

FEDERAL COMMUNICATIONS COMMISSION

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[WC Docket Nos. 16–143, 05–25, GN Docket No. 13–5, and RM–10593; FCC 17–43]

Business Data Services in an Internet Protocol Environment; Technology Transitions; Special Access for Price Cap Local Exchange Carriers; AT&T Corporation Petition for Rulemaking To Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, a Report and Order provides a new framework for deregulating Business Data Services in areas where competitive forces are able to ensure just and reasonable rates. Acknowledging the presence of increased competition evidenced by the record in this proceeding, the Federal Communications Commission amends its rules to reflect changes in the business data services marketplace. By adopting this framework the Commission acts to further bolster competition and investment in business data services, and takes further steps to decrease the cost of broadband infrastructure deployment.

DATES: Effective August 1, 2017, except for the amendments to §§ 1.776, 61.45, 61.201, 61.203, and 69.701, which shall become effective after OMB approval of those amendments. The Federal Communications Commission will publish documents in the **Federal Register** announcing the effective dates.

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SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Report and Order, FCC 17–43, adopted April 20, 2017, and released April 28, 2017. The summary is based on the public redacted version of the document, the full text of which can be found at the following internet address: https://apps.fcc.gov/edocs_public/attachmatch/FCC-17-43A1.pdf. To request alternative formats for persons with disabilities (e.g., accessible format documents, sign language, interpreters, CARTS, etc.), send an email to fcc504@fcc.gov or call the Commission's Consumer and Governmental Affairs Bureau at 202–418–0530 (voice) or 202–418–0432 (TTY).

Synopsis

I. Introduction

1. After more than ten years of studying the business data services (also referred to as BDS) market, numerous requests for comment, and a massive data collection, we at long last recognize the intense competition present in this market and adjust our regulatory structure accordingly. The record in this proceeding demonstrates substantial and growing competition in the provision of business data services in areas served by incumbent local exchange carriers (LECs) subject to price cap regulation. By adopting a framework which accounts for these dynamic competitive realities, we will create a regulatory environment that promotes long-term innovation and investment by incumbent and competitive providers alike which well-serves business data services customers.

2. The record indicates the market for business data services is dynamic with a large number of firms building fiber and competing for this business. The *2015 Collection* identified 491 facilities-based companies providing business data services in the enterprise market. Competitive LECs such as Zayo and Birch continue to invest and expand their competitive fiber networks with very successful results. Competitive LECs earned \$23 billion of the \$45 billion in business data services revenue in 2013. Cable providers have also emerged as formidable competitors in this market. Cable business data services are reported to have grown at approximately 20 percent annually for the past several years and, increasingly, they have emphasized Internet access and managed services, which directly compete with the products being offered by the incumbent and other competitive LECs.

3. Although incumbent LECs once dominated the business data services market selling circuit-based DS1s and DS3s, such technology is becoming obsolete. Significant increases in bandwidth demand are being driven by bandwidth-hungry applications, mainly video services (teleconferencing, training, etc.) as well as by web and cloud-based services. These rapidly increasing bandwidth demands will place an ever increasing demand for services such as Ethernet, especially over fiber, which can scale bandwidth to meet these requirements more effectively than can the old legacy services. Packet-based services, which include Ethernet, already make up a large part of the business data services marketplace. In 2013, more than 40 percent of the approximately \$45 billion

in dedicated service revenues were for packet-based services. Based on provider and analyst forecasts, we expect this shift from circuit-based to packet-based services to continue at a rapid pace.

4. Against this competitive backdrop, we now move away from the traditional model of intrusive pricing regulation for incumbent LECs, recognizing that ex ante pricing regulation is of limited use—and often harmful—in a dynamic and increasingly competitive marketplace. Indeed, there is a significant likelihood ex ante pricing regulation will inhibit growth and investment in many cases. In such circumstances, we should not continue unnecessary regulations, much less extend them to new services or providers. Instead, we adopt a framework based on our market analysis and a careful balancing of the costs and benefits of ex ante pricing regulation that deregulates counties where the provision of price cap incumbent LECs' business data services is deemed sufficiently competitive.

5. This Report and Order (Order), therefore, provides a new framework for business data services that minimizes unnecessary government intervention and allows market forces to continue working to spur entry, innovation, and competition. Our decisions stem from careful consideration of the data submitted in the proceeding and the thoughtful comments and ex parte communications submitted into the record. Our thinking on how to evaluate competition and design pricing regulation evolved as we engaged with economists, advocates, and others to develop an administrable approach to deregulate in areas where competitive forces are able to ensure just and reasonable rates. To a large extent in the business data services market, the competition envisioned in the Telecommunications Act of 1996 (1996 Act) has been realized, and this Order is an important step in updating our rules to adequately reflect such market developments. We reach these conclusions aware of the increased investment in facilities and service deployment that has occurred in response to similar deregulatory action by the Commission. In tandem with adoption of this new, more appropriate framework designed to maximize competition and investment in business data services, we are also taking further steps to decrease the costs of deploying our nation's broadband infrastructure.

II. Background

6. Business data services refers to the dedicated point-to-point transmission of

data at certain guaranteed speeds and service levels using high-capacity connections. Henceforth, we refer to special access services as a subset of business data services that we continue in some circumstances to subject to ex ante pricing regulation. Specifically, special access services include DS1 and DS3 interoffice facilities and channel terminations between an incumbent LEC's serving wire center and an interexchange carrier (IXC), and end user channel terminations, although ex ante pricing regulation would only apply to certain end user channel terminations. Businesses, non-profits, and government institutions use business data services to enable secure and reliable transfer of data, for example, as a means of connecting to the Internet or the cloud, and to create private or virtual private networks. Business data services support applications that require symmetrical bandwidth, substantial reliability, security, and connected service to more than one location. Business data services are significant to our nation's economy—revenues reported by providers in response to the *2015 Collection* total almost \$45 billion for 2013, and revenues for the broader market for enterprise services, which include voice, Internet, private network, web-security, cloud connection, and other digital services, could exceed \$75 billion annually. Moreover, these numbers do not capture the indirect contribution of business data services to the nation's economy as business customers rely on these services for their commercial operations.

7. The Commission has historically subjected the provision of business data services by incumbent LECs to dominant carrier safeguards. The focus of this proceeding is on areas where incumbent LECs are subject to price cap regulation in setting their business data services rates. Beginning in 1999, through a series of Commission actions, the Commission: (1) Began granting price cap incumbent LECs pricing flexibility by establishing both Phase I relief (which permitted the provision of volume and term agreements and contract tariffs) and Phase II relief (which relieved the carrier of price cap regulation) through "triggers" using collocation as a proxy for competition; (2) adopted the "CALLS plan," which separated business data services into its own basket and applied separate "X-factors;" (3) initiated a rulemaking to examine a number of aspects of the business data services market, including whether to apply and how to calculate a productivity-based X-factor and

whether to maintain or modify the pricing flexibility rules; and (4) granted a number of price cap incumbent LECs forbearance from dominant carrier regulation, including tariffing and price cap regulation for their newer packet-based and higher bandwidth optical transmission broadband services, including a "deemed grant" for Verizon from application of Title II to these services.

8. In August 2012, the Commission suspended its pricing flexibility rules because they were "not working as predicted, and . . . fail[ed] to accurately reflect competition in today's special access markets." In December 2012, the Commission released the *Data Collection Order and FNPRM*, to collect data, analyze how competition, "whether actual or potential, affects prices, controlling for all other factors that affect prices," and "determine what barriers inhibit investment and delay competition, including regulatory barriers, . . . and what steps the Commission could take to remove such barriers to promote a robust competitive market and permit the competitive determination of price levels." The Commission planned to use the results of its analysis to evaluate whether to change its existing pricing flexibility rules "to better target regulatory relief in competitive areas" and evaluate remedies to address potentially unreasonable terms and conditions. The Bureau released the *Data Collection Implementation Order* on September 18, 2013, clarifying the scope of the collection. Pursuant to the Paperwork Reduction Act (PRA), the Office of Management and Budget (OMB) approved the data collection subject to modifications which the Bureau implemented in an order released on September 15, 2014. By February 27, 2015, the last group of filers were required to respond to the *2015 Collection*.

9. Most recently, the Commission released the *Tariff Investigation Order and Further Notice* on May 2, 2016. The *Order and Further Notice* declared certain terms and conditions in the tariffs of the four largest incumbent LECs unlawful, proposed to replace the existing business data services regulatory structure with a new framework, and sought comprehensive comments on the proposed new framework.

III. Competitive Conditions for Business Data Services

10. In this section we consider competition among traditional and non-traditional providers of end-to-end business data services and the

circumstances under which market conditions warrant a deregulatory approach for certain business data services consistent with our obligation to ensure that the rates for services offered by common carriers are just and reasonable. In the present rulemaking, the Commission has already determined that significant aspects of the pricing flexibility regulatory regime have failed. Thus, we must now decide whether to allow that failure to continue or to implement changes. As is often the case with complex problems, there is no ideal dataset available or which we could collect in a reasonable timeframe or expense, which would answer all doubts. Although the *2015 Collection* was critical to our analysis of competition in BDS markets, it was not the only data, or data analysis, relied upon to reach the conclusions here. Analysis of varying data and market realities in the record also are relied upon as part of the determination of where competitive pricing pressure exists, and the fuller analysis is considered within the context of our commitment to implement administrable regulatory changes. As such, we have carefully parsed the available evidence and apply reasoned judgment to decide the questions before us.

11. The Commission is charged with ensuring that the rates, terms, and conditions for services offered by common carriers are just and reasonable and that services are not offered on an unreasonably discriminatory basis pursuant to sections 201(b) and 202(a) of the Communications Act. We "may prescribe such rules and regulations as may be necessary in the public interest to carry out the provisions of this Act." In addition, section 706(a) of the 1996 Act states that the Commission:

shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.

12. Our public interest evaluation "necessarily encompasses . . . among other things, a deeply rooted preference for preserving and enhancing competition in relevant markets [and] accelerat[ing] private sector deployment of advanced services." A competition analysis is critical to our public interest evaluation and is informed by, but not

limited to, traditional antitrust principles designed to protect competition. The Commission, in conducting an analysis, may “consider technological and market changes as well as trends within the communications industry, including the nature and rate of change.” Analyzing the competitive nature of the market for business data services will allow us to make a determination about the appropriate way to balance the costs and benefits of applying ongoing regulation to particular business data services.

13. For business data services provided over DS1s and DS3s supplied by the incumbent LEC we find that a nearby potential business data services supplier, in the form of a wired communication network provider, generally tempers prices in the short term and results in reasonably competitive outcomes over three to five years (the medium term). For example, a cable company that has fiber nodes nearby, and hence the ability to provide both Ethernet-over-fiber and, even more readily Ethernet-over-Hybrid Fiber Coax (EoHFC), if a profitable opportunity arises, is particularly relevant to pricing decisions of a business data services provider wishing to retain a customer.

14. Our conclusion is based in part on record evidence indicating a cost structure for business data services that incentivizes suppliers with existing networks to compete vigorously for customers. We also base our conclusion on findings that the impact of the first entrant on price will be substantially higher than the impact of subsequent entrants and business data services pricing is often determined by a customer bidding or request for proposal (RFP) process in which even an uncommitted, though usually nearby, entrant can compete for the customer’s business, and then build out to the customer. Consequently, the presence of nearby competitive facilities tempers pricing as competitors are generally aware of competitive facilities that can be expanded to reach an additional customer with reasonable costs should the incumbent’s pricing exceed competitive levels (supracompetitive prices). Furthermore, where an incumbent sets supracompetitive prices it is vulnerable to competitors vying for customers.

15. Together the evidence demonstrates how even a single competitor exerts competitive pressure which results in just and reasonable rates. This evidence demonstrates that the significant network investment required to provide business data services to end users is increasingly

being leveraged in ways that prevent substantial abuses of market power. Given such incentives, the presence of two current competitors or providers with their own fiber nodes within a half mile, hereafter referred to as medium-term entrants, or that will serve over the medium term, are sufficient to provide competitive pressure to adequately discipline prices. Our finding is also based on evidence of competition that is currently in place or likely to arise over the medium term.

16. In addition, we find that business data services with bandwidths in excess of the level of a DS3 generally experience reasonably competitive outcomes, and to the extent they do not today, will do so over the medium term even where a facility-based competitor has no nearby facilities. We come to this conclusion based on a record that shows almost no evidence of competitive problems in the supply of these higher bandwidth services, and which shows higher bandwidth opportunities are particularly attractive to competitive LECs. We make a similar finding for transport services, where the record presents little evidence of competitive problems, and where low bandwidth demand is quickly turning into high bandwidth demand. We make a similar finding for lower bandwidth packet-based services. We reach these conclusions because, compared with time division multiplex (TDM) services, competitive LECs are considerably more active in the supply of packet-based services, are on a considerably more level playing field in supplying these new services against incumbent LECs, and have better incentives to supply such future-proof services where demand is growing rapidly.

A. Introduction

17. We analyze the *2015 Collection*, and look to analyses and other evidence submitted in this proceeding, to reach findings concerning competitiveness in the business data services industry. In conducting our analysis, we consider market concentration as highly relevant, but do not find it determinative absent consideration of market dynamics. We also look at specific market-based circumstances when considering actual and potential sources of competition.

18. In this section, we review the competitiveness of business data services, in general, as well as issues raised by commenters. We reach findings as to the degree of competitiveness in the business data services industry and consider industry trends on competitive entry. We look to see if services are reasonably substitutable to determine an

appropriate product market, and, in the case of geographic markets, we look to areas “in which the seller operates and to which the purchaser can practicably turn for supplies.” As part of that analysis we observe high barriers to entry, but also observe a significant penetration of competitive business data services facilities being deployed and upgraded with a number of technologies throughout the country, particularly in areas with significant customer demand. Moreover, we observe a strong willingness on the part of providers to extend their networks half a mile to meet demand, especially over the medium term.

19. Consistent with antitrust principles, we distinguish product markets by generally looking at whether various services are reasonably interchangeable, with differences in price, quality, and service capability being relevant. In the case of geographic markets, we look at both supply and demand substitution. For both product and geographic markets, it is conventional to undertake a hypothetical monopolist test to determine market definitions. That approach begins with the smallest plausible market definition and considers likely consumer substitution if a hypothetical monopolist in that market imposed a small but significant and non-transitory increase in price (SSNIP). We do not have data that would enable a more formal application of such a test, but our market analysis considers purchasers’ willingness and ability to substitute services, suppliers, and geographies. The extent to which supply is broadly competitive wherever the incumbent LEC also faces a facility-based rival is strengthened by our findings as to specific product markets, and refined by our analysis of geographic markets.

B. Product Market

20. When defining a product market, to ensure our action affects an appropriate group of services, we look to which services are sufficiently similar to reasonably be considered substitutes. We consider a number of factors, including the “practical indicia” identified by the Supreme Court, such as “industry or public recognition of the submarket as a separate economic entity, the product’s peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.” Not all of these factors must be present to define the relevant product market. Perfect substitutability is not required as part of our broad review of business

data services markets and our narrow consideration of certain special access service inputs that comprise a full business data services customer circuit.

21. A product that substitutes for another demonstrates a possibility that consumers will purchase the competing service of a competitor, including a potential entrant. Consequently, we consider providers with facilities used to supply one service that could be used to provide another. For example, we see not only substitution between circuit- and packet-based business data services, but the capacity to supply both services over the same underlying facilities, indicating the two services are likely in the same market, and more importantly, that suppliers of either service are in the same market, as they could readily provide the other service over their facilities. Similarly, while best-efforts services do not generally appear to be a good substitute for business data services (and *vice versa*), legacy hybrid-fiber-coaxial (HFC) and copper (in fact, generally hybrid-fiber-copper) facilities are commercially used to provide low bandwidth business data services (if not always at the highest commercially available quality standards). Unbundled network elements (UNEs), dark fiber, and fixed wireless services and facilities used to provision business data services also play competitive roles in business data services markets.

1. Circuit- and Packet-Based Business Data Services

22. The legacy technology for providing business data services is circuit-based using TDM. Incumbent LECs are the primary facilities-based suppliers of TDM-based services, including DS1s and DS3s with symmetrical capacities of 1.5 Mbps and 45 Mbps, respectively. For decades, these workhorses were the only options available to meet the high-capacity needs of users. TDM circuits provide dedicated, secure, reliable and low-delay transmission service for moving voice, data, and video traffic, but do not effectively scale for data intensive applications. To increase bandwidth for DS1s/DS3s, providers must bond multiple circuits together. For example, providers can bond up to eight DS1s to achieve a maximum bandwidth of 12 Mbps. DS3s are rarely bonded, however, because with the increased cost, the more logical option is to use a newer technology, such as a packet-based service. In contrast, packet-based services have bandwidth options ranging from 2 Mbps up to 100 Gbps, depending on the connection medium, and are easily scaled over fiber to meet increasing data demands.

23. Because packet-based networks move packets over a shared transport channel, they are more efficient than a circuit-based network where transmission capacity is reserved even when not used. The routing and reassembling of data packets, however, can lead to packet loss, jitter, and latency, affecting the quality of service needed to support certain applications desired by users, *e.g.*, real-time and mission critical applications. Providers can mitigate these delays through packet prioritization and setting performance parameters, like assigning different classes of service and quality of service levels (with, for example, Service Level Agreements (SLAs)). In this way, providers can shape and differentiate networks to improve performance to meet the specific needs of users. Backed by performance guarantees, packet-based business data services can provide the same, if not better, level of security, reliability, and symmetrical speeds as a DS1 or DS3 service. Packet-based business data services can also accomplish this with greater efficiency and scalability to satisfy a user's growing bandwidth demands.

24. Functionally, TDM and packet-based services are broadly interchangeable in the business data services realm as both are used to provide connectivity for data network and point-to-point transmissions and both services can be delivered over the same network infrastructure. Incumbent and competitive LEC providers offer both types of services to similar types of customers and their marketing materials juxtapose these two technologies against each other. Customers of TDM-based services are also switching to packet-based services. And commenters representing suppliers agree, with limited exception, the services, whether circuit-based or packet-based, are substitutes and in the same product market.

25. Substitution between these two services, however, is generally one directional. New customers, more likely than not, are choosing to purchase Ethernet services, subject to their availability and pricing, and existing customers of TDM-based service are switching to Ethernet. There is no evidence suggesting Ethernet customers are switching to DS1s and DS3s. Nor as a policy matter would we want that to occur as the technology transition is moving towards the eventual termination of TDM service offerings altogether. We want to encourage that migration, while mitigating disruptions to existing customers, to help unleash the benefits of network innovation for American businesses and consumers.

We note, however, that adopting a framework that promotes deployment of competitive services, as we do here, benefits even those customers who maintain TDM services due to static needs—or for whatever reason—because increased competition for these services is likely to place downward pressure on prices.

26. We find circuit- and packet-switched business data services that offer similar speed, functionality, and quality of service characteristics fall within the same product markets for the purposes of action taken here, even though there is evidence suggesting the two technologies have important distinctions. Indeed, the Commission has long considered TDM and packet-based business data services as functionally interchangeable at comparable capacities and has consistently included both types of business data services in its orders and forbearance decisions. Courts, in turn, have upheld the Commission's view. Although commenters have pointed out some differences between these technologies, there is considerable evidence in the record indicating that the Commission's view on sufficient substitutability of circuit and packet business data services still holds. We believe that legacy TDM business data services suppliers would be constrained by the threat of potential customer loss to packet-based business data services suppliers.

2. Ethernet Over Hybrid-Fiber Coax

27. Packet-based business data services over fiber are the gold standard for the industry because they provide the greatest flexibility to efficiently scale bandwidth to the highest speeds at the highest performance levels. There is debate in the record, however, on whether we should include the packet-based Ethernet services provided by cable companies using their HFC networks in the product market for business data services. Our review of the record now confirms that competitive pressure on low bandwidth packet-based services carried on fiber and legacy TDM services is significant, and should be taken into account as part of any competitive market test.

28. In many ways, EoHFC is much like other modes of business data services. Ethernet-over-HFC technology provides point-to-point wireline connection at symmetrical speeds, albeit limited to 10 Mbps. Although EoHFC is not as reliable as circuit-switched or fiber connections, some cable companies are able to guarantee 99.9 percent availability (as compared to fiber's 99.99 percent). In addition to

availability, some cable companies offer further performance guarantees, addressing jitter, latency, packet loss, availability, and mean time to repair their Ethernet over Data over Cable Service Interface Specification (DOCSIS) service. Comcast targets its EoHFC service to “[c]ustomers with low to medium bandwidth requirements that need enterprise features.” Wholesalers, for instance, are increasingly leaning on the cable industry’s vast EoHFC network to address the needs of their multi-regional customers. AT&T “has certified both fiber-based and HFC-based Ethernet offerings from cable companies for use in [its business data] services, as well as for use in [its] backhaul services.” Similarly, Sprint has announced that it now provides business data services over cable company facilities, including EoHFC.

29. Cable network architecture is constantly evolving to meet bandwidth needs. Yet, some cable providers contend that their EoHFC business data services are not substitutable with fiber business data services because they do not offer SLAs, or where they do so, they are limited, for example, guaranteeing only repair intervals and availability for their Ethernet over DOCSIS service. Some wholesalers echo this view, reporting that they do not consider EoHFC (DOCSIS 3.0) as competitive with their services mainly because of limited availability, performance issues, and inadequate SLA guarantees. However, the record shows that while these performance levels may be undesirable for some customers, many others readily accept lower performance guarantees in exchange for lower prices. We believe that a significant tipping point has been reached in the evolution of these services when even incumbent LECs such as Verizon and AT&T are using these services for their own business customers out-of-region.

3. “Best-Efforts” Internet Access Services

30. Best-efforts Internet access services describe basic Internet access as generally marketed to residential and small business subscribers. At the most-basic level, best-efforts and dedicated business data services appear to be interchangeable: End users can use both services to access the Internet or create virtual private networks. However, best-efforts Internet access is provided with asymmetrical speeds and without service performance guarantees. Whereas dedicated packet-based business data services allow for packet prioritization and quality of service priority tiers, best-efforts services do

not. Also, while dedicated business data services commonly provide at least 99.9 percent network reliability, with higher guarantees being available for fiber services, and guarantees for latency and jitter, best-efforts services generally do not offer any reliability guarantees, although some cable providers offer some non-binding performance “assurances.”

31. In the *Further Notice*, the Commission stated that “it is likely that best effort services may not be in the same product market or markets as BDS,” and sought comment on its analysis. However, the record includes evidence of incumbent LECs losing small- and medium-sized customers to cable’s best-efforts offerings, despite noticeable differences in performance and prices between business data and best-efforts services. In many circumstances, customers are willing to trade guaranteed service levels for higher bandwidth and better prices while receiving some symmetry. Cable providers routinely pitch their best-efforts business broadband services to customers as substitutable for legacy TDM services. Charter, for example, markets its Business Internet Essentials¹⁶ services as “more than 13 times faster than T1.” And the record shows cable has been largely successful in growing its best-efforts business broadband services: “Comcast reports a [REDACTED] increase for best efforts business broadband services from 2014–2015” and “TWT reports a [REDACTED] from 2014 to 2015 increase in its BIA (its best-efforts HFC service).” Incumbent LECs are noticing this competition. For example, AT&T explains that its sales team has discovered that “for the thirteen-month period from November 2014 through November 2015, a very substantial portion of AT&T’s competitive losses were to cable companies and a significant portion of those losses were to best efforts cable services.” We, therefore, observe substitution and best-efforts networks supporting business data services for certain customers, but we do not observe broad substitution or substantial performance similarities with fiber-based business data services sufficient to determine that best-efforts service and its underlying facilities are in the same product market. In that manner, best-efforts services can be distinguished from other business data services. Despite this, the underlying facilities used to provision best-efforts services, even over legacy media such as HFC, can be and are being repurposed to provide business data services.

4. Unbundled Network Elements

32. We find that the use of UNEs, where available, allow competitive providers to effectively compete in lower bandwidth services, and are particularly close substitutes for DS1s and DS3s. However, use and availability of UNEs is diminishing.

33. Incumbent LECs are required by section 251(c)(3) of the Act and section 51.319 of the Commission’s rules to provide requesting common carriers with DS1s, DS3s, and bare copper loops as UNEs. UNE rates, as determined by the state public utility commissions, are based on forward-looking costs not on the incumbent LECs’ historical costs, and are thus typically lower than the incumbent LEC rates for regulated DS1 and DS3 services. UNEs are intended to facilitate competition by lowering barriers to stimulate facilities-based entry into local markets, and the Commission has imposed unbundling obligations “in those situations where [it] find[s] that carriers genuinely are impaired without access to particular network elements and where unbundling does not frustrate sustainable, facilities-based competition.”

34. The availability of UNEs from incumbent LECs is limited based on the “impair” standard. DS1 and DS3 UNE loops are allowed only in those buildings located within the service area of an incumbent LEC wire center that falls below a certain business density line and fiber collocation threshold. As a practical matter, competitive LECs cannot rely on UNEs at a wire center in which the competitive LEC is not collocated. Moreover, with incumbent LECs increasingly retiring their copper-based infrastructure, the question also arises as to the extent to which UNEs will remain available in the future.

5. Dark Fiber

35. Dark fiber is a physical connection with no transmission functionality. As the Commission explained in the *Further Notice*, “the supply of BDS over dark fiber takes on significant aspects of facility-based competition” and “is particularly attractive for competitive LECs seeking to expand their network reach and mobile carriers needing cell site backhaul.” Also, the record indicates that mobile wireless service providers are purchasing and then self-equipping dark fiber as a substitute for a fiber-based Ethernet service. Accordingly, we find dark fiber is a substitute for special access services purchased for wireless backhaul. Similarly, dark fiber is a substitute outside of backhaul, e.g., serving the

needs of retail business customers. The *2015 Collection* includes all competitive provider locations serviced over dark fiber, and staff and key economists that used that data considered competition over it as essentially equivalent to facility-based competition.

6. Satellite Services

36. Satellite providers also offer business data services that are currently relied upon by many end users as acceptable substitutes for all or part of their broadband demand requirements, particularly for those that find best efforts provisioning from competitors acceptable. General Communications (GCI), for example, reports that its “satellite network provides communications services to small towns and communities throughout rural Alaska.” Hughes Network Systems, LLC “provides advanced broadband satellite service throughout the United States, including high-speed internet and voice over internet protocol (‘VoIP’).” The record indicates that “Globalstar, a low Earth orbit satellite constellation for satellite phone and low-speed data communications, has proposed a service that could help to relieve some Wi-Fi congestion in anchor institutions.” And there is evidence that satellite service providers are increasingly competing for lower bandwidth business data service customers, which is a trend we anticipate will continue in the future. We do not find BDS provided by satellite currently to be in the relevant product market but note that its presence underscores the conservative nature of our approach. In that manner, we believe satellite broadband offerings have the potential to add competitive pressure to the BDS market, especially for customers that do not require high bandwidth or symmetrical service with significant service level or uptime guarantees.

7. Fixed Wireless Services

37. We find fixed wireless services are a substitute for cell site backhaul but are, at most, a gap filler for special access services providing last-mile access to buildings. While mobile wireless carriers have relied substantially on fixed wireless, *i.e.*, often self-provisioning microwave point-to-point links to backhaul traffic from their macro cell sites, the record on providers viably using fixed wireless to provide last-mile access to buildings is not as clear. In the *Further Notice*, the Commission found the record somewhat mixed on the use of fixed wireless technology to provide business data services. But the Commission also noted that the *2015 Collection* included

locations served by fixed wireless technology and mobile providers “reported that about 40 percent of their cell sites have self-provisioned wireless backhaul facilities.” In response, commenters discussed at a high level, whether or not to include fixed wireless in the business data services product market, or for a competitive market test with few additional facts provided on the subject of substitutability. The record also indicates that XO and Windstream use fixed wireless service in their networks.

38. We continue to find fixed microwave is a competitive backhaul alternative for wireless providers. The record, however, on using fixed wireless to provide reliable last-mile access to end users is mixed, especially in urban areas where line-of-sight can be more of a concern than in rural areas. We do note the promise of 5G technology to provide quality high-bandwidth fixed wireless services to businesses in urban areas. AT&T and Verizon are currently engaged in 5G trials, but commercial service is not expected to launch until 2020. That said, given the very high capacity of 5G networks, they have the potential to represent a significant additional source of competition for the provision of business data services. We will continue to monitor these developments. For now, at a minimum, we consider fixed wireless an option for last-mile building access when wireline facilities are unavailable. Fixed wireless can also serve as a viable backup transmission option for business data services purchasers to increase network diversity. As such, for purposes of the relevant business data services product market, we find that fixed wireless services should be included in the product market discussion because they may have a competitive effect on the market.

C. Geographic Market

39. To determine an appropriate geographic market for competitive analysis purposes, we consider the area to which consumers can “practically turn for alternative sources,” and within which providers can reasonably compete. The geographic market “must . . . both correspond to the commercial realities of the industry and be economically significant.” Yet, as with product market delineation, a geographic market “cannot . . . be defined with scientific precision.” In this section we conclude that a half mile is the relevant geographic market for the analysis of competition in the business data services market.

40. In the *Further Notice*, the Commission described the relevant

geographic market in the business data services industry as likely being larger than the average census block and sought comment on its analysis. Considering varying buildout distances in the record, the Commission observed in the *Further Notice* that competitors are willing to extend their facilities to reach potential customers “typically rang[ing] from [REDACTED] to [REDACTED].” Commenters indicate that incumbent LECs and competitive providers have similar buildout criteria. For larger competitive LECs, the majority of buildouts are within [REDACTED] from a splice point and less commonly exceed [REDACTED] away from the nearest splice point on their fiber network. Accordingly, the Commission suggested that the relevant “geographic market definition for lower bandwidth BDS lies somewhere above the average area of the Census block with BDS demand and below” the Metropolitan Statistical Area (MSA).

41. While buildouts are common within a half mile from a competitor’s facilities, the subsequent record shows buildouts of half mile and farther often occur. However, such buildouts become much less likely as the distance from a cost-effective and viable fiber junction point increases as well as due to variation in entry barriers. Some providers may be more risk tolerant and will build out farther than others, as they weigh location-specific factors, including the identities of the nearby competitors, the specifics of competing local networks, local geographic features (such as traversing rivers or highways), local building codes, the density of local demand, and bandwidth demanded. However, we find risk tolerant businesses and buildouts farther than a half mile to be the exception.

42. The nature of the customer’s demand is particularly relevant to competitors’ build decisions. As the Commission recognized recently when considering the likelihood of a competitor entering a building to provide business data services, “[t]he lower the demand in the building, the closer another competitive fiber provider must be to that building for entry to be profitable and thus likely.” Nevertheless, even when demand is too low to justify the buildout, competitive providers often consider whether there are any potential customers nearby and may even take a more circuitous route in anticipation of additional demand from businesses along the route. The *2015 Collection* indicates that in many areas of the country competitive facilities are sufficiently close to make deployment to buildings with low demand justifiable. In 2013, there was at

least one competitive provider in “more than 95 percent of MSA census blocks with BDS demand, and . . . those census blocks represented about 97 percent of the total BDS connections and 99 percent of business establishments.” The average distance between buildings with incumbent LEC business data services customers and competitive fiber was just 364 feet. About half of these buildings were within 88 feet of competitive fiber facilities and 75 percent were within 456 feet.

43. We tested the sensitivity of our finding that a location currently faces or likely will face competitive choices over the medium term if it is within a half mile of a location served over the facilities of at least one competitive provider. For example, based on the 2015 Collection, 64.1 percent of all locations with business data services demand in price cap areas were within a quarter mile of at least one competitive provider, as compared to 79.5 percent that were within a half mile, and 89.4 percent that were within a mile. Thus, our approach lies somewhat above the middle of these two extremes, each of which had limited record support. We also found 45.8 percent of locations with business data services demand to be within a half mile of at least two competitive providers, and 64.6 percent of all locations with business data services demand to be within a mile of at least two competitive providers. In addition, as discussed, cable competition is considerably more developed than it was in 2013. Given the nature of cable networks, we expect the percent of locations within range of a quarter mile of at least one facilities-based competitor, to be more similar to the percent of locations within a half mile of one such competitor today.

44. As we detail more fully below, there is strong evidence of rapid growth in competitive investment. Because of this ongoing investment, the average building with business data services demand over time will find itself closer and closer to a competing facilities-based competitor’s network. The declining distances between buildings with business data services demand and the fiber networks of competitive providers in general, and those of cable providers with extensive fiber networks in particular, create a cycle of investment and benefits within an area outside of any particular building. Because even small businesses’ bandwidth needs are constantly growing, the demand for additional investment is likely to be amplified. Greater fiber investment leads to lower

costs of deploying facilities to neighboring buildings, which in turn leads to greater investment. As costs continue to drop through further fiber deployments, and potential revenues for each building served increase with growing demand for high bandwidth services, these competitive providers with significant legacy (in the case of cable) and newer networks have powerful economic incentives to enter and price their services aggressively. This effect will provide a strong disciplining force to the incumbent service providers of surrounding locations, and will grow over time. Importantly, all else equal, we expect competitors will be particularly likely to build out to locations where incumbents have priced supracompetitively, to the extent these are the most profitable locations. In this manner, over time, abuses of market power can be addressed through localized competitive pressures.

45. The record demonstrates that most business data services providers are willing and able to profitably invest and deploy facilities within a half mile of existing competitive facilities, and often have the ability to build out after winning a customer’s bid for business, depending upon the scale of investment required to reach the customer. Accordingly, we conclude that the relevant geographic market for purposes of this market analysis is the region within a half mile of a location with business data services demand. We make this determination by focusing on the factors that influence suppliers of business data services, as opposed to customers, because in most instances a customer is unlikely to impact service pricing by moving its physical location in response to a material increase in price. This point is true for both single- and multi-location customers that seek dedicated connections to each location.

46. We also find that business data services providers commonly sell their service in bidding markets, and this is especially so for multi-site contracts. Winning bidders then build out to the customer within an agreed-upon provisioning timeframe. Consequently, competitors outside of the customer’s location can affect pricing because the winning bid represents the competitive offer that others must beat, even if that competitor does not already have facilities in the customer’s building. That competitor is increasingly relevant the closer the competitor’s network facilities, actual or potential fiber splice points, are to the customer (because its costs likely fall with proximity, making its bid more likely to constrain the winning bid). Thus, the geographic

range of the competition posed by a business data services provider is not limited to the specific locations of active circuits sold at a particular point in time.

47. Sprint and Windstream challenge our assertion that business data services markets are affected by bidding market dynamics. However, business data services contracts, being large-scale, winner-take-all awards, closely approximate the conditions laid out by Klemperer of an ideal bidding market environment. Moreover, nearby competition has similar cost to competition in the location itself (*i.e.*, “homogenous” products) and is therefore likely to effectively constrain prices.

