b. Enterprise Market Loops

(i) Record Evidence

298. The record contains a wealth of evidence to inform our enterprise market loop analyses. First, it reflects that competitive LECs have deployed fiber that enables them to reach customers entirely over their own loop facilities.[856] When competitive LECs self-deploy fiber they predominantly do so at the OCn-level.[857] In addition, the record shows that competitors have built fiber loops to buildings that carry a significant portion of the competitive traffic in certain MSAs.[858] In contrast, the record contains little evidence of self-deployment, or availability from alternative providers, for DS1 loops.[859] As for DS3 loops, evidence of self-deployment and wholesale availability is somewhat greater than for DS1s and is directly related to location-

[856] Both competitive LECs and incumbent LECs report that approximately 30,000, *i.e.*, between 3% to 5%, of the nation's commercial office buildings are served by competitor-owned fiber loops. *See, e.g.*, ALTS *et al.* Comments at 52 (citing to WorldCom Comments, CC Docket Nos. 96-98 at 7 (filed June 11, 2001) (WorldCom June 11, 2001 High-capacity Comments)); Sprint Comments at 23-24; WorldCom Comments at 74-76; *see also BOC UNE Rebuttal Report* at iv, 44; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Oct. 30, 2002) (discussing high-capacity transmission facility deployment) (WorldCom Oct. 30, 2002 *Ex Parte* Letter); AT&T Comments at 152 (citing proprietary information); Cbeyond *et al.* Comments, CC Docket 96-98 at 23 (filed June 11, 2001) (Cbeyond *et al.* June 11, 2001 High-capacity Comments) (citing confidential information in attached Affidavit of Michael P. Duke, KMC Telecom, Inc. (KMC Duke June 11, 2001 High-capacity Aff.) at para. 5); NuVox *et al.* Comments, Affidavit of Nicholas D. Jackson, TDS Metrocom, Inc. (TDS Jackson Aff.) at para. 6; El Paso *et al.* Comments at 16. Competitive carriers indicate that most of these commercial office buildings are carrier hotels or large office buildings. *See, e.g.*, ALTS *et al.* Comments at 52; WorldCom June 11, 2001 High-capacity Comments at 9; El Paso *et al.* Comments at 16. Some commenters indicate that other facilities-based competitive LECs may have self-deployed high-capacity loops, but have not submitted comments in this proceeding. *See, e.g.*, SBC Comments at 102; Verizon Comments at 117.

[857] *See, e.g.*, ALTS *et al.* Comments at 52; CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at 6-7; WorldCom Comments at 76; WorldCom Fleming Decl. at para. 10; NewSouth Reply at 17.

[858] *See, e.g.*, *BOC UNE Rebuttal Report* at 45 (relating this figure to a typical Tier-I MSA but stating that New York, San Francisco, Washington, D.C., and Los Angeles account for 40% of all data revenue nationwide).

[859] Based on the record as a whole, for DS1 loops and some DS3 loops, overbuilding to enterprise customers that require services over these facilities generally does not present sufficient opportunity for competitors to recover their costs and, therefore, may not be economically feasible. *See, e.g.*, Covad Reply at 56; AT&T Jan. 14, 2003 *Ex Parte* Letter at para. 3 n.5; Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. B (filed Nov. 25, 2002) (AT&T Nov. 25, 2002 *Ex Parte* Letter) (providing loop build/no-build cost analysis); WorldCom Comments at 7; WorldCom Fleming Decl. at para. 10; Allegiance Reply at 38; NewSouth Reply at 17. In limited cases where evidence exists that a competitive LEC is serving customers via their own DS1 loops, the record suggests this is largely because these competitive LECs have *already* self-provisioned OCn level capacity to that specific location and other deployment barriers have not precluded them from using that capacity to serve other customers at lower loop capacity levels at that same location. *See* Letter from Joan Marsh, Director, Governmental Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, at para. 2 (AT&T Jan. 14, 2003 *Ex Parte* Letter); WorldCom June 11, 2001 High-capacity Comments at 8 (citing confidential information) and Attach. B, Proprietary and Confidential Declaration of Jay Slocum (WorldCom Slocum Decl.) at paras. 3-6.

specific criteria.[860] Indeed, competitive LECs agree that at a three DS3 loop capacity level of demand, it is economically feasible to self-deploy,[861] and record evidence reveals that both AT&T and WorldCom have self-provisioned DS3 circuits to many customer locations.[862]

299. The record also contains extensive, albeit contradictory, evidence regarding the degree to which competitors rely on the incumbent LEC's facilities versus their own to provision loops to their customers. According to the BOC UNE Fact Report 2002, market statistics show that competitive LECs are now serving between 13 and 20 million business lines off their own switches – yet they have obtained only about 1.5 million unbundled loops to serve business customers.[863] The BOCs conclude that competitive LECs are, therefore, serving the remaining 85-95 percent of those 13-20 million self-switched business lines using "alternative facilities" instead of unbundled loops.[864] In addition, the BOCs state that virtually all of the high-capacity unbundled loops that competitive LECs have purchased in the BOC territories are DS1 loops and that competitive LECs have purchased only 140 unbundled DS3 loops, and not a single unbundled loop above a DS3 level.[865] The BOCs reason that these figures reflect that competitive LEC fiber networks are now so extensive in urban markets that they readily can be – and routinely are – extended as needed to pick up additional traffic from new customers in

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[860] *See, e.g.*, WorldCom Fleming Decl. at para. 10 (when customer demand is projected at several DS3s or optical level capacity a self-build decision is made); WorldCom Comments at 7 (customers in a building must commit to at least three DS3 circuits before it is economically viable to extend fiber to that building); AT&T Comments at 134 (a competitive LEC can only self-deploy to a location with enormous demand, the smallest of which would be at the OC3 level); AT&T Nov. 25, 2002 *Ex Parte* Letter at 3 (the amount of committed traffic to support construction of loops for large business customers is about three DS3s, *i.e.*, an OC3), and Attach. B at 9 (at least three DS3s worth of demand is required before a facility build can generally be proven as financially prudent). The record also contains some evidence that DS3 loop services may be available from alternative providers other than the incumbent LECs in some buildings where competitive capacity to the building has already been provisioned at the OCn level. *See* Sprint Comments at 23-24; Letter from John E. Benedict, Senior Attorney, Sprint, to Marlene H. Dortch, Secretary, FCC, CC Docket 01-338, 96-98, 98-147, Attach. at 1 (filed Oct. 16, 2002) (Sprint Oct. 16, 2002 *Ex Parte* Letter); WorldCom Comments at 16; KMC Duke June 11, 2001 High-capacity Aff. at para. 5 (citing confidential information); SBC Reply at 143 (citing AT&T Comments at 150 n.10 (citing confidential information)); WorldCom Slocum Decl. at paras. 3-6; AT&T Reply at 185 (citing CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at 6 & Table 3); NuVox *et al.* Comments at 7.

[861] *See supra* note 860.

[862] *See* SBC Reply at 143 (citing AT&T Comments at 150 n.10 (confidential information)); WorldCom Slocum Decl. at paras. 3-6; *see also* CCG Jul. 17, 2002 CLEC Survey *Ex Parte* Letter (indicating that competitive loop capacity has been deployed into buildings but not indicating at what capacity level customers are served in those buildings).

[863] BOC UNE Fact Report 2002 at IV-1 through IV-4.

[864] The BOCs also claim that competitive LECs have deployed approximately 1,800 fiber "networks" in the 150 largest MSAs. BOC UNE Fact Report 2002 at I-3.

[865] BOC UNE Fact Report 2002 at IV-6. Specifically, the BOC UNE Fact Report 2002 states that competitive LECs have purchased a total of 72,000 high-capacity loops UNEs – all but 140 of which are DS1s. *Id.*

adjacent buildings, or down the block, and on outward from there.[866] According to the BOCs, once a competitive LEC deploys its initial fiber ring, extending that fiber incrementally to new customers is comparatively inexpensive.[867]

300. Competitive LECs strongly disagree with the BOCs' figures on line deployment, claiming these numbers are far less reliable than the data the Commission itself collects to measure competitive LEC deployment and the level of local competition.[868] Competitive carriers point to our own statistics which reveal that competitive LECs serve fewer than 9 million business lines nationwide, *i.e.*, not the 13 to 20 million lines that the incumbent LECs claim.[869] They further claim that this discrepancy is due in large part to the BOCs' inclusion of special access lines as alternative facilities in the BOC UNE Fact Report 2002.[870] Further, these commenters correctly note that the Commission staff's *Local Competition Report*, which calculates approximately 8.9 million voice-grade equivalent (VGE) lines for competitive LECs, explicitly indicates that it does not count special access lines as competitive LEC self-provisioned or "alternative provided" lines.[871] The BOCs acknowledge the inclusion of special access lines in their data, thus accounting for the approximate 15.8 million VGE differential from the Commission's *Local Competition Report*.[872]

301. Finally, the record indicates that various types of alternative transmission technologies to high-capacity local loops, *i.e.*, fixed-wireless, unlicensed-wireless, and satellite facilities, have been deployed in limited circumstances at certain locations.[873] The record, however, does not indicate the extent to which these alternative transmission technologies have

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[866] *See* BOC UNE Fact Report 2002 at IV-4.

[867] *Id.*

[868] *See, e.g.*, El Paso *et al.* Comments at 16-18 & n.68 (citing numerous other competitive LEC comments).

[869] AT&T Reply, Declaration of C. Michael Pfau (AT&T Pfau Reply Decl.) at paras. 2, 12-14 (describing how the incumbent LECs' methods for determining the number of competitive loops deployed substantially overstates the actual number by including, *inter alia*, leased special access circuits and other "flawed" assumptions). *See* Covad Reply 55; AT&T Reply at 182-85; NuVox *et al.* Reply at 42; WorldCom Comments at 76 (arguing that even in the most competitive market in the country, incumbent LECs have seven times more fiber than competitive LECs do).

[870] *See, e.g.*, AT&T Pfau Reply Decl. at paras. 14 (indicating that his experience recognizes that a much greater proportion of circuits are bought as special access).

[871] *See Local Competition June 2002* at 1 n.2, <http://www.fcc.gov/wcb/iatd/stats.html>.

[872] *See BOC UNE Rebuttal Report* at 45 (acknowledging that special access lines are, indeed, included in their numbers). In evaluating the extent to which competitive LECS have self-provisioned, the Commission has instructed competitive carriers to exclude local services provisioned over special access facilities in their reported data. *See supra* note 871. Because the Commission places little weight on the availability of special access in its impairment analysis, we do not rely on evidence that includes such lines.

[873] *See, e.g.*, BellSouth Comments at 42-43; SBC Comments at 91; Verizon Comments at 118.

been deployed or where they are available on a wholesale basis.[874] Nevertheless, it appears that, in certain circumstances, such technologies have been used by competitive LECs as alternatives to incumbent LEC unbundled high-capacity loops.[875] Incumbent LECs report that competitive carriers can often deploy fixed wireless connections more quickly and cheaply than fiber, and that free space optics, *i.e.*, laser-guided high-bandwidth connections to a fiber backbone, is now a viable technology.[876] Competitive LECs, however, question the extent to which this deployment is widespread and point to certain technical limitations of such technologies.[877]

(ii) Impairment Analysis

(a) Operational and Economic Barriers to Serving the Enterprise Market

302. Enterprise market customers demand reliable services that include customized products, significant customer care, and enhanced security features.[878] Moreover, they prefer a single provider capable of meeting all their needs at each of their business locations which may be in multiple locations in different parts of the city, state or country.[879] The economics of serving a particular enterprise customer at each of its business' facilities may be very different depending on the location of the facility.[880] Small to medium-sized business customers generally demand services at the DS1, and to a lesser extent, DS3 capacities.[881] Competitive LECs meet

[874] *See, e.g.*, ALTS *et al.* Comments at 45; Allegiance Comments at 19-22; Allegiance Reply at 36; AT&T Fea/Giovannucci Reply Decl. at 21 n.19; WorldCom June 11, 2001 High-capacity Comments at 13-14; Covad Comments at 49-50; Sprint Comments at 24-25; TDS Jackson Aff. at para. 9.

