available for additional competitive LEC equipment, further competitive entry may be impossible, irrespective of other economic or operational circumstances. Where the self-provisioning trigger has been satisfied and the state commission identifies an exceptional barrier to entry that prevents further entry, the state commission may petition the Commission for a waiver of the application of the trigger, to last until the impairment to deployment identified by the state no longer exists.

463. Second, a state must find no impairment when it determines that there are two or more competitive wholesale suppliers of unbundled local circuit switching, unaffiliated with the incumbent or each other. Where neither of these two triggers is satisfied, we establish a framework that state commissions must apply to determine whether a market *allows* self-provisioning of switching, notwithstanding the absence of three actual independent self-provisioning carriers. In conducting this inquiry, states must consider evidence of actual competitive deployment of local circuit switches, operational barriers to competitive entry, and economic barriers to competitive entry. Where these factors suggest the feasibility of self-provisioning of switching, states may render a "no impairment" finding for the market at issue. In the event a state does not reach such a finding and the triggers are not met for a particular market, we direct states to consider whether, in a given market, requesting carrier's impairment without access to local circuit switching would be cured by a more limited unbundling rule – specifically, "rolling" access to unbundled local circuit switching for a period of 90 days or more. Where such "rolling" access would cure all relevant sources of impairment – for example, by allowing competitive LECs to aggregate customers in preparation for a batch cut over and to avoid certain non-recurring costs associated with end users who might discontinue service during the first few months after becoming customers of the competitive LEC – we direct states to implement such rolling access to unbundled local circuit switching instead of a broader unbundling rule. Finally, we ask the state commissions to conduct continuing reviews of impairment for unbundled switching.

a. Impairment Caused by Incumbent LEC Hot Cut Process

464. Unlike the incumbent LECs, competitive LECs do not own entire exchanges in which the customers' loops are already connected to their switches through a pre-wired connection. Instead, switch-based competitive LECs must gain access to those customers' loop facilities, which predominately, if not exclusively, are provided by the incumbent LEC.[1406] Specifically, in order to use its own switch to provide end-user services, the competitor must connect its switch to the incumbent loop (*i.e.*, "last-mile connectivity"). To interconnect with an incumbent LEC or to access an incumbent LEC's UNEs, competitors must be able to directly access the incumbent's facilities with their own equipment. The most practical and efficient places in an incumbent's network where this direct access can occur are those centralized points where individual, subscriber-generated telecommunications traffic is aggregated onto common

[1406] Competitors use unbundled dedicated transport to provide the loop extensions that they need to connect their customers with their switches. In contrast, an incumbent LEC can connect its copper loop directly to its switch by merely running a jumper wire across its main distribution frame in the central office. *See generally* AT&T Oct. 4, 2002 *Ex Parte* Letter.

links for transmitting the traffic through the network or onto other networks. Collocation allows competitors to place their own equipment directly into these centralized points in the incumbent's network.[1407] Competitive LECs must collocate facilities at the incumbent LEC's central offices, and then build additional transport facilities to extend those loops to competitive LEC switches, and route all of their customers' traffic to their own switches.[1408]

465. The physical transfer of a customer's line from the incumbent LEC switch to the competitive LEC switch currently requires a coordinated loop cut over or "hot cut" for each customer's line.[1409] The record shows that hot cut capacity is limited by several factors, such as the labor intensiveness of the process, including substantial incumbent LEC and competitive resources devoted to coordination of the process, the need for highly trained workers to perform the hot cuts, and the practical limitations on how many hot cuts the incumbent LECs can perform without interference or disruption.[1410] Regardless of whether a customer was previously being served by the competitive LEC using unbundled local circuit switching, or by the incumbent itself, a hot cut must be performed. The record contains evidence that hot cuts frequently lead to provisioning delays and service outages, and are often priced at rates that prohibit facilities-based competition for the mass market.[1411] The barriers associated with the manual hot cut process are directly associated with incumbent LECs' historical local monopoly, and thus go beyond the burdens universally associated with competitive entry.[1412] Specifically, the incumbent LECs'

[1407] AT&T Comments at 211-12; NewSouth Comments at 40-45; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 3-4.

[1408] AT&T Reply at 310.

[1409] As discussed above, a hot cut is a largely manual process requiring incumbent LEC technicians to manually disconnect the customer's loop, which was hardwired to the incumbent LEC switch, and physically re-wire it to the competitive LEC switch, while simultaneously reassigning (*i.e.*, porting) the customer's original telephone number from the incumbent LEC switch to the competitive LEC switch. *See generally* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 7. From the time the technician disconnects the subscribers loop until the competitor re-establishes service, the subscriber is without service. Simultaneously, incumbent LEC and competitor technicians must coordinate to ensure that the subscriber's telephone number is "ported" to the competitor's switch so that inbound calls are properly routed to the requesting carrier's switch. This process necessarily disconnects service to the customer for a brief period of time, as the physical connection between the loop and the incumbent LEC switch is broken and then a new connection with the competitive LEC switch is made. The process of number porting also potentially subjects the customer to some period of time where incoming calls will not be received (*i.e.*, until the number porting process is correctly completed, the customer's number will not correctly route incoming calls to the competitive LEC switch now serving that customer). Some parties contend that hot cuts are practically infeasible in an increasing number of cases that leave requesting carriers with no workable means of obtaining access to unbundled loops. GCI Comments at 8-9, 16. GCI states that where the incumbent LEC has deployed IDLC architecture, it "simply cannot obtain access to the unbundled UNE loop in order to interconnect and direct that traffic to its collocation space." *Id.* at 9.

