent of competition in special access markets; *and*

**WHEREAS**, The GAO acknowledges in its report that there are numerous gaps in data and there is no single public or private data source that is universally recognized as comprehensive, and that "the data may be understating or overstating competition to varying degrees"; *and*

**WHEREAS**, The FCC issued a Notice of Proposed Rulemaking on January 31, 2005 (WC-05-25) to re-examine the appropriate regulatory framework for price capped local exchange carriers' interstate special access services; *and*

**WHEREAS**, NARUC has had a long-standing interest in ensuring that sufficient competition exists in local exchange markets so that market-based rates can apply to wholesale services such as special access, and where competition is judged not to be sufficient, regulatory policies should be adopted that prevent dominant carriers with excessive market power from operating in a manner that harms competition; *now, therefore, be it*

**RESOLVED**, That the Board of Directors of the National Association of Regulatory Utility Commissioners (NARUC), convened at its February 2007 Winter Meetings in Washington, D.C., directs its Committee on Telecommunications, under the aegis of the Federal Regulatory Subcommittee, to examine the competitive issues involving special access in selected markets, and that such subcommittee report back its analysis, findings, and any recommendations to the full Committee by the Summer Meeting to be held in New York City in July 2007; *and be it further*

**RESOLVED**, That NARUC directs its General Counsel to communicate this resolution to Congress, and to all relevant Federal and State agencies and policymakers.

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*Sponsored by the Committee on Telecommunications*

*Adopted by the NARUC Board of Directors, February 21, 2007*

## Appendix B – Description of Survey Instruments

The 2008 buyer survey instruments were pre-formatted spreadsheets with blank data fields. Each spreadsheet had separate pages for 2001, 2006 and 2007. It also had separate pages for DS-1 and DS-3 circuits. The result was six pages of data in each survey, three pages devoted to DS-1 services and three pages to DS-3.

Within each page of the buyer survey, we asked for purchased item counts regarding channel terminations and transport. Within each of these two categories, we asked for seven sub-categories, shown in columns. The first column listed self-provisioned circuits. Columns two through four listed circuits purchased from an RBOC: at a “rack rate;”<sup>277</sup> at a “generally available discount;”<sup>278</sup> and under a “special contract.”<sup>279</sup> Columns five through seven listed circuits purchased from non-RBOC ILECs, with the same three subcategories as for RBOCs. Column eight listed circuits purchased from non-ILECs. We also asked respondents to separate their purchases geographically for the top 50 MSAs. The survey thus contained, on each page, a table that portrayed circuit counts in eight columns (plus totals) for channel terminations and eight columns for transport. Each page contained 50 rows of data, one for each MSA.

We also sought pricing data on each of the six pages of the survey. Channel terminations are sold at a fixed monthly price with no separate mileage charge, and we requested these average prices using the column and row structure identical to that used for circuit counts. For transport we asked separately for fixed monthly charges and monthly mileage charges. We did not seek data on other miscellaneous charges often associated with special access purchases, such as circuit grooming, multiplexing or nonrecurring charges. Each survey also included an additional page seeking non-geographic information, including typical terms of sale.

The seller’s survey had a similar structure, with the same six pages, reflecting three years and two service levels. Each page also asked for circuit counts and average prices and had 50 rows, one per MSA. The column structure was simpler, with only three columns of data per category (plus totals): rack rate, generally available discount, and special contract. The seller survey contained a seventh page that requested information about higher capacity circuits, such as optical carrier sales and Ethernet services. The seller survey also requested information regarding route miles of fiber and route miles of high-capacity point-to-point wireless transport.

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<sup>277</sup> “Rack rates” are tariffed rates available to all customers who do not make a volume or term commitment. Sometimes these are called “month-to-month” rates.

<sup>278</sup> These plans are available to all customers and provide discounts for specified term commitments, circuit volume commitments or predefined revenue commitments.

<sup>279</sup> These are customer-specific contracts that not generally available to all. Special contracts can be negotiated for a single regional or nationwide set of terms. Parties sometimes call this third category an “overlay” or a “contract tariff.”