D. Competitive Entry in Business Data Services Markets

48. As part of our analysis, we consider how varying market characteristics impact entry by competing providers in business data services markets, along with evidence of entry barriers being overcome by traditional and non-traditional competing providers. We then conclude that, while there can be high barriers to business data services entry, evidence shows that firms frequently choose to enter this market with significant investments, particularly in areas of significant demand, indicating sufficient competitive conditions that do not warrant direct regulatory intervention.

1. Barriers to Entry

49. Market analysis is incomplete without an evaluation of entry barriers. As antitrust principles explain, “[t]he prospect of entry into the relevant market will alleviate concerns about adverse competitive effects only if such entry will deter or counteract any competitive effects of concern” In evaluating the prospect of entry, agencies “examine the timeliness, likelihood, and sufficiency of the entry efforts an entrant might practically employ.”

50. *Timeliness.* Entry must be rapid enough to make an attempt by an incumbent to set a price above competitive levels unprofitable. Depending on the distance, buildout does not appear to take very long, about three to four months, relative to the typical multi-year contracts used in selling these services. Thus, in cases where demand is prospective and not urgent, and where a competitive LEC has existing facilities nearby, for example, within a half mile, buildout or even its threat would be timely enough to restrain a dominant provider in the relevant market. Instances in which

business data services are sold as part of a bidding or similar process also allow for timely entry, as providers are typically afforded an opportunity to provision a customer after a bid is accepted and before service must begin. Moreover, even if a competitor with a nearby wireline network (for example, perhaps a cable company) is not presently capable of entry over the short term, we expect it will become so over the medium term.

51. *Likelihood.* “Entry is likely if it would be profitable,” and profitability is precisely what competitive LECs consider when deciding whether to deploy fiber to a customer’s location. Profitability depends on projected expenditures required for construction and anticipated revenues from the customer and potential customers. Indeed nearby wireline network providers are actively meeting nearby demand, a process that can be expected to accelerate over the next few years.

52. Competitive LECs rarely build on speculation and instead prefer to have a customer in place before undertaking the costs associated with buildouts. However, providers are also willing to consider potential customers nearby or along the route (and may even build a more circuitous route to pass by more potential customers). Providers generally look to recover construction costs within a certain period of time, [REDACTED] while taking into account potential customers. When the cost of construction is high, providers may lengthen the recoupment period.

53. *Sufficiency.* We found earlier that the presence of a second competitor in this industry is sufficient to place an effective competitive constraint on business data services supply. Given the likelihood of entry wherever a competitive wireline network is nearby, this will also ensure a similar effect over the medium term.

54. This evidence demonstrates that providers find ways to enter nearby geographic markets and win customers. They consider nearby demand and build circuitous routes, they lengthen the terms of their contracts to recover the cost of buildout, and they place spare splice points along their network routes to accommodate future demand. These facts show that once providers have sunk substantial costs into a network, it is in their interest to build laterals to as many customers as possible because the relative cost of a lateral is much lower than the cost of other network facilities. And this conclusion is corroborated by evidence of extensive competitive entry into the business data services marketplace.

2. Entry and Investment in Business Data Services Markets

55. *Evidence of Competitive Entry by Cable.* The entry of cable into business data services provisioning has been the most dramatic change in the market over the past decade. Cable companies began serving business customers using their “best-efforts” broadband networks with asymmetric speeds in the mid-2000s, but these services were not generally competitive with incumbent LECs’ business data services. Cable companies now offer over fiber carrier-grade reliability, scalability, and quality of service functionality to compete for the largest enterprise customers across the country and also offer Carrier Ethernet services with symmetrical speeds up to 10 Mbps over their within-footprint near ubiquitous DOCSIS 3.0 EoHFC networks. As a result, incumbent LECs increasingly find themselves competing with cable for business data services customers. CenturyLink, for example, “views cable providers to be its primary special access competitors, given their expansive networks and rapid growth in business markets.”

56. The growth in consumer broadband demand has also lowered the costs to cable companies of deploying fiber to business locations. As consumer bandwidth demand grew exponentially over the past decade, cable providers were required to invest billions of dollars pushing fiber deeper into their networks as they needed to continually split nodes to keep pace with the demand. Sprint and Windstream challenge the reasonableness of relying on past cable deployment in response to growth in consumer broadband demand to project future cable build out to meet business data services demand. However, it is not unreasonable to acknowledge the fact that every increment of additional investment in cable networks brings fiber facilities closer to nearby business data services demand and lowers the cost of building to meet that demand. Compared to just ten years ago, fiber within the franchise areas of cable providers that offer high-speed DOCSIS services has dramatically lowered the cost of building out fiber to the surrounding business locations due to the shorter distances required to reach any location. For example, as a result of network expansion, in March of 2015, “approximately [REDACTED] percent of business locations [were] within 500 feet of Comcast’s EoHFC facilities, an increase from [REDACTED] percent in 2013.”

57. Like other competing providers, cable companies have focused investment on building fiber networks

for higher-bandwidth Ethernet services, which is enabling them to overcome limitations of traditional coaxial-based cable systems that cannot meet higher bandwidth demands. For example, after first entering the marketplace in 2009, Comcast “rolled out Metro Ethernet services to 20 of the top 25 metropolitan areas entirely over fiber, with plans ranging from 1 Mbps to 10 Gbps” in 2011. Comcast has invested “more than \$5 billion since 2010” on network infrastructure to provide business data services. Comcast had connections, largely using fiber, to approximately [REDACTED] business locations in 2016, an increase of [REDACTED] since 2013. Comcast has also “added [REDACTED] over the 2012–2015 period.”

58. Charter, the second largest cable company and the [REDACTED] largest provider of fiber connections to buildings, has invested more than [REDACTED] annually, starting in 2013, towards the provision of business data services. In 2016, Charter acquired fellow cable companies, Legacy Time Warner Cable (TWC) and Bright House Networks, LLC, for \$90 billion. A stated benefit of the merger was the increased ability of the combined entities to compete for “large enterprise and other multi-location customers.” Post-merger Charter plans to invest \$2.5 billion into serving commercial areas within its footprint. Charter has “expanded its provision of BDS to approximately [REDACTED] new locations” since the beginning of 2013. As of the second quarter of 2016, Charter’s commercial revenues driven by enterprise, small and medium business growth rose to over \$2 billion, an increase of 12.6 percent over the prior-year period.

59. Cox, the third largest cable company, was one of the first cable companies entering the business data services market and by June 2016 served “more than [REDACTED] locations with dedicated point-to-point services,” primarily over its fiber facilities. Cox has invested more than [REDACTED] in fiber and equipment over the past 10 years, with [REDACTED] invested since 2013. In 2015, “Cox earned approximately [REDACTED] in annual revenue from its [business data services] . . . and projects earnings of [REDACTED] for 2016, up from [REDACTED] in 2013.”

60. In 2016, Altice, a European company, completed its roughly \$10 billion acquisition of Cablevision Systems Corp. (Cablevision), which includes Cablevision’s business service unit, Cablevision Lightpath Inc., making Altice the fourth largest cable provider. As of the end of 2015, Cablevision’s

Lightpath unit had 7,700 buildings connected to its fiber network, compared to the 4,400 buildings serviced in 2010. Mediacom, the fifth largest cable operator serving “rural and exurban areas of the Midwest and Southeast. . . . began deploying BDS on a significant scale throughout its service territories in 2011.” The company has invested more than \$4 billion on its “high capacity [fiber] network that serves thousands of small rural communities.” This network supports over 1,000 macro cell sites, and Mediacom is planning to expand its network coverage in downtown areas and commercial districts to connect tens of thousands of new business customer locations.

61. Even smaller cable operators are entering the business data services marketplace. ACA, representing a substantial number of small cable operators, estimates its members are “making at least tens of millions and upwards of \$300 million of investments annually to deploy facilities to support the provision of BDS.” ACA’s members primarily offer Ethernet business data services over fiber.

62. Cable business services are reported to have grown at approximately 20 percent annually for the past several years, and increasingly, they have emphasized Internet access and managed services (*i.e.*, security and routing, controlled and secured access to the cloud) showing a shift in demand to higher (and more competitive) bandwidths. Business services will reportedly generate more than \$12 billion for U.S. cable providers in 2015, up 20 percent or so from their milestone total of \$10 billion in 2014. According to one analyst, business revenues for cable companies will almost double their 2014 total by 2019.

63. *Expansion by Other Competitive Providers.* Non-cable competitive LECs and other non-traditional providers also continue to invest and expand their network reach. For example, Zayo, founded in 2007, now has more than 25,000 buildings connected to its metro fiber network. Network connectivity makes up 45 percent of Zayo’s business with 38 percent from dark fiber solutions. Zayo committed to investing an estimated \$740 million in major network expansion projects from March 2014 to December 2015. For the quarter ending on June 30, 2016, Zayo reported \$506.7 million of consolidated revenue, which includes \$112 million from its Canadian operations. Zayo recently closed its purchase of Electric Lightwave adding an estimated 12,100 route miles to its network as well as

connectivity to 3,100 enterprise buildings.

64. We reject Sprint/Windstream’s argument that the Commission has not properly accounted for recent consolidation, including the CenturyLink/Level 3 and Verizon/XO mergers. The CenturyLink/Level 3 proposed merger is still pending regulatory approvals, and in approving transfer of control applications related to the Verizon/XO transaction, the Commission found that “Verizon’s acquisition of XO within Verizon’s incumbent LEC territory will have a *de minimis* impact on competition in the provision of BDS.” Sprint/Windstream’s criticism that the two largest competitive LECs on the Vertical Systems Group Leaderboard for Ethernet providers will soon be incumbent LECs fails to take into consideration that the bulk of acquired facilities in these transactions is outside the incumbent LEC territory and in fact remains in the category of a competitive provider for the purposes of the Commission’s BDS marketplace data. Moreover, our analysis herein takes into account the increased competition we have seen in the market since our 2013 data collection, including increased competitive pressure from cable providers.

65. Lightower has an all-fiber network with service to over 22,000 locations and more than 7,000 wireless towers and small cells in 17 states in the Northeast, Mid-Atlantic, and Midwest, serving “enterprise, government, carrier, and data center customers.” Lightower acquired regional fiber provider, Fibertech Networks, in 2015 for \$1.9 billion, doubling its network reach, and acquired Sidera Networks in 2013 for \$2 billion. The company spends about [REDACTED] percent of its revenues on capital investment. Lightower recently added over 350 route miles of fiber in North Carolina.

66. *Industry Concentration.* In the *Further Notice*, the Commission considered several measures of concentration in varying geographies, indicating “uniformly high levels of concentration.” On a national level, concentration among incumbent LECs was observed, based on 2013 reported business data services revenues. Degrees of incumbent LEC concentration also were observed at geographies of unique building locations, census blocks, and zip codes. The measures were difficult to determine precisely by geography due to certain biases. Putting the concentration measures in context, the Commission explained that it “d[id] not yet know how much competitive pressure different forms of supply place

on other suppliers, or how many suppliers, accounting for their differences, are sufficient to make prices effectively competitive (matters we have sought comment on above).” We find the concentration measures alone are largely poor indicators of whether market conditions exist that will constrain business data services prices, and overstate the competitive effects of concentration.

67. Traditional and non-traditional providers of business data services constrain an incumbent’s pricing outside of immediate geographies used to describe market concentration in the *Further Notice* in three ways. First, with nearby facilities, a business data services provider is able to expand its presence to timely reach a customer. Second, a business data services competitor does not need to be already offering service in a given building to constrain a supplier at that location. A nearby business data services competitor constrains pricing by responding to RFPs and participating in similar customer service bidding requests, which creates a pricing floor without any physical presence of the potential competitor in the nearby geography. Third, concentration is greater for the declining legacy DS1 and DS3 channel termination services, in which incumbent LECs have a historical advantage, compared to newer, and in-demand, Ethernet business data services, which are largely competitive. We therefore conclude that concentrated supplies of DS1s and DS3s in a particular building or cell tower or similar are not reliable indicators of whether business data services pricing decisions are made competitively.

E. Other Examples of Competitive Effects in the Business Data Services Market

68. *Increasing Ethernet Revenue.* Comments show that, as a result of more substitutes in the market, incumbent LECs face declining sales in TDM services, notably DS1s and DS3s, including customer loss to cable operators and other providers. A recent report by Frost & Sullivan found that the migration from TDM to Ethernet business data services is fueling double-digit revenue growth for Ethernet business data services, and that this growth rate is expected to increase as Ethernet networks expand. In particular, Ethernet-based services accounted for more than 40 percent of total dedicated service revenues in 2013, and Ethernet business data services revenues have been growing by over 20 percent a year since then. The Ethernet bandwidth of incumbent LECs grew by only 5.3

percent in 2013, while the bandwidth of competitive providers grew by 31.6 percent. Incumbent LEC business data services revenues also declined from 2013 to 2015, while competitive LEC and cable competitor revenue grew rapidly. Level 3 revenues increased 66 percent, Comcast revenues grew by 46 percent, and Time Warner cable revenues increased by 73 percent over the same time period. For cable overall, business revenues have grown at a 20 percent compound annual growth rate. Notably, this revenue growth came in spite of falling prices, which likely indicates expansion of market output and/or demand shifts to higher bandwidth and thus more competitive services. Vertical Systems Group found that Carrier Ethernet pricing fell by double-digit rates for all services and speed segments from 2010 to 2015.

69. Some of the growth in cable's competitive position has come at the expense of incumbent and competitive LECs. AT&T, for example, calculates it "lost more than [REDACTED] of its DS1 business from non-affiliates just between January 2013 and October 2015, and the rate of loss is accelerating." In addition, "the number of new DS1 purchases from AT&T (*i.e.*, gross, not net, additions) declined by nearly [REDACTED] since the end of 2013." A degree of those losses were to Ethernet, as AT&T reports "the number of new Ethernet purchases (*i.e.*, gross additions) during this period has more than [REDACTED]. Verizon reports that it sees similar competitive effects because of cable's increased entry into the business data services market. For example, comparing the same three-month period year-over-year Verizon saw a [REDACTED] percent decrease in Ethernet orders with its customers "telling Verizon that trend will continue and worsen as they send more business to cable."

70. *Decreasing Ethernet Prices.* There is persuasive evidence of recent decreases in the prices for packet-based services across all bandwidths. According to Cox, Ethernet prices have declined [REDACTED] or more between 2012 and 2016." ACA reports smaller cable operators have over the past five years "decreased prices for their Ethernet services by approximately 50 percent on average across all geographic areas and for all customer segments—with some members reporting that prices have decreased even more, by 70 percent." Comcast observes "steady year-over-year decline in [retail] pricing for dedicated Internet access and Ethernet transport services," *e.g.*, prices for its Ethernet Dedicated Internet service declined by [REDACTED]

percent over the past 12 months. CenturyLink's Ethernet prices have on average, declined by [REDACTED] percent over the past five years.

71. Charter's monthly price for a 1 Gbps service as of the first quarter of 2016 [REDACTED]. Zayo reports price per unit decreases for GigE full rate (>1000 Mbps) from \$3,300 to \$2,800 from December 2013 to December 2015, about a 15 percent change. Per unit prices for fractional GigE (101–1000 Mbps) services decreased from \$2,300 to \$1,700 over the same period, a 26 percent drop.

72. Comcast once expected a price of between [REDACTED] per month in 2013 for its wholesale 100 Mbps fiber service but now charges less than [REDACTED] a month for the same service. Charter reports its "average regional price of a 100 Mbps dedicated service" was [REDACTED] per month in 2013 but by the first quarter of 2016, that per month price dropped to [REDACTED]. ACS has similarly experienced per month price declines for its [REDACTED]. Zayo's pricing trends show the monthly price per unit for Fast E Ethernet (10–100 Mbps) service decreasing from \$1,300 to \$1,200 (7.6 percent) from December 2013 to December 2015. CenturyLink reports prices for a 100 Mbps Ethernet backhaul circuit to a wireless tower have fallen [REDACTED] percent on average over the past five years.

73. There is also evidence that lower bandwidth packet-based services are experiencing price declines. For example, Legacy TWC's 10 Mbps service fell from [REDACTED] per month on average in 2013 to [REDACTED] per month by the first quarter of 2016, a 23 percent decrease. The company's 5 Mbps service decreased from a [REDACTED] monthly average to a [REDACTED] monthly average over the same period, a 28 percent change.

F. Incumbent LEC Pricing Regulation

74. We consider a large quantity of evidence in the record. A body of evidence particularly relevant to the foregoing discussion considered the benefits of current incumbent LEC price regulations. The evidence is mixed and we find does not in most locations support continued, much less additional, price regulation. Econometric studies performed by Dr. Marc Rysman, Commission staff, and commenters examined the relationship between incumbent LEC prices and the number of business data services competitors they face near a customer location. Based on the Commission's 2015 Collection, the Revised Rysman Paper showed that incumbent LEC DS1

and DS3 prices were a statistically significant three percent and ten percent lower, respectively, in census blocks with one or more facilities-based competitors. However, these price changes often became statistically insignificant after implementing changes to the analysis in response to peer reviewers, suggesting that the data are too noisy to draw any firm conclusions.

75. Furthermore, as recognized by Dr. Rysman, and noted by peer reviewers and other commenters in the record, data and modeling limitations did not allow for a definitive conclusion that incumbent LECs were not pricing competitively. Despite Dr. Rysman's detailed analysis, a causal relationship could not be ascribed to his estimates due to the possibility that some factor not observed in the data (*e.g.*, lower costs of serving a given customer) could be simultaneously producing both a greater number of facilities-based competitors and lower prices. Further, while some (disputed) evidence was presented of incumbent LEC prices being lower where there was competition, other evidence was presented of dramatic increases in competitive entry, rapid price declines, and service growth. Moreover, analysts and forecasters expect strong competitive growth over the next decade in business data services, and we find that, all else equal, competitive growth will occur exactly where supracompetitive pricing is most prevalent.

76. *Current Prices at Cap.* In the *Further Notice*, the Commission suggested that "the fact that the price capped incumbent LECs have kept their prices at the top of the cap is additional evidence of market power." Commenters are at odds over whether the lack of or minimal headroom between prices and the caps indicates the possession of market power. However, we disagree that prices at the cap demonstrate that incumbent LECs generally would have set materially higher prices wherever their prices were capped and that prices for business data services will increase significantly as a result of our actions in this Order. We expect that competition will continue to keep prices in check. Moreover, as we explain in our analysis of potential catch-up adjustments, the X-factors that were in effect between 1997 and 2005 may have been unreasonably high and therefore the current price cap indices may be too low. In view of these circumstances and our findings of competition in the business data services DS1, DS3, and transport markets, we find any concern about a

lack of headroom between prices and the caps to be unwarranted.

G. Competition in the Transport Market

77. Transport services are typically higher volume services between points of traffic aggregation which can more easily justify competitive investment and deployment. The Commission has traditionally regulated TDM-based special access services in two distinct segments: End user channel terminations and dedicated transport; and other special access services. The provision and sale of TDM-based special access services has reflected, and continues to reflect, the different competitive dynamics that characterize the two sets of services. When the Commission adopted the *Pricing Flexibility Order*, it distinguished between these two sets of TDM special access services and required price cap LECs to make different levels of competitive showings to obtain pricing flexibility for each. The Commission's pricing flexibility rules also reflect this distinction. Section 69.709 of the Commission's rules governs the grant of pricing flexibility for special access services other than the channel termination between the LEC end offices and customer premises, which includes interoffice facilities and channel terminations between an incumbent LEC's serving wire center and an IXC. Section 69.711 of the Commission's rules governs the grant of pricing flexibility for channel terminations between LEC end offices and customer premises. All of these elements comprise the service provided to the end user. The *Further Notice* followed the Commission's precedent by defining dedicated service as a service that "transports data between two or more designated points" and aspired to create a "framework [that] reflect[s] how the market operates today."

78. Commenters, including competitive providers, support maintaining this distinction. Dr. Rysman also acknowledged the relevance of this distinction in his paper. This distinction is rooted both in the different functionalities these sets of services deliver and in the different rate elements price cap carriers use to price these services. We find that this distinction remains valid in the current special access marketplace and employ it in our approach to reforming our regulation of TDM transport services.

79. In analyzing the competitiveness of TDM transport services, based upon the *2015 Collection* and the record, we find strong evidence of substantial competition, as well as market conditions that suggest regulation of

TDM transport and other non-end user channel termination services is not justified. Indeed competition for such services has been robust since a large proportion of TDM transport services were deregulated. As Frontier explains, a "substantial majority of transport revenue has been covered by Phase II pricing flexibility since the early 2000s." AT&T further states that "the data collection strongly supports nationwide *Phase II* relief for transport." It cites data showing the widespread deployment of competitive transport networks, including the fact that "as of 2013, competitive providers have deployed competing transport networks in more than 95% of census blocks with special access demand (and about 99% of business establishments are in these MSAs)." Although INCOMPAS asserts that Commission rules requiring certain incumbent LECs to provide unbundled transport services is evidence of underlying market power, the record overall reflects a competitive landscape where customers often combine competitive transport with channel terminations supplied by incumbents. According to CenturyLink, it uses incumbent LEC transport facilities for "less than half" of the end user channel terminations it purchases as a competitive provider outside of its incumbent footprint. Moreover, data from the *2015 Collection* show that "the vast majority of locations with special access demand have" competitive fiber within close proximity. AT&T identified a number of major urban areas that had as many as 28 competitive transport providers and cited a number of second tier MSAs which commonly have "over a dozen separate competitive transport providers."

80. Competitive providers are split on the question of whether the transport market is competitive. XO, before becoming part of Verizon, found "considerable competition for transport" and that "numerous CLECs frequently are collocated in the offices where XO is located." Other competitive providers dispute the competitive nature of transport services and assert that incumbent LECs are able to charge supracompetitive rates for TDM transport services and should therefore be price regulated. For example, Sprint alleges that "along many routes, competitive providers are simply unavailable" and asserts that competition for transport service is the exception rather than the rule. However, Sprint provides no data or anecdotal evidence to support its assertion and to rebut the evidence from the *2015 Collection* and from incumbent LEC

commenters that show that competitive transport is available in the vast majority of census blocks in MSAs. As AT&T states, "[n]o party to this proceeding has attempted specifically to make a case that there is a lack of competition for transport, and certainly not on a national basis."

81. Evidence of competitive providers investing in transport services, rather than purchasing from incumbent carriers, reinforces our observations. While business data services providers may choose to purchase transport—either as a long-term solution to reach a customer or a temporary cost while implementing self-provisioning plans—many have deployed transport instead of buying the service.

82. More broadly, we understand that transport service represents the "low-hanging fruit" of the business data services circuit, which makes it particularly attractive to new entrants. In the *Pricing Flexibility Order*, the Commission noted that competitors often enter the transport market before the channel termination market, and we continue to adhere to that view. The net present value of the cash flows associated with the relatively high expected per-unit cost of deploying a new, relatively low-capacity channel termination and the expected revenue derived from the sale of that channel termination, especially for DS1 and DS3 channel terminations, would be expected to be significantly less than the relatively low expected per-unit cost of deploying a new, relatively high-capacity inter-office transport facility, and the expected revenue derived from the sale of that facility. Thus, in the face of increased demand for transport services, we observe responsive market conditions that support the deployment of competitive facilities, through either new entry or conversion.

H. Conclusions

83. *Packet-based Services*. Packet-based services represent the future of business data services. We believe the higher bandwidth capabilities of these services will lead to greater returns on investment and in turn, greater incentives for facilities-based entry into the business data services market. In contrast, DS1s and DS3s are legacy services that now compete against packet-based broadband services such as EoHFC services in the same geographic market. We find this competition, or potential competition between legacy and packet-based services, sufficient enough to discipline pricing. In many instances, incumbent LECs are now on similar footing to entrants (even if they may still on

average be advantaged), as they often also deploy new facilities to meet customer demand (because even a relatively low demand customer today may not be a low demand customer tomorrow, and copper loop generally is incapable of meeting higher demands). As a result, we find the marketplace for packet-based business data services is competitive.

84. *TDM-based DS1s and DS3s.*

Within the broader record, we acknowledge that, by the nature of legacy services, incumbent LECs have a degree of concentration in certain geographies for DS1 and DS3 services. We also recognize a changing industry with increasingly competitive options, particularly at higher bandwidths, and a decreasing demand for these legacy services. Our analysis suggests that any prior advantage an incumbent might have enjoyed at lower bandwidths is now less competitively relevant in light of customer demand that attracts a number of traditional and non-traditional competitors that are improving legacy cable networks and expanding with new facilities to meet demand. This is further supported by the degree of sunk investment made by traditional and non-traditional providers of business data services to compete. We conclude that incumbent LEC market power has been in many cases largely eliminated, and elsewhere is declining thanks to increased competition in business data services markets.

85. *Transport.* Based on the *2015 Collection*, the record, and our market observations, we find substantial evidence of competition in TDM-based transport markets, which, accordingly, suggests that price regulation is not required. For these reasons, we conclude that TDM-based transport is competitive.

IV. An Administrable Framework for Business Data Services Grounded in Our Market Analysis and the Record

86. We intend to apply ex ante rate regulation only where competition is expected to materially fail to ensure just and reasonable rates. As a matter of policy we prefer reliance on competition rather than regulation, wherever purchasers can realistically turn to a supplier beyond the incumbent LEC. Based on these principles and our market analysis, we find regulation is unnecessary for packet-based services, TDM transport services, and higher bandwidth (*i.e.*, above DS3) TDM end user channel terminations. We also conclude that we should refrain from ex ante pricing regulation for TDM end-user channel terminations in areas

deemed competitive. We then outline a bright-line competitive market test for initially determining whether a given price cap area will be treated as competitive in the provision of DS1 and DS3 end user channel terminations and certain other business data services by the incumbent LEC. This test will treat as competitive a particular county if 50 percent of the locations with BDS demand in that county are within a half mile of a location served by a competitive provider based on the *2015 Collection* or 75 percent of the census blocks in that county have a cable provider present based on the Commission's Form 477 data. Any price cap incumbent LEC serving special access customers within that county will be relieved of ex ante pricing regulation. Furthermore, we adopt a process for regularly updating the list of competitive counties in a way that accounts for changing competitive conditions but also avoids the need to undergo burdensome data collections.

A. Regulatory Framework Applicable to Packet-Based Business Data Services and to TDM-Based Services Providing Bandwidths in Excess of a DS3

87. After reviewing the record and considering the Commission's goals to ensure that rates for business data services are just and reasonable, while also encouraging facilities-based competition and facilitating technology transitions, we decline to re-impose any form of price cap or benchmark regulation on packet-based business data services or on TDM-based services providing bandwidths in excess of the level of a DS3, and we eliminate that regulation to the extent it exists today. In so doing, we impose no new regulation on the packet-based and higher capacity TDM-based business data services marketplace, which will be free from ex ante pricing regulation, regardless of the type of entity providing the service. Our market analysis does not show compelling evidence of market power in incumbent LEC provision of these services, particularly for higher bandwidth services. Moreover, even if the record demonstrated insufficiently robust competition, proposals to apply price cap regulation to packet-based services were complex and not easily administrable and did not reflect the fact that costs to serve individual customers vary. Likewise, we decline to impose benchmark pricing regulation on incumbent LEC packet-based business data services or on TDM-based services of bandwidths in excess of the level of a DS3. Because our market analysis shows that such services are subject to competition, anchor or benchmark

pricing is unnecessary and could in fact inhibit investment in this dynamic market by preventing providers from being able to obtain adequate returns on capital. Additionally, the benchmark pricing proposals in the record were administratively complex and unlikely to reliably result in just and reasonable rates.

88. We further find that packet-based services are best not subjected to tariffing and price cap regulation, even in the absence of a nearby competitor. Packet-based services represent the future of business data services and are readily scalable, so competitive LECs are generally very willing to deploy such services beyond their footprints because they can expect to earn increasing revenues from their initial investment with few additional costs. In contrast, the record shows that competitive LECs are generally unwilling to extend their legacy TDM networks, especially beyond a half mile to provide DSn services. Consequently, entrants are better placed to win customers in packet-based markets than in those for TDM services. Packet-based services are new services, experiencing both rapid growth, and rapid change in standards, throughput and usage, and so regulation is more likely to impose long-term costs by dissuading providers of packet-based services from entering.

89. We do, however, remind stakeholders that packet-based telecommunications services remain subject to the Commission's regulatory authority under sections 201, 202, and 208 of the Act. These statutory provisions allow the Commission to determine whether rates, terms, and conditions are just, reasonable, and not unreasonably discriminatory in the context of a section 208 complaint proceeding.

B. Regulatory Framework Applicable to TDM Transport Services

90. We eliminate all ex ante pricing regulation of price cap incumbent LEC provision of TDM transport and other transport (*i.e.*, non-end user channel termination) special access services. The *2015 Collection* and the record demonstrate widespread competition in the market for these services and generally support using a deregulatory approach for TDM transport and other non-end user channel termination services.

91. We conclude that competition for TDM transport services is sufficiently pervasive at the local level to justify relief from pricing regulation nationwide. Commission staff analysis of competitive provider responses to question II.A.5. of the *2015 Collection*

shows that in all price cap territories, 92.1 percent of buildings served were within a half mile of competitive fiber transport facilities. Additionally, for all census blocks with business data services demand, 89.6 percent have at least one served building within a half mile of competitive LEC fiber. As we concluded in the foregoing market analysis, the presence or reasonable proximity of a single competitor's facilities represents competition given the high sunk cost nature of the business data services market. Our data are conservative given the fact that the 2015 Collection includes only a subset of all hybrid fiber coax facilities deployed by cable providers (*i.e.*, only Metro-Ethernet headend-connected fiber feeder plant) and given that the 2015 Collection data are from 2013 and therefore necessarily understate the level of actual competition for transport services by not including competitive facilities that have since been deployed. We find that the high percentage of locations within a half mile of competitive fiber and the high percentage of census blocks with at least one building within a half mile of competitive fiber justify our refraining from applying pricing regulation across all price cap areas to TDM transport services.

92. We recognize that our decision in all likelihood will leave a relatively small percentage of census blocks (with an even smaller percentage of overall demand) price deregulated and without the immediate prospect of competitive transport options. However, greater harm—primarily manifested in the discouragement of competitive entry over time—would result if we were to attempt to regulate these cases than is expected under our deregulatory approach. In contrast, lower entry barriers for deploying transport services than for end user channel termination services and increasing demand for transport means that regulatory relief will provide incentives for competitive providers to deploy additional transport facilities to compete for this demand. While competition may not be universal, it is sufficiently widespread for us to have confidence that a combination of these factors will broadly protect against the risk of supracompetitive rates being charged by price cap LECs over the short- to medium-term. To the extent there are points of aggregation that are not served by competitors, the relatively high demand at these points makes it likely that a competitor could justify investing in competitive transport facilities to serve that demand.

93. Moreover, our goal is not absolute mathematical precision but an administratively feasible approach that avoids imposing undue regulatory burdens on this highly competitive segment of the market. Refraining from pricing regulation for transport services nationally achieves the proper balance between precision and administrability. It also avoids unnecessary disruption of existing special access transport sales arrangements. The alternative would be to impose significant regulatory burdens on all participants in the market with an additional layer of regulatory complexity that would undermine predictability and ultimately hinder investment, including in entry, and growth. Instead, we believe that providing regulatory relief in this market segment will foster conditions that will continue to encourage competitive entry and provide incentive for further investment in fiber transport facilities. Finally, our section 208 complaint process represents a continuing safeguard against unjust and unreasonable rates.

C. Competitive Market Test Criteria for DS1 and DS3 End User Channel Terminations

94. As noted above, we decline to impose ex ante pricing regulation for packet-based business data services and eliminate entirely ex ante regulation for TDM-based services providing bandwidths in excess of a DS3 and for TDM-based transport services. Based on the record, we have determined that such forms of regulation are not necessary because we expect that competition will ensure just and reasonable rates for those services.

95. At the same time, many commenters have urged us to take a different approach with respect to ex ante regulation of DS1 and DS3 end user channel terminations that use legacy, circuit-based technology. They raise various arguments about why they believe this portion of the business data services market requires that we not eliminate ex ante price regulation altogether. To the extent commenters suggest that there are no circumstances in which we should eliminate ex ante pricing regulation, we disagree with those contentions. Our decision in this Order will promote investment, deployment, and competition in the business data services market in a way that will benefit all end users, including those that currently use DS1s and DS3s.

96. We determine it is appropriate to take a different approach with respect to the elimination of ex ante pricing regulation of legacy, circuit-based DS1 and DS3 end user channel terminations.

The market for these services is declining as customers opt for more flexible packet-based business data service offerings. Moreover, the economics of deploying facilities to end user locations makes competitive entry in response to demand less likely than with the TDM transport market segment, which is typically at higher-bandwidths and requires less investment per unit of traffic than required for channel terminations. In light of these considerations, we are providing additional protections for this portion of the business data services market as the market transitions to new technologies by not eliminating ex ante pricing regulation in every area. Instead, we adopt a competitive market test that will preserve ex ante price regulation in those limited number of areas where we predict there is a substantial likelihood that competition will fail to ensure just and reasonable rates. In addition, even in those areas where we eliminate ex ante pricing regulation, the protections of section 208 will continue to apply.

97. Specifically, the competitive market test we adopt today assesses the availability of actual and likely competitive options in the provision of last-mile services and subjects to ex ante pricing regulation only circuit-based DS1 and DS3 end user channel terminations and certain other business data services provided by price cap incumbent LECs in areas the test finds lack a competitive presence. We base the competitive market test on the geographic unit of a county or county-equivalent (hereinafter, county) which significantly reduces the over- and under-inclusivity issue posed by MSAs which the Commission highlighted in the *Suspension Order* and avoids the administrability issues posed by smaller geographic units of measure. The test uses data demonstrating the presence of competitive facilities from the 2015 Collection in combination with the most recent data on cable deployment from the Form 477 data collection to determine which counties to regulate.

98. While there is no clear consensus in the record on the right approach to the competitive market test, we do see a few points of general agreement. The various proposals use bandwidth demarcation points and competition test criteria based on counting providers in or near a geographic area using the 2015 Collection data. Beyond those few high-level points of agreement, there are vast differences of opinion among commenters on the current state of competition in the marketplace, on the need for a competitive market test, and on what a competitive market test should entail. Generally, competitive

LECs needing to purchase business data services as inputs at wholesale, mobile wireless providers not affiliated with an incumbent LEC, Windstream and Verizon (both net buyers), and end-user representatives, such as Ad Hoc, interpret the *2015 Collection* as largely showing a non-competitive market, requiring regulatory intervention at all but the highest service bandwidth levels, *i.e.*, in excess of 1 Gbps. On the other side, cable companies and competitive fiber providers that do not typically purchase business data services at wholesale, AT&T, and other incumbent LECs (net sellers) see a highly competitive marketplace with no need of regulatory intervention.