[875] *See Local Telephone Competition December 2002* Report; *see also* Allegiance Comments at 20-21; Sprint Comments at 25; Verizon Comments at 118.

[876] *See, e.g.*, Verizon Comments at 118 (stating that fixed wireless and free space optics is available for high-capacity links); SBC Reply at 91 (fixed wireless and satellite are broadband options for small business users).

[877] *See, e.g.*, Sprint Comments at 24-25 (indicating its significant experience with fixed wireless and noting its limitations and delayed development); TDS Jackson Aff. at para. 9 (indicating wireless loop alternatives are too costly, not available in TDS markets, and are not sufficiently robust platforms for TDS services); WorldCom June 11, 2001 High-capacity Comments, Attach. D, Affidavit of A. Daniel Kelley & Richard A. Chandler (WorldCom Kelley & Chandler June 11, 2001 High-capacity Aff.) at paras. 38-45 (arguing that there have been abortive attempts by competitors to provide high-capacity access to business customers using several fixed wireless technologies). We note that fixed wireless alternatives require Commission issued licenses and are subject to the availability of limited spectrum resources.

[878] *See, e.g.*, GCI Reply at 20.

[879] *See, e.g.*, WorldCom Comments at 13-18; Covad Reply at 57.

[880] *Id.* The loop capacity impairment approach we adopt today accommodates the need to serve a single enterprise customer at multiple locations because it recognizes that it may only be economical to build at the primary location where the loop capacity demanded is very high, enabling the competitive LEC to obtain unbundled lower capacity loops to serve the customer's other business locations.

[881] *See, e.g.*, NewSouth Reply at 16 (DS1 loops serve smaller businesses and DS3 and OCn serve larger businesses); NuVox *et al.* Reply at 39-41 (T1 facilities serve innovative bundled service offerings efficiently to small (continued....)

these demands by providing packages of services, carrying both voice and data traffic, sold under month-to-month or short-term contracts.[882] In contrast, larger enterprise customers demand extensive services using multiple DS3s or OCn loops typically offered under long-term arrangements which guarantee a substantial revenue stream over the life of the contract.[883]

303. Because the cost to self-deploy local loops at any capacity is great,[884] and the cost to deploy fiber does not vary based on capacity,[885] a competitive LEC that plans to self-deploy its own facilities must target customer locations where there is sufficient demand from a potential customer base, usually a multiunit premises location, to generate a revenue stream that could recover the sunk construction costs of the underlying loop transmission facility, including laying the fiber and attaching the requisite optronics to light the fiber.[886] For competitive LECs deploying a very high-capacity loop facility to a particular customer location, the revenue commitment relative to the cost of constructing that loop facility may result in a positive profit margin for that single customer location, making it economically feasible from a profitability perspective, to self-provision in that particular case.[887] Even when the customer demand at a certain location may support self-deployment from a pure cost recovery perspective, however, there are other obstacles that must be overcome before such self-deployment can effectively occur.[888] These other barriers include the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and getting it into the building

(Continued from previous page)

and medium business customers); Allegiance Reply at 35-36 (a significant segment of business customers are small and medium-sized enterprises that use DS1 capacity services).

[882] *See, e.g.*, ITC^Deltacom Aug. 16, 2001 Petition at 1-2; NewSouth Comments at 5; Affidavit of Edward J. Cadieux, NuVox (NuVox Cadieux Jan. 24, 2003 Aff.) at paras. 4-5, *in* Letter from Steven A. Augustino, Counsel for NuVox *et al.*, to William Maher, Chief, Wireline Competition Bureau, FCC, CC Docket No. 01-338, 96-98, 98-147 (filed Jan. 24, 2003); *see also* Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Jan. 31, 2003) (WorldCom Jan. 31, 2003 *Ex Parte* Letter).

[883] *Id.*

[884] In discussing the general economic characteristics of loop deployment above, we noted that loop construction costs do not vary by the capacity of the loop and that the ability to recover the high fixed and sunk costs is the key factor to considering impairment. We also observed that loop impairment is closely related to the demands of the individual customer served by such loop and the capacity level of the loop provided. *See supra* Part VI.A.3.

[885] *See supra* Part VI.A.3.; *see also* Letter from Stephen W. Crawford, General Counsel, El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 5, 2003) (El Paso Feb. 5, 2003 *Ex Parte* Letter).

[886] *See, e.g.*, Allegiance Comments at 23; WorldCom Comments at 76; AT&T Reply at 145; *see also* TDS Jackson Aff. at para. 8.

[887] *Id.*; *see also* TDS Jackson Aff. at paras. 8-10.

[888] *See, e.g.*, El Paso *et al.* Comments at 20-21.

thereafter,[889] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop facilities.[890]

304. The record reflects that constructing local loops generally takes between 6-9 months without unforeseen delay.[891] Competitive LECs describe numerous ways in which further delay affecting construction decisions and deployment occurs. These delays can be attributable to securing rights-of-way from local authorities which is necessary before competitive LECs can dig up streets to lay fiber. Often, carriers must engage in lengthy negotiations with local authorities over the ability to use the public rights-of-way.[892] Similarly, obtaining building and zoning permits adds further delay as local authorities often conduct extensive inquiries into the planned construction activity of the competitive carrier.[893] Moreover, commenters note that many local jurisdictions impose construction moratoriums which prevent the grant of a franchise agreement to construct new fiber facilities in the public rights-of way.[894]

305. In addition to delays associated with gaining access to rights-of-ways and permits from local or municipal authorities, competitive LECs face additional barriers with regard to serving multiunit premises due to difficulties and sometimes outright prohibitions in gaining building access.[895] Although multiunit premises could present substantial economic opportunities for competitors, if the entity or individual controlling access to the premises does not allow a competitor to reach its customer residing therein (or places unreasonable burdens on the competitive LEC as a condition of entry), the competitive LEC may be unable to serve its

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[889] *See, e.g.*, ALTS *et al.* Comments at 56 (discussing other barriers competitive LECs face in self-deployment); AT&T Reply at 174-79.

[890] *See, e.g.*, Sprint Comments at 23; AT&T Reply at 175. Competitive LECs argue that they can not feasibly construct loop facilities and justify the fixed and sunk costs that self-provisioning will entail in advance of securing firm customer commitments guaranteeing the likelihood of cost recovery. *See, e.g.*, NuVox *et al.* Comments at 74; AT&T Reply at 176-77; Supra Comments at 7. This barrier to entry can be exacerbated when states adopt service quality rules that require local service providers to be in a position to provision service within a specified number of days after a customer signs up for service. *See, e.g.*, Ohio Admin Code Ch. 4901 § 1-5-20 (C); 220 ILCS 5 § 13-712; 83 ILAC § 730.540.

[891] *See, e.g.*, ALTS *et al.* Comments at 58; WorldCom Comments at 75 (citing WorldCom Fleming Decl.).

[892] Because of the expense and delay associated with filing a preemption petition, carriers rarely avail themselves of section 253(c) of the Act. *See* 47 U.S.C. § 253(c).

[893] *See, e.g.*, ALTS *et al.* Comments at 23-24. Incumbent LECs argue, however, that actual competitive LEC deployment undermines these arguments. *See, e.g.*, SBC Reply at 156.

[894] *See, e.g.*, ALTS *et al.* Comments at 42, 50, 56, 58; *see also* New York Department Comments at 4. Incumbent carriers, however, generally argue that competitive LECs are not impaired by rights-of-way costs and delays. BellSouth argues that mandatory access to rights-of-way means that there are not generally extreme delays caused by disputes, and competitive LECs can turn to the accelerated docket if need be. BellSouth Comments at 68-69.

[895] *See, e.g.*, AT&T Reply at 175 (stating that the time to negotiate building access arrangements can be up to 18 months); *see also* WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter.

customer via its own facilities,[896] even where a competitive carrier may be ready, willing, and otherwise able to self-deploy the loop.[897]

306. In conducting our impairment analysis, we give substantial weight to the cost of constructing a loop facility in relation to the ability of the competitive carrier to recover those costs over time, *i.e.*, where the traffic volume and associated revenue potential from the loop facility allow a carrier to earn a return necessary to sustain its operations at that location. We do, however, consider other factors affecting competitive LEC loop deployment, including access to public and private rights-of-way and multiunit premises access, that incumbent LECs have not or do not similarly face as a result of their first-mover advantage. Altogether, these factors directly influence the ability of competitive carriers to raise capital to deploy service to customers using their own loop facilities in a timely manner. The record reflects that these barriers can be overcome at certain loop capacity levels and certain service locations as we explain below.[898]

(b) General Framework

307. We organize our analysis of high-capacity loops based on capacity level because it is a more reliable indicator of the economic abilities of a requesting carrier to utilize third-party alternatives, or to self-deploy. At the same time, we recognize that operational and economic concerns will vary depending on the geographic market served. We find that the extent of competitive deployment of high-capacity loop facilities can vary tremendously by geographic area. More specifically, the barriers to entry requesting carriers face are most precisely identified on each geographic route serving a particular customer location. Where our record permits, however, we distill general characteristics of high-capacity loop deployment on a national level sufficient to make nationwide determinations of impairment and non-impairment. Where the record indicates impairment and that only with more granular evidence could a finding of non-impairment be made, we establish triggers to identify non-impairment based on customer location-specific evidence.

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[896] *See, e.g.*, AT&T Reply at 178-79. Verizon argues that, in the interim, competitive LECs can purchase special access services or use wireless or "free-space optics" loop in the interim during construction of the loop. Verizon Comments at 120-23. Competitive LECs, however, question the extent to which these wireless modes are available for use on an interim basis. *See supra* Part VI.A.4.a.(iii)(b). As for Verizon's suggestion that the use of special access services is sufficient, the Commission has stated it does not factor the availability of incumbent LEC's special access services into its loop impairment analysis. *See supra* Part V.B.1.d.(ii).

[897] *See, e.g.*, ALTS *et al.* Comments at 56-58; WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter; AT&T Reply at 175. We address building access-related barriers to loop deployment in greater detail below in our subloop and NID unbundling analyses, particularly, with respect to the Inside Wire Subloop. We expect that the subloop and NID unbundling rules that we adopt today will substantially mitigate the adverse impact of many of the building access-related barriers requesting carriers face with respect to serving customers in multiunit premises, particularly where the incumbent LEC's network extends beyond the minimum point of entry at the premises and the wiring in the building is owned and controlled by the incumbent LEC. Moreover, the Commission still has an open proceeding, WT Docket No. 99-217, related to building access. *See Competitive Networks Order*, 15 FCC Rcd 22983.

[898] *See supra* para. 298; *see also* Allegiance Comments at 23; ALTS *et al.* Comments at 58.