## Appendix C – HHI for Channel Terminations in 50 MSAs

Cells with one reporting carrier redacted

City name	ChanTerm HHI				ChanTerm ILEC Share of Market			
	DS-1		DS-3		DS-1		DS-3	
	2006	2007	2006	2007	2006	2007	2006	2007
Atlanta	8,489	8,583		7,248	98%	99%		85%
Austin	8,500	8,979		9,850	99%	99%		100%
Baltimore	9,918	9,952		8,768	100%	100%		93%
Birmingham	7,958	7,698		9,546	100%	100%		100%
Boston	9,629	9,079			98%	95%		
Buffalo	8,365	8,283			96%	97%		
Charlotte	7,560	6,896		6,598	100%	100%		21%
Chicago	9,882	9,605		6,541	100%	99%		80%
Cincinnati	10,000	9,967		10,000	100%	100%		100%
Cleveland	6,471	6,171			93%	91%		
Columbus	7,070	7,954		8,508	100%	99%		97%
Dallas	6,166	6,636		6,850	95%	94%		93%
DC	9,963	9,186	9,191	9,264	100%	96%	96%	96%
Denver	9,117	9,028		9,796	96%	95%		100%
Detroit	8,862	8,724			100%	100%		
Hartford	9,710	10,000			100%	100%		
Houston	8,062	8,624		6,262	100%	99%		79%
Indianapolis	7,806	8,344		4,927	100%	99%		43%
Jacksonville	8,524	8,275		7,025	100%	100%		82%
Kansas City	8,324	8,050		8,546	100%	100%		100%
LA-LB-SA	7,031	6,904	5,913	6,593	100%	100%	81%	87%
Las Vegas	9,431	9,392		10,000	99%	99%		100%
Louisville	8,844	5,574		5,162	99%	97%		59%
Memphis	9,594	9,728		10,000	100%	100%		100%
Miami	9,719	9,595		6,310	99%	98%		76%
Milwaukee	7,819	8,676		9,655	100%	100%		100%
Minneapolis	7,337	7,500		7,551	100%	100%		97%
Nashville	8,440	8,066		5,055	98%	93%		45%
New Orleans	9,791	9,487		8,356	100%	100%		97%
NY-NY	9,266	9,179	5,555	6,315	96%	96%	70%	77%
Oklahoma City	6,983	4,882			94%	75%		
Orlando	4,983	5,679		4,266	98%	97%		91%
Philadelphia	9,651	9,347			100%	98%		
Phoenix	8,972	9,097		7,697	98%	98%		87%
Pittsburgh	6,403	6,042			94%	92%		
Portland	7,485	7,737		4,981	99%	100%		89%
Providence	9,283	9,402			96%	97%		



City name	ChanTerm HHI				ChanTerm ILEC Share of Market			
	DS-1		DS-3		DS-1		DS-3	
	2006	2007	2006	2007	2006	2007	2006	2007
Richmond	7,994	8,086			96%	96%		
Riverside	6,277	5,347			100%	100%		
Rochester	9,653	9,851		8,644	100%	100%		100%
Sacramento	8,114	6,143			95%	81%		
San Antonio	8,012	8,299		9,726	100%	99%		100%
San Diego	9,993	10,000		10,000	100%	100%		100%
San Francisco	9,778	9,656		10,000	100%	100%		100%
San Jose	9,510	9,362			100%	100%		
San Juan	10,000	6,781			100%	80%		
Seattle	9,276	8,019		9,445	99%	99%		100%
St Louis	7,261	7,277			100%	100%		
Tampa	10,000	9,839		10,000	100%	99%		100%
Virginia Beach	8,328	8,211			91%	90%		