99. The test we adopt utilizes certain core attributes of a test on which there was consensus in the record, including establishing a threshold number of providers to find competition, employing a defined geographic area of measurement, and basing the test on data from the *2015 Collection* and updating the results of the test to ensure they continue to reflect the extent of competition in the market. That said, it also represents a departure from some of the proposals in the *Further Notice* in that rather than focus on burdensome pricing regulation, it takes a dynamic and forward-looking approach to evaluating the benefits and costs of regulation. The test will be updated periodically by relying on data the Commission routinely collects, so it does not require additional and potentially burdensome data collections. We find this approach strikes a reasonable balance between precision and administrability, will encourage continued investment in and deployment of business data services, and will foster a market-driven transition from legacy circuit-based services to newer packet-based services and other technologies.

100. We take a pragmatic approach to formulating a competitive market test by considering what data are available to us to evaluate competitive conditions both at present and in the future. We then determine what geographic unit is sufficiently granular and at the same time administrable for the Commission as well as the industry. Finally, we consider which criteria best reflect competitive conditions in the market while still furthering the Commission's policy objectives. The ultimate goal of the test, however, is not to definitively determine competitive market conditions but rather to determine on balance which areas are best positioned to benefit from price deregulation and which areas will benefit more from continued price cap regulation.

101. In determining where we can appropriately avoid applying ex ante price regulations for certain special access services, we balance the benefits and costs of such regulation. We recognize that in counties where there currently appears to be few competitive alternatives for consumers of DS1 and DS3 end user channel terminations that the benefits of ex ante price regulation likely outweigh the costs since this likely indicates broad entry in such regions may not occur. However, in counties where the competitive pressures are able to discipline prices for a large fraction of customers, as discussed in our market analysis, we see the opposite to likely be the case. Ex ante pricing regulation can have negative features. For example, in a county where entry is relatively widespread, the absence of entry in specific areas may be due to regulated prices inadvertently being set below competitive levels. Such prices make entry unprofitable, are harmful to long run incentives to invest, can lead to inefficient short run levels of production and consumption, and can prevent entry indefinitely. This counsels toward being especially wary of imposing price caps except where competitive service seems most unlikely to be available within a reasonable time horizon. This perspective of balancing the benefits and costs of regulating prices, as well as the importance of having an administrable system, leads us to adopt the framework discussed below. In our judgment, we expect this framework to appropriately balance our desire for fostering a dynamic and competitive marketplace with the need to ensure rates that are just and reasonable.

102. Some parties have expressed concern about a potential spike in prices in areas deregulated as a result of the competitive market test. We believe, however, the test adopted today strikes the appropriate balance to apply ex ante regulation where warranted and to allow competitive forces to thrive absent ex ante regulation where there is adequate competition. If prices were to rise following deregulation, then we anticipate that competition will work to drive these prices to competitive levels. Moreover, customers are protected in the near term from harm that would result from any rates, terms, or conditions that are unjust and unreasonable or unjust and unreasonably discriminatory because the Commission's section 208 complaint process continues to be available for common carriage services.

1. Availability of Data To Measure Competition

103. *2015 Collection*. The most intuitively relevant dataset in our toolbox is the one collected in response to the *Data Collection Order*. That data collection covered circuit- and packet-based business data services and required responses from providers of both dedicated and best-efforts last-mile access services (albeit exempting small providers of best-efforts services), as well as purchasers of business data services. In short, the data collection came as close as practicable at the time to providing a "clear picture of all competition in the marketplace." Despite this, some commenters question the continued relevance of the data, citing cable providers' aggressive expansion into business data services since the data collection. These criticisms overstate the limitations of the *2015 Collection*. It is unprecedented in scope and remains a useful and appropriate basis for our new regulatory framework. That said, we acknowledge that while the *2015 Collection* is well suited for the initial evaluation of competition, it is unsuitable for measuring competition going forward. We also acknowledge that the *2015 Collection* does not fully capture the extent of cable deployment to date.

104. Although some commenters propose refreshing the data with periodic data collections, most commenters strongly oppose the idea as being too burdensome and even "an obstacle to competition." To comply with the *2015 Collection*, for example, some carriers were "forced to pull data manually from numerous billing and data systems, diverting limited time and resources from other critical projects." For an uncertain number of years, providers would be required "to continuously track and maintain . . . all company documents that may be responsive . . . requiring business employees and counsel to devote significant resources to conduct broad searches for such documents and evaluate their responsiveness." We believe the costs of further data collections would not justify the benefits obtained from having updated data. Below we find that an alternative dataset can be used to update our competitive market test with no additional compliance burdens while still effectively capturing market competition as compared with a new more comprehensive data collection. We therefore decline to extend the *2015 Collection*.

105. *Form 477 Data*. In 2013, as the National Broadband Map data collection

was nearing its completion, the Commission issued the *Modernizing Form 477 Order*, which redesigned and updated the requirements first spelled out in the *2000 Data Gathering Order*. To comply with the Form 477 data collection requirements, all facilities-based fixed broadband providers, including cable operators, are required to report data on all census blocks where they make fixed broadband services available to residential and business customers at bandwidth speeds exceeding 200 kbps in at least one direction. Among other things, providers also report “the maximum advertised speed for each technology used to offer service in each census block.” The Commission collects these data semi-annually and makes the data available to the public.

106. We find the Form 477 data well suited for supplementing the *2015 Collection* in the initial analysis of market conditions and a conservative proxy for competitive deployment going forward. Form 477 broadband service availability data necessarily imply the presence of broadband-capable cable network facilities, which makes it an ideal dataset to ensure the competitive market test accounts for competition from cable operators. We recognize, however, that the Form 477 data do not measure the presence of other competitive providers. That being said, given the long-term sunk cost nature of competitive provision, it is unlikely that locations that were previously competitive (as evidenced in the *2015 Collection*) would become noncompetitive. The key question thus becomes whether the Form 477 data can be used as an updating mechanism, not merely for the extension of cable supply, but as a proxy for the extension of competitive end user channel terminations more generally. While the measure is unlikely to be perfect, we conclude the Form 477 portion of the competitive market test is a good match for the *2015 Collection* as a means of capturing future changes. Moreover, given cable operators’ ongoing aggressive deployment of end user channel terminations, which dwarfs that of non-cable suppliers, it is highly likely the cable-only measure found in the Form 477 data will capture the vast bulk of additional deployments because it is likely that most non-cable competitive extension of business data services networks will occur where cable is also deploying or has already deployed. Importantly, these data are updated on a semiannual basis and, therefore, any periodic re-evaluation of competition in specific markets will always be

relatively current. Moreover, because these data are collected by the Commission, we are confident in their integrity.

107. In fact, some commenters used Form 477 data to supplement the data from the *2015 Collection* in their analyses and proposed that we use it going forward. Other commenters, while advocating using Form 477 data, also suggested modifying Form 477 to replicate the *2015 Collection* going forward. We are reluctant, however, to impose additional reporting burdens on providers for the same reasons we rejected proposals to refresh the *2015 Collection*, and therefore decline to amend Form 477 to mirror the data gathered by the *2015 Collection*. We believe the data currently collected by the Form 477 is already well suited to the needs of the competitive market test. Further, we will implement sufficient safeguards to allow us to use Form 477 in its present state.

2. Appropriate Geographic Measure

108. In terms of granularity, our goal through the years of regulating the business data services market has been “to define . . . geographic areas narrowly enough so that the competitive conditions within each area are reasonably similar, yet broadly enough to be administratively workable.” After considering various possible geographic areas to use for the competitive market test, we conclude that basing the competitive market test at the county level strikes the best balance between being sufficiently granular and administratively feasible. We reject other proposals raised in the record, including use of MSAs, census blocks, census tracts, and ZIP codes.

109. *Counties*. As suggested by various commenters in the record, we agree that the geographic area we use for the competitive market test should be larger than census blocks or census tracts, but smaller than MSAs. We find that counties are granular enough to capture reasonably similar competitive conditions yet large enough to be administratively feasible and are supported in the record. Counties are significantly more granular geographic units than MSAs and thus reduce the risk of misidentifying competitive or noncompetitive geographic areas. Counties are subdivided into census blocks. Presently, there are 3,233 counties in the U.S., as compared to 389 MSAs, of which 204 had been granted pricing flexibility relief. Counties have another advantage over MSAs, in that MSAs do not cover all of the price cap incumbent LEC study areas, while counties do. Moreover, counties are a

more stable unit of regulation than MSAs. While county boundaries occasionally change, and sometimes counties are split, or merged or new ones are created, such changes are relatively infrequent. For example, in the decade ending 2010, there were only two substantial county boundary changes, both in rural Alaska, and a merger of a county and a city. In contrast, MSA boundary changes are more frequent and far reaching. For example, in 2003, 41 counties were moved from an MSA to a micropolitan statistical area, and changes were made to statistical area boundaries in every state.

110. The Commission’s *2015 Collection* shows an average of 376 buildings with last-mile access demand in a county, whereas the average number of buildings with last-mile access demand in an MSA is 2,713. This statistic shows that counties are much more granular geographic units for administering the competitive market test. Furthermore, using census data we can compare the number of firms and establishments and the employment levels in counties and MSAs. Those data also demonstrate that counties allow for a more granular analysis of competitive conditions than MSAs: [“Table 1. MSA-County Size Comparisons” omitted].

111. Counties are also significantly less granular than smaller geographic units such as buildings, census blocks, census tracts, and ZIP codes, and, thus, significantly more feasible for the Commission and industry to administer. Use of counties has another advantage as well: Counties do not cross MSAs. Consequently, there is a ready translation of the FCC’s pricing flexibility regime to counties, which will minimize disruption where a county’s regulatory status is not changed by this Order.

112. Counties provide a convenient, natural administrative unit for capturing competitive effects, and competitive effects from cable operators in particular. The competitive presence of cable operators will generally conform to county boundaries since cable franchises have historically been awarded, with some exceptions, on a county-by-county basis. Cable operators may not provide cable service without a franchise from a franchising authority. A franchise authorizes the construction of a cable system over public rights-of-way, and through easements, within the area to be served by the cable system. Thus, a franchise license allows a cable operator to overcome many entry barriers associated with buildouts and creates more certainty in anticipated buildout revenues. With those hurdles

out of the way, it is in the cable operator's interest to build out an extensive network in the jurisdiction. Indeed, a cable operator's franchised cable system is often extensive throughout the franchised county.

113. *Metropolitan Statistical Areas (MSAs)*. We conclude that MSAs are not well suited to be used as the geographic area for determining competitive effects. The Office of Management and Budget (OMB) developed MSAs for purposes of compiling statistics for a set of certain geographic areas, defining MSAs as "geographic entities that contain a core urban area of 50,000 or more population, and often includes adjacent counties that have a high degree of social and economic integration with the urban core, as measured by commuting to work." Furthermore, "OMB may add counties or principal cities to an MSA, remove them, or even create new MSAs." Although OMB periodically updates its list of MSAs to reflect changes in social and economic integration between urban centers and outlying areas, the Commission "adopted a list of 306 MSAs based largely on data compiled from the 1980 census, and froze that list for use in all pricing flexibility petitions." Thus, even if MSAs were an appropriate geographic area for competitive analysis and regulation, the Commission's list of MSAs does not reflect the current state of population and business conditions. This circumstance has caused confusion among providers that have submitted petitions to the Commission containing data calculated using different MSA definitions.

114. In addition, MSAs are too large to reflect the scope of competition. Competitive LECs have consistently argued throughout this proceeding that the Commission's previous MSA analysis "ignored the wide variability of competitive conditions across a large geographic area." The Commission agreed in the *Suspension Order*, analyzing business density in six MSAs and finding significant "variance of competitive conditions within an MSA" because "[t]he resulting statistical entity can be large, including the entirety of distant counties if those counties contain exurban areas linked to the core by commuting behavior." Even some incumbent LECs that initially had argued for the continued use of MSAs eventually accepted the use of more granular areas.

115. *Buildings and Census Blocks*. Some commenters express a strong preference for regulation focused on individual buildings with special access demand and, as a compromise, propose to regulate on a census block level.

While this level of granularity might be more precise, it creates a range of other problems. For one, buildings with demand is a constantly changing statistic as businesses expand or downsize. Census blocks are also subject to change as the Census Bureau revises its measurements. Another issue is the administrative burden metrics like these are likely to impose on providers and the Commission: There were 658,485 census blocks and 1,216,977 buildings with last-mile access demand reported in our data collection. As a practical matter, regulation at such a granular level is not administratively feasible, either for incumbent carriers, competitive providers or the Commission. It "would inevitably lead to a patchwork of differing regulations from census block to census block (or from building-to-building)." It would make it exceptionally difficult for regulated carriers to set prices subject to regulation in some areas and not in others and for competitive providers to analyze their opportunities to enter a market. Finally, it would significantly complicate the Commission's efforts to oversee business data services markets or to conduct enforcement proceedings that could potentially involve hundreds or even thousands of individual census blocks or buildings. We therefore conclude that the geographic scope of the competitive market test must be larger than buildings and census blocks.

116. *Census Tracts and ZIP Codes*. Others suggest the Commission use census tracts or, alternatively, ZIP codes to analyze markets in the competitive market test. Census tracts are statistical subdivisions of a county updated each decennial census. Based on the 2015 *Collection* data, the median census tract had a land area of 1.71 square miles. U.S. Postal Service ZIP codes identify the individual post office or metropolitan area delivery station associated with mailing addresses. ZIP codes are also subject to periodic updates, and zip code boundaries can be difficult to obtain. Census tracts are less granular than census blocks but more granular than ZIP codes and MSAs; census tracts and ZIP codes are considerably more granular than MSAs. As of the 2010 census, there were 73,057 census tracts in the U.S. compared to 11,078,297 census blocks and 389 MSAs. In 2016 there were 33,120 five digit ZIP Code™ Tabulation Areas (ZCTA™) in the U.S. As with buildings and census blocks, the sheer number of census tracts and ZIP codes, along with their variability over time, significantly undermine the administrability of using them for the

competitive market test for incumbent carriers, competitive providers and the Commission.

3. Appropriate Level of Competition

117. Upon examining the structure of the business data services industry and the record before us, we find that a combination of either one competitive provider with a network within a half mile from a location served by an incumbent LEC or a cable operator's facilities in the same census block as a location with demand will provide competitive restraint on the incumbent LEC that will be more effective than our legacy regulatory regime in ensuring rates, terms, and conditions are just and reasonable. Our conclusion that a "nearby BDS competitor" provides sufficient competition to forgo regulation of an incumbent LEC's provision of BDS is based on three findings: (1) A determination of the geographic scope within which a likely BDS provider can realistically compete with an incumbent LEC; (2) a finding that one such competitor in addition to the incumbent LEC provides a reasonable degree of competition in BDS supply; and (3) a finding that the benefits of such competition outweigh the potential unintended costs of regulation.

a. Effect of a Nearby BDS Competitor

118. The record in this proceeding indicates that providers actively compete for customers located within about a half mile from their networks by bidding on requests for proposals and sending their sales personnel to offer their services. When bidding on a contract, providers often "have no way of knowing with any reasonable degree of certainty which other providers are capable of serving that customer over their own facilities" and, therefore, when bidding on an RFP they "make much rougher assessments of the possibility of facing competitive bids"—a dynamic that "ensure[s] that the benefits of competition redound to all customers in an area where competitive facilities have been deployed, not just those who are located within a certain distance of a network, or that offer a certain level of revenues." Accordingly, we determine nearby competitive network facilities exert competitive pressure on incumbent LECs whether or not their network is within a half mile of a customer's location.

119. We further find that wireline providers of BDS are commonly willing to extend their existing network out approximately a half mile, and in some instances further, to meet demand. That is, the cost of meeting demand within

one-half mile, including the costs of network extension and customer connection, is usually less than the present value of expected net revenues that buildout to that location will entail. This is true for cable companies who today are major and aggressive business data services suppliers. For example, in 2013 cable already supplied BDS, largely over fiber facilities, to more than one in ten locations with BDS demand, and may well reach 23.5 percent of locations today. We additionally assume as a reasonable approximation that a cable company competes for any BDS demand, or will do so within a few years, wherever it is supplying mass market broadband services over its own network, or will do so sometime over the next few years. We find this is so even for locations with BDS demand that are not currently connected to the cable company's network, and which may be more than a half mile from a fiber-node (because cable companies are actively driving fiber closer to all end users, and so extending fiber to a new location beyond that distance may be economic given broader network objectives). In sum, we find a wireline supplier is an effective competitor in meeting BDS demand at a location if it either delivers BDS to a location or has a network within one half mile of the location with BDS demand, and/or is a cable company with a widespread HFC network that surrounds the location with BDS demand. We hereafter refer to such competitors as nearby competitors, and to their networks as nearby networks.

b. Effect of a Single BDS Competitor

120. We find that, in the market for business data services, there is a substantial competitive effect when a wireline competitor is present to discipline rates, terms, and conditions to just and reasonable levels. We arrive at this conclusion because there is a general expectation that the largest benefits from competition come from the presence of a second provider, with added benefits of additional providers falling thereafter, in part because, consistent with other industries with large sunk costs, the impact of a second provider is likely to be particularly profound in the case of wireline network providers. A wireline provider is willing to cut prices to as low as the incremental cost of supplying a new customer, requiring minimal contribution to its sunk costs. In addition, we find that the presence of a nearby competitor is likely to prevent substantial abuse of market power, whether through high prices or lack of innovation, and equally that a lack of

actual supply by a nearby competitor likely arises when existing suppliers' offerings are reasonable in both price service characteristics. That is, active supply occurs most rapidly in locations where the most profits are likely to be obtained, including where, for example, the transition to packet-based services is most valued. In other words, active supply is most likely to occur where the costs of missing competition are greatest. Equally, active supply is most likely to be postponed where the benefits of additional competition are small, because the potential profit gained from extending supply is small.

121. We reject some commenters' characterization of the *Qwest Phoenix Order* as a blanket finding by the Commission that two competitors are insufficient to constrain incumbent LEC pricing. Although the Commission raised concerns about the competitive nature of a duopoly in that order, it did not categorically reject the possibility that a market with two competitors could represent sufficient competition to restrain supracompetitive pricing by providers. To the contrary, it specifically recognized that "under certain conditions duopoly will yield a competitive outcome." We find that the high sunk cost nature of the BDS market gives providers the incentive to extend their network facilities to new locations with demand even when those locations contribute revenue only marginally above the incremental cost of the network extension. In their comments, incumbent LECs substantiate this conclusion by citing substantial losses they have recently incurred, primarily to new entrant cable operators. They also provide examples of their responses to cable competition involving both price reductions and new service offerings. Reports by cable providers of significant year-over-year growth in their BDS revenues corroborate this story and show a shift in demand to higher (and more competitive) bandwidths.

122. We also distinguish our analysis here from that which the Commission employed in the *Qwest Phoenix* order. Although our competitive market test takes into account competition only from providers of copper, fiber, and coax last-mile facilities, in many locations there are likely more competitors present than the two captured by the test, such as providers of fixed wireless last-mile services, including providers of emerging 5G last-mile transmission technology, which promises to be widespread. Thus, technological changes that have occurred or are likely to occur in the near future make the Commission's

reasoning in the *Qwest Phoenix* decision inapposite.

123. Some competitive LECs urge us to deregulate only locations with four providers (one incumbent LEC and three competitors) with last-mile connections in the building or in the census block. We find that such an approach would result in substantial overregulation of the business data services market and therefore we decline to adopt it. The primary driver of the number of connections at any location is the nature of demand in the location. We fully expect locations with a single customer to typically have only one provider. Even those locations with multiple customers may only have a single provider—the provider that won the bidding process to supply the location. However, as we explain above, the high sunk network cost nature of this industry indicates that even as few as two nearby providers have the incentive to undercut each other's price to win customers so long as they at least recover the incremental cost of extending supply to any customer. Accordingly, requiring even two, let alone three or four providers to be already supplying a given location as the rule for deregulation would result in overregulation in numerous locations that have competitive choice. This issue would become even more pronounced as wireline network providers compete for more locations. On the basis of the *2015 Collection*, deregulating locations with at least three (an incumbent LEC plus two other facilities-based providers) or four (an incumbent LEC plus three other facilities-based providers) suppliers would mean less than one percent of locations would be price deregulated and would re-impose price regulation on the vast majority of locations. Such a radical change would impose substantial regulatory costs on incumbent LECs—and consequently on small businesses, wireless carriers, and other consumers—and would dramatically reduce incentives for all carriers to build out next-generation infrastructure, which directly contravenes our goal of encouraging investment and innovation.

124. Though we believe the record is convincing on the impact of one nearby competitor ensuring reasonably competitive outcomes in the medium term (*i.e.*, over several years), even if it were not, the inability to draw firm conclusions from the data permits the Commission to make a predictive judgment regarding the impact of regulation on the market. Notwithstanding whether one nearby competitor is sufficient for a market to realize the substantive benefits of

competition, we note that the *2015 Collection* analysis did not permit a definitive conclusion on incumbent LEC market power. In addition, as demonstrated by the market analysis in this Order, the evidence in the record suggests significant competition for these business data services. We conclude the best policy to encourage competition is to refrain from ex ante pricing regulation when the competitive market test adopted in this Order is satisfied. We find this policy to be sound even if our market analysis does not result in the perfect regulation of every building in the country—for any administrable rule will necessarily be overinclusive in some cases and underinclusive in others. Consistent with our precedent, we conclude that competition is the preferred method of ensuring just and reasonable rates, terms and conditions and preventing unreasonable discrimination. Refraining from ex ante pricing regulation in these instances where we see active and likely medium-term competition developing is the most effective means of ensuring continued development of actual and robust competitive outcomes.

c. Potential Unintended Costs of Regulation

125. Finally, we find that there are substantial costs of regulating the supply of BDS and these likely outweigh any costs due to the residual exercise of market power that may occur in the absence of regulation. As a baseline, the presumption that “[c]ompetition is best . . . because competition is the single best way of ensuring that customers benefit” and the promotion of the same guides us. The question is not whether today nearby competition is everywhere fully effective, or even whether it will become so over the next few years. The question is whether the costs of the lack of fully effective competition, even as these decline over time, are likely smaller than the net costs of regulation.

126. Here we explain why we find that the net costs of regulation in the business data services industry are likely to be large, most especially because regulation is likely to undermine entry, potentially postponing the gains from competition for many years. Even well-crafted regulations have unintended consequences, inhibiting competition, reducing investment, and end user benefits. This is especially true in markets as highly dynamic and complex as those for BDS. In general, regulation discourages entry wherever it enforces prices that do not allow firms full cost recovery or raises the costs of entry. As

the record before us indicates, both of these side effects are likely in BDS supply. Moreover, regulation in rapidly growing markets is riskier than in otherwise similar stable or stagnating markets.

127. First, it is very difficult for firms to set efficient prices when they must tariff and for a regulator to estimate the efficient price level in a business with the following characteristics: High uncertainty due to frequent and often large unforeseen changes in both customer demand for services and network technologies that are hard to anticipate and hedge against in contracts with customers; a complex set of products and services, which are tailored to individual buyers; costs of provision that vary substantially across different customer-provider combinations; and large irreversible sunk-cost investments that a provider is required to make before offering service. In these circumstances, efficient prices are often tailored to individual purchasers, and are often subject to renegotiations that account for changing circumstances. Moreover, in these circumstances, the efficient price level, which must be reflected in the price cap, is extremely difficult to determine, not least because it must reflect the option value of sinking network investments in a rapidly-changing environment. Both of these sources of regulatory error, especially failure in setting a price cap, can lead to prices that are too low which prevent entry (or alternatively prices that are too high which encourage excessive entry). For example, an inability to quickly adjust a tariff, means prices can be too low where they otherwise would be changed, while the restraints of tariffing can force a provider to set prices that are too low for some customers and too high for others, simply because of barriers to filing separate tariffs that allow such different customers to self-select into the option that suits them best. Similarly, price caps can force, through required averaging (such as the geographic average required in our price caps), prices that are too low in some locations and too high in others. The effect is to rule out entry in the former case, and to sometimes encourage inefficient entry in the latter. Moreover, price caps that are overall too low discourage entry (as well as long-run network reinvestment), which can have substantive knock-on effects on entry decisions given that supply in BDS is about recovering more than the incremental cost of each customer to pay for total network costs. Such

negative effects accumulate over the life of the cap.

128. Second, given that most wireline network costs must be sunk for periods of between 20 years and sometimes two or more times that length of time, entrants and incumbents looking to reinvest are extremely sensitive to any increases in costs that might reduce their capacity to recover these costs. In particular, a small rise in costs that remains in place over a long time period can have a substantial impact on whether a particular investment opportunity is viewed positively. That is exactly what regulation does. It directly raises incumbent's costs, making them unwilling to invest and hence making them less effective competitors, and it creates an additional source of uncertainty that entrants must contend with when evaluating entry. If there is a small probability that future regulation will harm the entrant's projected income streams, then this can materially discourage entry (because over the course of the decades the expected present value of the accumulated harm can be large).

129. Lastly, we reiterate that “the Commission should construct regulation to meet not only today's marketplace, but tomorrow's as well.” Available metrics show the BDS market as dynamic, evolving rapidly, and becoming increasingly competitive across all service offerings. When a market is changing and growing, it offers tremendous opportunities to new entrants and therefore creates fewer regulatory concerns. Rather than only having the option of taking customers from existing suppliers by offering them very similar services, new entrants can seek unaffiliated customers, or tempt incumbents' customers away by offering new services that incumbents either do not offer, or if they do, are no more experts in it than the entrant (in fact, incumbents may be hampered by fears of cannibalizing their legacy services or by their cultures and other factors that suited the legacy world). In short, competition is likely to be more effective in dynamic growing markets than regulation. In addition, a high degree of flux greatly increases the chances that regulatory error will stifle competition and reduce welfare because it is applied to a circumstance that, without the regulation, may have quickly been overtaken by innovation and/or competition. Thus, regulation of such markets is generally considered to be counterproductive.

4. Competitive Market Test Methodology

130. In this section, we adopt the competitive market test methodology that we will use to determine which local markets are sufficiently competitive to warrant deregulation of price cap incumbent LEC provision of DS1 and DS3 end user channel terminations and certain other business data services. As we note above, we take a pragmatic approach to structuring the competitive market test, with the goal of promoting innovation and investment and recognizing recent trends and developments in the BDS marketplace. Furthermore, as also discussed above, we take a network-centric approach which takes into account the high sunk cost nature of BDS networks that gives nearby competitors a significant incentive to compete for potential clients within an economically buildable distance from their networks. This is the case for traditional competitive LECs and for newer entrants such as cable providers with extensive networks.

131. For the competitive market test to most closely approximate the realities of competition in the business data services market, it ideally should deregulate where there is competition and regulate where there is not. Accordingly, we can use the *2015 Collection* to measure the relative effectiveness of different competitive market tests at that point in time by assessing their respective error rates—*i.e.*, how often they fail to deregulate locations or census blocks that are competitive and how often they fail to regulate locations or census blocks that are not. A competitive market test with an appropriately weighted combination of such error rates will tend toward maximizing competitive effects and minimizing regulatory failure. However, we also consider the importance of minimizing regulatory disruption. In particular, we seek to be conservative in deregulation and reregulation, and we specifically decline to re-regulate counties that were previously granted Phase II pricing flexibility.

132. *Data.* Our first step in establishing a competitive market test is to use data from the *2015 Collection* to identify areas that are competitive. First, we use the location data in the *2015 Collection* to determine which buildings or locations with last-mile access demand are within a half mile of a location served by a competitor over its own facilities. We use a half mile distance based on our analysis of the record, discussed above, that determined that competitive providers

are actively competing for customers located within that distance and are generally willing to build out that distance in response to business data services demand. We previously determined that two providers in the relevant market are sufficient to ensure competitive prices. Thus, all business locations with demand for last-mile access in a county that are within a half mile of a competitive provider's facilities are deemed competitive.

133. We supplement the *2015 Collection* data with additional and more current data from the Form 477 on broadband availability by cable providers which offers the best available and most current data on the sale of broadband services by cable providers and which is closely correlated with physical presence of cable networks. Data based on census blocks are very granular and therefore provide an appropriate measure on which to base our calculations for cable networks. Census blocks can be very small. If the median census block “were a circle, then it would be approximately 0.2 miles across”—an area that can easily fit (and often does fit) a single building. Indeed, “half [of all census] blocks are smaller than a tenth of a square mile (6.4 acres).” Given the high sunk cost nature of cable broadband networks, we find when a cable provider is capable of providing Internet broadband service within any census block, then generally they have the incentive to make the incremental investment necessary to serve locations with BDS demand in that census block, especially over the medium term. Accordingly, we treat as competitive census blocks in price cap incumbent LEC study areas that the Form 477 data show have a cable presence—whether serving business or residential clients.

134. We conclude that it is necessary to base the competitive market test on data from both the *2015 Collection* and the Form 477 data collections since neither collection captures the full extent of competition. The *2015 Collection* includes data on traditional competitive LECs but only includes a portion of cable competitive facilities both because of the nature of the data reported and the fact that it does not capture cable competition that has emerged since the collection. The Form 477 data includes reasonably comprehensive data from which we can infer the presence of cable network facilities but does not provide comprehensive data on traditional competitive LECs. Because competitive LECs do not typically have locally ubiquitous networks, a report of supply by such a provider in a census block is

less likely to mean they can extend their network to cover demand anywhere in the census block, so a traditional competitive LEC's Form 477 report of presence in a census block often is not a good indication whether it can readily extend service to other locations in that census block. Additionally, such providers may offer business data services in a block, but not supply broadband service as defined in the Form 477 data collection and not report that service for Form 477 purposes. Basing our test on both datasets will most closely approximate the full spectrum of competition in the business data services market, including competition from medium-term entrants. As we explain above, recent buildout by cable companies dwarfs that of traditional competitive LECs and, therefore, the *2015 Collection* is likely to closely reflect the state of traditional competitive LEC deployment as of 2013. To the extent the test does not capture some recent deployment by traditional competitive LECs, providers have recourse through a section 208 complaint process.

135. *Setting Appropriate Thresholds.* The next step in formulating the competitive market test is to use the highly granular data from both datasets to assess the accuracy of different combinations of thresholds we might adopt for the test. These datasets measure competition at very local levels—individual locations and census blocks. However, for administrative purposes we have chosen to use counties to apply regulation. Thus, we use these more granular data to assess competition at the county level. This entails a higher degree of imprecision than if we were to base the test on locations or census blocks (which would entail more burden and administrative cost). In particular, we do not require a county to be 100 percent competitive to deregulate it. Were we to require this, few counties, if any, would qualify. For similar reasons, we do not require a county to completely lack competition in order to regulate it. We acknowledge that by setting the percentage threshold at something less than 100 percent necessarily leaves a portion of businesses at non-competitive locations within a county deemed competitive without the near-term potential for competition. However, for the reasons discussed above, it is important not to overregulate, and thereby reduce incentives for competitive entry. Indeed, competitors, and particularly near-ubiquitous competitors like cable providers, have an incentive to build to

locations even beyond a half mile from their facilities, depending on cost and revenue opportunity. Conversely, setting a percentage threshold too low would also distort the results of the competitive market test by deregulating counties with only a relatively minor competitive presence, leaving a higher percentage of locations with business data services demand without the likelihood of a competitive option. Consequently, we apply our judgment to strike a balance in light of the data at our disposal.

136. We set percentage thresholds that result in a test that more accurately approximates competitive conditions in the county broadly. We set a separate threshold for each of the two datasets we use and note that, given the differences in the two datasets, the percentage thresholds will not be identical. Given the interdependency of the datasets, we analyze combinations of thresholds to assess their impact on the accuracy of our test and to determine which combination yields results with the lowest weighted error rates.

137. Utilizing the data from the 2015 Collection and Form 477, we tested a variety of thresholds for both datasets. Any pair of thresholds regulates certain price cap counties and deregulates all others. This leads to two types of regulatory error that we can approximately measure using the 2015 Collection: the first type of error occurs in regulated counties where there will be locations as of 2013 that were within a half mile of a location supplied over the facilities of a competitor (*i.e.*, wrongly regulated), while the second type of error occurs in deregulated counties where there will be locations that were not within such a distance (*i.e.*, wrongly deregulated). We measure these two types of errors by the number of locations in each category. Given the preceding, a natural way to proceed would be to seek a pair of thresholds that minimize some weighted sum of these two error counts.

138. Following our competitive analysis that revealed the high costs of regulating this industry, we could, for example, assign twice as much weight to the first type of error of regulating where we should deregulate (*i.e.*, wrongly regulating) as to the second type of error of deregulating where we should regulate (*i.e.*, wrongly deregulating). Such a measure would overstate the first type of error, regulating locations that should be deregulated. This would reflect the scenario where one thought that the burdens and costs of inappropriately regulating were twice those of

inappropriately deregulating. For example, in Figure 2 a weight of 2/3 is assigned to a competitive building that is regulated and a weight of 1/3 is assigned to a noncompetitive building that is deregulated. The darkest blue area shows the range in which the weighted sum of errors takes its lowest values, while the darkest red area shows the range in which the weighted sum of errors takes its highest values. Taking this approach allows us identify the thresholds that minimize the weighted sum of these two errors. In particular, the appropriate thresholds given these weights would deregulate a county where 32 percent of buildings with BDS demand are within a half mile of a location supplied over competitive facilities or with 3 percent of census blocks with cable presence. [“Figure 2. Threshold percentage combinations (wrongly regulated locations given twice as much weight): Sum of Number of Buildings Deregulated without Competition and Sum of Number of Buildings Regulated with Competition” omitted].

139. We next reverse these weights and instead assign twice as much weight to wrongly deregulated non-competitive buildings as to wrongly regulated competitive buildings. As the dark blue area of the contour map indicates, the appropriate thresholds for deregulating a county would be 48 percent for buildings with BDS demand within a half mile of a location supplied over competitive facilities and 23 percent for census blocks with cable presence. [“Figure 3. Threshold percentage combinations (wrongly deregulated locations given twice as much weight): Sum of Number of Buildings Deregulated without Competition and Sum of Number of Buildings Regulated with Competition” omitted].

140. Alternatively, we can assign equal weight to both errors—that is, give both types of errors equal importance—then we would choose thresholds that minimize the simple sum of the number of buildings inappropriately regulated or deregulated. Figure 4 demonstrates that under this scenario the resulting thresholds would deregulate a county where about 47 percent of buildings with BDS demand are within a half mile from competitors’ facilities as competitive or where about 11 percent of census blocks have cable facilities. [“Figure 4. Threshold percentage combinations (wrongly regulated and wrongly deregulated locations equally weighted): Sum of Number of Buildings Deregulated without Competition and Number of Buildings Regulated with Competition” omitted].

141. This analysis suggests that setting a threshold of 32 to 48 percent for the 2015 Collection would be reasonable. Out of an abundance of caution—we want to ensure that counties we deregulate will be predominantly competitive—we select the highest threshold—48 percent—and round up to 50 percent, which only slightly increases the error rate. Based on this threshold alone, we find that 1,862 or 59 percent of all counties and county equivalents in the United States that have some census blocks that are within a price cap study area would be treated as competitive, resulting in the deregulation of 91.1 percent of locations with special access demand. If we were to use this threshold alone, we estimate that 89.5 percent of locations with special access demand would be appropriately regulated, with 77,900 locations potentially over regulated and 48,045 potentially under regulated.