308. In conducting our impairment analyses for the various types of high-capacity loops, we first consider evidence of whether competitive LECs have self-deployed such loop facilities, on either an intermodal or intramodal basis, to provide retail services to enterprise market customers.[899] In our analysis, we recognize that a variety of alternative high-capacity loop transmission technologies, in various stages of development and use, are offered to enterprise customers in certain locations as potential alternatives to their traditional high-capacity loops, *i.e.*, different types of fixed-wireless, *e.g.*, 38 GHz, LMDS, MMDS, and 24 GHz; satellite facilities; and unlicensed wireless.[900] As we have indicated above,[901] evidence of self-deployment demonstrates better than any other kind of evidence what business decisions competitive carriers have *actually* made regarding the feasibility to deploy facilities without relying on the incumbent LEC. This evidence shows us, as a practical matter, that competitive LECs have been able to surmount barriers to entry with respect to that particular loop deployment. We then consider the extent of this deployment, whether it occurs or could occur on a nationwide basis, or is more limited in scope. Next we look at the extent to which wholesale alternatives to the incumbent LEC's unbundled loops are available to competitive LECs to provision high-capacity loops to their customers. We consider whether these alternatives, including alternative transmission technologies, are available ubiquitously or only in certain places.

309. We note that our consideration of alternative loop technologies in the enterprise market analysis differs from our consideration of intermodal alternatives in our mass market analysis. Different approaches are warranted because of the differences in how these technologies are deployed in these markets based on their suitability to individual customers, as well as the likelihood these technologies could be self-provisioned or made available to competitive carriers on a wholesale basis.[902] In the enterprise market, companies are able to target individual buildings and customers and determine which technology is the optimal means of reaching each customer. On the other hand, in the mass market where revenues are small, customers are typically served in large groups, using uniform technologies and mass marketing and provisioning techniques to minimize the cost of serving each customer.[903] As such, creating mechanisms to identify intermodal alternatives on an individual customer basis in the mass market is impractical, whereas it is feasible, in certain cases, in the enterprise market.

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[899] *Iowa Utils. Bd.*, 525 U.S. at 389 (noting that the Commission must consider the availability of elements "outside the incumbent's network" when applying the "impair" standard). *See also* ITTA Jan. 29, 2003 *Ex Parte* Letter, Attach. at 1 (noting that the question is whether elements are available from sources other than incumbent LEC).

[900] *See, e.g.*, BellSouth Comments at 42-43; SBC Comments at 91; Verizon Comments at 118; *see also* ALTS *et al.* Comments at 45; Allegiance Comments at 19-22; Allegiance Reply at 36; AT&T Fea/Giovannucci Reply Decl. at 21.

[901] *See supra* Part V.B.

[902] *See supra* Part V.B.1.d.(ii); *see also supra* Part VI.A.4.a.(iv).

[903] Thus, those technologies that can only be used for accessing certain customers and require equipment installation at the customer location, such as fixed wireless, have only proven to be economically viable for customers found in the enterprise market.

310. We find that certain types of alternative loop technologies could be made available on a wholesale basis to competitive carriers for providing high-capacity loop services to particular building locations in the enterprise market. Providers of viable intermodal alternatives to mass market customers have shown no inclination to provide access to competing carriers to serve their customers, nor would we expect them to.[904] With respect to the ability of a competitive LEC to self-provision high-capacity loops using alternative loop technologies, there are substantial differences between the mass market and the enterprise market. For example, one of the mass market's major alternative loop technologies, cable telephony, is only available to cable TV companies that, because of their unique economic circumstances of first-mover advantages[905] and scope economies,[906] have access to the customer that other competitive carriers lack. Other technologies, such as fixed wireless, have not proven to be viable or deployable on a mass market scale. This contrasts with the enterprise market, where the record reflects that alternative technologies are available to some degree at certain locations that might be used by competitive carriers to provide high-capacity loops to enterprise customers.

(c) Capacity-based Impairment Findings

(i) Dark Fiber Loops

311. We find on a national basis that requesting carriers are impaired at most customer locations without access to dark fiber loops. Dark fiber, unlike "lit" fiber, is unused fiber within an existing fiber optic cable that has not yet been activated through optronics to render it capable of carrying communications services.[907] Users of unbundled dark fiber loops, similar to users of dark fiber transport,[908] provide the electronic equipment necessary to activate the dark fiber strands to provide services.[909] While the underlying capacity level of a strand of dark fiber is comparable in total capacity to an OCn loop, we address dark fiber loops separately from OCn loops due to economic and operational characteristics that distinguish dark fiber from "lit"

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[904] A provider that has privileged access to a single mass market customer potentially will lose the customer if it provides wholesale access to a potential competitor.

[905] These companies had the advantage of beginning with exclusive franchises and a captive market. These advantages are not available to other entrants.

[906] Scope economies exist when the cost of providing a service is lower when combined with other services. The cost of providing cable telephony to customers is lower for cable TV companies because they also provide video services to those customers.

[907] *See supra* note 628 (definition of dark fiber).

[908] *See infra* Part VI.C.4.c.(i).

[909] By itself, dark fiber has virtually unlimited capacity. It is the electronics that define the capacity. *See* El Paso Feb. 5, 2003 *Ex Parte* Letter at 2; *see also* AT&T Comments at 130; Letter from Thomas Jones, Counsel for Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Dec. 24, 2002) (Conversent Dec. 24, 2002 *Ex Parte* Letter).

fiber.[910] We make our determination of impairment based on the high sunk costs associated with deploying high-capacity loop facilities and lack of evidence showing alternatives at specific customer locations.

312. Dark fiber exists in a carrier's network as unused fiber available because that carrier has deployed fiber in the first instance for the express purpose of lighting certain strands of it to serve a particular customer location.[911] The "dark" fiber strands, however, remain unlit. Dark fiber loop construction, like loops generally, involves substantial fixed and sunk costs. The primary costs associated with fiber deployment lie in the substantial sunk costs associated with physically laying the fiber cable.[912] In addition, there are other barriers that must be overcome before deployment can effectively occur.[913] These other barriers include the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and getting it into the building thereafter,[914] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop facilities.[915] It is only when a competitive LEC has sufficient demand for "lit" fiber to a particular customer location to enable it to recover the fixed and sunk costs of the fiber deployment that it is economically feasible for that competitor to deploy fiber to that location.[916] When a fiber build decision is made, carriers

[910] For example, competitive providers that use unbundled dark fiber claim that it can offer a higher level of service than "lit" transmission because unbundled dark fiber integrates more efficiently into their networks by reducing the number of failure points and by providing the competing carrier with greater ability to test for quality and maintenance. *See* Conversent Comments at 7; Letter from Scott Sawyer, Vice President - Regulatory Affairs, Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Oct. 10, 2002) (Conversent Oct. 10, 2002 *Ex Parte* Letter). Other competitive carriers indicate that dark fiber gives them greater control over their own network components which is an important aspect of their competitive service offerings. *See* Letter from Lawrence R. Freedman, Counsel for Norlight, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Dec. 30, 2002) (Norlight Dec. 30, 2002 *Ex Parte* Letter). In the *UNE Remand Order*, we recognized that the characteristics of dark fiber do not vary between loop and transport deployment. Because dark fiber is more extensively used in transport, we discuss its characteristics in more detail below in our discussion of dark fiber transport and do not repeat such discussion here other than to indicate that the characteristics of dark fiber described therein pertain to dark fiber loops as well. *See infra* Part VI.C.4.c.(i). Any operational or provisioning requirements associated with incumbent LEC provisioning of unbundled dark fiber transport apply equally to provisioning unbundled dark fiber loops. *See id.*, para. 384 (discussing issues associated with dark fiber access and granting states the flexibility to establish reasonable limitations and technical parameters).

[911] Competitive carriers indicate that they, unlike the incumbent LEC, can not build fiber loop plant until they have secured a substantial customer base and revenue stream. *See* Letter from Robert J. Aamoth, Counsel for Dominion Telecom, to Michael K. Powell, Chairman, FCC, CC Docket No. 01-338 at 4 (filed Jan. 28, 2003) (Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter); *see also* El Paso *et al.* Comments at 9.

[912] *See supra* Part VI.A.3 (discussing loop construction costs); *see also* El Paso Feb. 5, 2003 *Ex Parte* Letter at 1.

[913] *See, e.g.*, El Paso *et al.* Comments at 20-21.

[914] *See, e.g.*, ALTS *et al.* Comments at 56 (discussing other barriers competitive LECs face in self-deployment); AT&T Reply at 174-79.

[915] *See supra* note 890.

[916] *See infra* Part VI.A.4.b.(i) (stating that evidence that the specific level of demand must be OCn or 3 DS3s of capacity into a particular customer location to justify competitive loop deployment); *see also supra* note 911.

take advantage of the fact that they are already incurring substantial fixed costs to obtain the rights-of way, dig up the streets, and trench the cable, to lay more fiber than they immediately need. Once the significant fiber construction cost is incurred,[917] the record reflects that it is relatively easy and inexpensive to install fiber strands in excess of current demand at that time to maximize the use of the conduit and avoid the need to incur duplicate costs to retrench the same location in the future if demand for additional fiber facilities occurs.[918] As such, incumbent LECs are the largest source of intracity dark fiber nationwide as a result of their "first-mover" fiber deployment to the majority of customer locations.[919] This sharply contrasts with the availability of competitive dark fiber loops, which is necessarily limited by the economic barriers inherent in deploying alternative fiber loops, generally, except to certain customer locations.[920]

313. Because it is generally not economically feasible to deploy duplicate fiber loop facilities, the record reflects that a number of facilities-based competitive LECs rely on incumbent LEC unbundled dark fiber to provision "last-mile" services to small and medium-sized customers, particularly in rural, unserved, or underserved areas of the country.[921] These users of unbundled dark fiber provide the necessary optronics[922] and collocations that are preconditions to activating the fiber to serve customers. These carriers extensively deploy their own network facilities, *e.g.*, switches, transport, and the necessary optronics to light dark fiber to enable the provision of competitive high-capacity local service to end users in direct competition with the incumbent LEC.[923] These competitive LECs argue that they seek to construct their own fiber loops all the way to the customer if economically feasible to self-deploy, but that in many areas the level of demand is not sufficient to warrant overbuilding the dark fiber already available

[917] *See supra* Part VI.A.3 (discussing loop construction costs); *see also* El Paso *et al.* Comments at 20-21.

[918] *See, e.g.*, El Paso *et al.* Comments at attached TPUC testimony at 8 (indicating an industry average of a "mere" $1.00 per foot to increase fiber placement from a 72 fiber strand cable to the next standard 144 size fiber strand cable); *see also* Norlight Dec. 30, 2002 *Ex Parte* Letter at 5.

[919] *See* Norlight Dec. 30, 2002 *Ex Parte* Letter at 5 (the first carrier to lay fiber to a particular location will lay significantly more than it will need because the incremental cost of burying additional fibers is negligible; requiring competitors to construct duplicate facilities where there is already excess capacity in place is precisely the inefficiency the *USTA* court instructed the Commission to avoid).

[920] *See supra* note 905.

[921] *See, e.g.*, Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 4 (dark fiber loops are especially critical because they are often located in areas where few or no competitors presently serve customers; eliminating unbundled dark fiber loops would deprive hundreds of businesses in Tier II and III cities from receiving competitive service); Norlight Dec. 30, 2002 *Ex Parte* Letter at 5 (in smaller rural markets where dark fiber exists there typically is no demand or expected growth in demand to warrant additional facilities); Norlight Comments at 2-4 (Norlight serves Tier II and III cities where the incumbent LEC is the only option other than cost prohibitive self-deployment to extend competitive service to customers).

[922] We note that the cost of electronics, such as those used to activate dark fiber, are not sunk costs like fiber construction costs because they can be moved from one location to another location upon exit from a particular location.