## Appendix D – HHI for Dedicated Transport in 50 MSAs

Cells with one reporting carrier redacted

City name	Transport HHI				Transport ILEC Share of Market			
	DS-1		DS-3		DS-1		DS-3	
	2006	2007	2006	2007	2006	2007	2006	2007
Atlanta	8,737	8,345	5,491	5,188	100%	98%	69%	63%
Austin	8,038	6,672	6,964	5,027	100%	96%	86%	41%
Baltimore	10,000	9,945	9,697	8,429	100%	100%	98%	91%
Birmingham	8,007	7,511	6,454	7,099	100%	99%	89%	94%
Boston	10,000	10,000	8,292	8,472	100%	100%	91%	92%
Buffalo	8,026	7,765			95%	96%		
Charlotte	5,911	4,857	8,374	4,477	100%	89%	96%	46%
Chicago	9,891	9,838	5,649	5,553	100%	100%	68%	67%
Cincinnati	9,691	8,399		6,853	100%	93%		80%
Cleveland	8,174	8,195	8,293	8,076	100%	99%	92%	93%
Columbus	7,465	6,833	8,686	5,489	100%	95%	97%	73%
Dallas	7,337	6,919	5,599	4,570	100%	99%	83%	76%
DC	10,000	9,966	8,168	8,299	100%	100%	90%	91%
Denver	8,595	8,150	6,461	6,947	100%	98%	78%	83%
Detroit	9,075	8,936	7,368	7,402	100%	100%	84%	85%
Hartford	9,393	10,000	8,702	10,000	100%	100%	100%	100%
Houston	7,875	8,657	4,416	4,402	100%	97%	85%	64%
Indianapolis	6,187	5,652	8,239	4,719	100%	91%	100%	51%
Jacksonville	8,049	7,767	6,884	5,186	99%	100%	19%	60%
Kansas City	6,812	6,611	5,478	4,432	99%	98%	94%	71%
LA-LB-SA	7,864	7,190	7,410	7,323	100%	100%	88%	88%
Las Vegas	5,235	4,942	5,806	4,006	100%	99%	100%	80%
Louisville	7,624	4,507	10,000	6,504	100%	95%	100%	23%
Memphis	9,703	7,835	7,083	7,469	100%	90%	92%	15%
Miami	9,985	9,989	7,345	7,296	100%	100%	84%	84%
Milwaukee	7,480	5,529	7,888	4,758	100%	90%	100%	71%
Minneapolis	6,450	6,298	7,544	5,229	100%	97%	98%	78%
Nashville	8,781	8,451	10,000	7,752	99%	98%	100%	13%
New Orleans	9,725	9,038	5,102	4,048	100%	99%	57%	53%
NY-NY	10,000	9,853	8,952	7,837	100%	99%	94%	88%
Oklahoma City	6,010	5,519			90%	86%		
Orlando	5,023	4,733	4,678	4,074	100%	96%	86%	63%
Philadelphia	9,770	9,771	5,041	5,203	100%	100%	55%	60%
Phoenix	8,521	7,954	7,608	5,740	100%	97%	86%	69%
Pittsburgh	7,218	7,013	5,415	4,878	100%	100%	85%	78%
Portland	5,359	6,636	7,265	5,339	100%	95%	92%	75%
Providence	10,000	10,000			100%	100%		

City name	Transport HHI				Transport ILEC Share of Market			
	DS-1		DS-3		DS-1		DS-3	
	2006	2007	2006	2007	2006	2007	2006	2007
Richmond	6,824	7,137		5,871	96%	97%		90%
Riverside	7,537	5,988			100%	100%		
Rochester	10,000	5,585		6,250	100%	67%		25%
Sacramento	7,017	6,222	9,596	8,908	94%	86%	100%	96%
San Antonio	8,001	7,716	10,000	4,669	100%	97%	100%	59%
San Diego	9,959	9,966	7,369	8,149	100%	100%	84%	90%
San Francisco	9,484	9,544	5,026	5,091	100%	100%	54%	57%
San Jose	8,871	8,656			100%	100%		
San Juan	10,000	10,000			100%	100%		
Seattle	6,472	6,687	5,974	4,990	100%	100%	75%	60%
St Louis	7,588	7,523	7,801	7,109	100%	100%	95%	87%
Tampa	10,000	9,465	9,810	7,851	100%	97%	99%	88%
Virginia Beach	10,000	9,620			100%	98%		