142. Our analysis suggests that setting a threshold of 3 to 23 percent would be one reasonable means of setting the trigger threshold for the Form 477 data. Nonetheless, we believe a more cautious approach is warranted for three reasons. First, we recognize that all but 8.9 percent of locations with special access demand are already deregulated by the half mile test—and any test using the Form 477 data will likely overlap substantially with the locations already targeted by that test. So any additional deregulation using Form 477 must be justified at the margin. Second, we recognize that deployment in any marginal counties targeted alone by the cable census block test is likely to be more sparse than in those targeted by the half mile test, and so the facility of cable deployment to any given location is likely to be somewhat less than in more concentrated areas. Third, we want to ensure that counties we deregulate—now and in future competitive market test updates—will be predominantly competitive in nature. Accordingly, we choose a more conservative approach and adopt a 75 percent threshold for the Form 477 data. With that threshold, an additional 17 or 0.5 percent of all counties and county equivalents would be treated as competitive, resulting in the deregulation of an additional 0.8 percent of locations with special access demand. We estimate that adding that threshold increases the percentage of locations appropriately regulated to 90.2 percent, with 8,367 locations more appropriately regulated. We note also that because Form 477 data encompass cable’s best-efforts business data services, and this source of cable

competition is growing rapidly, we expect setting even a conservative threshold such as this one will result in further deregulation going forward.

143. We acknowledge that this competitive market test does not as perfectly delineate areas as we would like; yet we believe it strikes the right balance. It balances the need for precision against the need for a test that is feasible to administer, and also balances the benefits of appropriate regulation of competitive and non-competitive areas while seeking to avoid the costs of inappropriate regulation. It does not require additional data collections and yet closely approximates the results such data collections are likely to yield. It ensures that we adopt competitive thresholds that most closely approximate actual competitive market conditions and minimize regulatory error. It deregulates areas with sufficient potential for competitive entry in response to significant profit opportunities and retains *ex ante* regulation in areas where competitors are less likely to be able to enter and therefore creates appropriate incentives for just and reasonable rates and continued growth, innovation, investment, and deployment in the dynamic business data services market. Lastly, it is conservative in deregulating, reflecting a desire to not move too quickly and recognizing the nascent nature of cable competition not captured in the *2015 Collection*.

144. We find that it is not necessary to create a special process or mechanism for challenging the results of the competitive market test. For administrability purposes, any such process would need to be limited to a single criterion, for example, the accuracy of the Form 477 data. The Commission has designed the competitive market test in a manner that reduces the need for, and the significance of, any post-decision challenge process because it has established very clear standards based on data that is readily accessible. In addition, we believe that parties can rely on the accuracy of the Form 477 data because it is certified to by company officials, compliance is subject to enforcement actions, and filers are required to submit revised data upon discovery of a significant error. Furthermore, commenters generally agree that the Commission should avoid establishing a separate process that is burdensome on the parties and the Commission. For example, NCTA urges the Commission to forego any extensive and involved challenge process such as in the Connect American Phase II universal service program that included

more than 140 parties challenging the classification of nearly 180,000 census blocks and that took the Commission nine months to resolve. Accordingly, consistent with our goal of eliminating unnecessary administrative burdens, we conclude, based on the substantial administrative costs and apparently minor benefit, there is no reason to implement a challenge process here.

D. Updating Competitive Market Test Results

145. To ensure the results of the competitive market test continue to reflect competitive conditions in the business data services marketplace, we adopt a process for updating those results every three years using Form 477 data across all areas served by price cap carriers.

146. The results of the competitive market test offer a static snapshot of a dynamic and constantly changing business data services market. Most commenters that support the use of a competitive market test also support updating the test periodically. We therefore adopt an administratively efficient process that will periodically update the results of the test to govern the transition of a county from non-competitive to competitive status.

147. We base our initial application of the competitive market test on the two principle data sources we currently have at our disposal, the *2015 Collection* and Form 477. The Form 477 data are updated on a semi-annual basis and will therefore continue to be useful in measuring competition in subsequent updates to the test. The data in the *2015 Collection*, however, will become increasingly stale and therefore less relevant to actual market conditions in subsequent updates of the test. We agree with commenters that express concerns about the burdens such new data collections would entail. At this point, we find that the costs of such collections outweigh the benefits. The *2015 Collection* was the most comprehensive data collection the Commission has conducted, and the burden of conducting additional such collections, even if streamlined, would likely be considerable.

148. Moreover, we agree with commenters that the Commission “does not need to issue a request for a broad, large-scale data collection as it did in 2012” in order to obtain updated market data. We can instead use the existing Form 477 data collection, which would provide continuity with the initial test that also relies on these data. The Form 477 data on broadband availability are well suited to identify increases in competitive broadband deployment,

particularly by cable providers which are the most likely sources of competitive growth. We conclude it is not necessary, as some commenters suggest, to modify Form 477 to request additional information. The current Form 477 data are sufficiently precise to capture the changes in competitive deployment that are likely to occur in a three-year timeframe. Thus we are able to achieve our goals of updating the competitive market test results using accurate data and at the same time avoid imposing any additional burdens on providers or the Commission.

149. We agree with commenters that support the suggestion in the *Further Notice* that the Commission reapply the test every three years. We find that the three-year period strikes the right balance between ensuring the competitive market test remains reasonably accurate and avoiding unnecessary disruption of sales arrangements and administrative burdens by overly frequent updates.

150. As Sprint explains, “[three years] permits the Commission to evaluate whether markets are changing to become more competitive and will ensure that the regulatory framework reflects accurate information about the BDS marketplace.” We disagree with commenters arguing for more or less frequent updates. More frequent updates are likely to be unnecessarily disruptive of longer-term business data services sales arrangements, while less frequent updates will be insufficient for the Commission to properly assess changes in the marketplace and to ensure the test remains current.

151. We direct the Wireline Competition Bureau to review Form 477 data on a regular three-year basis and determine whether any additional regulated counties meet the 75 percent threshold. The Bureau shall release a Public Notice that lists newly competitive counties and shall also provide this information on the Commission Web site. Parties desiring to challenge these results may file petitions for reconsideration or seek full Commission review through an application for review.

152. While commenters may disagree with how to update the initial competitive market test results, commenters widely note that the Commission should select administrative processes that are efficient. We note there are more than 3,100 counties in the U.S. that are included in our initial competitive market test computations. About 40 percent of these are treated as non-competitive and about 60 percent as competitive. We have previously noted

that, given the sunk and irreversible cost nature of business data services provision, it is unlikely that locations that were competitive, as evidenced in the 2015 Collection and Form 477 data, would become noncompetitive. Sunk costs represent the biggest barrier to entry, and these data demonstrate that this barrier has been overcome. On the other hand, given the recent pace of technology, innovation, and the rollout of more efficient products in the business data services market, we are confident that competition will continue to grow in competitive markets. As a result, we find that the cost of reapplying the competitive market test for nearly 2,000 counties already treated as competitive would outweigh the benefit, if any. We thus decide we can achieve our objectives of adopting an administratively efficient process to update the competitive market test by reducing the number of counties subject to retesting. We shall update our test calculations only for the non-competitive counties to determine whether customers in these locations are benefitting from competition. Consistent with this approach, once a county is treated as competitive, it will not be retested.

E. Altering Business Data Services Forbearance

153. Prior forbearance actions and deemed grants have created a situation in which the statutory provisions and rules that apply to a price cap incumbent LEC or a competitive LEC in its provision of business data services vary depending on the provider's identity and the specific services being provided. We expand upon and adjust these prior actions and deemed grants to the extent necessary to level the regulatory playing field for all of these business data services providers. We also amend our rules as appropriate to implement our light-touch regulatory framework for business data services. These actions flow from—and are consistent with—our findings above on the intense and growing competition in business data services.

154. Our actions expanding forbearance are taken pursuant to section 10 of the Communications Act. That provision, enacted as an integral part of the “pro-competitive, de-regulatory national policy framework” established in the 1996 Act, requires that the Commission forbear from applying any provision of the Act, or any of the Commission's regulations, if the Commission makes certain findings with respect to such provisions or regulations. Under section 10(a), the Commission is required to forbear from

any such provision or regulation if it determines that: (1) Enforcement of the provision or regulation is not necessary to ensure the telecommunications carrier's “charges, practices, classifications, or regulations” are “just and reasonable and are not unjustly or unreasonably discriminatory;” (2) enforcement of the provision or regulation is “not necessary for the protection of consumers;” and (3) forbearance is “consistent with the public interest.” In making this public interest determination, the Commission must also consider, pursuant to section 10(b), “whether forbearance from enforcing the provision or regulation will promote competitive market conditions.”

1. Detariffing of Packet-Based Services and Circuit-Based Services Above the DS3 Bandwidth Level

155. We forbear from the application of section 203 of the Communications Act to each price cap LEC in its provision of any packet-based business data services or circuit-based business data services above the DS3 bandwidth level. This action expands upon prior forbearance grants and deemed grants applicable only to certain carriers and certain packet-based and circuit-based business data services.

156. In 2006, Verizon's Broadband Forbearance Petition was deemed granted by operation of law after the Commission did not act on it within the statutory time limit. That petition had sought forbearance from the application of Title II common carrier and *Computer Inquiry* requirements to “all broadband services” that Verizon “does or may offer.” But Verizon had subsequently narrowed the scope of its forbearance request to exclude DS1 and DS3 services. Following this deemed grant, AT&T, legacy Embarq, legacy Frontier, Qwest, and ACS filed petitions requesting similar forbearance relief. The Commission granted these petitions in part, finding that forbearance from the application of dominant carrier regulation, including tariffing under section 203, to the petitioning incumbent LECs' then existing packet-based and optical transmission broadband data services met the statutory forbearance criteria. These partial grants reflected the Commission's predictive judgment that, in comparison to traditional dominant carrier regulation and for the carriers' and services being addressed, “eliminating the extra layer” of regulation provided by tariffing and the Commission's ex ante pricing rules, “while leaving in place basic Title II common-carrier regulation” under

sections 201, 202, and 208, “will better promote competition and the public interest.” The record here confirms this predictive judgment and supports expanding the prior forbearance to include additional carriers and services.

157. Currently the vast majority of business data services providers are not subject to section 203 in their provision of business data services—non-incumbent LECs are not required to comply with tariffing requirements, nor are the price cap incumbent LECs that have received forbearance to the extent they provide services within the scope of the forbearance grants and deemed grants. We find that the lack of regulatory parity that stems from the prior applications of forbearance is preventing competition and holding back our efforts to “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.” Thus, our determination is based on “what the agency permissibly sought to achieve with the disputed regulation,” that is, to ensure that rates, terms, and conditions for the provision of these business data services are just, reasonable, and not unreasonably discriminatory. We find that “in light of an overwhelming record of declining prices, it is simply not credible to argue that rate regulation is necessary to simulate competitive pricing” for these services. Additionally, the lack of regulatory parity among broadband data services providers created by the imbalanced forbearance grants and deemed grants over the years has created barriers to entry and impeded competition. Extending forbearance from tariffing will lead to regulatory parity, and a more level playing field among packet-based and optical transmission business data services providers.

158. We further conclude that disparate forbearance treatment of carriers providing the same or similar services is not in the public interest as it creates distortions in the marketplace that may harm consumers. Allowing such disparate application of our tariffing requirements undermines, rather than promotes, competition among telecommunications services providers within the meaning of section 10(b).

159. We predict that competition in the business data services market, along with the statutory and regulatory requirements that remain, is sufficient to ensure just, reasonable, and not unjustly or unreasonably discriminatory rates, terms, and conditions by business data services providers and to protect business data services consumers. We therefore find that application of section

203 is not necessary within the meaning of sections 10(a)(1) and 10(a)(2). Those same considerations, plus our desire to promote competition and broadband deployment, likewise persuade us that such forbearance is in the public interest. Therefore, consistent with the Commission's prior findings, we find that forbearing from these regulations in an equal manner is consistent with the public interest within the meaning of section 10(a)(3).

2. Detariffing of Other Special Access Services

160. We also forbear from the application of section 203 to each price cap incumbent LEC in its provision of business data services elements that comprise transport pursuant to section 69.709(a)(4) of the Commission's rules, and to DS1 and DS3 end user channel terminations services and any other special access services currently tariffed in competitive counties or in non-competitive counties previously subject to Phase II pricing flexibility.

161. The Commission has previously recognized that "tariffs originally were required to protect consumers from unjust, unreasonable, and discriminatory rates in a virtually monopolistic market, and that they become unnecessary in a marketplace where the provider faces significant competitive pressures." We find above that business data services transport is competitive throughout the nation and that DS1 and DS3 end user channel terminations services and other tariffed special access services are competitive in certain counties. Where a price cap LEC provides these services in competitive markets, application of section 203, including its tariffing requirement, is not necessary to ensure that the LEC's charges, practices, classifications, or regulations are just, reasonable, and not unjustly or unreasonably discriminatory. Nor is application of section 203 necessary to protect consumers.

162. We recognize that in some discrete geographic areas, including portions of non-competitive counties previously subject to Phase II pricing flexibility, some customers may not have access to competitive transport services during the near-term. Similarly, in some portions of the counties that we classify as competitive, some end users may not have viable alternatives to the incumbent LEC's DS1 and DS3 end user channel terminations services and other special access services within that time frame. But even in these areas, we believe tariffing may reduce incentives for competitive entry and ultimately inhibit growth in the market and

competition over the longer term. Additionally, price cap LECs will remain subject to sections 201 and 202, and to our enforcement of those provisions through the section 208 complaint process. In these circumstances, we find that the additional contribution that tariffing—and other ex ante regulation—of price cap LECs' special access services provides to protection against unjust, unreasonable, and unreasonably discriminatory rates, terms, and conditions is not necessary within the meaning of sections 10(a)(1) and 10(a)(2).

163. Those same considerations, plus our desire to promote competition and business data services deployment, likewise persuade us that forbearance is in the public interest. In competitive markets, tariffing has several adverse consequences, including reducing a carrier's incentives to offer price discounts and ability to respond quickly to changes in demand or costs, delaying and increasing the costs of innovation, and preventing a carrier from tailoring service arrangements to meet its customers' specific needs. Tariffing also imposes significant administrative costs on carriers and the Commission, and ultimately inhibits competitive entry in discrete areas where a price cap LEC currently may be the only provider. Given these costs, we find that forbearance from the application of section 203 to price cap LECs' business data services elements that comprise transport pursuant to section 69.709(4), and to DS1 and DS3 end user channel termination and any other tariffed special access services in competitive counties, is consistent with the public interest within the meaning of section 10(a)(3). We note that the record was supportive of detariffing services in competitive markets.

164. A small number of counties that had been regulated under Phase II pricing are now deemed non-competitive pursuant to our competitive market test. Incumbent LECs in these counties have been providing DS1 and DS3 end user channel termination and other special access services free of price cap, but not tariffing, regulation. Like we do for other services, we conclude that for these incumbent LECs tariffing's costs generally outweigh its benefits to consumers, and that forbearance from the application of section 203 to DS1 and DS3 end user channel termination and other tariffed special access services by these incumbent LECs in these counties is consistent with the public interest.

165. In contrast, we conclude it is not practical to detariff carriers that are now

subject to—and will remain subject to—price cap regulation, where the tariff is the tool the Commission has used—and will continue to use—to enforce that regulation. This is not a concern with the counties now subject to Phase II pricing to the extent an incumbent LEC has not been subject to price cap regulation and, as we decide below, will not be subject to such regulation going forward.

3. Transition Mechanisms

166. Our detariffing actions in this Order will be mandatory after a transition that will provide price cap incumbent LECs sufficient time to adapt their business data services operations to a detariffing regime. We also require that competitive LECs, which are currently subject to a permissive detariffing regime, detariff their business data services by the end of this transition.

167. The transition will begin on the effective date of this Order (sixty (60) days after **Federal Register** publication) and will end thirty-six (36) months thereafter, a period that we find sufficient for carriers to adapt to a detariffing regime. In addition, for six (6) months after the effective date of this Order, we require price cap incumbent LECs to freeze the tariffed rates for end-user channel terminations in newly deregulated counties, as long as those services remain tariffed. We adopt these transition mechanisms in light of the need for an adequate transition to ensure that small businesses will have time to adjust to the new regulatory conditions.

168. During this transition, tariffing for these services will be permissive—the Commission will accept new tariffs and revisions to existing tariffs for the affected services. Apart from the rate freeze noted above, carriers will no longer be required to comply with price cap regulation for these services, and once the rules adopted in this Order are effective, carriers that wish to continue filing tariffs under the permissive detariffing regime are free to modify such tariffs to reflect the new regulatory structure outlined in this Order for the affected services. This will allow carriers to respond to competitive pressures and introduce new business data services as they adapt to detariffing.

169. Carriers, including non-incumbent LECs, may remove the relevant portions of their tariffs for the affected services at any time during the transition, and the rate freeze does not apply to services that are no longer tariffed. Once the transition ends, no price cap incumbent LEC or competitive

LEC may file or maintain any interstate tariffs for affected business data services. This will prevent carriers from obtaining “deemed lawful” status for tariff filings that are not accompanied by cost support and invoking the filed-rate doctrine in contractual disputes with customers. Business data services providers will also be prevented from picking and choosing when they are able to invoke the protections of tariffs.

170. We recognize that our detariffing actions will change the legal framework for existing service arrangements for business data services, many of which assume a tariffing environment and may not expire until after the end of the transition to mandatory detariffing. We do not intend our actions to disturb existing contractual or other long-term arrangements—a contract tariff remains a contract even if it is no longer tariffed. In that vein, contract tariffs, term and volume discount plans, and individual circuit plans do not become void upon detariffing. Instead, we expect all carriers to act in good faith to develop solutions to ensure rates are just and reasonable.

4. Verizon Deemed Grant

171. In this section of the Order, we conform the forbearance provided to Verizon and its successors in interest, Hawaiian Telcom, and the legacy Verizon portions of FairPoint and Frontier (together the Verizon Legacy Companies), to the forbearance provided other price cap carriers. This action, when coupled with our other forbearance actions in the Order, levels the playing field among price cap carriers providing packet-based and optical transmission business data services as telecommunications services.

172. In 2006, Verizon’s 2004 petition seeking forbearance from the application of Title II and *Computer Inquiry* requirements to certain of its enterprise broadband services was deemed granted by operation of law after the Commission did not act on that petition within the statutory time limit. We agree with those commenters that argue that we have statutory authority to reverse the deemed grant. Section 10 directs the Commission to “forbear from applying” statutory provisions and regulations to a telecommunications carrier when certain statutory criteria are met. We read the statute as giving us the authority to modify or reverse forbearance that has been deemed granted when we determine that one or more of those forbearance criteria are no longer met. Otherwise, forbearance based on the lack of a need to apply a statutory provision or regulation, and

the public interest in such non-application, under one set of circumstances would remain locked in place even when circumstances change. Congress would not have intended to create such rigidity in enacting statutory provisions requiring “Regulatory Flexibility,” as section 10(a) is captioned. As the D.C. Circuit has observed, the Commission’s forbearance actions—and the forbearance relief “deemed granted” to Verizon—are “not chiseled in marble.” Instead, the Commission may “reassess” that forbearance as it “reasonably see[s] fit based on changes in market conditions, technical capabilities, or policy approaches to regulation” of business data services.

173. We reject certain commenters’ argument that statutory silence means that we lack authority to modify or withdraw forbearance once it is deemed granted, or that only Congress can modify or reverse forbearance received through a deemed grant. That argument largely rests on the D.C. Circuit’s holding in *Sprint Nextel v. FCC* that the Verizon deemed grant “did not result in reviewable agency action” because “Congress, not the Commission, [had] ‘granted’ Verizon’s forbearance petition.” In so holding, the D.C. Circuit did not address the Commission’s authority, under section 201(b), to adopt rules necessary “to carry out the ‘provisions of this Act,’” which include each Title II provision encompassed within the Verizon deemed grant. Congress’s determination in section 10(c) that forbearance will be “deemed granted” in the absence of timely agency action does not in any way limit our authority to later “reassess” the deemed grant as we “reasonably see fit.”

174. We recognize that modifying or reversing forbearance once granted by the Commission or by operation of law is a step that should be taken with great care. We find this narrowly tailored action is appropriate in this case because such reversal is consistent with the substance of the statutory forbearance requirements. Verizon’s forbearance from core Title II obligations came from the highly unusual circumstance of a deemed grant. Our partial reversal is consistent with the Commission’s unanimous commitment, in the *AT&T Forbearance Order*, “to avoid persistent regulatory disparities between similarly-situated” carriers by issuing “an order addressing Verizon’s forbearance petition . . . on grounds comparable to those set forth” in the *AT&T Forbearance Order*.

175. Notably, in its own comments in this proceeding, Verizon has recognized the importance of a level playing field

in the business data services arena. The forbearance relief “deemed granted” to Verizon encompasses economic regulation that applies to all other common carriers, economic regulation that applies to all other incumbent LECs or Bell Operating Companies (BOCs), and public policy regulation that applies to all other common carriers. Continued forbearance from this regulation would be inconsistent with the statutory forbearance criteria. For example, as we find above, the protections provided by sections 201 and 202(a), coupled with our ability to enforce those provisions in a complaint proceeding pursuant to section 208, are necessary to protect against unjust, unreasonable, and unjustly or unreasonably discriminatory rates, terms, and conditions for those business data services. Similarly, section 251(b) imposes a number of duties on LECs, including the duty to implement number portability and the duty to provide competing telecommunications service providers with access to the LECs’ poles, ducts, and conduits under just and reasonable rates, terms, and conditions. Acting to bring the Verizon Legacy Companies’ forbearance into line with the forbearance granted to other carriers is necessary to ensure just, reasonable, and not unreasonably discriminatory rates, terms, and conditions for business data services provided on a common carrier basis, and is consistent with the Commission’s decisions granting more tailored forbearance to other carriers.

176. Other provisions and requirements forborne from by the deemed grant promote access to telecommunications services by individuals with disabilities, protect customer privacy, and increase the effectiveness of emergency services, among other objectives. As the Commission previously found, these and other public policy requirements under Title II “advance critically important national objectives” and thus are necessary to protect consumers. Indeed, continued forbearance from these requirements would be inconsistent with the critical consumer-protection goals that led to their adoption.

177. We further conclude that disparate treatment of carriers providing the same or similar services is not in the public interest as it creates distortions in the marketplace that may harm consumers. Allowing Verizon and its successors in interest, but not its business data services competitors, to continue to avoid compliance with obligations applicable to other business data services providers would

undermine, rather than promote, competition among telecommunications services providers within the meaning of section 10(b). Therefore, consistent with the Commission's repeated findings, we find that applying these obligations to the Verizon Legacy Companies to the extent they provide business data services on a common carrier basis is consistent with the public interest.

V. Regulation in Non-Competitive Counties

178. We now turn to the question of what ex ante regulation, if any, we should apply to special access services in counties that are classified as non-competitive pursuant to our competitive market test. To ensure affordability of DS1 and DS3 services without unnecessarily constraining incumbent LECs' incentives to invest and innovate, we will apply price cap regulation in the form of Phase I pricing flexibility (Phase I pricing) to DS1 and DS3 end user channel terminations and certain other business data services provided by incumbent LECs in counties that we determine are non-competitive. Allowing Phase I pricing will enable incumbent LECs to timely and effectively respond to any competition that develops in these markets through contract tariffs and volume and term discounts. We also prohibit the use of overly restrictive non-disclosure agreements in contract tariffs for business data services sold in non-competitive areas.

A. Retaining Price Cap Regulation in Non-Competitive Counties

179. We conclude that, subject to the exception discussed below, we should continue to apply price cap regulation, as modified in this Order, to price cap LECs' DS1 and DS3 end user-channel terminations and certain other non-competitive business data services in non-competitive counties to ensure the rates, terms and conditions for such services are just and reasonable. We agree with the commenters—including Verizon, INCOMPAS, Sprint, Windstream, Ad Hoc, Birch et al., NASUCA et al., and Public Knowledge—that argue that price cap regulation is the most effective regime for ensuring that rates for non-competitive services are just and reasonable. The price cap system, as modified by the measures we adopt in this proceeding, will limit the extent to which price cap LECs can exercise their market power over the rates for TDM-based end user channel terminations in non-competitive counties.

180. When properly applied, price cap regulation replicates some of the beneficial incentives of competition in the provision of business data services while balancing ratepayer and stockholder interests. Price caps encourage LECs to become more productive and innovative by permitting them to retain reasonably higher earnings while discouraging wasteful investment. At the same time, price cap regulation offers regulated firms flexibility in setting relative prices, instead of relying on uniformed regulatory direction. In sum, price cap regulation helps ensure just and reasonable prices for customers in non-competitive markets while affording providers good incentives to reduce costs and an opportunity to earn a reasonable return on their investments.

181. We do not, however, require incumbent LECs that were previously granted Phase II pricing flexibility to reinstitute price caps in non-competitive counties that are within former Phase II pricing areas because we find that the costs of doing so exceed the benefits as described above. Incumbent LECs that have previously been granted Phase II pricing flexibility in these counties have been providing DS1 and DS3 end user channel terminations and other business data services free of price cap regulation for a number of years and have adapted their internal systems accordingly. Bringing these services back into price caps would require that incumbent LECs revamp their billing, information technology, and third-party management systems, at significant cost. Additionally, reinstating price cap regulation would require the carrier to recreate what the price cap would be had it never received pricing flexibility, which would involve burdensome and complicated calculations. According to the *2015 Collection*, only 69 counties in former Phase II pricing areas are deemed non-competitive pursuant to our competitive market test, and these counties collectively have only [REDACTED] buildings with demand for end user channel terminations (only a portion of which is for DS1s or DS3s). We find that the costs of reinstating price caps for carriers previously granted Phase II pricing flexibility in these counties outweigh the potential benefits. We also recognize that incumbent LECs in non-competitive counties that were not previously granted Phase II pricing flexibility would not have to bring services back into price caps, and therefore would not have the same costs. Therefore, these

carriers will remain within the revised price cap system adopted in this Order.

182. To encourage competitive entry into the counties we have identified as non-competitive, we will not apply price cap regulation to DS1 and DS3 end user channel terminations provided by non-incumbent LECs. When a non-incumbent LEC provides DS1 or DS3 services in a non-competitive market, it typically does so in competition with an incumbent LEC that enjoys marketplace advantages, including a ubiquitous network and significant economies of scale. Extending price cap regulation to non-incumbent LECs would impose significant costs while generating few, if any, benefits. These costs would include administrative compliance costs that, by their very nature, would reduce the amount of capital available for the non-incumbent to upgrade its network and expand its business data services footprint to additional locations within the non-competitive county. Of greater concern, such regulation would reduce the non-incumbent's capacity to efficiently set prices and increase its exposure to regulatory risk, further leading to less competitive entry and investment. And, any benefits would be minimal since the incumbent LEC's price cap rates typically will set a ceiling on the rates the non-incumbent can charge for its DS1 and DS3 end user channel terminations.

B. Expanding Pricing Flexibility in Non-Competitive Counties

183. In 1999, the Commission established a process for granting price cap LECs pricing flexibility for special access services when specified regulatory triggers were satisfied. The pricing flexibility framework separates special access services into two segments, end user channel terminations and dedicated transport and special access services other than end user channel terminations, and provides two levels of pricing flexibility relief for each segment. Phase I relief gives price cap LECs the ability to lower their rates through contract tariffs and volume and term discounts, but requires that price cap LECs maintain their generally available price cap-constrained tariff rates to "protect[] those customers that lack competitive alternatives." Phase II relief permits a price cap LEC to raise or lower its rates throughout an area, unconstrained by price cap regulations.

184. Business data services remaining within price caps after this Order will consist largely of incumbent LECs' DS1 and DS3 end user channel terminations in non-competitive counties, but will also include various other price cap

services that carriers decide to keep regulated pursuant to price caps during the transition to mandatory detariffing. Consistent with the proposal the Commission made in the *Further Notice*, we transition all business data services that remain subject to price caps into Phase I pricing. This will provide price cap LECs with flexibility while precluding them from charging above-cap rates in non-competitive counties. Price cap LECs in non-competitive areas will be able to negotiate individualized rates through contract tariffs and volume and term discounts. Those LECs must maintain generally available tariff rates subject to price cap regulation for end user DS1 and DS3 channel terminations, and other special access services included in their price cap tariffs in non-competitive counties that are not subject to the regulatory relief provided in this Order.

185. The record is clear that contract tariffs benefit both customers and price cap LECs. As Ad Hoc observes, Phase I pricing flexibility allows price cap LECs to respond to competition by negotiating lower contract rates. This flexibility, when coupled with our requirement that price cap LECs choosing to exercise Phase I pricing flexibility remove contract revenues from the relevant price caps basket for purposes of determining their price cap indices and actual price indices, will protect customers that do not negotiate contract tariffs from cross-subsidizing those that do. And the requirement that carriers maintain generally available price cap-constrained tariff rates will “protect those customers that lack competitive alternatives” against unreasonably high rates. We therefore amend our price cap rules to allow all price cap LECs in non-competitive counties to lower their rates through contract tariffs and volume and term discounts in a manner consistent with the Commission’s current Phase I pricing flexibility rules. Accordingly, these incumbent LECs will be required to maintain generally available tariffs offering price cap regulated rates available to all subscribers.

186. These requirements will not apply to carriers within former Phase II pricing areas that are deemed non-competitive pursuant to our competitive market test that were previously granted Phase II pricing flexibility. Instead, current Phase II price cap LECs in these non-competitive counties will be required to continue offering its current generally available rates for end user DS1 and DS3 channel terminations and for the other special access services as long as those services remain under tariff. This requirement will cease once the services are detariffed.

C. Prohibiting Non-Disclosure Agreements in Non-Competitive Areas

187. In order to ensure that purchasers of business data services can fully participate in Commission proceedings and that the Commission can conduct appropriate oversight of business data services, we adopt a rule prohibiting the use of non-disclosure agreements in tariffs, contract tariffs, and commercial agreements for business data services provided in non-competitive areas that forbid or restrict disclosure of information to the Commission. In the interest of protecting sensitive information, a provider may require that information related to its business data services be submitted to the Commission subject to a Commission protective order or, if there is none, with a request for confidential treatment pursuant to the Commission’s rules.

188. We agree with commenters that argue that non-disclosure agreements affecting the provision of business data services in non-competitive areas that restrict parties from disclosing commercially sensitive information to the Commission deter parties from sharing information with the Commission. The use of such non-disclosure agreements has been described as “ubiquitous” and their impact significant. Such non-disclosure agreements hinder the Commission’s access to data important to its oversight of the business data services market and its ability to effectively discharge its core statutory responsibilities under sections 201 and 202. The Commission previously observed in another proceeding that “overly broad, restrictive, or coercive nondisclosure requirements may well have anticompetitive effects” and explained that “demands by incumbents [for such non-disclosure agreements] . . . are of concern and any complaint alleging such tactics should be evaluated carefully.”

189. We find misplaced AT&T’s assertion that the *Further Notice* fails “to identify a single instance where it has actually requested a contract pertaining to BDS and the parties refused to provide it.” To the contrary, the record demonstrates that the risks of inhibiting the flow of information about the business data services market to the Commission are real and have at times impacted the conduct of this proceeding. Indeed, as the Commission observed in the *Further Notice*, non-disclosure agreements likely precluded some parties from responding fully to the voluntary data requests issued by the Bureau in 2010 and 2011,

contributing to delay in analyzing and resolving the questions at issue in this proceeding. Parties acknowledged that non-disclosure agreements had this effect. Moreover, it is not the instances where the Commission has sought information and been denied that are our chief concern, but rather the instances where the Commission has been unaware of potentially important information about the business data services market and stakeholders have been precluded by non-disclosure agreements from sharing that information in the first place.

190. AT&T also expresses concern that public release of information subject to a non-disclosure agreement will result in “significant competitive harm.” Disclosure to the Commission, however, is clearly distinguishable from disclosure to the public generally. We routinely adopt protective orders to protect parties’ interests in maintaining the confidential nature of information submitted. As Level 3 explains, “AT&T’s claim that such a rule would undermine parties’ confidentiality [interests] is without merit because the Commission’s rules and procedures prohibit disclosure of information that has been made subject to confidentiality requirements.” In this proceeding, the Commission has sought confidential data and information on multiple occasions and has consistently adopted protective orders limiting access to the information to certain individuals in order to ensure the confidentiality of these data and information.

191. We agree with commenters that recognize that the solution for concerns about inappropriate disclosure of sensitive information submitted to the Commission is to ensure such information is submitted subject to a protective order or to a request for confidential treatment pursuant to the Commission’s rules. We conclude that because the information in question will not be made generally available to the public, our action here does not undermine parties’ interest in insulating confidential or commercially sensitive information from the public. We therefore require that parties submitting to the Commission confidential information that is subject to a non-disclosure agreement seek confidential treatment of that information under the relevant protective orders, or otherwise pursuant to the Commission’s rules.

192. We address two types of restrictions non-disclosure agreements impose and determine that both are precluded by the action we take here. First, we find that there is no justification for non-disclosure agreements that contain provisions that

prohibit outright the disclosure of confidential information to the Commission. Such agreements are expressly intended to obstruct parties' ability to disclose information to the Commission and the Commission's ability to access information necessary to oversee and evaluate the business data services market. They undermine our ability to render fact-based decisions informed by a complete record, and are generally contrary to the public interest.

193. We also find that non-disclosure agreements that require a direct request or legal compulsion prior to allowing disclosure also inhibit the Commission's conduct of its core regulatory and oversight functions and are therefore contrary to the public interest. By precluding the voluntary disclosure of information, such agreements render it impossible for the Commission to be aware of information in business data services sales agreements or even the existence of such sales agreements, and effectively preclude the Commission's ability to seek that information or those sales agreements.

194. Allowing voluntary disclosure to the Commission, subject to the Commission's protections for confidential information where necessary, will allow parties to disclose relevant information in a more timely fashion, which will in turn make the Commission's oversight and regulatory work more timely and efficient. The Commission's protective orders and confidentiality regulations will effectively insulate against the risk of inappropriate disclosure by ensuring confidential treatment of such information.

195. We agree with commenters that argue that restrictions on non-disclosure agreements for business data services are unnecessary in markets treated as competitive under the competitive market test. In these areas, market forces should be sufficient to protect purchasers of business data services from unreasonable practices. NASUCA et al. asserts, however, that prohibiting overly restrictive non-disclosure agreements is necessary to facilitate competitive conditions in the BDS marketplace generally. We agree that imposing a prohibition on such non-disclosure agreements will foster competitive conditions in areas that our data show are not yet competitive. We do not, however, see a need to impose this prohibition in competitive areas. In those areas, the Commission will still have access to relevant industry data through mandatory requests or data collections if needed. We therefore limit our restrictions on business data

services-related non-disclosure agreements to those that apply to non-competitive areas as we define them in this Order. This reasoning applies to all non-disclosure agreements that govern business data services sales—whether they are contained in tariffs, contract tariffs, or commercial agreements. The presumption should be that competitive market dynamics would characterize the majority of sales in any arrangements that governed sales in both types of areas. Additionally, the bulk of sales of TDM based business data services in non-competitive areas would presumably be effected through TDM-only tariffs and contract tariffs. Parties are of course free to structure their sales arrangements in such a manner as to avoid including sales of services for both types of areas in a single agreement.