[923] *See, e.g.*, Norlight Dec. 30, 2002 *Ex Parte* Letter at 2.

from incumbent LECs.[924] Because it is not economically feasible to self-deploy to many enterprise market customer locations, particularly less densely populated areas, unbundled dark fiber loops enable competitive carriers to build facilities-based networks to serve customers at those locations[925] with the least reliance on the incumbent LEC's facilities.[926] We find that dark fiber loops allow competing carriers to provide services without incurring many of the high sunk costs of self-deploying the loop facility, but still require significant investment in collocation and optronics. We expect that unbundling of dark fiber loops will encourage construction of alternative facilities because it will provide facilities-based carriers the means of obtaining the last-mile facility necessary to serve customers over competitive networks comprised largely of facilities other than the incumbent LEC's. The availability of dark fiber loops increases the ability of facilities-based competitive LECs to reduce their reliance on unbundled "lit" high-capacity loops at locations where dark fiber loops are available to them, encouraging investment in the optronics necessary to light the fiber.[927] Moreover, unbundling dark fiber enables the Commission to limit unbundling obligations with respect to certain high-capacity "lit" loops as we discuss below.

314. In most areas, competing carriers are unable to self-deploy and have no alternative to the incumbent LEC's facility.[928] However, the record indicates that competitive LECs have been able to self-deploy fiber to some customer locations, although the record does not reveal the specific locations of such deployment.[929] For this reason, we delegate to the states the authority to collect and analyze more specific evidence of loop deployment on a customer location basis, applying a uniform national trigger that measures self-provisioning to determine customer

[924] *Id* at 5. Carriers also note that in these more rural areas it actually may be less costly to both in time and dollars to self-deploy fiber than in more urban areas, but the level of demand to a customer location may simply be too low to justify the cost of installing duplicative facilities. *Id* at 3.

[925] *See, e.g.*, Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 2; Norlight Dec. 30, 2002 *Ex Parte* Letter at 5.

[926] *See, e.g.*, Letter from Joshua M. Bobeck, Counsel for El Paso Global Networks, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147 at 2 (filed Oct. 4, 2002) (El Paso Oct. 4, 2002 *Ex Parte* Letter) (dark fiber is the UNE that is closest to 100% facilities-based competition).

[927] *See* Letter from Stephen W. Crawford, General Counsel, El Paso Networks, and Scott Sawyer, Vice President and Counsel, Conversent Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 1 (filed Nov. 26, 2002) (El Paso/Conversent Nov. 26, 2002 *Ex Parte* Letter).

[928] *See supra* note 856; *see also* Letter from Brad E. Mutschelknaus, Counsel for OnFiber Communications, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147 at 2 (filed Feb. 6, 2003) (OnFiber Feb. 6, 2003 *Ex Parte* Letter) (asserting that the vast expense associated with deploying dark fiber precludes self-provisioning and prevents any kind of alternative market from developing).

[929] *See supra* note 856; *see also* Letter from Patrick J. Donovan, Counsel for El Paso Networks LLC, to Marlene H. Dortch, Secretary, FCC, CC *Docket* No. 01-338 (filed Jan. 22, 2003) (El Paso Jan. 22, 2003 *Ex Parte* Letter); Letter from Ann D. Berkowitz, Project Manager – Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 19 (filed Jan. 31, 2003) (discussing competition for special access) (Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter); Norlight Dec. 30, 2002 *Ex Parte* Letter at 2.

locations where competitive carriers are not impaired without access to incumbent LEC unbundled dark fiber loops.[930]

(ii) OCn Loops

315. We find that requesting carriers are not impaired on a nationwide basis without access to unbundled "lit" OCn loops because the barriers relating to the deployment of OCn "lit" loops can be overcome through self-deployment at the OC3 and above level, the use of unbundled dark fiber, or the use of "lit" DS3s.[931] Record evidence reflects competitive deployment of loops at the OCn level and competitive carriers confirm they are often able to economically deploy these facilities to the large enterprise customers which use them.[932] Further, there does not appear to be any evidence of demand for incumbent LEC OCn level unbundled loops.[933] Competitive LECs have deployed OCn capacity to some commercial buildings nationwide, including Tier II and Tier III markets.[934] We find this evidence of deployment

[930] *See infra* Part VI.A.4.b.(ii)(d) (discussing in detail the state reviews on a customer-location specific basis applying the defined Self-Provisioning Trigger and Competitive Wholesale Facilities Trigger).

[931] OCn circuits range from OC3 to OC192. The smallest common OCn capacity circuit, an OC3, is comparable in capacity to 3 DS3s, 84 DS1s, or 2016 voice-grade loops. Our impairment finding for OCn level loops differs from our finding for dark fiber loops as the economics of deploying "lit" fiber at the OCn level differs from deploying dark fiber at a comparable capacity level. While the construction-related costs in laying the fiber are the same, the ability to recover these sunk costs differs if considered as distinct types of loop facilities. As we noted in our discussion of dark fiber loops above, dark fiber is unused deployed fiber along a particular route that is not associated with a specific potential revenue stream from a known customer at the time of construction. *See supra* para. 312. A competitive LEC does not deploy dark fiber to use in self-provisioning high-capacity local service to customers *unless* that competitive LEC already has sufficient customer demand at a "lit" fiber level, *i.e.*, at the OCn or 3 DS3 level, to recover the sunk costs of the fiber construction. *See supra* note 911; *see also* Dominion Jan. 28, 2003 Aamoth *Ex Parte* Letter at 4. In other words, competitive carriers can not economically deploy dark fiber on a stand-alone basis for self-deployment purposes without an associated "lit" fiber demand. While carriers deploying OCn fiber loops must necessarily first deploy dark fiber and then attach the requisite optronics to activate the fiber for service capability at the OCn level, carriers deploying fiber to meet a particular customer demand for OCn capacity are viewed as deploying an OCn loop to serve that customer rather than deploying dark fiber to serve that customer.

[932] *See, e g.*, WorldCom Fleming Decl. at para. 10 (when customer demand is projected at several DS3s or optical level capacity a self-build decision is made); Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338, 96-98, 98-147, Attach. at 5 (filed Oct. 7, 2002) (WorldCom Oct. 7, 2002 *Ex Parte* Letter) (for self-deployment to be feasible, the demand must be for at least multiple DS3s); AT&T Comments at 134 (a competitive LEC can only self-deploy to a location with enormous demand, *i.e.*, the smallest of which would be at the OC3 level); AT&T Nov. 25, 2002 *Ex Parte* Letter at 2 (the amount of committed traffic to support construction of loops for large business customers is about 3 DS3s, *i.e.*, an OC3), and Attach. B at 9 (at least 3 DS3s worth of demand is required before a facility build can generally be proven as financially prudent).

[933] *See supra* para. 299 (BOCs state that not a single unbundled loop above a DS3 level has been purchased).

[934] *See* KMC Duke June 11, 2001 High-capacity Aff. at para. 3 (naming the Tier III markets they serve with their own facilities); CCG July 17, 2002 CLEC Survey *Ex Parte* Letter (explaining that the six metropolitan areas chosen to represent competitive LEC loop buildout – Albany, Augusta, Boston, Chicago, Corpus Christi, and Portland – represent a broad cross section of populations and business concentrations); *see also* WorldCom Oct. 30, 2002 *Ex Parte* Letter.

persuasive in demonstrating that competitive LECs can often overcome the barriers associated with loop deployment at the OCn level.

316. Commenters indicate that services offered over OCn loops produce revenue levels which can justify the high cost of loop construction, providing the opportunity for competitive LECs to offset the fixed and sunk costs associated with the loop construction. Large enterprise customers purchasing services over OCn loops[935] enter into long-term contracts committing to revenue streams and associated early termination charges that provide the ability for carriers to recover their substantial non-recurring "set-up" or construction costs.[936] Customers obtaining services at the OCn level also understand that transitioning such services to a new provider is not an overnight process. Because of their level of business planning sophistication, as a practical matter, they begin the process of seeking a new or alternative service provider well in advance of their actual need for the service.[937] Accordingly, they are more receptive to the inherent provisioning delays associated with constructing these high-capacity loops to meet their particular needs than smaller business customers served by lower capacity loops.[938] Competitive carriers deploying fiber at the OCn capacity level are therefore able to accommodate provisioning delays and additional expense at the start of the construction process, mitigating obstacles to self-deploying they may face in gaining access to public and private rights-of-way.[939]

317. Furthermore, enterprise customers requiring OCn level capacity are often located in multiunit premises where they may have the ability to exert greater influence over building

[935] We recognize that large enterprise customers may also have remote business locations that do not require the capacity of an OCn loop. We reiterate that we do not tailor our rules to restrict or limit unbundling based on the size or class of the customer served. A large enterprise customer's particular loop capacity demand at a given service location is determined by multiple factors unique to that customer's needs at that specific location, rather than the size of that customer. Merely because large enterprise customers are typically the only type of customer that purchase OCn capacity loops does not equate to the fact that OCn loops are the only type of loop such customers demand.

[936] *See supra* note 932; *see also* Declaration of Alfred E. Kahn and William E. Taylor, RM No. 10593 at 32-33 (discussing generally how long-term contracts and associated termination penalties are used to ensure cost recovery) *in* Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter. Long-term contracts are used to minimize risk exposure and stabilize construction costs over time when the seller incurs heavy sunk costs as part of a transaction. *Id.*

[937] If this customer's competitive OCn loop is to be provisioned at their current business location, we understand they will generally begin the process of looking at alternative service providers months in advance of the expiration date of their current contract for service, which will usually include a provision for month-to-month service thereafter for as long as needed. If service is to be provided at a brand new location that the customer is moving to, or having built, at an OCn level of capacity, decisions regarding which service provider will provision that service will similarly be made months before occupancy. Each of these scenarios mitigates the impact of the lead time to build new loops with respect to serving these customers.

[938] *See, e.g.*, Sprint Comments at 23; WorldCom Fleming Decl. at paras. 9-10.

[939] To the extent these initial obstacles are in the form of unreasonably high costs for rights-of-way access, competitive LECs deploying fiber to serve customers at the OCn level are better able to overcome these barriers as the revenues associated with OCn capacity service contracts are quite high. *See generally* AT&T Comments at 134; WorldCom Comments at 76; *see also* TDS Jackson Aff. at para. 8.

access because: (1) their operations are so substantial that they own the premises outright; (2) they control the access to the premise; or (3) they have sufficient influence over the landlord/building owner to overcome building access impairments the competitive provider may encounter due to the amount of leased occupancy space for which this enterprise customer has committed.[940]

318. Competitive carriers requiring OCn capacity "lit" loops to serve customers will also have the ability to purchase dark fiber, including unbundled dark fiber loops, and attach their own optronics to activate such loops to serve their customers at those locations where unbundled dark fiber is available. In circumstances where competitive LECs may be unable to self-deploy the underlying OCn fiber loop, the record demonstrates that there is no impairment with respect to obtaining and attaching the requisite optronics necessary to light dark fiber at the OCn level to provide service. Based on record evidence that self-deployment of the loop transmission facility at the OCn level is generally feasible, it necessarily follows that the lesser cost of self-providing just the optronics to light the fiber at the OCn level is economically feasible. While we recognize that dark fiber may not be available at every customer location nationwide, a competitive carrier may also access "lit" loops. Because the record demonstrates, however, that competitive carriers routinely self-deploy when customer demand is three DS3s (or optical capacity) as discussed further below, we limit the availability of "lit" DS3 loops to a maximum of two unbundled DS3 loops per carrier at each customer location.[941]

319. Finally, as we have noted, at least in the BOC regions, the record reflects that competitive LECs have not obtained unbundled loops at the OCn level.[942] Thus, there are few, if any, transition issues with regard to OCn loops. In the event a competitive LEC of which we are not aware is currently providing service over an unbundled OCn loop, the transition scheme that we have adopted herein governs such situation.[943]

(iii) DS3 Loops

320. We make a national finding that requesting carriers are impaired on a customer-location-specific basis without access to unbundled DS3 loops. The inability to recover the significant fixed and sunk construction costs of DS3 loops, coupled with the additional barriers to loop deployment associated with accessing rights-of-way; obtaining and paying for building access; and other service provisioning delays impair the ability of requesting carriers to self-provision single DS3 loops.[944] Unlike deployment at even the lowest OCn level, the record

[940] *See, e.g.*, AT&T Reply at 174-77.

[941] *See infra* para. 321.

[942] *See supra* para. 299.

[943] *See supra* Part VIII.D (addressing the transition process adopted herein).

[944] *See supra* Part VI.A.3 for a discussion of the general economic characteristics of loop deployment. Because the cost of constructing a fiber loop facility does not vary to any significant degree with loop capacity, to economically justify a particular loop construction expenditure, a competitive carrier must have some reasonable expectation of being able to recover its cost over time.

indicates that a single DS3 loop, generally, can not provide a sufficient revenue opportunity to overcome these barriers.[945] Because our impairment analysis rests most heavily on the ability of a self-deploying carrier to recover its sunk and fixed costs, the inability to recover such costs at a single DS3 level results in impairment. In finding impairment based on the inability to recover sunk costs, we find that the other economic and operational barriers faced by competitive LECs in self-deploying loops generally, *i.e.*, difficulties in acquiring municipal and private rights-of-ways as well as gaining building access from owners of multiunit premises,[946] exist for competitive LECs with respect to single DS3 loop deployment.[947]

321. Despite the economic barriers that a competitive LEC faces in deploying single DS3 loops, the record indicates that some carriers have been able to overcome these barriers when providing multiple DS3s to a specific customer location.[948] Because the record does not, however, provide sufficient evidence to determine the specific factors that make such deployment feasible at these locations, we are unable to conclude with any precision exactly where requesting carriers would not be similarly impaired without access to unbundled DS3 loops.[949] Similarly, the record reflects a small but potentially growing wholesale alternative DS3 loop market.[950] Once again, however, the record in this proceeding does not specify exactly

[945] *See supra* note 860. The potential revenue stream associated with a customer commitment for a single DS3 loop is far less than the revenue stream associated with an OCn loop, yet the cost to construct the loop facility is the same. At the smallest OCn level, *i.e.*, OC3, there are 2,016 voice-grade equivalent lines. A single DS3 is equivalent to 672 voice-grade equivalent lines. A simple comparison of the relative voice-grade equivalent lines demonstrates that a customer commitment in terms of potential revenue stream for a DS3 is many times smaller than that of an OC3 loop. Accordingly, it takes a longer period of time for a competitive LEC to recover its costs of deploying a single DS3 loop facility.

[946] *See, e.g.*, AT&T Reply at 174-79 (discussing other barriers linked to the incumbent LECs' historical monopoly that preclude competitive loop deployment independent of cost factors); *see also* NuVox *et al.* Comments at 74; KMC Duke Aff. at paras. 7-9 (citing proprietary information); SNiP LiNK Polito Aff. at paras. 3-7; Sprint Comments at 22; Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Oct. 25, 2002) (discussing building access barriers) (WorldCom Oct. 25, 2002 Building Access *Ex Parte* Letter); ALTS *et al.* Comments at 56.

[947] *See supra* Part VI.A.3. for evidence of the existence of the other operational barriers to DS3 loop capacity deployment.

[948] The record indicates that some competitive carriers have economically self-deployed DS3 capacity loops to certain customer locations where the aggregate demand for DS3 capacity at those locations is *three* or more. *See supra* note 860; *see also* Letter from David L. Lawson, Counsel for AT&T to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 02-33 at 1 n.2 (filed Feb. 3, 2003) (AT&T Feb. 3, 2003 Lawson *Ex Parte* Letter) (citing AT&T Nov. 25, 2002 *Ex Parte* Letter indicating competitors can economically self-deploy at 3 DS3s worth of traffic).

[949] Indeed, we note that competitive carriers do not have an incentive to volunteer such information in our record. The record does provide sufficient information to enable us to impose a limitation on the number of DS3 unbundled loops that a requesting carrier can obtain to any single customer location. *See infra* para. 324.

[950] *See* AT&T Comments at 150 n.110 (citing confidential information that indicates that some of its DS3 level loop capacity is obtained from non-incumbent LEC sources).

where this deployment has occurred. Therefore, as discussed below, we delegate to the states the authority to collect and analyze more specific evidence of DS3 loop deployment on a customer location-specific basis, applying uniform national triggers that measure self-provisioning or wholesale alternative availability to determine customer locations where competitive carriers are not impaired without access to incumbent LEC unbundled DS3s.[951]

322. If, as the incumbent LECs argue, "a small number of buildings in each metropolitan area typically account for a large fraction of the traffic,"[952] we expect that the triggers that we adopt today will provide incumbent LECs substantial relief from their unbundling obligations while simultaneously ensuring that competitive carriers get unbundled high-capacity loop access only where they are unable to economically self-deploy or use alternative facilities.[953]

323. In finding that competitive carriers are impaired without unbundled access to DS3 loops, we disagree with incumbent LECs' claims that market evidence of DS3 deployment in certain situations demonstrates that, in *all* situations, traffic and revenue potential justify a nationwide finding of DS3 non-impairment. The limited record evidence we have of self-deployment does not permit such broad extrapolation.

324. *Limitation on Multiple Unbundled DS3 Loops.* Finally, consistent with our finding of no impairment at the OCn loop capacity level, and because the record confirms that it is economically possible to self-deploy at a three DS3 loop level to a particular customer location, we limit an incumbent LEC's unbundling obligation to a total of two DS3s per requesting carrier to any single customer location.[954] We find that as a carrier approaches customer demand for three DS3s of capacity at a particular customer location, it is feasible for that carrier to self-deploy its own high-capacity facilities. Our unbundled DS3 loop quantity

[951] *See infra* Part VI.A.4.b.(ii)(d) (discussing in detail the state reviews on a customer-location specific basis applying the defined Self-Provisioning Trigger and Competitive Wholesale Facilities Trigger).

[952] *BOC UNE Rebuttal Report* at 45.

[953] One commenter indicates that 200 to 300 out of 15,000 multiunit premises in a typical Tier-I MSA generate 80% of the data revenues. *Id.* Verizon indicates a Tier I MSA is typically defined as an MSA with a population of one million or more. *See* Verizon Jan. 31, 2003 Special Access *Ex Parte* Letter at 13 n.62.

[954] We note that our unbundled DS3 loop cap is smaller than the unbundled DS3 transport cap. *See infra* Part VI.C.4.c.(ii). The unbundled DS3 loop cap is based on record evidence indicating the feasibility of DS3 loop self-deployment at a 3 DS3 level. Indeed, AT&T's record evidence indicates economic feasibility at about 2.75 DS3s or 77 DS1s worth of traffic. *See* AT&T Jan. 14, 2003 *Ex Parte* Letter at 4 (citing AT&T Nov. 25, 2002 *Ex Parte* Letter, Attach. B). Once a competitive carrier's customer demand at a location exceeds 2 DS3 loops, the competitive carrier should plan to self-deploy DS3 capacity to that customer location. The record evidence for the self-provisioning feasibility level for DS3 transport varies, but because it generally is within a higher range than for DS3 loops, establishing the DS3 transport limit at a higher number is appropriate.

limit is location specific, maintaining consistency with our impairment conclusions about OCn capacity loop deployment,[955] as well as DS3 loop deployment.

(iv) DS1 Loops

325. We find that requesting carriers generally are impaired without access to unbundled DS1 loops.[956] The record contains little evidence of competitive LECs' ability to self-deploy single DS1 capacity loops[957] and scant evidence of wholesale alternatives for serving customers at the DS1 level.[958] Commenters expressly state that a competitive carrier would not construct its own DS1 or lower capacity loops.[959] Indeed, incumbent LECs recognize a distinction between provisioning DS1 level loops and other higher capacity loops.[960] The record shows that requesting carriers seeking to serve DS1 enterprise customers face extremely high economic and operational barriers in deploying DS1 loops to serve these customers.[961]

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[955] We have noted that the lowest common OCn capacity standard, OC3, is equivalent to three DS3 circuits in terms of capacity. *See supra* note 931.

[956] DS1 loops will be available to requesting carriers, without limitation, regardless of the technology used to provide such loops, *e.g.*, two-wire and four-wire HDSL or SHDSL, fiber optics, or radio, used by the incumbent LEC to provision such loops and regardless of the customer for which the requesting carrier will serve unless otherwise specifically indicated. *See supra* Part VI.A.4.a.(v) (discussing FTTH). The unbundling obligation associated with DS1 loops is in no way limited by the rules we adopt today with respect to hybrid loops typically used to serve mass market customers. *See supra* Part VI.A.4.a.(v)(b)(i).

[957] We note that at least two competitive LECs have provided evidence that indicates that they self-provide some DS1 capacity loops to certain customer locations. *See supra* note 859. It is important to note, however, that this evidence of self-provisioning has been possible where that same carrier is already self-provisioning OCn or a 3 DS3 level of loop capacity to that same customer location. Thus, this evidence does not support the ability to self-deploy stand-alone DS1 capacity loops nor does it impact our DS1 impairment finding. *See* AT&T Comments at 150 n.10 (citing confidential information); WorldCom Slocum Decl. at paras. 3-6.

[958] *See* Covad Reply at 56 (discussing no alternative DS1 capacity providers); NewSouth Comments at 13-17; NewSouth Reply at 17; WorldCom Comments at 74; AT&T Jan. 14, 2003 *Ex Parte* Letter at 2; WorldCom Oct. 30, 2002 *Ex Parte* Letter; AT&T Feb. 3, 2003 Lawson *Ex Parte* Letter at 13. The record indicates that even competitive carriers that have deployed their own loop facilities do not have the back office support systems in place that are necessary to offer any excess capacity on a wholesale basis to other competitive LECs. *See, e.g.*, KMC Duke Aff at para. 13 (discussing what systems are necessary to wholesale service to other carriers).

[959] *See* AT&T Jan. 14, 2003 *Ex Parte* Letter at 3 n.5; Covad Comments at 47; Allegiance Reply at 38.

[960] SBC Comments at 100-01; SBC Reply at 156 (recognizing that impairment may exist for certain DS1 loops and proposing a carve-out).

[961] *See supra* Part VI.A.4.b.(ii)(a) for a discussion of the economic and operational barriers to DS1 loop capacity deployment. The record indicates that many competitive carriers providing DS1 capacity loops to enterprise market customers serve the small to medium-sized segment of this market which is characterized as typically underserved by incumbent LECs. Indeed, many of these competitive LECs, which are themselves small to medium size businesses, have entered the competitive telecommunications market specifically to serve these smaller business customers requiring primarily DS1 level capacity. The DS1 loop unbundling rule we adopt today recognizes the dependency that smaller business customers and carriers have on DS1 capacity loops and accommodates those needs consistent with our impairment framework. *See also* NuVox Cadieux Jan. 24, 2003 *Ex Parte* Aff. (for general discussion of (continued....)