196. Accordingly, we adopt a general rule prohibiting the use of non-disclosure agreements in or related to tariffs or contract tariffs for the sale of business data services in areas treated as non-competitive by our competitive market test to the extent they forbid or impose any restriction on a party's ability to voluntarily disclose information to the Commission pursuant to appropriate safeguards for confidential information. No provider of business data services in areas treated as non-competitive may enter into or enforce a non-disclosure agreement that in any way forbids or prevents any party to that agreement from disclosing any information relevant to the Commission's business data services proceedings to the Commission. The rule we adopt today applies to all forms of agreements for the sale of TDM-based business data services, including price cap tariffs and contract tariffs in non-competitive areas. Parties submitting confidential information to the Commission that is subject to a non-disclosure agreement must either submit such information subject to the relevant protective orders governing this proceeding or, in the absence of a relevant protective order, seek confidential treatment for such information pursuant to sections 0.457 and 0.459 of the Commission's rules.

D. Adjustments to Price Cap Levels

197. Pursuant to the framework adopted in this Order, the primary services that will remain under price cap regulation will be the DS1 and DS3 end user channel terminations that incumbent LECs provide in non-competitive counties. To help ensure just and reasonable rates for these services, we adopt an X-factor of 2.0 percent that reflects our best estimate of

the productivity growth that incumbent LECs will experience in the provision of these services relative to productivity growth in the overall economy. We retain Gross Domestic Product-Price Index (GDP-PI) as the measure of inflation that incumbent LECs will use in their price cap index calculations, continue to make a low-end adjustment available to price cap LECs in certain circumstances, and decline to adopt other changes that would affect price cap rates. In particular, we find that that no catch-up adjustment to the price cap indices is warranted.

1. Background

198. The core component of the Commission's price cap system is the price cap index, which is designed to limit the prices that a price cap LEC may charge for services. Each price cap LEC's price cap index historically has been adjusted annually based primarily on a productivity factor or "X-factor" and a measure of inflation (GDP-PI). The X-factor initially represented the amount by which LECs could be expected to outperform economy-wide productivity gains. The X-factor serves as an adjustment to the price cap indices to account for these productivity gains, and is subtracted from GDP-PI in the Commission's price cap formula.

199. The Commission last set X-factors for special access services in the 2000 *CALLS Order*. These X-factors, unlike prior X-factors, were not productivity-based but collectively acted as "a transitional mechanism . . . to lower rates for a specified time period" based on an industry agreement. The *CALLS* X-factor for special access services increased from 3.0 percent in 2000 to 6.5 percent for 2001 through 2003 but was set equal to inflation beginning in 2004. This frozen X-factor was intended to be an interim measure, lasting only until the expiration of the *CALLS* plan on June 30, 2005, yet the Commission has not acted to replace it with a productivity-based measure. As a result, price cap LECs' special access rates have remained frozen at 2003 levels, excluding any necessary exogenous cost adjustments.

2. Adopting a Productivity-Based X-Factor

200. The Commission's price cap system has been running on autopilot since June 30, 2005, with no analysis as to why rate levels from 2003 might have remained reasonable despite widespread changes in the business data services marketplace. We end this freeze by replacing the *CALLS* era frozen X-

factor with a productivity-based X-factor.

201. Our analysis includes several steps. We begin by deciding to use a total factor productivity (TFP) methodology in calculating business data services productivity gains or losses relative to growth in the general economy. We then decide to use the U.S. Bureau of Labor Statistics' Capital, Labor, Energy, Materials, and Services data for the broadcasting and telecommunications industries (KLEMS (Broadcasting and Telecommunications)) in applying our methodology. We use KLEMS (Broadcasting and Telecommunications) data to establish a zone of reasonable X-factor estimates. From that zone, we select an X-factor of 2.0 percent. Price cap LECs will apply this X-factor annually to help ensure that their price cap indices incorporate future productivity growth.

a. Selecting a Methodology for Calculating Productivity Gains or Losses

202. A price cap is intended to mimic competitive-market outcomes. One aspect of a competitive market is that output price growth over time matches the difference between industry input price growth and industry productivity growth. Another aspect of a competitive market is strong cost-reduction and investment incentives. A price cap that grows at a rate equal to the difference between the growth rate of input prices and industry productivity growth might, at least initially, hold prices to competitive levels, but if it were frequently updated on the basis of the regulated firms' behavior, quickly taking away any additional profits obtained either by implementing productivity increases or by negotiating lower input prices, the regulated firms would have little incentive to invest in cost and input price reduction. Consequently, in the *Further Notice*, the Commission proposed to use a proxy for the difference between the growth rate of input prices and industry productivity growth in setting allowed price growth under the cap. That proxy is a measure of the economy-wide rate of inflation, based on a national price index (*i.e.*, GDP-PI), that is adjusted, through an infrequently updated X-factor chosen to account for systematic differences between the growth rates of national prices and the difference between telecommunications industry input price growth and industry productivity growth. This proxy approach provides regulated firms with good incentives to reduce costs.

203. Under the approach outlined above, steps that a firm takes to lower

its costs will not immediately affect the price cap. To see why, note that the price cap is adjusted based on two quantities: the national rate of inflation (GDP-PI) and the X-factor. The firm's cost-lowering actions will have, at most, a negligible effect on the national inflation rate. As for the X-factor, while the regulator periodically will assess the extent to which the regulated firms have lowered their costs (and thus might adjust the X-factor and price cap accordingly), this process typically occurs with substantial delays. Between X-factor adjustments, firms can keep any additional profits that they achieve through cost reductions; hence, the price-cap regime provides material incentives for firms to reduce their costs.

204. In summary, our proposed approach is to estimate an X-factor to be subtracted from the annual change in the GDP-PI to determine the annual change, c , in the price cap index: $c = P - (D + t)$ (Equation 1), where P is the economy-wide rate of inflation (*i.e.*, the GDP-PI), D is the projected difference between the economy-wide rate of inflation and the growth rate of industry input prices, and t is the projected growth rate of the industry's productivity level. The X-factor, which is the sum of D and t , may be interpreted as a correction term by which the projected growth rates of economy-wide prices are adjusted to account for systematic differences between the broader economy and the regulated industry. Several commenters agree that this approach is sound, no commenters oppose it, and we adopt it.

205. In the past, the Commission has relied on staff studies of the historical total factor productivity (or TFP) growth rate of incumbent LECs to estimate future productivity growth. TFP is the relationship between the output of goods and services to inputs, and is commonly used to measure productivity in the economy as a whole. TFP studies typically measure productivity using the ratio of an index of the outputs of a firm, industry, or group of industries to an index of corresponding inputs. Productivity growth is measured by changes in this ratio over time. In a TFP model, output is typically measured in terms of physical units (*e.g.*, minutes or calls) of the good or service produced. In a case in which more than one good or service is supplied (*i.e.*, there are multiple outputs), a standard practice is to create an index (*e.g.*, an average that weights by output revenue shares) that aggregates the output levels. The resulting output index shows changes in the level of output over time; in other words, it provides the growth rate of the

measured output. Similarly, the growth rate of the aggregate input index depends on the combined growth rates of the individual input indices—such as indices for capital, labor, energy, materials and services—weighted, for example, by input expenditure shares.

206. In the *Further Notice*, the Commission proposed to calculate the X-factor by subtracting from the historical rate of change in GDP-PI the historical rate of change in industry input prices and adding to it the historical rate of change in industry TFP. The calculation can be expressed by the following formula: $X = \% \Delta \text{GDP-PI} - \% \Delta \text{Industry Input Prices} + \% \Delta \text{Industry TFP}$ (Equation 2). No commenter challenges this basic TFP methodology. The X-factor analyses presented by the parties generally follow this approach. Consistent with past practice, we conclude that we should apply this TFP methodology in our X-factor calculations.

b. Selecting an Appropriate Data Source

207. Having settled on a methodology for calculating the X-factor, we need to identify an appropriate data source. Upon review of the record, we find that KLEMS (Broadcasting and Telecommunications) is the only reliable and internally consistent dataset in the record for measuring incumbent LEC productivity and input prices. We select that dataset for our X-factor calculations.

(i) Available Data Sources

208. The KLEMS (Broadcasting and Telecommunications) database was one of three datasets on which the Commission invited comment. The other two consist of: (a) Data from the peer review process in connection with the development of the Connect America Cost Model (CACM); and (b) those data in combination with cost data that TDS Metrocom (TDS) submitted in this proceeding (CACM-TDS). All three datasets are described more fully in Appendix B to the Report and Order. The Commission asked whether these datasets would provide a reasonable basis for estimating business data services productivity growth relative to growth in the general economy.

209. The Commission also asked the parties to suggest adjustments to these datasets that might improve their utility as a measure of business data services productivity growth and requested that the parties suggest additional datasets that might better balance precision with administrative feasibility. Only one party, Sprint, suggests an additional dataset—a version of KLEMS (Broadcasting and Telecommunications)

that purportedly is restricted to data from the telecommunications industry (KLEMS (Telecommunications)). Sprint also suggests refinements to the CACM dataset that, in Sprint's view, improve it. We discuss these datasets in turn.

210. *KLEMS (Broadcasting and Telecommunications)*. This dataset provides yearly industry-level measures of input prices and total factor productivity. This dataset has many merits because, as commenters point out, it relies on "publicly available, annual industry-level data on industry-level measures of input prices and total factor productivity" and was "developed using rigorous total factor productivity principles and is a valid source of measuring total factor productivity and input price trends for various industries." It also is "reliable and internally consistent," and based on "well-accepted economic theory and publicly available data." But instead of being restricted to business data services or wireline telecommunications, this dataset provides data for the broadcasting and telecommunications sectors, which collectively have annual revenues approximately twelve times those for business data services. These sectors include broadcasting, cable television, and satellite television distribution services, wireless telecommunications, mass market Internet access services, and the Voice-over-Internet Protocol (VoIP) industries, each of which has a cost structure and produces outputs different from the business data services industry.

211. The parties dispute the effect of this broad scope on BDS productivity growth estimates that are derived from the KLEMS (Broadcasting and Telecommunications) dataset. Ad Hoc and Sprint contend that this broad scope creates a downward bias in those estimates. AT&T and CenturyLink maintain, however, that any bias would overstate BDS productivity growth relative to productivity growth in the overall economy. AT&T argues that "wireless services, broadband Ethernet services, and cable and wireline Internet access services" supply are more productive than legacy DSn and that the KLEMS (Broadcasting and Telecommunications) dataset therefore may overstate productivity growth for the TDM-based services to which the X-factor will apply. CenturyLink asserts that growth in labor productivity has been significantly higher in broadcasting and wireless telecommunications than in wireline telecommunications, and that it is therefore unlikely that broadcasting and wireless telecommunications have experienced lower overall productivity

growth than wireline telecommunications. Although the record falls short of providing the information we would need to resolve whether the KLEMS (Broadcasting and Telecommunications) dataset overstates or understates BDS productivity growth, we find that this dataset provides the best available information under the circumstances.

212. *CACM and CACM-TDS*. The CACM and CACM-TDS datasets, even with the refinements suggested by Sprint, are less than ideal. As explained more fully in Appendix B to the Report and Order, the CACM dataset combines CostQuest cost share data from the CACM peer review process with labor cost data from the Bureau of Labor Statistics (BLS), and real estate price data from Moody's Investor Service and Real Capital Analytics. While this dataset provides a more direct focus on business data services than KLEMS (Broadcasting and Telecommunications) provides, we find it neither reliable nor internally consistent. Sprint's refinements to this database do not cure these fundamental problems. Both of these datasets rely in part on data from the CACM peer review process that was developed to determine the forward-looking economic costs of providing broadband Internet access services. Those data provide at best a clumsy tool for determining historical total factor productivity growth for business data services. In addition, as refined by Sprint, the CACM dataset includes company-specific data that we and the parties to this proceeding are unable to fully evaluate and, therefore, may be unreliable. We therefore reject the CACM dataset as well as that dataset as refined by Sprint as potential data sources for our X-factor calculations.

213. The CACM-TDS dataset adds historical cost data from TDS's incumbent LEC operations to the CACM dataset. While the addition of the TDS data further tightens the focus on business data services, those data do "not address or eliminate any of the fundamental shortcomings with the CACM data" because they are "proprietary, unvalidated data from a single competitor that is seeking regulation." We therefore reject the CACM-TDS dataset as a potential data source for our X-factor calculations.

214. *KLEMS (Telecommunications)*. To address, in part, the alleged overbreadth of the KLEMS (Broadcasting and Telecommunications) dataset, Sprint proposes a dataset that purportedly excludes broadcasting industry data and therefore, as asserted by Sprint, is preferable to KLEMS (Broadcasting and Telecommunications)

as a tool for measuring business data services productivity growth. The KLEMS (Telecommunications) dataset, however, suffers from many of the scope problems of the KLEMS (Broadcasting and Telecommunications) dataset with several additional problems. As an initial matter, excluding broadcasting data from the KLEMS (Broadcasting and Telecommunications) dataset would reduce, but not eliminate, any overbreadth problem. And we are unable to verify Sprint's assertion that the KLEMS (Telecommunications) dataset excludes broadcasting industry data. Indeed, AT&T and CenturyLink et al. make credible arguments that the KLEMS (Telecommunications) dataset "comingle[s] broadcasting and telecommunications data." This uncertainty over which industries are reflected in the KLEMS (Telecommunications) dataset precludes any finding that it provides a more narrow focus on business data services productivity growth than that provided by the KLEMS (Broadcasting and Telecommunications) dataset. We are unable to determine what methodology the European Union used to translate KLEMS (Broadcasting and Telecommunications) data into KLEMS (Telecommunications) data and whether that data source is indeed restricted to telecommunications data.

215. Even if it does exclude broadcasting, the KLEMS (Telecommunications) dataset is problematic for at least two additional reasons. First, that dataset only provides a price index for energy, non-energy materials, and purchased services inputs, and omits critical input prices for capital and labor, which means that it provides only an incomplete picture of the industries within its scope. Second, the KLEMS (Telecommunications) dataset also provides a value-added, rather than a gross output, measure of productivity growth, which precludes an apples to apples comparison of that growth to input prices, which are based on gross input. Each of these problems—lack of transparency, omission of critical inputs, and employing a value-added methodology—provides an independent basis for not using KLEMS (Telecommunications) in our X-factor calculations. We therefore reject this dataset as a potential data source for those calculations.

(ii) Selection of Data Source

216. None of the datasets before us allow us to estimate with precision business data services productivity growth relative to growth in the general economy, and indeed of those datasets

only KLEMS (Broadcasting and Telecommunications) is reliable and internally consistent. In these circumstances, we conclude that the better course is for us to use that dataset to determine business data services productivity and input price growth, relative to economy-wide productivity and input price growth, rather than postponing that determination pending a search for a better option. As the D.C. Circuit has recognized, the Commission endeavors to find the best solutions but, at times, must settle for solutions that are “reasonable under difficult circumstances.” The D.C. Circuit has noted:

[W]hen an agency makes rational choices from among alternatives all of which are to some extent infirm because of a lack of concrete data, and has gone to great lengths to assemble the available facts, reveal its own doubts, refine its approach, and reach a temporary conclusion, it has not acted arbitrarily or capriciously.

Here, where our X-factor decision provides only our “tentative opinion” about the dividing line between reasonable and unreasonable rates for the limited purpose of exercising [our] suspension power” under section 204 of the Act, we believe that we may properly rely on the KLEMS (Broadcasting and Telecommunications) dataset in our X-factor calculations. We now turn to those calculations.

c. X-Factor Calculations

217. We determine the productivity-based X-factor as follows. First, we use KLEMS (Broadcasting and Telecommunications) data to develop a range of X-factors for four periods: 1987 to 2014; 1997 to 2014; 2005 to 2014; and 2009 to 2014. Second, from this range of X-factors we develop a zone of reasonableness from which it would be appropriate to select an X-factor. Third, we decide not to adjust that zone to compensate for KLEMS (Broadcasting and Telecommunications)’s overbreadth. Finally, we select the X-factor from within this zone.

218. *Data Periods.* We use four different data periods to calculate four different X-factors to gauge the sensitivity of KLEMS (Broadcasting and Telecommunications)-based calculations to different data periods and because there is no single, correct data period that we might use for this purpose. The four data periods are: 1987 to 2014; 1997 to 2014; 2005 to 2014; and 2009 to 2014. We note that Sprint supports using 1997 to 2014, and AT&T supports using 2005 to 2014.

219. *1987 to 2014.* This is the longest period for which KLEMS (Broadcasting

and Telecommunications) data are available. As the longest timeframe, this data period has the most observations and therefore collectively these observations contain the most information. In particular, this period includes two complete business cycles. This is an advantage because productivity increases when the economy expands and decreases when the economy contracts. Measuring productivity over at least one complete business cycle increases the likelihood that the results represent the future state of the economy. Two complete cycles might be preferred to one because no two business cycles are alike. One business cycle may not represent the future any better than the other.

220. This period also includes a significant amount of time before and after the two business cycles. Using a timeframe that includes the maximum period for which data are available minimizes the likelihood of an arbitrary choice among many possible shorter periods within the longer period, given that there is no obviously correct choice. The disadvantage of this time period is that the data from the earliest years in the period may be stale or otherwise reflect economic conditions that are unlikely to persist into the future. The value of the most recent and most relevant data within this time period might not be apparent if combined with older data that are stale and irrelevant.

221. *1997 to 2014.* This period includes one complete business cycle. As discussed above, at least one complete business cycle should be included in the data on which a productivity study is based because productivity is procyclical. Sprint supports using 1997 to 2014 data instead of 2005 to 2014 data because the latter period largely reflects the longest and deepest recession the U.S. has experienced since 1945. Sprint concludes that a longer time period is therefore likely to provide a better estimate of future productivity growth. An additional reason to use this period, or one longer, is that the current economic expansion is 93-months-old, which is significantly longer than the 58-month average length of prior expansions going back to 1945. A shorter period may give too much weight to a relatively long-period of expansion. Another reason why this current economic expansion is unique is that the average annual growth rate of this expansion is the lowest among expansions since 1945, approximately 2.1 percent per year.

222. *2005 to 2014.* AT&T argues that this period balances the tradeoff between short and long data periods.

AT&T claims that data for a shorter period better captures recent productivity trends, but that such a period might reflect large variation in productivity that would lead to unstable X-factor projections. In contrast, AT&T asserts that a longer period might produce a more stable series, but such a period might include stale data that are irrelevant to forward-looking productivity projections. One disadvantage of this timeframe is that it does not encompass at least one complete business cycle. This problem perhaps is partially mitigated because the period includes the December 2007 peak and June 2009 trough of the current business cycle and a large fraction of the current expansion.

223. *2009 to 2014.* This period minimizes the number of observations that contain stale information and depicts recent trends. The main disadvantage of this period is that it does not contain at least one complete business cycle. In fact, this period only includes years of expansion. So, this period might not provide data representative of future productivity growth.

224. Table 2 provides, for each of these four periods, X-factors calculated using Equation 2 and KLEMS (Broadcasting and Telecommunications) data. [“Table 2. KLEMS (Broadcasting and Telecommunications) X-factors” omitted].

d. Zone of Reasonableness

225. The four data periods reflected in Table 2 establish a zone of productivity-based X-factor estimates of between 1.7 and 2.3 percent. This zone is relatively narrow, as the data period does not have a very large impact on the value of the X-factor. For example, the difference between the lowest and the highest percentages is 0.6 percentage points. The arithmetic average and the mid-point of the four X-factors are both 2.0 percent. The average implicitly weights the most-recent observations the most and the earliest observations the least because the most recent observations are in the most periods and the earliest observations are in the fewest periods.

226. We find that it would be unreasonable to adjust this zone either upward or downward to account for the broad scope of the KLEMS (Broadcasting and Telecommunications) dataset from which this zone was derived. Any such adjustment would necessarily reflect our determination that this overbreadth creates either a downward bias in our productivity growth estimates (which could lead to our adjusting the range upward) or an upward bias (which could lead to our

adjusting the range downward). The parties provide sharply divergent views on the direction of any possible adjustment. On the one hand, several parties argue that price cap LECs are realizing decreasing business data services per unit costs from the growth in packet-switched services, such as Ethernet, as customers transition from TDM to packet-switched services. Other parties maintain that price cap LECs have achieved little productivity growth relative to that in the overall economy and that the DS1 and DS3 services that will be subject to price caps have not shared in any decrease in per unit costs.

227. Cost-reducing growth is clearly occurring in price cap LECs' overall business data services operations. A significant portion of the assets, particularly outside plant, used to provide DS1s and DS3s, are also used to provide higher bandwidth circuit-based services or packet-based services, and *vice versa*. The more such sharing occurs (*i.e.*, the more demand density increases), the lower both the incremental and average cost of any service, and total factor productivity increases. These cost reducing effects occur and apply to remaining DS1 and DS3 services, even when higher bandwidth circuit-based services or packet-switched services are substituted for them, so long as the two sets of services share costs.

228. Growth in providing higher bandwidth circuit-based services and packet-based services is outpacing declining DS1 and DS3 services, a trend that strongly suggests that overall unit costs will continue decreasing into the foreseeable future. Price cap LECs are investing aggressively in modern packet-based telecommunications networks and services. AT&T, for example, announced that by the year 2020, 75 percent of its network will be controlled by software. AT&T disclosed in an annual report that it was "focused on building a modern network architecture that will provide the highest efficiency and productivity in the industry" and "[t]o make that happen" the "biggest [front] by far is transforming [AT&T's] network from hardware to software-centric" which allows AT&T to "deliver the most network traffic at the lowest marginal cost in the industry." Verizon announced a software-defined networking-based strategy "to introduce new operational efficiencies and allow for the enablement of rapid and flexible service delivery to Verizon's customers."

229. The record does not make clear, however, to what extent, if any, these decreasing unit costs and overall

productivity gains will apply to the services that will remain under price caps, which for practical purposes consist of DS1 and DS3 channel terminations. Indeed, it is possible that, for DS1 and DS3 services in general, declining utilization of incumbent LEC plant and rising service-specific costs will more than offset any overall gains in business data services productivity. As AT&T points out, "demand for DSn services has been in rapid decline in recent years, as price cap LECs retire their legacy TDM networks." As a result, price cap LECs are likely experiencing "very low utilization on [their] legacy TDM switches" and the "accompanying loss of scale economies suggests that it is unlikely that price cap LECs have achieved productivity gains that are in excess of inflation" for DS1 and DS3 services. This declining utilization of DSn-specific plant means that providers must amortize shared costs among fewer customers (*i.e.*, unit costs are likely rising). It therefore appears that, for DS1 and DS3 services generally, price cap LECs' operating expenses may have fallen at a much slower rate than the demand for their services, causing their average cost of providing DSn services to steadily climb.

230. Nor does the record make clear whether any overall trend in DS1 and DS3 productivity growth extends to the areas that will remain under price caps. These non-competitive areas have significantly less demand density than the competitive areas that will no longer be subject to the price cap regime. The price cap LECs therefore may be less likely to achieve the same gains in economies of scale in non-competitive areas than in competitive areas. Whether these gains would be higher or lower than elsewhere cannot be determined from the record. The price cap LECs' initial price cap indices (and consequently all changes to those indices) reflected the costs of serving all areas within those LECs' service territories. CenturyLink argues adjustments to those indices should account for the higher costs of serving the areas that will remain under prices caps "[w]hether due to unique geographic difficulties, insufficient population density to generate economies of scale, or an array of other possible rationales." However, the X-factor is determined by the rate of change of costs, not by whether the absolute level of costs is higher or lower in a given location.

231. While the record does not enable us to resolve the disputes over price cap LECs' productivity growth and ability to recover the costs of serving non-

competitive areas with absolute certainty, we find that our KLEMS (Broadcasting and Telecommunications)-based calculations likely overstates, rather than understates, business data services productivity growth in those areas. The price cap LECs have not submitted the company-specific input price and output data that we would need to quantify this overstatement (and adjust the zone of reasonableness downward). We therefore make no such adjustment.

232. We reject Sprint's argument that we should adjust the zone of reasonableness upward to bring it into line with prior X-factor prescriptions, which were based on relatively narrow sets of data related almost exclusively to price cap LEC operations rather than broad datasets such as KLEMS (Broadcasting and Telecommunications). Sprint points out that in the *1999 Price Cap Performance Review* proceeding, Commission staff computed X-factors for each of the years 1986 through 1998 using price cap LEC-specific data that were significantly higher than the X-factors that would have been computed using KLEMS (Broadcasting and Telecommunications) data. We find that this comparison fails to account for differences between the task before the Commission in the *1999 Price Cap Performance Review* proceeding, which was to determine an X-factor for all special and switched access services to be provided by price cap LECs, and our task here of determining an X-factor only for those business data services that price cap LECs will provide in non-competitive areas.

e. Selection of X-Factor

233. We conclude that we should select an X-factor below the top of the zone of reasonableness, 2.3 percent, in order to recognize the diminishing share DS1 and DS3 services have had, and will continue to have, of the overall business data services market. Indeed, over the longer term, these services will be replaced by Ethernet services or other more advanced business data services made possible by the transition to IP-based services transmitted over fiber. As demand for DS1 and DS3 services continues to fall, the costs directly attributable to (in contrast to the costs for assets shared between those services and packet-based services) maintaining this legacy technology, will begin to rise. For example, over time the volume of TDM equipment sales will fall to levels that deny manufacturers economies of scale. Similarly, there will likely be additional costs associated with warehousing, work programs, and

maintaining expertise in TDM technology, while moving aggressively toward the widespread deployment of Ethernet and other advanced technologies.

234. Requiring DS1 and DS3 rates to be reduced by percentages that ignore the transition from a legacy, TDM technology to an advanced technology could require the incumbent LECs to supply DS1s and DS3s at rates that do not recover their costs, and that inefficiently incentivize businesses to rely on DS1 and DS3 services, rather than more advanced business data services. Presumably, there are customers that will wish to continue to rely on a legacy technology at least for a period of time even though a new technology is readily available because it is less expensive on a net present basis for them to do so. In a competitive market, customers that continued to rely on a legacy technology as a new technology begins to dominate the market would be charged higher prices if costs directly attributable to the old technology were rising. Our X-factor decision should incorporate this aspect of competitive markets.

235. The lower-bound of the zone of reasonableness is 1.7 percent, a percentage based on data from 2009 to 2014. While this percentage provides insight into the most-recent trends in productivity and input prices, it reflects only a period of unusual macroeconomic expansion, as explained above. We find this period too short and too unrepresentative by itself to provide reliable insight into future business data services productivity growth. No party has submitted an X-factor study or similar data-based analysis purporting to show that the X-factor should be lower than 2.0 percent. AT&T's proposed X-factor, like our X-factors, reflect KLEMS (Broadcasting and Telecommunications) data. AT&T used data for 2005 to 2014 in calculating its X-factor, a period for which the X-factor is 2.0 percent. In these circumstances, we find that the X-factor we select should be above the lower bound of reasonableness.

236. As mentioned, the KLEMS (Broadcasting and Telecommunications) data on which this zone of reasonableness is based is overly broad; and, although we think an upward bias more likely, we are unable to resolve the dispute among the parties as to whether this broad scope creates a downward or upward bias. Our inability on the record before us to quantify either the magnitude or the direction of this bias supports selection of the average or the mid-point of the four X-factors, both of which are 2.0 percent. Taking all of

these factors into account, we prescribe an X-factor of 2.0 percent. This X-factor reasonably assigns weight to the four different X-factors and accounts to the extent possible for the uncertain effects of bias in the overly-broad data.

3. Methodology for Setting Inflation Measure

237. We retain the U.S. Department of Commerce's Bureau of Economic Analysis's (BEA's) chain-weighted GDP-PI as the measure of inflation that price cap LECs will use in their price cap index calculations. As a chain-weighted index, GDP-PI captures economy-wide inflation over the medium-term and long-term comprehensively and "significantly more accurate[ly]" than fixed-weighted indexes, which become unrepresentative after a few years of change. We find no alternative measure of inflation that is as accurate as GDP-PI in the medium and long-term and that is not susceptible to carrier influence or manipulation. Accordingly, we retain GDP-PI as the inflation measure in our price cap formula.

4. No Catch-Up Adjustment Is Warranted

238. The price cap indices have been effectively frozen since the CALLS plan expired on June 30, 2005. We conclude that no catch-up adjustment to those indices is warranted.

239. *Assessment Periods.* We use three time periods in assessing whether a catch-up adjustment is warranted: July 1, 1997 to November 30, 2017; July 1, 2000 to November 30, 2017; and July 1, 2005 to November 30, 2017. The starting points for these periods are the day the Commission's 1997 X-factor prescription took effect, the date the CALLS plan took effect, and the day after the CALLS plan expired. Their ending point is the day before the going-forward X-factor adopted in this Order will take effect. For simplicity, we refer to these periods as 1997 to 2017, 2000 to 2017, and 2005 to 2017.

240. The Commission prescribed X-factors in 1991, 1995, 1997, and 2000. The 1991 and 1995 prescribed X-factors were productivity-based and judicially upheld. The 1997 X-factor of 6.5 percent, while productivity-based, was reversed and remanded by the D.C. Circuit. Including 1997 to 2000 in the assessment period reflects that judicial action as well as the fact that the Commission never addressed the remanded X-factor on its merits. Instead, in the *CALLS Order*, the Commission replaced the remanded X-factor with a "transitional mechanism" under which the X-factor

increased from 3.0 percent in 2000 to 6.5 percent for 2001 through 2003 and was set equal to inflation beginning in 2004. These X-factors, however, were based on an industry agreement, not changes in productivity and input prices. Including 2000 to 2005 in the assessment period reflects that administrative history. Finally, including 2005 to 2017 in the assessment period reflects the Commission's failure to incorporate a productivity-based X-factor into its price cap system once the CALLS plan expired.

241. *Methodology.* First, for each of the three assessment periods, we use the most currently-available KLEMS (Broadcasting and Telecommunications) data through 2014 to calculate compound annual growth rates in broadcasting and telecommunications productivity and input prices. We then calculate the difference between these two rates. Second, we compound the value of each annual difference over the number years in each assessment period. The results are the percentages by which the price cap index would be adjusted to accurately reflect changes in productivity and input prices. Third, we subtract the historical change in the price cap index from each compounded value to calculate the catch-up adjustment for each assessment period. Finally, we evaluate whether we should adjust the price cap indices using these catch-up factors.

242. We use KLEMS (Broadcasting and Telecommunications) data for three data periods—1997 to 2014, 2000 to 2014 and 2005 to 2014—to estimate historical changes in levels of productivity and input prices for purposes of the catch-up calculations. The year 2014 is the most recent year for which KLEMS (Broadcasting and Telecommunications) data are available, and data are published only for calendar years. As we explain below, we adopt December 1, 2017 as the effective date for the going-forward X-factor. As we have no data for 2015 to November 30, 2017, we extrapolate annual growth rates based on the data periods that end in 2014 for an additional 35 months beyond the end of the data (*i.e.*, for 2015, 2016, and 11 months of 2017), because mathematically it is simple, the period of extrapolation is relatively short, and there is no obviously superior method. We also assume that productivity and input price growth rates over the last six months of 1997, 2000, and 2005 were the same as over each entire year, again for simplicity and the lack of any obviously superior way to exclude the first six months of 1997, 2000, and 2005 or to reconcile the

use of calendar-year data with an estimation period that reflects tariff years that begin on July 1.

243. Table 3, below, sets forth the KLEMS (Broadcasting and Telecommunications) compound annual rates of growth in productivity and input prices for 1997 to 2017, 2000 to 2017 and 2005 to 2017, and the annual difference between the two rates of growth, *C*. Table 3 also shows the value of these differences compounded over the assessment periods, *E*, and the historical change in the price cap index over the assessment periods, *F*. The historical change in the price cap index reflects the X-factors that were in effect during the assessment periods and the rate of inflation during these periods as measured by changes in GDP-PI (but ignores exogenous cost changes). The catch-up adjustment for each assessment period, *G*, is equal to the compounded change in price cap index, *E*, minus the historical change in the price cap index, *F*. This calculation accounts for differences between what a KLEMS (Broadcasting and Telecommunications)-based X-factor would have been and the actual X-factors that applied. [“Table 3. Potential Catch-up Adjustments for Multiple Periods Through November 30, 2017” omitted].

244. *Discussion.* We decline to require price cap LECs to implement a catch-up adjustment to baseline price cap levels. First, focusing on the period since expiration of the CALLS plan, 2005 to 2017, the annual difference between the KLEMS (Broadcasting and Telecommunications) industry price index and productivity is only -0.11 percent annually, which when compounded over a 12-year, five-month period results in only a 1.40 percent potential reduction in the price cap index. This suggests that historical business data services productivity gains for the assessment period 2005 to 2017 were almost exactly offset by inflation, which is what the X-factor has been set equal to since the expiration of the CALLS plan on June 30, 2005. Indeed, the annual and 12-year, five-month differences of -0.11 percent and -1.40 percent, respectively, are so small as to be well within the margin of error for our calculations. Any catch-up adjustment would apply only to lower bandwidth business data services, such as DS1s and DS3s, and only to the extent price cap LECs provide them within non-competitive areas. We find it likely that productivity growth for these services in these areas lagged productivity growth for price cap LECs’ business data services generally between 2005 and 2017.

245. Second, the results for the assessment periods that begin in 1997 and 2000 suggest that the 6.5 percent X-factor that the Commission prescribed in 1997 as well as the X-factors that were in effect during the CALLS plan were unreasonably high and therefore that the price cap indices were unreasonably low. This could help explain the extent to which certain price cap incumbent LECs have priced at the top of the price caps. The 1997 to 2017 assessment period results show a difference between industry price index and productivity of -0.35 percent annually, which when compounded over a 20-year, five-month period would have reduced the price cap index by 6.84 percent. Adjusting this figure by the -26.31 percent historical change in the price cap index produces a catch-up adjustment that would increase price cap levels by 19.47 percent. The 2000 to 2017 assessment period results show a difference between industry price index and productivity of -0.34 percent annually, which when compounded over a 17-year, five-month period would have reduced the price cap index by 5.81 percent. Adjusting this figure by the -13.94 percent historical change in the price cap index produces a catch-up adjustment that would increase the price cap index by 8.13 percent.