Customers demanding services over DS1 loops possess significantly different economic characteristics for competitive carriers than large enterprise market customers. In particular, small and medium enterprise customers served by DS1 loops provide much lower revenue opportunities than large enterprise market customers and, generally, resist long-term contract obligations.[962] These factors lead to a greater potential to change providers on a more frequent basis, *i.e.*, churn, resulting in the inability of competitive LECs to rely on a long-term DS1 revenue stream, as they can with much higher loop capacity demands. Taken together, these factors make it economically infeasible for competitive LECs to deploy DS1 loops, which require the same significant sunk and fixed construction costs as higher capacity loops.

326. While DS1 loops are typically used to serve small to medium-sized business customers associated with the enterprise market, they are also used to serve customers associated with the mass market. Although we recognize different characteristics between these two markets, *e.g.*, enterprise customers are more concentrated in urban locations, in multiunit premises, and demand greater variety and higher quality services than mass market customers, the economics of constructing DS1 loop facilities to serve these different customer classes are not significantly different. The average revenue available per customer in either of these markets is very low relative to larger enterprise market customers using higher capacity loops.[963] While we recognize that retail business customer rates are typically higher than residential rates, the record reflects that the revenues generated from small and medium enterprise customers are not sufficient to make self-deploying DS1 loops economically feasible from a cost recovery perspective.[964] As we have stated, our impairment findings rely most heavily on the economic feasibility of competitive LECs to self-deploy and recover sunk costs.[965] Competitive LECs do not have the ability to recover sunk costs in self-deploying DS1 loops. Furthermore, the other economic and operational barriers faced by competitive LECs in self-deploying loops generally, *e.g.*, the inability to obtain reasonable and timely access to the customer's premises both in laying the fiber to the location and bringing it into a building thereafter,[966] as well as convincing customers to accept the delays and uncertainty associated with deployment of alternative loop

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serving small to medium business customers with DS1 capacity); NuVox *et al.* Comments, attached Profiles & Affidavits; Covad Reply at 54; NewSouth Reply at 16-17; Allegiance Reply at 36-38.

[962] *See, e.g.*, NewSouth Reply at 18 (discussing the lower traffic volumes and revenue potential that can be generated from a DS1); *see also* TDS Jackson Aff. at para. 10.

[963] This fact can be most easily demonstrated by simply comparing voice-grade line equivalents, *i.e.*, a single DS1 is equivalent to 24 voice-grade lines whereas 3 DS3s (the number of DS3 capacity loops where self-provisioning begins to be economically feasible) is equivalent to 2016 voice-grade equivalents.

[964] *See supra* note 962.

[965] *See supra* para. 206.

[966] *See, e.g.*, AT&T Reply at 174-79; ALTS *et al.* Comments at 56 (discussing, generally, some of the other barriers competitive LECs face to self-deployment).

facilities exist with DS1 loop self-deployment.[967] Indeed, because the ability to absorb the additional "costs" associated with these other economic and operational barriers over time becomes increasingly more difficult at lower loop capacity levels, these barriers impact the ability to self-deploy at a DS1 level to an even greater extent than at higher loop capacity levels.[968]

327. Because the record does not demonstrate that carriers can economically self-provision at the DS1 level, we do not delegate to the states the authority to consider DS1 loop impairment on a location-specific basis based on a self-provisioning trigger.[969] On the other hand, although the record indicates little evidence of wholesale alternative DS1 loop capacity, evidence of alternative providers at the DS3 and higher capacity levels suggests that there may be specific locations where competitive carriers have deployed fiber and could offer excess capacity at the DS1 loop level. Thus, we recognize the possibility that non-incumbent LEC DS1 loop alternatives may be available now or in the near future at particular customer locations. As explained below, we delegate to the states the authority to collect and analyze more specific evidence of wholesale alternatives to DS1 loops on a customer location-specific basis, applying a uniform national trigger that measures the availability of wholesale competitive alternatives to determine customer locations where competitive carriers are not impaired without access to incumbent LEC unbundled DS1s.[970]

(d) Location-Specific Review Conducted By States Applying Federal Triggers

328. In making affirmative impairment findings on a nationwide basis for dark fiber loops, DS3 loops, and DS1 loops, we recognize that limited alternative deployment has occurred at particular customer locations not specified in our record for certain of these high-capacity loop types which could lead to a finding of no impairment for that loop type at that location. Thus, for these loop types, a more granular impairment analysis should be applied on a customer-by-customer location basis. To that end, we delegate to states a fact-finding role to identify where competing carriers are not impaired without unbundled high-capacity loops pursuant to two triggers. If a state commission finds that the federal triggers for a finding of non-impairment have been satisfied for a specific type of high-capacity loop at a particular customer location, the incumbent LEC will no longer be required to unbundle that loop type at that location according to the transition schedule adopted by the state commission.[971] Incumbent LECs must make the unbundled high-capacity loops for which we find impairment on a nationwide basis available to

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967 *See supra* Part VI.A.3., Part VI.A.4.b(ii)(a) for evidence of the existence of the other operational barriers to DS1 loop capacity deployment.

968 *See supra* para. 315 (discussing the ability to absorb these costs at the OCn loop level).

969 *See infra* Part VI.A.4.b(ii)(d) (discussing in detail the state reviews on a customer-location specific basis) and para. 334 (describing why states will not apply the Self-Provisioning Trigger to DS1).

970 *See infra* Part VI.A.4.b(ii)(d) (discussing in detail the Competitive Wholesale Facilities Trigger).

971 *See infra* Part VIII.D (discussing the transition process).

qualifying requesting carriers except at those customer locations where a state commission's granular review has confirmed that no impairment exists and unbundling is no longer required. In the event a state commission declines to exercise the authority we delegate to it, a party may petition this Commission to conduct such analysis.[972]

329. We establish two different types of triggers to identify the specific customer locations where there may be no impairment for the high-capacity loops we identify below and the incumbent LEC unbundling obligation can be eliminated at that customer location: 1) where a specific customer location is identified as being currently served by two or more unaffiliated competitive LECs with their own loop transmission facilities at the relevant loop capacity level (Self-Provisioning Trigger); or 2) where two or more unaffiliated competitive providers have deployed transmission facilities to the location and are offering alternative loop facilities to competitive LECs on a wholesale basis at the same capacity level (Competitive Wholesale Facilities Trigger). Although both triggers focus on whether there are two alternative loop providers at a particular customer location, they are different because the Competitive Wholesale Facilities Trigger can be satisfied by alternative loop providers that have deployed their own facilities *or* by alternative providers that are using unbundled network elements but otherwise satisfy the "wholesaling" requirement of the Competitive Wholesale Facilities Trigger. For example, unbundled dark fiber loops obtained from the incumbent LEC and activated by the alternative provider through attaching its own optronics to offer wholesale "lit" loop capacity may be used to satisfy the Competitive Wholesale Facilities Trigger to remove the unbundling obligation for DS3 and DS1 loops at a particular customer location. Unbundled dark fiber loops, however, may not be used to satisfy the Self-Provisioning Trigger. It is possible, however, that the Self-Provisioning Trigger could, in some circumstances, overlap with the Competitive Wholesale Facilities Trigger. On the other hand, the Competitive Wholesale Facilities Trigger will capture loop alternatives even where barriers have prevented competitive LECs from entirely deploying their own facilities[973] These triggers, tailored to respond to specific record evidence demonstrating that self-deployment is economically feasible or competitive alternatives are available at particular customer locations, will identify those locations where a more granular analysis is required to overcome the finding of impairment.[974]

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[972] *See supra* Part V.E.2 (discussing the role of the states).

[973] *See infra* paras. 333, 340. Thus, while a particular customer location may not satisfy the Self-Provisioning trigger because one or both of the alternative providers "lights" unbundled dark fiber to self-provide loops to customers at that location, these providers could satisfy the Competitive Wholesale Facilities Trigger at that location to eliminate loop unbundling requirements.

[974] We establish the number of competitors to the incumbent LEC necessary to satisfy each trigger for high-capacity loops subject to a finding of impairment at two in order to ensure that multiple competitive entry at each location is feasible. *See USTA*, 290 F.3d at 427. Limiting our high-capacity loop triggers to only one competitor runs the risk of failing to accommodate unusual circumstances unique to that single provider that may not reflect the ability of other competitors to similarly deploy. Establishing a higher number, for example three, would likely render our high-capacity loop triggers meaningless for the many customer locations where the potential aggregate customer demand would never support more than two competitive alternatives to the incumbent LEC. Moreover, establishing the trigger at too high a number could discourage competitive buildout because would-be competitive facilities-based (continued....)

330. We establish the number of competitors to the incumbent LEC necessary to satisfy each trigger for high-capacity loops subject to a finding of impairment at two in order to ensure that multiple competitive entry at each location is feasible.[975] We choose a lower threshold for our high-capacity loops self-provisioning trigger than we did for the self-provisioning triggers for transport and switching (*i.e.*, two versus three) for two reasons. First, we are taking into consideration the more limited ability of the market to support multiple carriers providing their own loops to a particular location, compared to the demand available to support multiple carriers using their own self-provisioned transport and switching. Unlike both transport and switching, few customers can be served over a single loop facility, and the traffic of multiple customers is generally not aggregated over loops. Thus, establishing a higher number, for example three, would likely render our high-capacity loop triggers meaningless for the many customer locations where the potential aggregate customer demand would never support more than two facilities-based competitive alternatives to the incumbent LEC.[976] Second, we are concerned that this limited demand could provide a greater disincentive to build out any alternative loops if the trigger were set at three. The more limited demand for loops means that there is a lesser likelihood that a third competitive provider would build out to a particular location. This, in turn, creates a greater disincentive for the first and second providers to build out to the location, because if the trigger were set at three, they will likely have to compete against unbundled incumbent LEC loop facilities at TELRIC-based prices for a significant period of time.

331. We choose these specific triggers because we find that: (1) evidence of actual deployment indicates barriers to entry can be overcome; and (2) the availability of competitive wholesale alternatives eliminates impairment for competitive LECs. Eliminating unbundling obligations where no impairment exists furthers the goals of the Act by ensuring that the availability of unbundled network elements at cost-based rates does not discourage the deployment of facilities by competitive LECs where such deployment is economically feasible.

(i) Self-Provisioning Trigger

332. *Trigger Defined.* Where two or more competitive LECs have self-provisioned loop transmission facilities, either intermodal[977]or intramodal facilities, to a particular customer location at the loop capacity level for which the state impairment analysis is being conducted,

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providers would know that two additional competitors would have to first deploy their own facilities before unbundled loop facilities at TELRIC-based prices would no longer be available at that location.

[975] *See USTA*, 290 F.3d at 427.

[976] Moreover, limiting our high-capacity loop triggers to only one competitor runs the risk of failing to accommodate unusual circumstances unique to that single provider that may not reflect the ability of other competitors to similarly deploy.

[977] *See supra* Part V.B.1.d.(ii) (describing intermodal alternatives generally, and factors affecting differences in the extent to which various intermodal alternatives are considered); Part VI.A.3. *supra* (describing how intermodal alternatives are considered for loops generally); paras. 308-309 *supra* (describing how intermodal alternatives are considered for enterprise market loops).

competitive LECs are not impaired without access to unbundled incumbent LEC loops at that capacity level at those particular customer locations.[978] This determination involves a finding that there are two competitive LECs that have existing facilities in place serving customers at that location over the relevant loop capacity level.[979] If the state commission makes a finding of no impairment based on the application of the Self-Provisioning Trigger, it is not necessary to separately apply the Competitive Wholesale Facilities Trigger.

333. *Trigger Applied.* In conducting its proceeding with respect to the Self-Provisioning Trigger, the state commission must verify that the two competitive providers identified to satisfy this trigger are unaffiliated with the incumbent LEC and each other.[980] In addition, the facilities these competitors use must be their *own facilities* and not facilities owned or controlled by one of the other two providers to the premises, *i.e.*, the incumbent LEC and the other competitive provider. To be clear, a competitive LEC using the special access facilities of the incumbent LEC or the transmission facilities of the other competitive provider in the building would *not* satisfy the definition of a self-provisioning competitor for purposes of satisfying the trigger. We find, however, that when a competitive carrier has obtained dark fiber on a long-term indefeasible-right-of-use (IRU) basis, that dark fiber facility can be counted as a separate, unaffiliated facility for self-provisioning determination purposes.[981]

334. *Special Considerations For Dark Fiber and DS1 Loops.* When applying the Self-Provisioning Trigger to eliminate an incumbent LEC's requirement to unbundle dark fiber loops at a particular customer location, the mere existence of two unaffiliated competitive providers (in addition to the incumbent LEC) that have deployed fiber to that location, *whether or not they are offering dark fiber to other carriers to serve end-user customers at that location*, will satisfy the Self-Provisioning Trigger for dark fiber loops and require a finding of no impairment at that

[978] If two or more competitive LECs have been able to economically self-deploy at a particular location at the loop capacity level being considered by the state, based on information contained in the record, we determine that the barriers to self-deployment at that customer location for that loop capacity level are likely able to be similarly overcome by other competitive entrants.

[979] For example in applying the Self-Provisioning Trigger to DS3 loops, the state commission must determine that two or more competitive LECs provide DS3 loops *over their own facilities* to customers at that particular customer location.

[980] We use the term affiliated and affiliate as the Act defines "affiliate." Section 3 of the Act defines the term "affiliate" as "a person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this paragraph, the term 'own' means to own an equity interest (or the equivalent thereof) of more than 10 percent." 47 U.S.C. § 153(1).

[981] For purposes of the "own facilities" prong of the Self-Provisioning Trigger, a competitive carrier that has obtained dark fiber transmission facilities from the incumbent LEC on a long-term IRU basis will be considered to operate its own unaffiliated facilities. We believe that dark fiber IRU type contracts protect against short-term gaming by the incumbent LEC. Moreover, we do not want to foreclose incumbent LECs from negotiating long term dark fiber leases with competitive LECs. To be clear, however, because we want to be certain of the independent ownership of the loop transmission facilities, we find that loop transmission facilities transferred on an IRU basis is limited only to dark fiber and does not include "lit" fiber IRUs obtained from the incumbent LEC or the other provider.

location. Therefore, we do not apply a wholesale trigger to unbundled dark fiber loops because such trigger would necessarily overlap with the Self-Provisioning Trigger.[982] Because there is little record evidence demonstrating that carriers construct facilities to serve customers exclusively at the DS1 level, as well as the lack of economic evidence showing such self-deployment is possible, the Self-Provisioning Trigger *will not* be applied to DS1 loops.

335. *State Analytical Flexibility.* In applying the Self-Provisioning Trigger to high-capacity loops, we find that actual competitive deployment is the best indicator that requesting carriers are not impaired, and therefore emphasize that this quantitative trigger is the primary vehicle through which non-impairment findings will be made. We recognize, however, that this high-capacity loop trigger measures only the existence of *actual* deployed competitive alternatives at a customer location rather than whether that particular customer location *could* be economically served by competitive carriers through deployment of alternative loop transmission facilities. Thus, when conducting its customer location specific analyses, a state must consider and may also find no impairment at a particular customer location even when this trigger has not been facially met *if* the state commission finds that no material economic or operational barriers at a customer location preclude competitive LECs from economically deploying loop transmission facilities to that particular customer location at the relevant loop capacity level. In making a determination that competitive LECs *could* economically deploy loop transmission facilities at that location at the relevant capacity level, the state commission must consider various factors affecting the ability to economically deploy at that particular customer location. These factors include: evidence of alternative loop deployment at that location; local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber or copper; the cost of equipment needed for transmission; installation and other necessary costs involved in setting up service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; building access restrictions/costs; availability/feasibility of similar quality/reliability alternative transmission technologies at that particular location.

336. In other circumstances, by contrast, state commissions may believe notwithstanding satisfaction of this trigger for a particular customer location, that continued access to unbundled loops at the capacity level under analysis should be maintained at the customer location because impairment, in fact, remains due to the existence of a barrier to further competitive facilities deployment at that location. An example of such a situation might be where a municipality has imposed a long-term moratorium on granting additional rights-of way permits along the routes necessary to serve the particular customer location.[983] In these circumstances, a state commission may file a petition for waiver with the Commission to maintain the incumbent LEC's unbundling obligation at that location until the barrier identified in the waiver petition no longer exists.

[982] Because dark fiber loops are not typically retail offerings like "lit" loops, it is necessary to modify somewhat the application of the Self-Provisioning Trigger for dark fiber loops to ensure that the granular state analyses include all those locations where at least two alternative carriers to the incumbent LEC have deployed fiber.

[983] This example is provided for illustrative purposes only and is not meant to be exclusive or dispositive.

(ii) Competitive Wholesale Facilities Trigger

337. *Trigger Defined.* Where competitive LECs have two alternative choices (apart from the incumbent LEC's network) to purchase wholesale high-capacity loops, including intermodal alternatives, at a particular premises, we conclude that impairment does not exist at that location for that type of high-capacity loop.[984] Specifically, where the relevant state commission determines that two or more unaffiliated alternative providers, including alternative transmission technology providers that offer an equivalent wholesale loop product at a comparable level of capacity, quality, and reliability, have access to the entire multiunit customer premises, and offer the specific type of high-capacity loop over their own facilities on a widely available wholesale basis to other carriers desiring to serve customers at that location, then incumbent LEC loops at the same loop capacity level serving that particular building will no longer be unbundled.[985] Similar to including dark fiber IRUs as facilities that satisfy the "own facilities" prong of the Self-Provisioning Trigger,[986] dark fiber IRUs also satisfy the "own facilities" prong of the Competitive Wholesale Facilities Trigger. Furthermore, in addition to dark fiber IRUs, we also include the use of dark fiber obtained on any other lease/purchase basis, *including obtaining it from the incumbent LEC on an unbundled basis*,[987] as long as the alternative provider has attached its own optronics to "light" the dark fiber in order to make "lit" fiber loops available to competitive LECs on a wholesale basis.[988]

338. *Trigger Applied.* In evaluating the two competitive wholesale loop providers, states should not undertake a financial viability analysis with respect to each provider. However, there should be some reasonable expectation that these providers are operationally capable of

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[984] For example, in applying the Competitive Wholesale Facilities Trigger to DS3 loops, the state must find that two alternative providers to the incumbent LEC offer wholesale DS3 loops to competitive LECs at that particular customer location.

[985] While the record indicates little evidence of wholesale DS1 loop capacity presently, evidence of some alternative providers at the DS3 and higher capacity levels suggests that there may be specific locations where competitive carriers have deployed fiber and might offer unused capacity at the DS1 loop level. Because we expect our loop unbundling rules to encourage greater facilities-based deployment where it is economically feasible, it is not unreasonable to accommodate the possibility that non-incumbent LEC DS1 loop alternatives may be available now or in the near future at particular customer locations. By accommodating this possibility in the trigger mechanism we craft today, we seek to ensure that our DS1 loop unbundling rules are not in conflict with *USTA*.

[986] *See supra* note 981.

[987] By counting wholesale loop offerings over dark fiber UNEs, an incumbent LEC could be relieved of its unbundling obligation at a specific loop capacity level at certain customer locations even where no other "alternative" fiber has been deployed, but where alternatives to incumbent LEC unbundled "lit" loops are nevertheless available.

[988] Similarly, as we determine in our dark fiber transport requirements, when applying this trigger to dark fiber loop impairment, the state may ensure that dark fiber wholesalers have sufficient quantity of dark fiber available. *See infra* para. 416.

continuing to provide wholesale loop capacity to that customer location.[989] We recognize that, while the record indicates that there are presently a limited number of alternative wholesale loop providers serving multiunit premises, we anticipate that a competitive wholesale market will continue to develop, particularly where competitive LECs have already deployed fiber and seek to derive revenue from excess capacity. We expect this granular trigger to encourage alternative high-capacity transmission providers to deploy more facilities and offer them on a wholesale basis, creating a more robust competitive market for high-capacity loop facilities to many areas nationwide.

(iii) State Action Under Both Triggers

339. We expect states to complete their initial reviews applying the triggers and other analysis discussed above within nine months from the effective date of this Order. Unbundled DS1, DS3, and dark fiber loops will remain available to all customer locations until the state commission determines that unbundled loops at particular capacities serving specific customer locations are no longer required. States that conduct this review need only address specific customer locations for which there is relevant evidence in the proceeding that the customer location satisfies one of the triggers or the potential deployment analysis specified in this Part.[990] To the extent that a state commission does not complete its proceedings in this nine month period,[991] aggrieved parties may file a petition with this Commission demonstrating a state's failure to act pursuant to the procedures we outline today.[992] We expect that states will require an appropriate period for competitive LECs to transition from any unbundled loops that the state finds should no longer be unbundled.

340. After completion of their initial reviews, we expect state commissions to conduct further granular reviews, pursuant to the procedures the state commissions adopt, to identify additional customer locations that satisfy the triggers. Such proceedings shall be completed

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[989] We note that carriers operating under chapter 11 bankruptcy are still capable of providing service while they reorganize their operations. Relatedly, in the case of a chapter 7 liquidation, the physical transmission facility assets of a competitive provider will continue to exist at that location as the purchaser of those assets will likely provide similar wholesale service or use such facilities to self-provide retail service. Under either scenario, the triggers which resulted in a finding of no impairment at that location will continue to be met. *See infra* Part VI.C.4. (discussing similar financial viability issues with respect to wholesale transport providers).

[990] *See supra* para. 335.

[991] By "complete," we mean that a state commission, upon receiving sufficient evidence, has an affirmative obligation to review the relevant evidence associated with any customer location submitted by an interested party, and to apply the trigger and any other analysis specified in this Part to such evidence.

[992] As discussed above, if a state fails to act, we set forth procedures for the Commission to step into the role of the state. *See supra* Part V.E. (discussing the role of the states).

within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state commission procedures.[993]

(e) Other Loop Unbundling Proposals.

341. Commenters have proposed various alternatives to the method we have adopted herein for conducting our loop impairment analysis and reaching our resulting conclusions. To the extent the methods we use and the conclusions we reach differ from those proposed, we expressly decline to incorporate them herein. We note, however, that we agree with the proposals of SBC and other commenters that the Commission distinguish among loop types and make capacity-based distinctions. The analysis we have undertaken has, indeed, distinguished not only among the various loop capacities, *e.g.*, DS0, DS3, OCn, but also the type of loop technology where appropriate, *e.g.*, "lit" fiber, dark fiber, copper, as well as the customer market class typically served by such loops. Through our approach, we recognize the different economic characteristics of serving customers demanding services provided over different loop capacity levels, eliminating or limiting unbundling obligations accordingly.[994] We disagree with SBC,[995] Verizon,[996] and BellSouth[997] to the extent each proposes that we base our loop unbundling analyses and conclusions consistent with our special access pricing flexibility rules.[998] Evidence of competitive LECs' ability to self-deploy local loop facilities or have wholesale non-incumbent LEC alternative loop facilities available to them is the proper inquiry in our loop impairment analysis. This analysis serves a host of statutory goals beyond the goal of the *Pricing Flexibility Order,* which is limited to protecting consumers from anticompetitive pricing. While each of

[993] Subsequent to the initial review, states have the flexibility to adopt reasonable and timely procedures for the periodic collection and evaluation of evidence indicating the satisfaction of the loop triggers at additional customer locations to remove unbundling obligations. For example, a state may decide to include self-reporting information regarding alternative loop deployment in an annual or semi-annual report, either as an independent obligation or as part of the competitive carriers' periodic filing obligations. Alternatively, a state may decide to accept evidence of alternative deployment through petitions filed during prescribed filing windows or through rulemaking proceedings. Regardless of the procedures adopted, however, states that conduct further reviews must complete their evaluation of the evidence and reach a determination within six months of the filing of a petition or other pleading filed pursuant to the state procedures.