246. We decline to require price cap LECs to implement a catch-up adjustment to the price cap index. An adjustment based on the period since the CALLS plan expired would result in only a modest decrease in price cap levels and would likely overstate productivity growth for the business data services that will remain under price caps. Such an adjustment also would ignore the facts that the X-factors used during the CALLS plan itself were not productivity-based and that the X-factor adopted before CALLS was struck down by the D.C. Circuit. Adjustments based on periods when those X-factors were in effect would increase price cap levels, a result that no party has urged. In these circumstances, we believe it more prudent to rely on existing price caps levels, which at least have the benefit of minimizing potential rate shock to consumers.

247. Finally, we recognize that carriers have entered price-cap regulation at different points over the last 20 years, and so any catch-up adjustments would need to reflect that fact. It would make no sense, for example, to impose a catch-up adjustment calculated to reflect productivity over the last 12 or 20 years to a carrier that converted to price cap regulation just five years ago. And weighing the uncertain benefit of such

adjustments to consumers against the cost to carriers (and ultimately consumers) of applying these differing adjustments as well as the cost to the Commission to monitor compliance, we conclude that not imposing a catch-up adjustment serves the public interest.

5. Additional Price Cap Adjustment Mechanisms

248. We consider several potential features of the price cap regime whose implementation could affect price cap rates. We retain the low-end adjustment mechanism for price cap LECs that meet certain conditions. We, however, decline to incorporate into our price cap regime three mechanisms that would affect the X-factor—a consumer productivity dividend, a growth or “g” factor, and earnings sharing between ratepayers and carriers, or to subdivide the special access price cap basket into different categories or subcategories.

249. *Low-End Adjustment.* We retain a low-end adjustment mechanism because we find it provides an appropriate backstop to ensure that carriers are not subject to protracted periods of low earnings that impair their ability to attract capital and provide service. This adjustment will only be available to price cap LECs to the extent they provide business data services in non-competitive areas. Carriers that obtained pricing flexibility under the Commission’s prior rules, exercise downward pricing flexibility pursuant to this Order (for example, by entering into a contract tariff with a customer), or elect the option to use Generally Accepted Accounting Principles (GAAP) rather than the Part 32 Uniform System of Accounts as set forth in our recent *Part 32 Accounting Order* will be ineligible for a low-end adjustment. We find that, consistent with past practice, setting the low-end adjustment mark at 8.75 percent, 100 basis points below the authorized rate of return for rate of return carriers, will continue to ensure that price cap LECs have the opportunity to attract sufficient capital.

250. Historically, the low-end adjustment permitted price cap LECs that earn a rate of return 100 basis points or more below the prescribed rate of return for rate-of-return carriers to temporarily increase their price cap indices in the next year to a level that would allow them to earn 100 basis points below the prescribed rate of return. Unusually low earnings may be attributable to an error in the productivity factor, the application of an industry-wide factor to a particular LEC, or unforeseen circumstances in a particular area of the country. Failure to include any adjustment for such

circumstances could harm customers as well as stockholders of such a LEC, as a below-normal rate of return over a prolonged period could threaten the LEC's ability to raise the capital necessary to provide modern, efficient services to customers. We therefore retain the low-end adjustment mechanism.

251. The low-end adjustment mechanism permits a one-time PCI adjustment to a single year's rates to avoid back-to-back earnings below a benchmark. If a price cap LEC's earnings fall below the low-end adjustment mark in a base year period, it is entitled to adjust its rates upward to target earnings to an amount not to exceed the low-end mark, using the period as a baseline. In the past, the Commission used 100 basis points below the authorized rate of return for rate-of-return carriers as the low-end adjustment mark. The authorized rate of return for rate-of-return carriers is presently 9.75 percent, and 8.75 percent is 100 basis points below that percentage. The latter percentage is above the embedded cost of debt the Commission determined for each price cap LEC in March 2016. An 8.75 percent rate of return should provide each eligible price cap LEC with the opportunity to meet its existing obligations to debtholders and attract sufficient capital while continuing to provide services.

252. We reject Sprint's argument that we should not base our low-end mark on the authorized rate of return for rate-of-return carriers because that rate does not reflect the large price cap LECs' cost of capital. The rate reflects a weighted average cost of capital that was calculated using data from a proxy group that included large price cap LECs (e.g., AT&T, Verizon, and CenturyLink), mid-sized price cap LECs (e.g., FairPoint, Frontier, Hawaiian Telcom, and Windstream), as well as publically traded rate-of-return LECs. Accordingly we set the low-end adjustment mark at 8.75 percent.

253. *Consumer Productivity Dividend.* We decline to incorporate a consumer productivity dividend (CPD) adjustment into the X-factor adopted in this Order. In instituting price caps in 1990, the Commission expected that incentive regulation would result in greater productivity gains than LECs had historically achieved under rate of return regulation. The CPD was designed to ensure that ratepayers would benefit from these additional gains. The 2.0 percent X-factor adopted in this Order reflects all anticipated future business data services productivity growth. There should be no additional gains beyond those captured

in this X-factor. We therefore do not include a CPD in the X-factor.

254. *Growth Factor.* We decline to adopt a growth or "g" factor adjustment to the price cap indices because we find that our 2.0 percent X-factor already accounts for average cost decreases due to demand growth, which the "g" factor was designed to capture. We find that a "g" factor is unnecessary because the 2.0 percent X-factor should capture all of the productivity changes for business data services, including demand growth. If business data services demand growth leads to the realization of scale economies, input prices fall, and productivity increases, which our X-factor calculations should capture. Therefore, we do not include a growth factor similar to the "g" factor in the price cap index formula for special access services.

255. *Earnings Sharing.* We decline to reinstate earnings sharing arrangements between ratepayers and carriers. In the *Further Notice*, the Commission asked whether it should reinstate earnings sharing, which had been a feature of the Commission's original price cap system. In 1997, the Commission eliminated earnings sharing, finding that it blunted price cap LECs' efficiency incentives and that eliminating it would remove vestiges of rate of return regulation from the price cap system. The only party directly addressing this area opposes reinstating earnings sharing. We find that the Commission's prior reasoning supporting eliminating earnings sharing persuasive, and there is no record support to overturn the Commission's past finding and reinstate earnings sharing.

256. *Baskets and Bands.* We decline to subdivide the special access basket into different categories and subcategories. The only party addressing this area, Inteliquent, asks that we create a service basket subcategory for multiplexing services to ensure that any required TDM rate reductions flow through to these services, which it asserts have unreasonably high rates. Simply creating a multiplexing subcategory within the special access basket, however, would not by itself result in lower multiplexing rates. Even if we were to accept Inteliquent's premise that multiplexing rates are unreasonably high, the record in this proceeding would not enable us to determine a reasonable level.

6. Implementation

257. Having adopted a new X-factor for use in the price cap index for price cap LECs in non-competitive areas, we now set forth the path for implementing

that new approach. We require revised tariff review plans (TRPs) implementing the X-factor to be filed with the Commission to become effective on December 1, 2017.

258. Incumbent LECs that file tariffs under the price cap ratemaking methodology are required to file revised annual access charge tariffs every year, which become effective on July 1. The annual filings include submission of TRPs that are used to support revisions to the rates, including revisions that pertain to the X-factor. To ease the burden on the industry, and because base period demand and the value of GDP-PI reflected in the price cap indices typically are not updated during a tariff year, we permit incumbent LECs to use the same base period demand and value of GDP-PI in their December 1, 2017 filings as in their July 1, 2017 annual filings.

259. Consistent with that approach, each price cap incumbent LECs must file, for business data services, revised TRPs and rates to reflect the newly revised X-factor. The X-factor adopted in this Order only applies prospectively, and each price cap incumbent LEC must recalculate its price cap index based on the December 1, 2017, effective date of this X-factor. In particular, the new X-factor should be reflected in the calculation of the price cap index for the special access basket and the pricing bands for each service category and subcategory within this basket. Rates must be established at levels where the actual price index does not exceed the price cap index and the service band index for each service category and subcategory does not exceed its upper limit. For purposes of this filing, the price cap incumbent LECs must base the calculation of these indices on our rules for an annual filing, other than for the periods used to measure base period demand and the value of GDP-PI. Further specific direction on the material required to be filed in the TRPs will be provided in a public notice or order preceding the December 1, 2017 effective date of the 2.0 percent X-factor, which will address compliance with price cap tariff filing procedures (including required certifications).

E. Wholesale Pricing

260. We decline to adopt ex ante rules governing the relationship between wholesale and retail rates for business data services, or to otherwise intervene in the marketplace for wholesale business data services.

261. The Communications Act and Commission precedent provide ample guidance regarding the pricing of wholesale business data services.

Section 201(b) of the Act requires that “[a]ll charges . . . for and in connection with [interstate or international telecommunications service] shall be just and reasonable” Section 202(a) of the Act prohibits “any unjust or unreasonable discrimination in charges . . . for or in connection with like communication service” It has long been the Commission’s policy that, under these provisions, “interstate access services should be made available on a non-discriminatory basis and, as far as possible, without distinction between end user and . . . [wholesale] customers.” But, as the D.C. Circuit has explained, “[b]y its nature, section 202(a) is not concerned with the price differentials between qualitatively different services or service packages. In other words, so far as ‘unreasonable discrimination’ is concerned, an apple does not have to be priced the same as an orange.”

262. In response to requests for comments on the issue in the *Further Notice*, some commenters offer anecdotal evidence that price caps LECs provide retail services at rates lower than the prices they charge competitive LECs for components of those services. They argue that charging retail rates that are lower than wholesale rates violates the Act’s prohibition against unjust or unreasonable discrimination in charges and that we should adopt a rule prohibiting providers from charging more for resale than wholesale services. However, despite competitive LEC assertions to the contrary, we find that there is little concrete evidence that incumbent LECs charge their wholesale customers higher rates than they charge retail customers for like business data services. At most, the record provides selective information regarding a handful of incidents where an incumbent LEC’s wholesale pricing policies allegedly impeded a competitive LEC’s ability to compete. As such the record provides no basis for us to adopt generally applicable rules governing the application of section 201(b)’s prohibition against unjust or unreasonable practices or section 202(a)’s prohibition against unjust or unreasonable discrimination to alleged problems in the wholesale business data services marketplace.

263. In reaching this conclusion, we also reject requests that we mandate that, as a general matter, wholesale business data services rates must be lower than the retail rates for like services. Certain parties argue that because it costs business data services providers less to provide wholesale services than to provide like retail services wholesale rates should reflect

these lower costs. However, any such mandate could have the unintended effect of preventing providers from reducing retail rates to competitive levels, as the provider would then have to reduce its wholesale rates to below those levels.

264. Three commenters suggest potential methods and amounts for an industry-wide discount. Advocates of action on wholesale pricing share an underlying premise, that wholesale services pricing should exclude avoided retail sales expenses. We do not find it necessary to make a finding concerning the accuracy of this premise and decline to set an industry-wide wholesale discount. Incumbent LECs are not required to tailor prices based solely on costs, although rates must be just and reasonable and not unreasonably discriminatory. We expect that continued growth in competition as a result of this Order will have a positive effect on the marketplace without the need for a wholesale discount. Additionally, our section 208 complaint procedures remain available to remedy any claimed anticompetitive or discriminatory behavior.

265. Sections 201(b) and 202(a) do not explicitly require rates to correspond to costs—only that such rates be just and reasonable and not unreasonably discriminatory. Indeed, with any generally available offering, it is unlikely that the costs to provide service to any two customers would be exactly the same, and we do not require carriers to price their offerings based on the myriad of different costs imposed by various customers. In fact, we prohibit carriers from discriminating against similarly-situated customers. The same analysis is true in this situation.

266. Additionally, Sprint and Windstream ask that we “confirm that carriers cannot avoid [their] resale obligations merely by bundling non-Internet telecommunications services with Internet access or with add-on information services.” LARIAT asks that we establish rules to prohibit “refusal to deal.” We find that these practices do not lend themselves to blanket rules or detailed pricing methodologies, and we therefore reject these requests.

VI. Additional Modernizing Actions

A. Certain Services Described In the Record Are Not Common Carrier Services

267. A number of commenters dispute the accuracy of a seemingly-categorical statement in the *Further Notice* “not[ing] that business data services are telecommunications services, regardless of the provider supplying the service,”

and going on to assert that “BDS providers are therefore common carriers . . . subject to Title II in the provision of their services” As we discuss below, that terse suggestion in the *Further Notice* does not accurately reflect the nuanced analysis required for such a classification decision. This proceeding is not the appropriate place to make any generalized or comprehensive classification decisions of that sort for business data services. We do, however, discuss the services described in detail in the record by certain providers, which we find to be private carriage offerings based on the facts provided here. In doing so, we reiterate the Commission’s longstanding approach to the associated classification issues, guarding against any lingering misunderstandings regarding classification flowing from statements in the *Further Notice*.

1. Background

268. Under the analytical framework for distinguishing between services offered on a common carriage or private carriage basis—commonly known as the ‘NARUC analysis’ (or the like) for the court cases from which it derives—common carriage under the Act has two prerequisites: (1) An indifferent holding out of service to all potential users; and (2) the transmission by customers of “intelligence of their own design and choosing.” By contrast, “a carrier will not be a common carrier where its practice is to make individualized decisions, in particular cases, whether and on what terms to deal.” As the D.C. Circuit explained in *NARUC I*, “[t]he original rationale for imposing a stricter duty of care on common carriers was that they had implicitly accepted a sort of public trust by availing themselves of the public at large.” This “quasi-public character . . . coupled with the lack of control exercised by” customers of the carriers’ services “was seen to justify imposing upon the carrier” heightened duties.

269. In the 1996 Act, Congress added new statutory categories of “telecommunications,” “telecommunications services,” and “telecommunications carriers” to the Communications Act.

Telecommunications is defined in relevant part as “the transmission . . . of information of the user’s choosing,” echoing the second prong of the traditional *NARUC* analysis.

Telecommunications services, in turn, involve the offering of telecommunications for a fee to the public, which the Commission has found to “encompass only telecommunications provided on a

common carrier basis,” relying on the longstanding *NARUC* analysis for that evaluation. As the Commission found, this interpretation gives meaning to the ‘to the public’ criteria in the telecommunications service definition in a manner that accords with the relevant legislative history. Because telecommunications services meet the standard for common carriage, providers of telecommunications services—*i.e.*, telecommunications carriers—are acting as common carriers to the extent that they are providing such services.

2. Discussion

270. Against the backdrop of the Commission’s established approach to addressing private carriage, common carriage, and telecommunications service classification issues, we agree with commenters that statements in the *Further Notice* were unduly broad insofar as they could be read to suggest that all business data services necessarily are telecommunications services subject to common carrier regulation. Our approach to such classification issues requires an understanding and analysis of the facts regarding particular service offerings that the record underlying the *Further Notice* was lacking. To the contrary, as discussed below, the record generated in response to the *Further Notice* demonstrates that some business data services currently are being offered on a private carriage basis in the marketplace today. The record is not sufficiently detailed and comprehensive to provide a basis to broadly classify all business data services. By addressing examples where particular providers submitted more detailed information regarding certain of their services, however, we can mitigate the risk of continued uncertainty or confusion regarding the Commission’s approach to such classification questions that potentially were introduced by statements in the *Further Notice*.

271. *Affirmative Arguments for Private Carriage Classification of Certain Services.* Comcast and Charter each submitted detailed information about certain categories of services sufficient to enable us to classify those as private carriage offerings based on the record here. With respect to its wholesale cellular backhaul service and E-Access service, Comcast explains that it makes individualized decisions whether it will, in fact, offer such services in a given instance or to a given customer. Comcast describes its offering of retail Ethernet transport similarly, explaining that it does not hold out such services to all interested buyers. For its part, Charter explains that particularly

in the case of business data services provided to enterprise customers, it makes individualized decisions whether to offer service to given customers. The case-by-case decisions about whether to offer these services to a given customer described by Comcast and Charter stand in contrast to the “quasi-public character” that is a “critical” premise of common carrier classification—and the associated heightened duties—identified by the D.C. Circuit in *NARUC I*. The absence of this critical factor is central to our private carriage analysis of these services.

272. Comcast and Charter each further explain that they make highly-individualized decisions regarding any rates and terms they do offer for the relevant categories of services in order to meet the particular needs of a given customer. The plausibility of these descriptions is reinforced by the fact that the customers for these services typically include large wireless carriers, other large service providers, or enterprises. The record reveals that such entities are likely to have the size and sophistication to demand uniquely-tailored wholesale or retail offerings that enable them to meet particularized needs. Although a few commenters dispute the private carriage claims in the record, for the reasons described below in our response to those arguments, we are not persuaded that they require a different conclusion with respect to the services we classify as private carriage here. Thus, considering the totality of the circumstances, we conclude that the Comcast and Charter services identified above, when offered in the manner described in the record, constitute private carriage services—not common carrier services or telecommunications services.

273. As other examples, Mediacom, ACS, and BT Americas also argue that services they each provide constitute private carriage. Although the information they submitted is not quite as detailed or specific as that of Comcast and Charter, we nonetheless agree that, as described, these services reflect private carriage offerings. Notably, each of these providers explains with respect to its relevant services that, rather than offering service to all potential customers and offering rates and terms differently, they instead make individualized decisions about whether and on what terms to offer service. There also is little indication in the record of any disagreement that these particular providers are offering service on a private carriage basis, as they contend. Building on our analysis for Comcast and Charter above, under our evaluation of the totality of the evidence

here, we likewise conclude that the services described by Mediacom, ACS, and BT Americas are private carriage when offered as these providers describe.

274. *Responses to Arguments Disputing that Those Services are Held Out on a Private Carriage Basis Under the NARUC Analysis.* Some commenters purport to provide evidence that business data service providers generally, or Comcast and Charter in particular, offer business data services in a manner that reflects an indifferent holding out of service to the public, and thus should be classified as common carrier telecommunications services. We reject such claims in the context of the specific providers’ services addressed above for a number of reasons.

275. First, generalized statements about marketplace trends broadly, or Comcast’s or Charter’s networks or services generally—but which do not purport to address more specifically the particular services we discuss above—do not provide a basis to reject the evidence put forward by Comcast, Charter or the other providers addressed above that is specific to those providers’ services. Even assuming *arguendo* that certain characterizations of the marketplace as a whole or particular providers’ networks or offerings might commonly hold true in a general sense, we find no basis to assume that they hold true with respect to particular service offerings sufficient to overcome more specific contrary evidence.

276. Second, we are unpersuaded by arguments that particular aspects of how these providers offer service do not inherently require a classification of private carriage as to the offering of the relevant services, or can be consistent with common carriage. We do not base our decision on any single aspect of the manner in which Comcast, Charter, Mediacom, ACS, or BT Americas offer the specified services. Rather, we confirm those providers’ claims of private carriage based on the totality of the evidence before us describing the manner in which the relevant services are offered. Under that analysis we find sufficient evidence of individualized determinations whether to offer service to given customers and, when services are offered, individualization on a sufficient range of key terms of the offering to warrant a finding of private carriage. Thus, whether any subset of actions taken by those providers would or would not be sufficient to support a private carriage classification is not an issue we confront or address here.

277. We also find a variety of those claims overstated, even on their own terms. For example, some commenters

cite marketing materials or other statements from certain of the providers discussed above as undercutting these providers' claims that, as to the relevant services, the providers make individualized decisions whether and on what terms to deal. In many cases, the cited materials or statements, while focused on particular services or categories of services, nonetheless still are too high-level or generalized to provide meaningful insight into the more granular details of how particular services are offered in practice. Even materials or statements purporting to speak to particular service offerings on a somewhat more granular basis do not lend themselves to simplistic analysis. Where service is offered via a tariff, the analysis can be more straightforward not only because the filed tariff doctrine requires the tariffed rates and terms to be controlling, but even more fundamentally because only common carrier services may be offered on a tariffed basis. Outside the tariffing context, we agree with commenters that marketing materials or the like might well be used merely to make it known that a given company is a potential provider of particular services without representing a formal offer of service to all customers to which the service might legally and practicably be of use. On their face, we do not find the marketing materials or other provider statements cited here to represent a formal holding out of the services addressed above to all potential users. Nor are we persuaded by the record that, in practice, Comcast, Charter, Mediacom, ACS, or BT Americas treat those statements or marketing materials in such a manner. Insofar as the statements and marketing materials thus are compatible with those providers' representations regarding whether and how they offer the relevant services, we are not persuaded to reject the providers' representations on the basis of such materials and statements.

278. Also overstated are commenters' claims regarding common technical characteristics or terms of agreements, whether in marketing materials, "rate sheets," or from practical interactions with Comcast, Charter, Mediacom, ACS, or BT Americas. These claims do not dissuade us from the private carriage determination we make as to those providers. Such considerations can be relevant to the classification analysis, but the evidence before us in that regard does not require a common carrier classification here. Even to the extent that such evidence here directly applies to the particular providers' services addressed above, we are persuaded that,

in significant part, they do not reflect a formal offer of service at particular rates and terms that these providers genuinely anticipate potential customers accepting, but merely serve a starting point for negotiations of relevant rates and terms. In addition, to the extent that Verizon identifies certain similarities in its interactions with a variety of different service providers (when acting as a customer) and with its own operation (when acting as a service provider), that is distinct from the relevant question of whether a single provider treats all potential customers similarly and thus should be classified as a common carrier. Further, some uniformity in technical characteristics in a given provider's service offering appears largely inevitable given the need to conform to industry standards, common equipment, and the like, and if that were enough to warrant a finding of common carriage, the notion of private carriage could be rendered a nullity. Additionally, issues regarding the rates and terms of any offering are distinct from the question of whether any offering (whatever the rates and terms) is made to all potential users of the service—a "critical" issue under *NARUC I*—and do not implicate our findings in that regard discussed above. Thus, while relevant to consider as part of arguments about a providers' individualization in rates and terms, under the totality of the circumstances here, we conclude that the alleged "uniformity" in service offerings cited by commenters is limited and does not preclude our private carriage classification for Comcast, Charter, Mediacom, ACS, and BT Americas.

279. Third, we reject common carriage claims based on asserted similarities between particular aspects of these providers' offering of service and the manner in which incumbent LECs or others offer service. We are not persuaded that comparisons or analogies to how other providers such as incumbent LECs or others have offered service necessarily are illuminating. Although there are a variety of prior decisions where the Commission has suggested that business data services are telecommunications services, those decisions are best understood as descriptive of the agency's general sense of how providers—and particularly incumbent LECs—were, in practice, offering such services at the time. They do not expressly claim (or justify) any formal, comprehensive classification of business data services under our longstanding classification approaches. Those prior decisions thus also do not

prejudge the classification of services being offered in the marketplace today or in the future—whether by competitive providers or incumbent LECs—which potentially could be appropriately classified as private carriage, as well. We need not and do not resolve such broader classification issues here.

280. The record also does not demonstrate that the Commission has any statutory authority to compel common carriage offerings of what otherwise are private carriage business data services—to compel a provider to "offer[]" business data services "for a fee directly to the public" if the provider has not voluntarily done so. The precedent cited by commenters advocating such a compulsion arose where the Commission was exercising licensing authority. By contrast, the providers that are the focus of private carriage arguments in the record here—particularly cable operators—do not require any Commission license or authorization before introducing domestic, private carriage business data services, so those orders do not demonstrate Commission authority as relevant here. Instead, commenters merely assert their view that doing so would be desirable as a way to advance various policy goals. Absent any statutory authority, we cannot compel common carriage for what otherwise are private carriage offerings.

281. *Responses to Arguments Advocating Compelled Common Carriage or a Different Classification Approach.* We also reject arguments for requiring that some or all business data services be offered on a common carriage basis as telecommunications services even where providers otherwise have elected to offer them on a private carriage basis. Although the traditional *NARUC* analysis recognizes the possibility that a service provider might be under a legal compulsion to offer service on a common carrier basis, the record does not demonstrate grounds for imposing such a requirement here. As a threshold matter, we agree with commenters that the *Further Notice* did not provide adequate APA notice for the Commission to compel common carriage for business data services generally, or to do so for some segment of the industry, via the adoption of a legislative rule of general applicability.

282. In addition, we also find insufficient the policy grounds cited by commenters advocating compelled common carriage here. As a number of commenters recognize, our precedent generally has identified market power as a prerequisite for potentially compelling common carriage, but the record here

does not reveal that the specific providers offering particular business data services on a private carriage basis have market power with respect to those services. While arguing that the Commission also can compel common carriage based on other public interest considerations, Public Knowledge *et al.* nonetheless acknowledge that even then the Commission must consider “whether the public interest benefits outweigh the costs of applying regulation.” Yet even that standard is not met on the record here. Although some commenters seek to minimize the perceived extent of regulatory burdens that would flow from compelled common carriage, the Commission itself has acknowledged that meaningful burdens do, in fact, flow from common carrier treatment. Some service provider commenters also explain that they have relied on their ability to operate on a private carriage basis, and the flexibility it provides, when electing to enter the marketplace with particular business data service offerings. Thus, we find it likely that Commission action broadly treating as common carriage services that providers wish to offer as private carriage would discourage investment in such services. At the same time, we find any alleged countervailing public interest benefits entirely speculative. The generalized claims in the record about the need for common carriage, even assuming *arguendo* that they held true in some cases, do not demonstrate the nature and extent of any benefits (if any) that would flow from compelling common carriage by the specific providers discussed above as to the specific services that we find here to be offered on a private carriage basis. We thus find no policy rationale for compelling common carriage by any particular providers here.

283. For similar reasons, we decline to adopt a new approach to classification here that departs from our longstanding reliance on the *NARUC* analysis as some commenters propose. Commenters advocating that we classify business data services solely through our own interpretation of the statutory “telecommunications service” definition do not put forward a theory of interpretation that we find reasonable. Instead, these commenters focus to such a degree on the desired outcome of such a classification approach that we are left unclear how the Commission could achieve that outcome without adopting such a sweeping interpretation of “telecommunications services” as to virtually eliminate any distinction between offerings “to the public” and

private offerings. Thus, as a matter of statutory construction, the record does not persuade us to depart from our longstanding classification approach, which gave full meaning to the relevant statutory language consistent with the legislative history.

284. Independently, we are not persuaded by policy arguments that we should depart from our longstanding classification approach even if we could do so as a matter of statutory interpretation. The arguments in favor of such action are, like the arguments commenters raised in favor of compelled common carriage, generalized assertions about providing perceived benefits or remedying perceived risk of harms that are divorced from any specific circumstances where application of our longstanding classification approach would yield private carriage classifications. As we explained when rejecting proposals to compel common carriage, such arguments do not demonstrate what public benefits would flow if the specific services of certain providers that we find to be offered on a private carriage basis—or those of other providers not addressed here—were instead classified as common carriage. That shortcoming is even more problematic for any argument to revisit the Commission’s classification approach, because absent some theory for limiting the interpretation just to this context, increasing the reach of the telecommunications service definition would also result in regulatory burdens for providers of other communications services that would be classified as common carrier telecommunication services under that interpretive approach. We thus find no grounds for adopting an approach to service classification here that departs from our longstanding reliance on the *NARUC* analysis.

285. Given that we do not depart here from our longstanding approach to evaluating private carriage and common carriage classification, we also continue to adhere to our precedent under which shared use arrangements typically were classified as private carriage. Consequently, this addresses the concerns of some commenters that research and education (R&E) networks that historically had been treated as private carriage under that framework might newly be classified as common carrier telecommunications services under a new approach to classification.

B. Expiration of the Section 214 Interim Wholesale Access Rule

286. By this Order, the Commission “identifies a set of rules and/or policies

that will ensure rates, terms, and conditions for special access services [business data services] are just and reasonable.” As a result, the interim wholesale access rule for discontinued TDM-based business data services and unbundled network element platform (UNE-P) replacement services (also called commercial wholesale platform services) established in the *2015 Technology Transitions Order* will expire when these rules and policies become effective. We decline to extend the interim rule for UNE-P replacement services.

287. *Background.* UNE-P replacement services are wholesale voice services that consist of a DS0 loop, switching, and shared transport, and allow competitive carriers to provide local exchange service without facilities. In the *2015 Technology Transitions Order*, the Commission concluded that, as a condition to receiving authority to discontinue a legacy TDM-based service used as a wholesale input by competitive providers, an incumbent LEC must provide wholesale access to UNE-P replacement services and business data services at DS1 speed and above on reasonably comparable rates, terms, and conditions to any requesting telecommunications carrier. This interim rule will expire when the requirements established in this Order are published in the **Federal Register** and become effective. In the *2015 Technology Transitions Further Notice*, the Commission asked whether it should extend the interim rule for UNE-P replacement services only for a further interim period beyond completion of this proceeding, and if so, for how long. The Commission “recognized[d] that incumbents are currently offering such commercial arrangements in TDM on a voluntary basis” and further “recognize[d] the benefits of agreements reached through market negotiations.”

288. *Discussion.* Consistent with the Commission’s statement in the *2015 Technology Transitions Order* that “the special access proceeding provides a foreseeable and definitive point in the future at which we can reassess the efficacy and necessity of the [interim] requirement,” we have reevaluated the continued need for the interim rule. We determine that the interim rule is no longer necessary, and we will not extend it beyond the timeline for expiration established in the *2015 Technology Transitions Order*. In reaching this conclusion, we return to the Commission’s longstanding policy of “encourag[ing] the innovation and investment that come from facilities-based competition.” Thirteen years ago, the Commission found that “[i]t is now

clear, as discussed below, that, in many areas, UNE-P has been a disincentive to competitive LECs' infrastructure investment." Today, we conclude that if we maintained and extended the interim rule, it would have a similar negative impact on incumbent LEC deployment of, and transition to, next-generation network infrastructure and innovative IP services that benefit all Americans, businesses and consumers alike. We will no longer deter investment in next-generation facilities or distort the market by extending the interim rule. Although Granite argues that UNE-P rate regulation was more stringent than the "reasonably comparable" interim rule, the difference is merely one of degree rather than of kind.

289. We find arguments raised by proponents of extending the UNE-P replacement rule today to be highly similar to arguments that the Commission rejected in 2015 when declining to set a further end date for the interim rule. Granite and others have known since the interim rule's adoption that the Commission intended the condition "to be interim and short-term in nature"; indeed, the Commission emphasized that "consistent with that goal we have adopted a specific and foreseeable endpoint." In the *2015 Technology Transitions Further Notice* the Commission inquired only whether it would be appropriate to require an extension for a further interim period to the extent "wholesale arrangements for voice are unlikely." Based on our conclusions herein, we decline to alter the end date of the interim rule. We find some merit to the argument that it did not make sense to specifically tie the interim rule's termination as to UNE-P replacement services to the end of this proceeding as opposed to a fixed end date. However, unlike proponents of the interim rule, we find that the appropriate remedy for this arguably erroneous decision is to permanently terminate the interim rule as expeditiously as possible.

290. We are not persuaded that competition will be harmed by the termination of the interim rule. Proponents of the interim rule ask us to ensure that the specific wholesale inputs on which they depend are available at "reasonably comparable" rates, terms, and conditions if and when incumbent LECs transition those inputs fully to Internet Protocol (IP). But "[o]ur statutory duty is to protect efficient competition, not competitors." Companies that offer multilocation enterprise voice service—such as Granite and the members of the

Wholesale Voice Coalition—contend that their service is difficult to provide without access to regulated inputs due to the high cost of serving some individual customer locations, the typically low number of lines per customer location, and the need to serve numerous locations per customer. Given these companies' multilocation business model, it is plausible that they could absorb a loss to serve some customer locations yet still find serving that customer worthwhile. However, neither Granite nor any other party has linked the challenges of serving some individual customer locations to competitive or customer impact. For instance, Granite has not quantified how many of its customers would become uneconomical to serve without the interim rule, shown how it would choose among constructing its own facilities, reselling cable, and reselling incumbent LEC services in the absence of the rule, nor shown how these issues would adversely affect overall competition in the market. Instead, supporters of extending the interim rule focus on how it would adversely impact them as individual competitors and call for us to conduct a detailed examination of the marketplace for wholesale voice platform services and—if we are unwilling to cement the rule permanently in place—extend the interim rule until the study is complete. We decline to expend public resources to further distort the market, raise costs associated with the transition to IP, deter facilities investment, and introduce regulatory uncertainty.

291. We find the remainder of the arguments in the record in support of extending the condition similarly unpersuasive. Granite has argued that its overall costs would increase 159 percent if it were required to convert from purchasing UNE-P replacement services to resold incumbent LEC voice lines, but it has not demonstrated that absent the interim rule such a conversion would be necessary, nor supported that assertion beyond submitting a generalized declaration. We are equally unpersuaded by a June 2015 study that purports to find that loss of wholesale access to incumbents' voice services would result in customer harm of between \$4.443 billion and \$10.168 billion per year. This calculation is based on Granite's estimate that competitive carriers provide \$30 per line of value to their customers, a remarkable assertion for which the study provides no particularized or verifiable support. Moreover, proponents of extending the interim rule continue to rely on the

same data submitted in support of the initial adoption of the interim rule.

292. Finally, we note that arguments in favor of extending the interim rule are premised on the expectation that wholesale voice arrangements will not occur absent regulatory action. We disagree. Our view is informed significantly by developments subsequent to the *2015 Technology Transitions Order*. First, we anticipate that growing intermodal competition will continue to diminish incumbent LECs' once-central role in the voice marketplace. Second, incumbent LECs—in particular, BOCs such as AT&T, Verizon, and CenturyLink—continue to offer UNE-P replacement services in TDM on a voluntary basis under commercially negotiated terms. In the course of forbearing from local switching and shared transport unbundling obligations under section 271 in the *2015 USTelecom Forbearance* proceeding, the Commission concluded that it did "not find persuasive Granite's argument that BOCs would never offer UNE-P replacement services [in TDM] but for the section 271 'backstop.'" Since that time, neither Granite nor others have shown that prices or availability of TDM-based UNE-P replacement services have changed as a result of the forbearance. We see no convincing reason in the record to assume that the market would operate differently in IP. Granite attempts to show otherwise by pointing to negotiations in which AT&T refused Granite's request to include a clause acknowledging the interim rule. However, the interim rule was a time-limited regulatory obligation independent of any contract. We fail to see how AT&T's refusal of Granite's requested belt-and-suspenders protection is probative. Similarly, we do not see Granite's barebones allegation of "one ILEC's refusal to engage in negotiations with competitive carriers about access to replacement IP voice services" as significantly probative. Carrier practices may change over time, particularly in this early phase of the IP transition, and one carrier's practices may be suggestive, but are not demonstrative of the entire market. Given that incumbent LECs offer UNE-P replacement services in TDM in a manner that proponents of the interim rule deem satisfactory (as demonstrated by their goal of obtaining mandated "reasonably comparable" rates in IP), and assuming as Granite does that "IP-based services . . . cost less to provide than the TDM services," we anticipate that incumbent LECs will make similar offerings available in IP.

293. While our predictive judgment regarding the availability of wholesale voice inputs from incumbent LECs in IP influences our decision, it alone is not dispositive. Our overarching goal here is to increase incentives for and remove barriers to facilities investment and the IP transition. We therefore allow the interim rule to terminate as scheduled. We also reject the request to prohibit non-disclosure agreements with respect to UNE-P replacement services as unsupported by the record, inconsistent with our decision to reduce regulatory intervention, and beyond the scope of the *Further Notice*.

VII. Other Issues

A. Denying Applications for Review

294. The Commission delegated authority to the Bureau to implement the *2015 Collection*. In carrying out this responsibility, the Bureau released the *Data Collection Implementation Order* and the *Data Collection Reconsideration Order*, making certain modifications and clarifications to the *2015 Collection* requirements. CenturyLink and USTelecom each filed applications for review (AFRs), seeking reversal of certain Bureau actions in these orders. We deny these applications. We conclude that the CenturyLink AFR is moot in light of the reforms adopted in the Order, and we deny the USTelecom AFR because we find that the Bureau acted within its delegated authority in limiting the data collection to one year.

295. On September 18, 2013, the Bureau released the *Data Collection Implementation Order* clarifying the scope of the collection, providing instructions on how to respond to the data collection questions, and providing a list of all modifications and amendments to the data collection questions and definitions. These actions were based on feedback received from potential respondents, including the PRA comments filed with the Commission during the 60-day public comment period, and the Bureau's further internal review. The *2015 Collection* required providers to report locations with connections. In the *Data Collection Implementation Order*, the Bureau clarified that this meant the connections were considered capable of providing a dedicated service for the purposes of reporting locations. The Bureau further clarified that cable system operators in their local franchise areas were required "to report those *Locations* with *Connections* owned or leased as an *IRU* (i.e., an indefeasible right of use) that are connected to a *Node* (i.e., headend) that has been upgraded or was built to provide Metro

Ethernet (or its equivalent) service, . . . regardless of the service provided over the *Connection* or whether the *Connection* is idle or in-service." For connections not linked to a MetroE-capable node, cable system operators were only required to report in-service connections used "to provide a *Dedicated Service* or a service that incorporates a *Dedicated Service* within the offering as part of a managed solution or bundle of services sold to the customer."

296. On October 22, 2013, CenturyLink filed an AFR, seeking reversal of the Bureau's decision in the *Data Collection Implementation Order* to exclude from the collection those cable system operator locations neither used to provide a dedicated service nor connected to a MetroE-capable node. CenturyLink argued the decision would "result in a failure to account fully for robust and growing cable-based competition" and the Bureau thus exceeded its delegated authority. ACA, NCTA, and Sprint opposed the CenturyLink application for review.

297. Following the release of the *Data Collection Implementation Order*, the Bureau submitted the collection to OMB for review as required by the PRA, and after a lengthy review process, OMB approved the collection subject to modifications on August 15, 2014. The most notable modifications to the collection were: (1) Collecting data for a single year, 2013, instead of data for two years, 2010 and 2012; (2) reducing the mapping requirements for cable companies to report only fiber routes making up the local transport network and not reporting feeder routes to end user locations; (3) modifying the definition of purchasers required to respond to exclude entities spending less than \$5 million dollars on business data services in 2013; and (4) making many of the questions directed at purchasers optional. On September 15, 2014, the Bureau released the *Data Collection Reconsideration Order*, which implemented these changes to the collection.

298. On October 24, 2014, USTelecom filed an application seeking Commission review of the Bureau's modification of the collection, in the *Data Collection Reconsideration Order*, to one year's worth of data as approved by OMB pursuant to the PRA. USTelecom asserted this change "exceeds the Bureau's delegated authority, and threatens to undermine the Commission's goals for the data collection effort." Oppositions to the USTelecom AFR were filed by Sprint and a coalition of competitive LECs, urging the Commission to reject the

application as a meritless tactic to delay the proceeding.

299. We first deny the CenturyLink AFR as moot in light of the reforms adopted in this Order. CenturyLink's concern was that the Bureau's decision would result in the Commission's failing to take into account the growing cable competition present in the business data services market. By using Form 477 data in addition to the *2015 Collection* data to craft the competitive market test, the Commission has ensured that the competitive market test fully takes cable competition into account, both in this initial test and in future updates.

300. We also deny the US Telecom AFR. In the *Data Collection Order*, the Commission directed the Bureau that "[t]o the extent the Bureau cannot obtain Office of Management and Budget approval for some portion of the data collection . . . to proceed with the remainder of the collection." The OMB approval restricted the data collection to one year. The Bureau thus properly proceeded pursuant to Commission delegation and continued with the data collection as allowed by OMB.

B. Addressing Motion to Strike

301. On June 17, 2016, CenturyLink et al. filed a motion seeking to strike from the record the analysis contained in the Rysman Paper that was attached to the *Further Notice* and other analyses contained in the record and *Further Notice* that were based on the *2015 Collection*. According to CenturyLink et al., the Rysman Paper and *Further Notice* were based on flawed data regarding cable entry and capability in the market, which massively distorted the competitive landscape evaluated by Dr. Rysman. USTelecom filed comments supporting the motion. In light of the reforms adopted in the Order, which rely on cable entry as reported in the Form 477 data, we conclude that the motion to strike is moot.

302. CenturyLink et al.'s motion to strike is in response to various cable reporting errors contained in the *2015 Collection*. After release of the *Further Notice*, the Commission discovered that four cable companies—Comcast, Charter, Cox, and Legacy TWC—had failed to report all locations connected to Metro-E capable headends. These companies did report in their original submissions each location to which they provided business data services in 2013. Subsequent to this discovery, these companies supplemented their submissions, as necessary, with information to indicate, or to allow the Commission to determine, those census blocks with non-residential locations

serviceable by Metro-E headends in 2013.

303. Commission staff have already accounted for the supplemented cable information in the context of the rulemaking proceeding and updated its analysis accordingly. Moreover, the competitive market test relies heavily on data from the Form 477 to determine where cable competition is present in the business data services market and has based significant regulatory relief on the presence of a single cable provider located in 75 percent of the census blocks in a county. The arguments from CenturyLink et al. are based on the concern that the Commission would not have the appropriate evidence of cable competition in evaluating the business data services market. Because we have included the Form 477 data in our analysis and based significant regulatory relief on the presence of cable competition, we conclude that the motion to strike has been rendered moot and is therefore denied.

C. Addressing Previously-Filed Motion Seeking Additional Information on Fiber Maps

304. The Bureau on September 18, 2015, released an order clarifying and modifying the Protective Order initially adopted for the *2015 Collection*. In that order, the Bureau declined to make available to authorized parties fiber mapping files showing “the starting points for connections to end user locations,” “the transmission paths,” or “the connections to end user locations” in order to mitigate potential risks to critical communications infrastructure. The Bureau as an alternative offered to “provide maps depicting the presence of fiber by listing all the providers with fiber facilities in a census block or by indicating a connected end-user location’s distance to fiber without including information on the specific route of the fiber.”

305. On March 17, 2016, AT&T filed a motion seeking access to the highly confidential fiber route maps submitted by competitive providers in response to the *2015 Collection*. Denying access, according to AT&T, would violate the Administrative Procedure Act by not allowing it to refute claims by competitive LECs that competition only exists at the building level because AT&T could not “show where the CLECs have actually deployed fiber.” Specifically, AT&T asserted it could not refute arguments by showing “precisely how many locations with special access demand are within the CLECs’ own stated distances for lateral build-out from their fiber facilities” or “calculate

the full reach of each competitor’s network.”

306. At the time AT&T filed its motion, the Commission staff had only made available a data file identifying the census blocks in which fiber routes reported by competitive providers were present. On March 30, 2016, the Bureau made available an additional data file providing the distances from each unique reported location to each competitive provider’s fiber network. AT&T, its economists, and other commenters have relied on this information in advocating their positions in this proceeding. We find the alternative data file that Commission staff provided addresses AT&T’s identified concerns, and we therefore deny the motion.

D. Severability

307. All of the rules and policies that are adopted in this Order are designed to work in unison to ensure that rates for business data services are just and reasonable while also encouraging facilities-based competition and facilitating technology transitions. However, each of the separate reforms we undertake in this Order serves a particular function toward these goals. Therefore, it is our intent that each of the rules and policies adopted herein shall be severable. If any of the rules or policies is declared invalid or unenforceable for any reason, it is our intent that the remaining rules shall remain in full force and effect.

E. Directive to Bureau To Correct Errors and Omissions

308. Given the complexities associated with modifying existing rules as well as other reforms adopted in this Order, we direct the Wireline Competition Bureau to make any further rule revisions extending only to technical and conforming edits to ensure that the reforms adopted in this Order are properly reflected in the rules. If any such rule changes are warranted, the Bureau shall be responsible for such changes. We note that any entity that disagrees with a rule change made by the Bureau will have the opportunity to file an Application for Review by the full Commission.

309. This Order will require price cap incumbent LECs and their customers to make operational changes that will raise technical issues, many of which will only come to light as the Order begins to be implemented. We direct that, in resolving these issues, the Bureau shall make sure that the operational changes properly reflect the reforms adopted in the Order.

310. In addition, we take this opportunity to make several non-substantive rule amendments. We find that notice and comment is unnecessary for rule amendments to ensure consistency in terminology and cross references across various rules, correct inadvertent failures to make conforming changes when prior rule amendments occurred, and to delete references to rules governing past time periods that no longer are applicable.

VIII. Procedural Matters

A. Paperwork Reduction Act Analysis

311. This document contains new information collection requirements subject to the PRA. It will be submitted to OMB for review under section 3507(d) of the PRA. OMB, the general public, and other Federal agencies will be invited to comment on the new information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees. We describe impacts that might affect small businesses, which includes most businesses with fewer than 25 employees, in the Final Regulatory Flexibility Analysis.

B. Congressional Review Act

312. The Commission will send a copy of this Report and Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

C. Final Regulatory Flexibility Analysis

313. As required by the Regulatory by the Regulatory Flexibility Act of 1980, as amended (RFA) an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the Further Notice of Proposed Rulemaking (*Further Notice*) for the business data services (BDS) proceeding. The Commission sought written public comment on the proposals in the *Further Notice*, including comment on the IRFA. The Commission received no comments on the IRFA. Because the Commission amends its rules in this Report and Order, the Commission has included this Final Regulatory Flexibility Analysis (FRFA). This present FRFA conforms to the RFA.

1. Need for, and Objectives of, the Rules

314. In the *Further Notice*, the Commission proposed to replace the existing business data services

regulatory structure with a new technology-neutral framework and sought comprehensive comments on the proposed new framework. This Order, therefore, provides a new framework for business data services that minimizes unnecessary government intervention and allows market forces to continue working to spur entry, innovation and competition.

315. Based on the *2015 Collection*, the Commission makes findings as to the relevant market for analysis, trends in competition, and the presence of market power. Significantly, the Commission finds competition in the provision of the following business data services to be sufficiently widespread that pricing regulation would be counterproductive: Packet-based business data services, optical transmission services with bandwidths in excess of a DS3, and TDM transport services. The Commission, therefore, declines to adopt, and where applicable ends, ex ante pricing regulation for such services. With respect to the provision by price cap incumbent LECs of DS1 and DS3 end user channel terminations, the Commission adopts the following competitive market test. For a particular county if: 50 percent of the buildings in that county are within a half mile of a location served by a competitive provider based on the *2015 Collection* or 75 percent of the census blocks in a county have a cable provider present based on Form 477 data, the Commission finds that ex ante pricing regulation of that county would be counterproductive. The services relieved of ex ante pricing regulation will be subject to permissive detariffing for a period of 36 months at which time they will be subject to mandatory detariffing.

316. For counties that do not meet the competitive market test, the Commission will retain price cap regulation for incumbent LEC provision of DS1 and DS3 end user channel terminations, and certain other business data services, and apply the principles of Phase I pricing flexibility to these counties, which will permit the carriers to offer volume and term discounts, as well as contract tariffs. These services will also be subject to a productivity-based X-factor of 2.0 percent and restrictions on the incumbent LEC's use of non-disclosure agreements.

2. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

317. The Commission did not receive comments specifically addressing the rules and policies proposed in the IRFA.

3. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

318. The Chief Counsel did not file any comments in response to this proceeding.

4. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

319. The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted. The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small-business concern" under the Small Business Act. A small-business concern" is one which: (1) Is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

a. Total Small Entities

320. Our proposed action, if implemented, may, over time, affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three comprehensive, statutory small entity size standards. First, as of 2013, the SBA estimates there are an estimated 28.8 million small businesses nationwide—comprising some 99.9% of all businesses. In addition, a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field." Nationwide, as of 2007, there were approximately 1,621,315 small organizations. Finally, the term "small governmental jurisdiction" is defined generally as "governments of cities, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand." Census Bureau data for 2012 indicate that there were 90,056 local governmental jurisdictions in the United States. We estimate that, of this total, as many as 89,195 entities may qualify as "small governmental jurisdictions." Thus, we estimate that most governmental jurisdictions are small.

b. Wireline Providers

321. *Incumbent Local Exchange Carriers (Incumbent LECs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent LEC services.

The closest applicable size standard under SBA rules is for the category *Wired Telecommunications Carriers*. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 1,307 carriers reported that they were incumbent LEC providers. Of these 1,307 carriers, an estimated 1,006 have 1,500 or fewer employees and 301 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent LEC service are small businesses that may be affected by rules adopted pursuant to the Order.

322. We have included small incumbent LECs in this present RFA analysis. As noted above, a "small business" under the RFA is one that, *inter alia*, meets the pertinent small business size standard (e.g., a telephone communications business having 1,500 or fewer employees), and "is not dominant in its field of operation." The SBA's Office of Advocacy contends that, for RFA purposes, small incumbent LECs are not dominant in their field of operation because any such dominance is not "national" in scope. We have therefore included small incumbent LECs in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

323. *Competitive Local Exchange Carriers (Competitive LECs), Competitive Access Providers (CAPs), Shared-Tenant Service Providers, and Other Local Service Providers*. Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate NAICS Code category is *Wired Telecommunications Carriers*, as defined in paragraph 6 of this FRFA. Under that size standard, such a business is small if it has 1,500 or fewer employees. U.S. Census data for 2012 indicate that 3,117 firms operated during that year. Of that number, 3,083 operated with fewer than 1,000 employees. Based on this data, the Commission concludes that the majority of *Competitive LECs, CAPs, Shared-Tenant Service Providers, and Other Local Service Providers*, are small entities. According to Commission data, 1,442 carriers reported that they were engaged in the provision of either competitive local exchange services or competitive access provider services. Of these 1,442 carriers, an estimated 1,256 have 1,500 or fewer employees and 186 have more than 1,500 employees. In addition, 17 carriers have reported that they are *Shared-Tenant Service Providers*, and all 17 are estimated to

have 1,500 or fewer employees. Also, 72 carriers have reported that they are Other Local Service Providers. Of this total, seventy have 1,500 or fewer employees. Consequently, based on internally researched FCC data, the Commission estimates that most providers of competitive local exchange service, competitive access providers, Shared-Tenant Service Providers, and other local service providers are small entities that may be affected by rules adopted pursuant to the Order.

324. *Interexchange Carriers.* Neither the Commission nor the SBA has developed a definition specifically for providers of interexchange services. The closest NAICS Code category is Wired Telecommunications Carriers as defined in this FRFA. The applicable size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees. U.S. Census data for 2012 indicates that 3,117 firms operated during that year. Of that number, 3,083 operated with fewer than 1,000 employees. According to internally developed Commission data, 359 carriers have reported that their primary telecommunications service activity was the provision of interexchange service. Of this total, an estimated 317 have 1,500 or fewer employees. Consequently, the Commission estimates that the majority of interexchange carriers are small entities that may be affected by rules adopted pursuant to the Order.

325. *Operator Service Providers (OSPs).* Neither the Commission nor the SBA has developed a small business size standard specifically for operator service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees. According to Commission data, 33 carriers have reported that they are engaged in the provision of operator services. Of these, an estimated 31 have 1,500 or fewer employees and two have more than 1,500 employees. Consequently, the Commission estimates that the majority of OSPs are small entities that may be affected by rules adopted pursuant to the Order.

326. *Prepaid Calling Card Providers.* Neither the Commission nor the SBA has developed a small business definition specifically for prepaid calling card providers. The most appropriate NAICS code-based category for defining prepaid calling card providers is Telecommunications Resellers. This industry comprises establishments engaged in purchasing access and network capacity from

owners and operators of telecommunications networks and reselling wired and wireless telecommunications services (except satellite) to businesses and households. Establishments in this industry resell telecommunications; they do not operate transmission facilities and infrastructure. Mobile virtual networks operators (MVNOs) are included in this industry. Under the applicable SBA size standard, such a business is small if it has 1,500 or fewer employees. U.S. Census data for 2012 show that 1,341 firms provided resale services during that year. Of that number, 1,341 operated with fewer than 1,000 employees. Thus, under this category and the associated small business size standard, the majority of these prepaid calling card providers can be considered small entities. According to Commission data, 193 carriers have reported that they are engaged in the provision of prepaid calling cards. All 193 have 1,500 or fewer employees. Consequently, the Commission estimates that the majority of prepaid calling card providers are small entities that may be affected by rules adopted pursuant to the Order.

327. *Local Resellers.* The SBA has developed a small business size standard for the category of Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees. Census data for 2012 show that 1,341 firms provided resale services during that year. Of that number, 1,341 operated with fewer than 1,000 employees. Under this category and the associated small business size standard, the majority of these local resellers can be considered small entities. According to Commission data, 213 carriers have reported that they are engaged in the provision of local resale services. Of these, an estimated 211 have 1,500 or fewer employees. Consequently, the Commission estimates that the majority of local resellers are small entities that may be affected by rules adopted pursuant to the Order.

328. *Toll Resellers.* The Commission has not developed a definition for Toll Resellers. The closest NAICS Code Category is Telecommunications Resellers, and the SBA has developed a small business size standard for the category of Telecommunications Resellers.¹ Under that size standard, such a business is small if it has 1,500 or fewer employees. Census data for 2012 show that 1,341 firms provided resale services during that year. Of that number, 1,341 operated with fewer than 1,000 employees. Thus, under this category and the associated small

business size standard, the majority of these resellers can be considered small entities. According to Commission data, 881 carriers have reported that they are engaged in the provision of toll resale services. Of these, an estimated 857 have 1,500 or fewer employees. Consequently, the Commission estimates that the majority of toll resellers are small entities that may be affected by rules adopted pursuant to the Order.

329. *Other Toll Carriers.* Neither the Commission nor the SBA has developed a definition for small businesses specifically applicable to Other Toll Carriers. This category includes toll carriers that do not fall within the categories of interexchange carriers, operator service providers, prepaid calling card providers, satellite service carriers, or toll resellers. The closest applicable size standard under SBA rules is for Wired Telecommunications Carriers as defined in paragraph 6 of this FRFA. Under that size standard, such a business is small if it has 1,500 or fewer employees. Census data for 2012 shows that there were 3,117 firms that operated that year. Of this total, 3,083 operated with fewer than 1,000 employees. Thus, under this category and the associated small business size standard, the majority of Other Toll Carriers can be considered small. According to internally developed Commission data, 284 companies reported that their primary telecommunications service activity was the provision of other toll carriage. Of these, an estimated 279 have 1,500 or fewer employees. Consequently, the Commission estimates that most Other Toll Carriers are small entities that may be affected by the rules and policies adopted pursuant to the Order.

330. *800 and 800-Like Service Subscribers.* Neither the Commission nor the SBA has developed a small business size standard specifically for 800 and 800-like service (toll free) subscribers. The appropriate size standard under SBA rules is for the category Telecommunications Resellers. Under that size standard, such a business is small if it has 1,500 or fewer employees. The most reliable source of information regarding the number of these service subscribers appears to be data the Commission collects on the 800, 888, 877, and 866 numbers in use. According to our data, as of September 2009, the number of 800 numbers assigned was 7,860,000; the number of 888 numbers assigned was 5,588,687; the number of 877 numbers assigned was 4,721,866; and the number of 866 numbers assigned was 7,867,736. We do not have data specifying the number of

these subscribers that are not independently owned and operated or have more than 1,500 employees, and thus are unable at this time to estimate with greater precision the number of toll free subscribers that would qualify as small businesses under the SBA size standard. Consequently, we estimate that there are 7,860,000 or fewer small entity 800 subscribers; 5,588,687 or fewer small entity 888 subscribers; 4,721,866 or fewer small entity 877 subscribers; and 7,867,736 or fewer small entity 866 subscribers.

c. Wireless Providers—Fixed and Mobile

331. The rules adopted in the Report and Order may affect wireless providers. As a general matter, the number of winning bidders that claim to qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments and transfers or reportable eligibility events, unjust enrichment issues are implicated.

332. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services. The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees. For this industry, Census data for 2012 show that there were 967 firms that operated for the entire year. Of this total, 955 firms had fewer than 1,000 employees. Thus under this category and the associated size standard, the Commission estimates that the majority of wireless telecommunications carriers (except satellite) are small entities. Similarly, according to internally developed Commission data, 413 carriers reported that they were engaged in the provision of wireless telephony, including cellular service, Personal Communications Service (PCS), and Specialized Mobile Radio (SMR) services. Of this total, an estimated 261 have 1,500 or fewer employees. Thus, using available data, we estimate that the majority of wireless firms can be considered small.

333. *Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The

Commission defined “small business” for the wireless communications services (WCS) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years. The SBA has approved these definitions.

334. *218–219 MHz Service*. The first auction of 218–219 MHz spectrum resulted in 170 entities winning licenses for 594 Metropolitan Statistical Area (MSA) licenses. Of the 594 licenses, 557 were won by entities qualifying as a small business. For that auction, the small business size standard was an entity that, together with its affiliates, has no more than a \$6 million net worth and, after federal income taxes (excluding any carry over losses), has no more than \$2 million in annual profits each year for the previous two years. In the *218–219 MHz Report and Order and Memorandum Opinion and Order*, we established a small business size standard for a “small business” as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and their affiliates, has average annual gross revenues not to exceed \$15 million for the preceding three years. A “very small business” is defined as an entity that, together with its affiliates and persons or entities that hold interests in such an entity and its affiliates, has average annual gross revenues not to exceed \$3 million for the preceding three years. These size standards will be used in future auctions of 218–219 MHz spectrum.

335. *2.3 GHz Wireless Communications Services*. This service can be used for fixed, mobile, radiolocation, and digital audio broadcasting satellite uses. The Commission defined “small business” for the wireless communications services (“WCS”) auction as an entity with average gross revenues of \$40 million for each of the three preceding years, and a “very small business” as an entity with average gross revenues of \$15 million for each of the three preceding years. The SBA has approved these definitions. The Commission auctioned geographic area licenses in the WCS service. In the auction, which was conducted in 1997, there were seven bidders that won 31 licenses that qualified as very small business entities, and one bidder that won one license that qualified as a small business entity.

336. *1670–1675 MHz Services*. This service can be used for fixed and mobile uses, except aeronautical mobile. An auction for one license in the 1670–1675

MHz band was conducted in 2003. One license was awarded. The winning bidder was not a small entity.

337. *Wireless Telephony*. Wireless telephony includes cellular, personal communications services, and specialized mobile radio telephony carriers. As noted, the SBA has developed a small business size standard for Wireless Telecommunications Carriers (except Satellite). Under the SBA small business size standard, a business is small if it has 1,500 or fewer employees. According to Commission data, 413 carriers reported that they were engaged in wireless telephony. Of these, an estimated 261 have 1,500 or fewer employees and 152 have more than 1,500 employees. Therefore, a little less than one third of these entities can be considered small.

338. *Broadband Personal Communications Service*. The broadband personal communications services (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission initially defined a “small business” for C- and F-Block licenses as an entity that has average gross revenues of \$40 million or less in the three previous calendar years. For F-Block licenses, an additional small business size standard for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years. These small business size standards, in the context of broadband PCS auctions, have been approved by the SBA. No small businesses within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that claimed small business status in the first two C-Block auctions. A total of 93 bidders that claimed small business status won approximately 40 percent of the 1,479 licenses in the first auction for the D, E, and F Blocks. On April 15, 1999, the Commission completed the re-auction of 347 C-, D-, E-, and F-Block licenses in Auction No. 22. Of the 57 winning bidders in that auction, 48 claimed small business status and won 277 licenses.

339. On January 26, 2001, the Commission completed the auction of 422 C and F Block Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in that auction, 29 claimed small business status. Subsequent events concerning Auction 35, including judicial and agency determinations, resulted in a total of 163

C and F Block licenses being available for grant. On February 15, 2005, the Commission completed an auction of 242 C-, D-, E-, and F-Block licenses in Auction No. 58. Of the 24 winning bidders in that auction, 16 claimed small business status and won 156 licenses. On May 21, 2007, the Commission completed an auction of 33 licenses in the A, C, and F Blocks in Auction No. 71. Of the 12 winning bidders in that auction, five claimed small business status and won 18 licenses. On August 20, 2008, the Commission completed the auction of 20 C-, D-, E-, and F-Block Broadband PCS licenses in Auction No. 78. Of the eight winning bidders for Broadband PCS licenses in that auction, six claimed small business status and won 14 licenses.

340. *Specialized Mobile Radio Licenses.* The Commission awards "small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than \$15 million in each of the three previous calendar years. The Commission awards "very small entity" bidding credits to firms that had revenues of no more than \$3 million in each of the three previous calendar years. The SBA has approved these small business size standards for the 900 MHz Service. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz bands. The 900 MHz SMR auction began on December 5, 1995, and closed on April 15, 1996. Sixty bidders claiming that they qualified as small businesses under the \$15 million size standard won 263 geographic area licenses in the 900 MHz SMR band. The 800 MHz SMR auction for the upper 200 channels began on October 28, 1997, and was completed on December 8, 1997. Ten bidders claiming that they qualified as small businesses under the \$15 million size standard won 38 geographic area licenses for the upper 200 channels in the 800 MHz SMR band. A second auction for the 800 MHz band was held on January 10, 2002 and closed on January 17, 2002 and included 23 BEA licenses. One bidder claiming small business status won five licenses.

341. The auction of the 1,053 800 MHz SMR geographic area licenses for the General Category channels began on August 16, 2000, and was completed on September 1, 2000. Eleven bidders won 108 geographic area licenses for the General Category channels in the 800 MHz SMR band and qualified as small businesses under the \$15 million size standard. In an auction completed on December 5, 2000, a total of 2,800

Economic Area licenses in the lower 80 channels of the 800 MHz SMR service were awarded. Of the 22 winning bidders, 19 claimed small business status and won 129 licenses. Thus, combining all four auctions, 41 winning bidders for geographic licenses in the 800 MHz SMR band claimed status as small businesses.

342. In addition, there are numerous incumbent site-by-site SMR licenses and licensees with extended implementation authorizations in the 800 and 900 MHz bands. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than \$15 million. One firm has over \$15 million in revenues. In addition, we do not know how many of these firms have 1,500 or fewer employees, which is the SBA-determined size standard. We assume, for purposes of this analysis, that all of the remaining extended implementation authorizations are held by small entities, as defined by the SBA.

343. *Lower 700 MHz Band Licenses.* The Commission previously adopted criteria for defining three groups of small businesses for purposes of determining their eligibility for special provisions such as bidding credits. The Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years. A "very small business" is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years. Additionally, the lower 700 MHz Service had a third category of small business status for Metropolitan/Rural Service Area (MSA/RSA) licenses—"entrepreneur"—which is defined as an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years. The SBA approved these small size standards. An auction of 740 licenses (one license in each of the 734 MSAs/RSAs and one license in each of the six Economic Area Groupings (EAGs)) commenced on August 27, 2002, and closed on September 18, 2002. Of the 740 licenses available for auction, 484 licenses were won by 102 winning bidders. Seventy-two of the winning bidders claimed small business, very small business or entrepreneur status and won a total of 329 licenses. A second auction commenced on May 28, 2003, closed on

June 13, 2003, and included 256 licenses: 5 EAG licenses and 476 Cellular Market Area licenses. Seventeen winning bidders claimed small or very small business status and won 60 licenses, and nine winning bidders claimed entrepreneur status and won 154 licenses. On July 26, 2005, the Commission completed an auction of 5 licenses in the Lower 700 MHz band (Auction No. 60). There were three winning bidders for five licenses. All three winning bidders claimed small business status.

344. In 2007, the Commission reexamined its rules governing the 700 MHz band in the *700 MHz Second Report and Order*. An auction of 700 MHz licenses commenced January 24, 2008 and closed on March 18, 2008, which included, 176 Economic Area licenses in the A Block, 734 Cellular Market Area licenses in the B Block, and 176 EA licenses in the E Block. Twenty winning bidders, claiming small business status (those with attributable average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years) won 49 licenses. Thirty three winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) won 325 licenses.

345. *Upper 700 MHz Band Licenses.* In the *700 MHz Second Report and Order*, the Commission revised its rules regarding Upper 700 MHz licenses. On January 24, 2008, the Commission commenced Auction 73 in which several licenses in the Upper 700 MHz band were available for licensing: 12 Regional Economic Area Grouping licenses in the C Block, and one nationwide license in the D Block. The auction concluded on March 18, 2008, with 3 winning bidders claiming very small business status (those with attributable average annual gross revenues that do not exceed \$15 million for the preceding three years) and winning five licenses.

346. *700 MHz Guard Band Licensees.* In 2000, in the 700 MHz Guard Band Order, the Commission adopted size standards for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. A small business in this service is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years. Additionally, a very small business is an entity that, together with its affiliates and controlling principals, has average gross

revenues that are not more than \$15 million for the preceding three years. SBA approval of these definitions is not required. An auction of 52 Major Economic Area licenses commenced on September 6, 2000, and closed on September 21, 2000. Of the 104 licenses auctioned, 96 licenses were sold to nine bidders. Five of these bidders were small businesses that won a total of 26 licenses. A second auction of 700 MHz Guard Band licenses commenced on February 13, 2001, and closed on February 21, 2001. All eight of the licenses auctioned were sold to three bidders. One of these bidders was a small business that won a total of two licenses.

347. *Cellular Radiotelephone Service.* Auction 77 was held to resolve one group of mutually exclusive applications for Cellular Radiotelephone Service licenses for unserved areas in New Mexico. Bidding credits for designated entities were not available in Auction 77. In 2008, the Commission completed the closed auction of one unserved service area in the Cellular Radiotelephone Service, designated as Auction 77. Auction 77 concluded with one provisionally winning bid for the unserved area totaling \$25,002.

348. *Private Land Mobile Radio ("PLMR").* PLMR systems serve an essential role in a range of industrial, business, land transportation, and public safety activities. These radios are used by companies of all sizes operating in all U.S. business categories, and are often used in support of the licensee's primary (non-telecommunications) business operations. For the purpose of determining whether a licensee of a PLMR system is a small business as defined by the SBA, we use the broad census category, Wireless Telecommunications Carriers (except Satellite). This definition provides that a small entity is any such entity employing no more than 1,500 persons. The Commission does not require PLMR licensees to disclose information about number of employees, so the Commission does not have information that could be used to determine how many PLMR licensees constitute small entities under this definition. We note that PLMR licensees generally use the licensed facilities in support of other business activities, and therefore, it would also be helpful to assess PLMR licensees under the standards applied to the particular industry subsector to which the licensee belongs.

349. As of March 2010, there were 424,162 PLMR licensees operating 921,909 transmitters in the PLMR bands below 512 MHz. We note that any entity engaged in a commercial activity is

eligible to hold a PLMR license, and that any revised rules in this context could therefore potentially impact small entities covering a great variety of industries.

350. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service. A significant subset of the Rural Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS). In the present context, we will use the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), *i.e.*, an entity employing no more than 1,500 persons. There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies proposed herein.

351. *Air-Ground Radiotelephone Service.* The Commission has previously used the SBA's small business size standard applicable to Wireless Telecommunications Carriers (except Satellite), *i.e.*, an entity employing no more than 1,500 persons. There are approximately 100 licensees in the Air-Ground Radiotelephone Service, and under that definition, we estimate that almost all of them qualify as small entities under the SBA definition. For purposes of assigning Air-Ground Radiotelephone Service licenses through competitive bidding, the Commission has defined "small business" as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding \$40 million. A "very small business" is defined as an entity that, together with controlling interests and affiliates, has average annual gross revenues for the preceding three years not exceeding \$15 million. These definitions were approved by the SBA. In May 2006, the Commission completed an auction of nationwide commercial Air-Ground Radiotelephone Service licenses in the 800 MHz band (Auction No. 65). On June 2, 2006, the auction closed with two winning bidders winning two Air-Ground Radiotelephone Services licenses. Neither of the winning bidders claimed small business status.

352. *Aviation and Marine Radio Services.* Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has

not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category Wireless Telecommunications Carriers (except Satellite), which is 1,500 or fewer employees. Census data for 2012, which are the most recent Census data available, show that there were 967 firms that operated that year. Of those 967, 955 had fewer than 1,000 employees, and 12 firms had more than 1,000 employees. Most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast licenses in the 157.1875–157.4500 MHz (ship transmit) and 161.775–162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a "small" business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed \$15 million dollars. In addition, a "very small" business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed \$3 million dollars. There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as "small" businesses under the above special small business size standards and may be affected by rules adopted pursuant to the Order.

353. *Advanced Wireless Services (AWS) (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3)).* For the AWS-1 bands, the Commission has defined a "small business" as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a "very small business" as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million. For AWS-2 and AWS-3, although we do not know for certain which entities are likely to apply for these frequencies, we note that the AWS-1 bands are

comparable to those used for cellular service and personal communications service. The Commission has not yet adopted size standards for the AWS-2 or AWS-3 bands but proposes to treat both AWS-2 and AWS-3 similarly to broadband PCS service and AWS-1 service due to the comparable capital requirements and other factors, such as issues involved in relocating incumbents and developing markets, technologies, and services.

354. *3650–3700 MHz band.* In March 2005, the Commission released a *Report and Order and Memorandum Opinion and Order* that provides for nationwide, non-exclusive licensing of terrestrial operations, utilizing contention-based technologies, in the 3650 MHz band (*i.e.*, 3650–3700 MHz). As of April 2010, more than 1270 licenses have been granted and more than 7433 sites have been registered. The Commission has not developed a definition of small entities applicable to 3650–3700 MHz band nationwide, non-exclusive licenses. However, we estimate that the majority of these licensees are Internet Access Service Providers (ISPs) and that most of those licensees are small businesses.