[994] As we have noted above, we expect that the triggers that we adopt today for use by the states will provide incumbent LECs substantial relief from their unbundling obligations while simultaneously ensuring that competitive carriers get unbundled high-capacity loop access only where they are unable to economically self-deploy or use alternative facilities. *See supra* para. 322.

[995] *See, e.g.*, SBC Comments at 101 (proposing a DS1 trigger at two or more fiber-based collocators, serving 15,000+ business lines, and $150,000 or more per month in special access revenues and no unbundling at all above the DS1 level).

[996] *See, e.g.*, Verizon Comments at 119-20 (proposing, generally, the elimination of high-capacity loop unbundling where the incumbent LEC has obtained pricing flexibility for special access circuits).

[997] *See, e.g.*, BellSouth Comments at 67 n.240 (stating it makes no sense to find impairment where BellSouth has obtained pricing flexibility for special access circuits).

[998] *See Pricing Flexibility Order*, 14 FCC Rcd at 14221.

these pricing flexibility proposals vary somewhat, they are consistent in arguing that wherever and whenever incumbent LECs have received pricing flexibility for special access services, unbundled high-capacity loops, to some degree, should not be required.[999] Incumbent LECs have received special access pricing flexibility in numerous MSAs throughout their regions, based almost exclusively on meeting the *Pricing Flexibility Order's* triggers based on special access revenues.[1000] As we note below in our transport unbundling analysis, because the special access revenue triggers require only a single collocated competitor to purchase substantial amounts of special access in a concentrated area, this test provides little, if any, indication that even that competitor has been able to widely, if at all, self-deploy alternative loop facilities in that area.[1001] Evidence of self-deployment of transport facilities is not necessarily evidence of the economic ability of a competitive LEC to self-deploy loops. Moreover, the presence of a single competitive LEC's collocated transport facility as a trigger for purposes of protecting consumers from anticompetitive pricing, *i.e.*, the purpose of our pricing flexibility rules, is not sufficient evidence that facilities-based competitive entry into a market at the local loop level is economically feasible. Under a special access pricing flexibility trigger, such as suggested by incumbent LECs, DS1 loops would no longer be unbundled in many large geographic areas nationwide. This conclusion would clearly contravene our unbundling mandate due to the pervasive competitive LEC impairment at the DS1 loop level resulting from an economic inability to self-deploy and limited available wholesale alternatives. Similarly, we reject geographic zone distinctions for analyzing impairment for high-capacity local loops.[1002] Like we find in rejecting a pricing flexibility approach, the record simply does not contain evidence that loop impairment/non-impairment determinations can be appropriately made on a zone basis due

[999] Phase I pricing flexibility related to special access revenue is triggered on an MSA basis when wire centers accounting for at least 30% of (non-channel termination) special access revenues have at least one competitor that has collocated using non-incumbent transport. Phase II pricing flexibility related to special access revenues is triggered on an MSA basis when wire centers accounting for at least 65% of (non-channel termination) special access revenues have at least one competitor that has collocated using non-incumbent transport.

[1000] *See* Letter from Jake E. Jennings, NewSouth, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98 at 2 (filed Dec. 12, 2002) (NewSouth Dec. 12, 2002 *Ex Parte* Letter) (describing details of where and how BellSouth has received special access pricing flexibility); *see also* BellSouth Oct. 15, 2002 Transport and Loop *Ex Parte* Letter, Attach. at 5 (stating that BellSouth has received Phase I and Phase II special access pricing flexibility in 100% of its national top 150 MSAs); Verizon Dec. 17, 2002 *Ex Parte* Letter at 7 (stating that Verizon has pricing flexibility in 37% of its wire centers); Letter from Cronan O'Connell, Vice President – Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 5 (filed Oct. 11, 2002) (Qwest Oct. 11, 2002 Transport *Ex Parte* Letter) (stating that Qwest has been granted pricing flexibility in 33 of its 45 MSAs, many of which are not national top 100 MSAs).

[1001] Covad Reply at 57-58 (arguing SBC's proposal of two or more fiber-based collocators is no indication that competitive networks serve any more than a limited number of buildings in the area, much less the wire center's entire service area).

[1002] Incumbent LECs argue that the Commission should consider geographic distinctions, such as MSAs or even individual wire centers, for some or all UNEs, where there are differing levels of alternatives. *See, e.g.*, BellSouth Reply at 11-12 (arguing that the appropriate geographic market for the impairment analysis is the MSA). Competitive carriers, however, argue that there is no geographic area or market anywhere in the United States today where a geographic consideration would find no-impairment for any UNE. *See, e.g.*, NuVox *et al.* Comments at 53.

to the location-specific factors which impact impairment determinations at most high-capacity loop levels.

342. Finally, several commenters argue that the Commission should remove or modify its unbundling obligations for incumbent LECs based on evidence of adequate incumbent LEC performance in provisioning network elements.[1003] These parties argue that incumbent LECs should be required to demonstrate certain levels of compliance with existing unbundling performance measurements, such as section 271 performance metrics, for a commercially reasonable period of time prior to any removal of an unbundling obligation.[1004] Commenters suggest such a rule would provide incentives to incumbent LECs to comply with their performance obligations.[1005] The record, however, does not reveal that incumbent LEC performance has a significant, if any, direct relationship to the ability of competitive LECs to economically self-deploy local loops. Rather, the record demonstrates that competitive LEC deployment is primarily driven by general economic considerations. While these economic considerations are influenced by factors which the incumbent LEC did not, or does not, similarly face, *i.e.*, its historical ability to maximize scale economies and benefit from first–mover advantages, these factors are not so related to performance measurement compliance that consideration of such compliance would inform our impairment analysis.

B. Subloops For Multiunit Premises Access and NIDs

1. Background

343. In the *Triennial Review NPRM*,[1006] the Commission sought comment on whether it should maintain unbundling requirements for subloops[1007] and NIDs.[1008] A subloop is a smaller included segment of an incumbent LEC's local loop plant, *i.e.*, a portion of the loop from some

[1003] *See, e.g.*, CompTel Comments at 86-87; NARUC Comments at 10.

[1004] *See, e.g.*, CompTel Comments at 86-87; Maine CLEC Coalition Comments at 5-7; *see also* Pennsylvania Commissioner Wilson Comments at 8 (arguing that although the Commission should not remove unbundling obligations based on UNE or special access performance data, the states should have the authority to do so).

[1005] *Id.*

[1006] *Triennial Review NPRM*, 16 FCC Rcd at 22803, para. 48.

[1007] Subloops were first included in the list of specific UNEs in the *UNE Remand Order* as a means of providing competitive carriers "maximum flexibility to interconnect their own facilities" to various accessible points within the incumbent LEC's outside loop plant closer to a customer's premises. Subloops were defined as "any portion of the loop that is technically feasible to access at terminals in the incumbent LEC's outside plant, including inside wire." *UNE Remand Order*, 15 FCC Rcd at 3801, para. 234; *see also* 47 C.F.R. § 51.319(a)(2).

[1008] NIDs were included in the initial set of UNEs and defined as "a cross-connect device used to connect loop facilities to inside wiring." *Local Competition Order*, 11 FCC Rcd at 15697, para. 392. The Commission later modified the definition of a NID to be more flexible and technology neutral, recognizing that its rules enabled methods other than just a cross-connect device for interconnecting customer premises wiring with the incumbent LEC's loop distribution plant. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 207; *see also* 47 C.F.R. § 51.319(b).

technically accessible terminal beyond the incumbent LEC's central office[1009] and the network demarcation point,[1010] including that portion of the loop, if any, which the incumbent LEC owns and controls inside the customer premises.[1011] The Commission's rules permit the demarcation point of the incumbent LEC's network at a customer's premises to vary depending on the type of premises, *i.e.*, single unit or multiunit, and the date the premises was built.[1012] A competitor purchasing a subloop from an incumbent LEC to serve a particular customer location will access the incumbent LEC's loop along its distribution path at a technically feasible accessible terminal,[1013] generally, outside of the incumbent LEC's central office. These access points include, but are not limited to, a feeder distribution interface (FDI);[1014] a pole or pedestal;[1015] the MPOE;[1016] or the NID.[1017] The technically feasible points where subloops can be accessed can be further categorized as local loop plant consisting of customer premises wiring owned by the incumbent LEC as far as the point of demarcation (the "inside wire" subloop),[1018] and other portions of the loop from the central office to the point where the "inside wire" subloop begins. In this section, we address only subloops for access to multiunit premises, including the "inside

[1009] *UNE Remand Order*, 15 FCC Rcd at 3789, para. 206; *see also* 47 C.F.R. § 51.319(a)(2).

[1010] 47 C.F.R. § 68.3; *see also Competitive Networks Order*, 15 FCC Rcd at 23007, para. 54.

[1011] *UNE Remand Order*, 15 FCC Rcd at 3791, para. 210; *see also* 47 C.F.R. § 51.319(a)(2)(i).

[1012] Section 68.105 of the rules govern the location of the incumbent LEC's point of demarcation. Specifically, in single unit premises the demarcation point is within 12 inches of the protector or, if no protector, within 12 inches of where the telephone wire enters the customer's premises. 47 C.F.R. § 68.105(c). For multiunit premises, depending on whether the premises existed prior to 1990 or was constructed thereafter, the incumbent LEC's demarcation point may be located at the MPOE or at some other point or points within the premises. *Id.* § 68.105(d). The MPOE is defined to be either the closest practicable point to where the wiring crosses a property line or the closest practicable point to where the wiring enters a multiunit building. *Id.* § 68.105(b). In multiunit premises where the demarcation point is not located at the MPOE, the incumbent LEC's network extends into the premises resulting in an inside wire subloop.

[1013] Accessible terminals contain cables and their respective wire pairs that terminate on screw posts which enables a competitor's technician to cross connect its terminal to the incumbent LEC's to access the incumbent LEC's loop from that point all the way to the end-user customer. *UNE Remand Order*, 15 FCC Rcd at 3789, para. 206 n.395.

[1014] The FDI is the point in the loop where the trunk line or "feeder" leading back to the incumbent LEC's central office, and the "distribution" plant branching out to the subscribers, meet, and interface. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 206.

[1015] The pole or pedestal is near the customer premises and is the point where the "distribution" connects to the dedicated wire connecting the subscriber to the network. *UNE Remand Order*, 15 FCC Rcd at 3790, para. 206.

[1016] The MPOE is the closest practicable point to where the wiring crosses a property line or the closest practicable point to where the wiring enters a multiunit building. *See supra* note 1012.

[1017] At whatever point a subloop is accessed, requesting carriers gain access to the loop from that point up to, and including, the demarcation point of that loop. An incumbent LEC charge for that subloop should reflect a single rate up to the point of termination, including the NID if it is before or at the point of termination.

[1018] *See* 47 C.F.R. § 51.319(a)(2)(i).