355. *Fixed Microwave Services.* Microwave services include common carrier, private-operational fixed, and broadcast auxiliary radio services. They also include the Local Multipoint Distribution Service (LMDS), the Digital Electronic Message Service (DEMS), and the 24 GHz Service, where licensees can choose between common carrier and non-common carrier status. At present, there are approximately 36,708 common carrier fixed licenses and 59,291 private operational-fixed licenses and broadcast auxiliary radio licenses in the microwave services. There are approximately 135 LMDS licensees, three DEMS licensees, and three 24 GHz licensees. The Commission has not yet defined a small business with respect to microwave services. For purposes of the FRFA, we will use the SBA's definition applicable to Wireless Telecommunications Carriers (except satellite)—*i.e.*, an entity with no more than 1,500 persons. Under the present and prior categories, the SBA has deemed a wireless business to be small if it has 1,500 or fewer employees. The Commission does not have data specifying the number of these licensees that have more than 1,500 employees, and thus is unable at this time to estimate with greater precision the number of fixed microwave service licensees that would qualify as small business concerns under the SBA's small business size standard. Consequently, the Commission

estimates that there are up to 36,708 common carrier fixed licenses and up to 59,291 private operational-fixed licenses and broadcast auxiliary radio licenses in the microwave services that may be small and may be affected by the rules and policies adopted herein. We note, however, that the common carrier microwave fixed licensee category includes some large entities.

356. *Offshore Radiotelephone Service.* This service operates on several UHF television broadcast channels that are not used for television broadcasting in the coastal areas of states bordering the Gulf of Mexico. There are presently approximately 55 licensees in this service. The Commission is unable to estimate at this time the number of licensees that would qualify as small under the SBA's small business size standard for the category of Wireless Telecommunications Carriers (except Satellite). Under that SBA small business size standard, a business is small if it has 1,500 or fewer employees. Census data for 2012, which are the most recent Census data available, show that there were 967 firms that operated that year. Of those 967, 955 had fewer than 1,000 employees, and 12 firms had more than 1,000 employees. Thus, under this category and the associated small business size standard, the majority of firms can be considered small.

357. *39 GHz Service.* The Commission created a special small business size standard for 39 GHz licenses—an entity that has average gross revenues of \$40 million or less in the three previous calendar years. An additional size standard for “very small business” is: An entity that, together with affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years. The SBA has approved these small business size standards. The auction of the 2,173 39 GHz licenses began on April 12, 2000 and closed on May 8, 2000. The 18 bidders who claimed small business status won 849 licenses. Consequently, the Commission estimates that 18 or fewer 39 GHz licensees are small entities that may be affected by rules adopted pursuant to the Order.

358. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and “wireless cable,” transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and

Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)). In connection with the 1996 BRS auction, the Commission established a small business size standard as an entity that had annual average gross revenues of no more than \$40 million in the previous three calendar years. The BRS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 Basic Trading Areas (BTAs). Of the 67 auction winners, 61 met the definition of a small business. BRS also includes licensees of stations authorized prior to the auction. At this time, we estimate that of the 61 small business BRS auction winners, 48 remain small business licensees. In addition to the 48 small businesses that hold BTA authorizations, there are approximately 392 incumbent BRS licensees that are considered small entities. After adding the number of small business auction licensees to the number of incumbent licensees not already counted, we find that there are currently approximately 440 BRS licensees that are defined as small businesses under either the SBA or the Commission's rules.

359. In 2009, the Commission conducted Auction 86, the sale of 78 licenses in the BRS areas. The Commission offered three levels of bidding credits: (i) A bidder with attributed average annual gross revenues that exceed \$15 million and do not exceed \$40 million for the preceding three years (small business) received a 15 percent discount on its winning bid; (ii) a bidder with attributed average annual gross revenues that exceed \$3 million and do not exceed \$15 million for the preceding three years (very small business) received a 25 percent discount on its winning bid; and (iii) a bidder with attributed average annual gross revenues that do not exceed \$3 million for the preceding three years (entrepreneur) received a 35 percent discount on its winning bid. Auction 86 concluded in 2009 with the sale of 61 licenses. Of the ten winning bidders, two bidders that claimed small business status won 4 licenses; one bidder that claimed very small business status won three licenses; and two bidders that claimed entrepreneur status won six licenses.

360. In addition, the SBA's Cable Television Distribution Services small business size standard is applicable to EBS. There are presently 2,436 EBS licensees. All but 100 of these licenses are held by educational institutions. Educational institutions are included in this analysis as small entities. Thus, we estimate that at least 2,336 licensees are

small businesses. Since 2007, Cable Television Distribution Services have been defined within the broad economic census category of Wired Telecommunications Carriers; that category is defined as follows: "This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies." The SBA has developed a small business size standard for this category, which is: All such firms having 1,500 or fewer employees. To gauge small business prevalence for these cable services we must, however, use the most current census data that are based on the previous category of Cable and Other Program Distribution and its associated size standard; that size standard was: all such firms having \$13.5 million or less in annual receipts. According to Census Bureau data for 2007, there were a total of 996 firms in this category that operated for the entire year. Of this total, 948 firms had annual receipts of under \$10 million, and 48 firms had receipts of \$10 million or more but less than \$25 million. Thus, the majority of these firms can be considered small.

361. *Narrowband Personal Communications Services*. In 1994, the Commission conducted an auction for Narrowband PCS licenses. A second auction was also conducted later in 1994. For purposes of the first two Narrowband PCS auctions, "small businesses" were entities with average gross revenues for the prior three calendar years of \$40 million or less. Through these auctions, the Commission awarded a total of 41 licenses, 11 of which were obtained by four small businesses. To ensure meaningful participation by small business entities in future auctions, the Commission adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*. A "small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million. A "very small business" is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million. The SBA has approved these small business size standards. A third auction was conducted in 2001. Here, five bidders

won 317 (Metropolitan Trading Areas and nationwide) licenses. Three of these claimed status as a small or very small entity and won 311 licenses.

362. *Paging (Private and Common Carrier)*. In the *Paging Third Report and Order*, we developed a small business size standard for "small businesses" and "very small businesses" for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. A "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years. Additionally, a "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$3 million for the preceding three years. The SBA has approved these small business size standards. According to Commission data, 291 carriers have reported that they are engaged in Paging or Messaging Service. Of these, an estimated 289 have 1,500 or fewer employees, and two have more than 1,500 employees. Consequently, the Commission estimates that the majority of paging providers are small entities that may be affected by our action. An auction of Metropolitan Economic Area licenses commenced on February 24, 2000, and closed on March 2, 2000. Of the 2,499 licenses auctioned, 985 were sold. Fifty-seven companies claiming small business status won 440 licenses. A subsequent auction of MEA and Economic Area ("EA") licenses was held in the year 2001. Of the 15,514 licenses auctioned, 5,323 were sold. One hundred thirty-two companies claiming small business status purchased 3,724 licenses. A third auction, consisting of 8,874 licenses in each of 175 EAs and 1,328 licenses in all but three of the 51 MEAs, was held in 2003. Seventy-seven bidders claiming small or very small business status won 2,093 licenses. A fourth auction, consisting of 9,603 lower and upper paging band licenses was held in the year 2010. Twenty-nine bidders claiming small or very small business status won 3,016 licenses.

363. *220 MHz Radio Service—Phase I Licensees*. The 220 MHz service has both Phase I and Phase II licenses. Phase I licensing was conducted by lotteries in 1992 and 1993. There are approximately 1,515 such non-nationwide licensees and four nationwide licensees currently authorized to operate in the 220 MHz band. The Commission has not developed a small business size standard for small entities specifically applicable to such incumbent 220 MHz Phase I licensees. To estimate the

number of such licensees that are small businesses, we apply the small business size standard under the SBA rules applicable to Wireless Telecommunications Carriers (except Satellite). Under this category, the SBA deems a wireless business to be small if it has 1,500 or fewer employees. The Commission estimates that nearly all such licensees are small businesses under the SBA's small business size standard that may be affected by rules adopted pursuant to the Order.

364. *220 MHz Radio Service—Phase II Licensees*. The 220 MHz service has both Phase I and Phase II licenses. The Phase II 220 MHz service is subject to spectrum auctions. In the *220 MHz Third Report and Order*, we adopted a small business size standard for "small" and "very small" businesses for purposes of determining their eligibility for special provisions such as bidding credits and installment payments. This small business size standard indicates that a "small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$15 million for the preceding three years. A "very small business" is an entity that, together with its affiliates and controlling principals, has average gross revenues that do not exceed \$3 million for the preceding three years. The SBA has approved these small business size standards. Auctions of Phase II licenses commenced on September 15, 1998, and closed on October 22, 1998. In the first auction, 908 licenses were auctioned in three different-sized geographic areas: three nationwide licenses, 30 Regional Economic Area Group (EAG) Licenses, and 875 Economic Area (EA) Licenses. Of the 908 licenses auctioned, 693 were sold. Thirty-nine small businesses won licenses in the first 220 MHz auction. The second auction included 225 licenses: 216 EA licenses and 9 EAG licenses. Fourteen companies claiming small business status won 158 licenses.

d. Satellite Service Providers

365. *Satellite Telecommunications Providers*. Two economic census categories address the satellite industry. The first category has a small business size standard of \$32.5 million or less in average annual receipts, under SBA rules. The second has a size standard of \$30 million or less in annual receipts.

366. The first category comprises firms "primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite

telecommunications.” The category has a small business size standard of \$32.5 million or less in average annual receipts, under SBA rules. For this category, Census Bureau data for 2012 show that there were a total of 333 firms that operated for the entire year. Of this total, 299 firms had annual receipts of less than \$25 million.¹ For this category, Census Bureau data for 2007 show that there were a total of 570 firms that operated for the entire year. Of this total, 530 firms had annual receipts of under \$30 million, and 40 firms had receipts of over \$30 million. Consequently, we estimate that the majority of Satellite

Telecommunications firms are small entities that might be affected by rules adopted pursuant to the Order.

367. The second category of Other Telecommunications comprises, *inter alia*, “establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.” For this category, Census Bureau data for 2007 show that there were a total of 1,274 firms that operated for the entire year. Of this total, 1,252 had annual receipts below \$25 million per year. Consequently, we estimate that the majority of All Other Telecommunications firms are small entities that might be affected by our action.

e. Cable Service Providers

368. The description above of wireline providers should encompass cable service providers that also provide business data services. Out of an abundance of caution, we describe cable service providers below as well as other types of firms that may provide broadband services, including MDS providers and utilities, among others.

369. *Cable Companies and Systems (Rate Regulation)*. The Commission has developed its own small business size standards for the purpose of cable rate regulation. Under the Commission’s rules, a “small cable company” is one serving 400,000 or fewer subscribers nationwide. Industry data indicate that there are currently 4,600 active cable systems in the United States. Of this total, all but nine cable operators nationwide are small under the 400,000-subscriber size standard. In addition, under the Commission’s rate regulation

rules, a “small system” is a cable system serving 15,000 or fewer subscribers. Current Commission records show 4,600 cable systems nationwide. Of this total, 3,900 cable systems have fewer than 15,000 subscribers, and 700 systems have 15,000 or more subscribers, based on the same records. Thus, under this standard as well, we estimate that most cable systems are small entities.

370. *Cable System Operators*. The Communications Act of 1934, as amended, also contains a size standard for small cable system operators, which is “a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1 percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000.” There are approximately 52,403,705 cable video subscribers in the United States today. Accordingly, an operator serving fewer than 524,037 subscribers shall be deemed a small operator if its annual revenues, when combined with the total annual revenues of all its affiliates, do not exceed \$250 million in the aggregate. Based on available data, we find that all but nine incumbent cable operators are small entities under this size standard. We note that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed \$250 million. Although it seems certain that some of these cable system operators are affiliated with entities whose gross annual revenues exceed \$250 million, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

371. The open video system (OVS) framework was established in 1996, and is one of four statutorily recognized options for the provision of video programming services by local exchange carriers. The OVS framework provides opportunities for the distribution of video programming other than through cable systems. Because OVS operators provide subscription services, OVS falls within the SBA small business size standard covering cable services, which is “Wired Telecommunications Carriers.” The SBA has developed a small business size standard for this category, which is: all such firms having 1,500 or fewer employees. According to Census Bureau data for 2007, there were a total of 955 firms in this previous category that operated for the entire year. Of this total, 939 firms had employment of 999 or fewer employees,

and 16 firms had employment of 1,000 employees or more. Thus, under this second size standard, most cable systems are small and may be affected by rules adopted pursuant to the Order. In addition, we note that the Commission has certified some OVS operators, with some now providing service. Broadband service providers (BSPs) are currently the only significant holders of OVS certifications or local OVS franchises. The Commission does not have financial or employment information regarding the entities authorized to provide OVS, some of which may not yet be operational. Thus, again, at least some of the OVS operators may qualify as small entities.

f. Electric Power Generators, Transmitters, and Distributors

372. *Electric Power Generators, Transmitters, and Distributors*. The Census Bureau defines an industry group comprised of “establishments, primarily engaged in generating, transmitting, and/or distributing electric power. Establishments in this industry group may perform one or more of the following activities: (1) Operate generation facilities that produce electric energy; (2) operate transmission systems that convey the electricity from the generation facility to the distribution system; and (3) operate distribution systems that convey electric power received from the generation facility or the transmission system to the final consumer.” The SBA has developed a small business size standard for firms in this category: “A firm is small if, including its affiliates, it is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and its total electric output for the preceding fiscal year did not exceed 4 million megawatt hours.” Census Bureau data for 2007 show that there were 1,174 firms that operated for the entire year in this category. Of these firms, 50 had 1,000 employees or more, and 1,124 had fewer than 1,000 employees. Based on this data, a majority of these firms can be considered small.

5. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

373. *Recordkeeping and Reporting*. The rule revisions adopted in the Order include changes that will necessitate affected carriers to make various revisions to business data service tariffs and Tariff Review Plans. For example, packet-based BDS, transport services, and DS1 and DS3 end user channel terminations in counties that are deemed competitive will be relieved of

price cap regulation and will be subject to permissive detariffing for a period of 36 months at which time they will be subject to mandatory detariffing. The Order also requires price cap incumbent LECs to freeze the rates for DS1 and DS3 end-user channel terminations in newly deregulated counties for six months. This freeze does not apply to services that are detariffed.

374. In addition, the Commission amends the price cap rules to allow all price cap LECs in non-competitive counties to lower their rates through contract tariffs and volume and term discounts in a manner consistent with the Commission's current Phase I pricing flexibility rules. These incumbent LECs will be required to maintain generally available tariffed price cap regulated rates available to all subscribers. For the small number of counties that had received Phase II pricing flexibility that are now treated as non-competitive by the Order's competitive market test, those price cap carriers will be permitted to retain Phase II relief for those counties but will be required to offer generally available rates for those services as long as those services remain under tariff.

375. The Commission also incorporates a productivity-based X-factor of 2.0 percent for DS1 and DS3 end user channel terminations, and certain other business data services, subject to price cap regulation on a going-forward basis. Affected LECs will be required to revise their rates and tariff review plans, including adjustments to price cap indices, for business data services in filings with the Commission to reflect the new X-factor. These revisions are required of all affected carriers, regardless of entity size. The adopted rule revisions will facilitate Commission and public access to the most accurate and up-to-date tariffs as well as lower rates paid by the public for the affected services.

6. Steps Taken To Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered

376. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include (among others) the following four alternatives: (1) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design,

standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

377. *Competitive Market Test.* The Commission proposed to replace the existing framework for granting regulatory relief to incumbent LECs in price cap areas with a multi-dimensional competitive market test to identify specific markets as competitive or non-competitive, thereby dictating the level of applicable regulation for both circuit-based and packet-based business data services. The Commission also sought comment on the separate but related issue of whether in non-competitive markets, heightened regulation, including possible restrictions on rates, terms and conditions, should apply to just the market leader or additional providers, which could have potentially included a substantial number of small businesses.

378. In the Order, the Commission explains why it adopts a test that departs from the proposals in the *Further Notice*. Rather than intrusive pricing regulation, it takes a dynamic and forward-looking approach to evaluating the benefits and costs of regulation. It identifies specific markets as competitive or non-competitive and applies regulation only where competition is expected to materially fail to ensure just and reasonable rates. The result is a simple, sustainable framework that is far less complicated than the market test proposal originally contemplated. The Commission adopts a structure that eliminates unnecessary pricing regulation for a significant portion of the business data services provided by price cap incumbent LECs to allow competition to promote increased efficiencies, investment, and growth in new technologies and services to benefit consumers and business. Additionally, the Commission declines to impose rate regulation on other business data services providers besides the market leader. In particular, unnecessary regulation exacts administrative compliance costs on carriers that reduce capital available for building new networks and infrastructure, inhibiting competitive entry and deployment.

379. *Packet-based Services.* The Commission declines to re-impose any form of price cap or benchmark regulation on packet-based business data services. The market analysis does not show compelling evidence of market power in incumbent LEC provision of packet-based business data services, particularly for higher bandwidth services. Moreover, even if the record demonstrated insufficiently robust

competition, proposals to apply price cap regulation to packet-based services were complex and not easily administrable and did not reflect the fact that costs to serve individual customers vary.

380. *Anchor or Benchmark Pricing.* The Commission minimizes the economic impact of its rules on small entities first by declining to impose anchor or benchmark pricing regulation on incumbent LEC packet-based business data services. This eliminates the proposed requirement to calculate anchor or benchmark prices for a wide range of packet-based business data services, and to post publicly generally applicable rates, terms and conditions. Because our market analysis shows that packet-based business data services are subject to competition, anchor or benchmark pricing would be unnecessary and could actually inhibit investment in this dynamic market.

381. *X-factor.* Incumbent LECs that file tariffs under the price cap ratemaking methodology are required to file revised annual access charge tariffs every year, which become effective on July 1. The annual filings include submission of tariff review plans that are used to support revisions to the rates, including revisions that pertain to the X-factor. The Commission requires revised tariff review plans implementing the X-factor to be filed with the Commission to become effective on December 1, 2017. To ease the burden on the industry in connection with this filing, and because base period demand and the value of GDP-PI reflected in the price cap indices typically are not updated during a tariff year, the Commission permits incumbent LECs to use, in their filings implementing the 2.0 percent X-factor, the same base period demand and value of GDP-PI as in the July 1, 2017 annual filing.

382. *Price Cap Regulation.* The Commission applies price cap regulation in the form of Phase I pricing flexibility to DS1 and DS3 end user channel termination services provided by incumbent LECs in counties that we have determined are non-competitive. Requiring Phase I pricing will enable incumbent LECs, including those that may be small entities, to respond to any competition that develops in these markets through contract tariffs and volume and term discounts. In addition, incumbent LECs, including any small entities that previously received Phase II pricing flexibility in counties we now deem non-competitive will not be subject to ex ante rate regulation for end user channel terminations and other special access services in those

counties, and thus will avoid incurring the significant costs of trying to recreate price caps.

383. *Periodic Data Collection.* Related to the competitive market test proposal, the Commission also proposed a future periodic data collection to allow for market test updates for determining competitive and non-competitive areas. The periodic collection could have resulted in a significant reporting burden on small entities. Instead, the Commission adopts a process for updating the competitive market test every three years using the data from Form 477 that is already routinely filed by providers and thus entails no additional burden.

384. *Wholesale Pricing.* The Commission also minimized the impact of its rules on small entities by declining to adopt rules proposed by certain parties that would have required business data services providers to comply with detailed requirements regarding the pricing of their wholesale business data services.

385. *Forbearance.* To help level the playing field and promote regulatory parity for all business data services providers, the Commission extends the forbearance from section 203 of the Communications Act of 1934, as amended. This expands forbearance previously accorded certain price cap LECs to all price cap LECs, including those that may be small entities, in the provision of any packet-based business data service or circuit-based business data service above the DS3 bandwidth level. The Commission also forbears from the application of section 203 to DS1 and DS3 end user channel terminations, and certain other business data services, in competitive counties. These actions are also taken to promote competition and broadband deployment. To level the playing field among price cap LECs providing packet-based and optical transmission business data services, the Commission conforms the forbearance deemed granted to Verizon and its successors in interest to that provided other price cap carriers.

386. *Detariffing.* To minimize economic impact, the Commission provides a transition period to provide price cap incumbent LECs, including those that may be small entities, with sufficient time to adapt their business data services operations to a detariffing system. The Commission does not intend its actions to disturb existing contractual or other long-term arrangements, which must continue to be adhered to for the length of the contract, and the Commission adopted a grandfathering rules for such contracts.

D. Report to Congress

387. The Commission will send a copy of the Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act. In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Order and FRFA (or summaries thereof) will also be published in the **Federal Register**.

E. Data Quality Act

388. The Commission certifies that it has complied with the Office of Management and Budget Final Information Quality Bulletin for Peer Review, 70 FR 2664 (2005), and the Data Quality Act, Public Law 106-554 (2001), codified at 44 U.S.C. 3516 note, with regard to its reliance on influential scientific information in the Report and Order in WC Docket Nos. 16-143, 15-247, 05-25, and RM-10593.

IX. Ordering Clauses

389. *Accordingly, it is ordered* that, pursuant to sections 1, 2, 4(i)-(j), 10, 201(b), 202(a), 214, 303(r), 403, of the Communications Act of 1934, as amended, and section 706 of the Telecommunications Act of 1996, 47 U.S.C. 151, 152, 154(i)-(j), 160, 201(b), 202(a), 214, 303(r), 403, 1302, this Report and Order is *adopted* and *shall be effective* sixty (60) days after publication in the **Federal Register**, except to the extent expressly addressed below.

390. *It is further ordered* that parts 0, 1, 61, 63, and 69 of the Commission's rules, 47 CFR parts 0, 1, 61, 63, and 69, *are amended*, and that such rule amendments *shall be effective* sixty (60) days after publication of this Report and Order in the **Federal Register**, except for sections 1.776, 61.45, 61.201, 61.203, and 69.701, 47 CFR 1.776, 61.45, 61.201, 61.203, 69.701, which contain information collections that require approval by the Office of Management and Budget under the Paperwork Reduction Act and *shall become effective* after announcement in the **Federal Register** of their approval by the Office of Management and Budget, and on the effective dates announced therein. The Federal Communications Commission will publish documents in the **Federal Register** announcing the effective dates.

391. *It is further ordered* that pursuant to sections 201(b) and 202(a) of the Communications Act of 1934, as amended, 47 U.S.C. 201(b), 202(a), price cap incumbent LECs *shall freeze* the tariffed rates for end-user channel

terminations that any price cap incumbent LEC continues to tariff in newly deregulated counties for six (6) months after the effective date of this Report and Order.

392. *It is further ordered* that pursuant to section 61.45(b)(1)(iv) of the Commission's rules, 47 CFR 61.45(b)(1)(iv), price cap incumbent LECs must file with the Commission, revised tariffs and tariff review plans implementing the X-factor for end user channel terminations and other special access services subject to price cap regulation, to become effective on December 1, 2017.

393. *It is further ordered* that pursuant to section 1.115 of the Commission's rules, 47 CFR 1.115, the CenturyLink and USTelecom Applications for Review *are denied*.

394. *It is further ordered* that pursuant to sections 4(i) and 4(j) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), the CenturyLink et al. Motion to Strike is *denied*.

395. *It is further ordered* that pursuant to sections 4(i) and 4(j) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 154(j), the AT&T Motion Seeking Additional Information on Fiber Maps is *denied*.

396. *It is further ordered* that the Commission's Consumer & Governmental Affairs Bureau, Reference Information Center, shall send a copy of this Report and Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

397. *It is further ordered*, that the Commission's Consumer & Governmental Affairs Bureau, Reference Information Center, *shall send* a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

398. *It is further ordered* that, with regard to Docket Nos. 16-143, 05-25, and RM-10593, should no petitions for reconsideration or petitions for judicial review be timely filed, these proceedings *shall be terminated* and the dockets closed.

List of Subjects

47 CFR Part 0

Classified information, Freedom of information, Government publications, infants and children, Organization of functions (Government agencies), Postal Service, Privacy, Reporting and Recordkeeping requirements, Sunshine Act.

47 CFR Part 1

Administrative practice and procedure, Civil rights, Communications common carriers, Cuba, Drug abuse, Environmental impact statements, Equal access to justice, Equal employment opportunity, Federal buildings and facilities, Government employees, Income taxes, Indemnity payments, Individuals with disabilities, Investigations, Lawyers, Metric system, Penalties, Radio, Reporting and recordkeeping requirements, Telecommunications, Television, Wages.

47 CFR Part 61 and 69

Communications common carriers, Radio, Reporting and recordkeeping requirements, Telegraph, Telephone.

47 CFR Part 63

Cable television, Communications common carriers, Radio, Reporting and Recordkeeping requirements, Telegraph, Telephone.

Federal Communications Commission.

Marlene H. Dortch,
Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 0, 1, 61, 63, and 69 as follows:

PART 0—COMMISSION ORGANIZATION

- 1. The authority citation for part 0 continues to read as follows:

Authority: Secs. 5, 48 Stat. 1068, as amended; 47 U.S.C. 155, unless otherwise noted.

§ 0.291 [Amended]

- 2. Amend § 0.291 by removing and reserving paragraph (h).

PART 1—PRACTICE AND PROCEDURE

- 3. The authority citation for part 1 continues to read as follows:

Authority: 15 U.S.C. 79 *et seq.*; 47 U.S.C. 151, 154(i), 154(j), 155, 157, 225, 227, 303(r), 309, 1403, 1404, 1451, and 1452.

§ 1.774 [Removed and Reserved]

- 4. Remove and reserve § 1.774.
- 5. Add § 1.776, before the center heading “Contracts, Reports, and Requests Required to be Filed by Carriers,” to read as follows:

§ 1.776 Pricing flexibility limited grandfathering.

Special access contract-based tariffs that were in effect on or before August 1, 2017 are grandfathered. Such

contract-based tariffs may not be extended, renewed or revised, except that any extension or renewal expressly provided for by the contract-based tariff may be exercised pursuant to the terms thereof. During the period between August 1, 2017 and the deadline to institute mandatory detariffing under § 61.201(b), upon mutual agreement, parties to a grandfathered contract-based tariff may replace it at any time with a new contract-based tariff or with a new or amended contract that is not filed as a contract-based tariff.

PART 61—TARIFFS

- 6. The authority citation for part 61 continues to read as follows:

Authority: Secs. 1, 4(i), 4(j), 201–205 and 403 of the Communications Act of 1934, as amended; 47 U.S.C. 151, 154(i), 154(j), 201–205 and 403, unless otherwise noted.

- 7. Amend § 61.45 by revising paragraph (b)(1)(iv) to read as follows:

§ 61.45 Adjustments to the PCI for Local Exchange Carriers.

* * * * *

(b) * * *

(1) * * *

(iv) For the special access basket specified in § 61.42(d)(5), the value of X shall be 2.0% beginning December 1, 2017, notwithstanding any language in § 61.45(b)(1)(i).

* * * * *

- 8. Amend § 61.55 by revising paragraph (a) to read as follows:

§ 61.55 Contract-based tariffs.

(a) This section shall apply to price cap local exchange carriers permitted to offer contract-based tariffs under § 1.776 or § 69.805 of this chapter.

* * * * *

- 9. Add subpart K, consisting of §§ 61.201 and 61.203, to read as follows:

Subpart K—Detariffing of Business Data Services**§ 61.201 Detariffing of price cap local exchange carriers.**

(a) Price cap local exchange carriers shall remove from their interstate tariffs:

(1) Any packet-based business data service;

(2) Any circuit-based business data service above the DS3 bandwidth level;

(3) Transport services as defined in § 69.801 of this chapter;

(4) DS1 and DS3 end user channel terminations, and all other tariffed special access services, in any market deemed competitive as defined in § 69.801; and

(5) DS1 and DS3 end user channel terminations, and all other tariffed

special access services, in any grandfathered market as defined in § 69.801 for which the price cap local exchange carrier was granted Phase II pricing flexibility prior to June 2017.

(b) The detariffing must be completed thirty-six months after August 1, 2017, but detariffing can take place at any time before the thirty-six months is completed.

§ 61.203 Detariffing of competitive local exchange carriers.

(a) Competitive local exchange carriers shall remove all business data services from their interstate tariffs.

(b) The detariffing must be completed thirty-six months August 1, 2017.

PART 63—EXTENSION OF LINES, NEW LINES, AND DISCONTINUANCE, REDUCTION, OUTAGE AND IMPAIRMENT OF SERVICE BY COMMON CARRIERS; AND GRANTS OF RECOGNIZED PRIVATE OPERATING AGENCY STATUS

- 10. The authority citation for part 63 continues to read as follows:

Authority: Sections 1, 4(i), 4(j), 10, 11, 201–205, 214, 218, 403 and 651 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 160, 201–205, 214, 218, 403, and 571, unless otherwise noted.

§ 63.71 [Amended]

- 11. Amend § 63.71 by removing and reserving paragraph (d).

PART 69—ACCESS CHARGES

- 12. The authority citation for part 69 continues to read as follows:

Authority: 47 U.S.C. 154, 201, 202, 203, 204, 218, 220, 254, 403.

- 13. Revise § 69.701 to read as follows:

§ 69.701 Application of the rules in this subpart.

The rules in this subpart apply to all incumbent LECs subject to price cap regulation, as defined in § 61.3(bb) of this chapter, seeking pricing flexibility on the basis of the development of competition in parts of its service area for switched access services only.

- 14. Add subpart I, consisting of §§ 69.801, 69.803, 69.805, 69.807, and 69.809, to read as follows:

Subpart I—Business Data Services

Sec.

§ 69.801 Definitions.**§ 69.803 Competitive market test.****§ 69.805 Prohibition on certain non-disclosure agreement conditions.****§ 69.807 Regulatory relief.****§ 69.809 Low-end adjustment mechanism.****Subpart I—Business Data Services****§ 69.801 Definitions.**

(a) *Business data services.* The dedicated point-to-point transmission of data at certain guaranteed speeds and service levels using high-capacity connections.

(b) *Competitive market test.* The competitive market test is defined in § 69.803.

(c) *County.* A county or county equivalent as defined in § 10.10 of this chapter. County-equivalents include parishes, boroughs, independent cities, census areas, the District of Columbia, and various entities in the territories.

(d) *End user channel termination.* A dedicated channel connecting a local exchange carrier end office and a customer premises, offered for purposes of carrying special access traffic.

(e) *Grandfathered market.* A county that does not satisfy the competitive market test set forth in § 69.803 for which a price cap local exchange carrier obtained Phase II relief pursuant to § 69.711(c).

(f) *Market deemed competitive.* A county that satisfies the competitive market test set forth in § 69.803.

(g) *Market deemed non-competitive.* A county that does not satisfy the competitive market test set forth in § 69.803.

(h) *Non-disclosure agreement.* A non-disclosure agreement is a contract, contractual provision, or tariff provision wherein a party agrees not to disclose certain information shared by the other party.

(i) *Special access data collection.* The special access data collection refers to the data and other information the Commission collected from business data services providers and purchasers pursuant to its December 18, 2012 Report and Order in WC Docket 05–25.

(j) *Transport* includes interoffice facilities, channel terminations between the serving wire center and point of presence, and all special access services that are described in § 69.114 other than end user channel terminations.

§ 69.803 Competitive market test.

(a) The competitive market test is used to determine which counties

served by a price cap local exchange carrier, as defined in § 61.3(bb) of this chapter, are deemed competitive and therefore warrant relief from price cap regulation and detariffing of DS1 and DS3 end user channel terminations, and certain other business data services, sold by such carriers.

(b) *Initial test.* A county is deemed competitive in the initial competitive market test if:

(1) Either 50 percent of the locations with business data services demand within the county are within one half mile of a location served by a competitive provider based on data from the special access data collection, or 75 percent of the census blocks within the county are reported to have broadband connection availability by a cable operator based on Form 477 data as of December 2016. Lists of counties deemed competitive, non-competitive or grandfathered by the initial competitive market test are published on the Commission's Web site.

(2) The DS1 and DS3 end user channel terminations sold by price cap local exchange carriers in counties deemed competitive are no longer subject to price cap regulation and are detariffed according to § 61.201.

(c) *Subsequent tests.* The results of the initial competitive market test will be updated every three years following the effective date of the initial test.

(1) A county will be deemed competitive in a subsequent competitive market test if 75 percent of the census blocks within the county are reported to have broadband connection availability by a cable operator based on Form 477 data as of the date of the most recent collection.

(2) No later than three years following the effective date of the previous test, the Wireline Competition Bureau will conclude a subsequent test and will publish a revised list of counties deemed competitive at the conclusion of the test.

(3) A county deemed competitive in the competitive market test will retain its status in subsequent tests.

§ 69.805 Prohibition on certain non-disclosure agreement conditions.

(a) In markets deemed non-competitive, buyers and sellers of business data services shall not enter into a tariff, contract-based tariff, or commercial agreement, including but not limited to master service agreement, that contains a non-disclosure agreement as defined in § 69.801(g), that restricts or prohibits disclosure of information to the Commission, or requires a prior request or legal

compulsion by the Commission to effect such disclosure.

(b) Confidential information subject to a protective order as defined in § 0.461 of this chapter in effect as of the effective date of a tariff, contract-based tariff, or commercial agreement must be submitted pursuant to the terms of that protective order or otherwise pursuant to the Commission's rules regarding submission of confidential data in §§ 0.457(d) and 0.459.

§ 69.807 Regulatory relief.

(a) Price cap local exchange carrier transport and end user channel terminations in markets deemed competitive and in grandfathered markets for a price cap carrier that was granted Phase II pricing flexibility prior to June 2017 are granted the following regulatory relief:

(1) Elimination of the rate structure requirements in subpart B of this part;

(2) Elimination of price cap regulation; and

(3) Elimination of tariffing requirements as specified in § 61.201 of this chapter.

(b) Price cap local exchange carrier end user channel terminations in markets deemed non-competitive are granted the following regulatory relief:

(1) Ability to offer volume and term discounts;

(2) Ability to enter into contract-based tariffs, provided that:

(i) Contract-based tariff services are made generally available to all similarly situated customers;

(ii) The price cap local exchange carrier excludes all contract-based tariff offerings from price cap regulation pursuant to § 61.42(f) of this chapter;

(3) Ability to file tariff revisions on at least one day's notice, notwithstanding the notice requirements for tariff filings specified in § 61.58 of this chapter.

(c) A price cap local exchange carrier that was granted Phase II pricing flexibility prior to June 2017 in a grandfathered market must retain its business data services rates at levels no higher than those in effect as of April 20, 2017, pending the detariffing of those services pursuant to § 61.201 of this chapter.

§ 69.809 Low-end adjustment mechanism.

(a) Any price cap local exchange carrier or any affiliate of any price cap local exchange carrier that had obtained Phase II pricing flexibility under § 69.709 or § 69.711 for any service in any MSA in its service region, or for the non-MSA portion of any study area in its service region, shall be prohibited from making any low-end adjustment pursuant to § 61.45(d)(1)(vii) of this

chapter in all or part of its service region.

(b) Any price cap local exchange carrier or any affiliate of any price cap local exchange carrier that exercises the regulatory relief pursuant to § 69.807 in any part of its service region shall be prohibited from making any low-end

adjustment pursuant to § 61.45(d)(1)(vii) of this chapter in all or part of its service region.

(c) Any price cap local exchange carrier or any affiliate of any price cap local exchange carrier that exercises the option to use generally accepted accounting principles rather than the

uniform system of accounts pursuant to § 32.11(g) of this chapter shall be prohibited from making any low-end adjustment pursuant to § 61.45(d)(1)(vii) of this chapter in all or part of its service region.

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