[1410] Z-Tel Comments at 38.

[1411] AT&T Comments at 212, 214-17; New York Department Comments at 2-4; BTI Comments at 11; UNE-P Coalition Comments at 49-50; WorldCom Comments at 86-87; Z-Tel Comments at 38-47.

[1412] AT&T Reply at 311; *see also* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4, 7-8, 10-11.

networks were designed for use in a single carrier, non-competitive environment and, as a result, the incumbent LEC connection between most voice-grade loops and the incumbent LEC switch consists of a pair of wires that is generally only a few feet long and hardwired to the incumbent LEC switch.[1413] Accordingly, for the incumbent, connecting or disconnecting a customer is generally merely a matter of a software change.[1414] In contrast, a competitive carrier must overcome the economic and operational barriers associated with manual hot cuts.[1415] Our finding concerning operational and economic barriers associated with loop access reflects these significant differences between how the incumbent LEC provides service and how competitive LECs provide service using their own or third-party switches.

466. Competitive carriers contend that the current hot cut process prevents an orderly and seamless migration, at least with respect to mass market customers.[1416] Requesting carriers must wait for coordinated cut overs before providing service with their own switch, delay that prevents the competitive LEC from providing service in a way that mass market customers have come to expect. Service disruptions also will influence customer perceptions of competitive LECs' ability to provide quality service, and thus affect competitive LECs' ability to attract customers. Competitive LECs, like ATX, provide ample testimony in the record reporting on their efforts to serve mass market locations using the hot cut process, claiming that they were forced to cease marketing and discontinue plans to provide switch-based services to mass market customers because they experienced difficulties with service implementation associated with the hot cut process to connect voice-grade loops to their switches.[1417] Similarly, AT&T contends that it lost over one-half of its UNE-L customers before the customers were even cut over due to the impact the hot cut process had on customers.[1418] AT&T also states that it experienced so many problems with coordinated hot cuts used to connect loops to its switches that it "was forced to stop marketing its switch-based service to all customer locations that did not have enough traffic to warrant the use of a DS-1 or higher capacity loop."[1419]

[1413] *See* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 7.

[1414] *See id.*

[1415] *See id.*

[1416] Bridgecom Feb. 5, 2003 *Ex Parte* Letter at 9.

[1417] *See* ATX Jan. 22, 2003 *Ex Parte* Letter at 3-5 (stating that the problems with hot cuts were so bad that it had to create special processes to handle hot cuts on a "special project basis" with Ameritech).

[1418] AT&T Comments at 214-17, 219; AT&T Brenner Decl. at paras. 34-42.

[1419] AT&T Comments at 207; *see also* UNE-P Coalition Comments at 47-48; Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 16, 2002) (Z-Tel Dec. 16, 2002 *Ex Parte* Letter); Letter from Robert A. Curtis, President, and Thomas M. Koutsky, Vice President – Law and Public Policy, Z-Tel, to Michael K. Powell *et al.*, FCC, *in* Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Feb. 6, 2003) (Z-Tel Feb. 6, 2003 Powell *Ex Parte* Letter) (noting generally that manual hot cuts are inadequate to handle the scale, quality, and efficiency needed if switching were eliminated).

467. Most importantly, mass market customers generally demand reliable, easy-to-operate service and trouble-free installation.[1420] WorldCom asserts that, before the competitive LEC has established an ongoing business relationship with its new customer, the customer is unlikely to tolerate any disruption of service caused by a manual hot cut – no matter how minor – during customer acquisition.[1421] Moreover, competition is meant to benefit consumers, and not create obstacles for them. The record shows that customers experiencing service disruptions generally blame their provider, even if the problem is caused by the incumbent.[1422] Indeed, Z-Tel states that one glitch or delay in the cut over process for a mass market customer may be enough to convince the customer to go back to the incumbent.[1423] In contrast, when a competitive LEC provisions a higher capacity service, such as DS1 capacity and above, to an enterprise customer, there generally is no "hot cut" of the customer.[1424] In addition, enterprise customers are often more willing to pay for redundancy to protect against disruption in the cut over process. Accordingly, we find the evidence in the record persuasive that the hot cut problem would be particularly great for transferring existing mass market customers in a cost-effective and operationally seamless manner.

468. Competitive carriers also argue that the manual hot cut process is not suitable for mass market customers because the incumbents cannot handle the necessary volume of transactions to support competitive switching in the absence of unbundled local circuit switching and that the non-recurring costs associated with hot cuts are prohibitively expensive.[1425] In deciding whether competitors are impaired by incumbent LEC provisioning processes, we must necessarily make a predictive judgment concerning this systemic capability to handle anticipated future hot cut volumes, which (absent access to unbundled local circuit switching) would be greater than volumes that have been experienced in the past.[1426] Competitive carriers have shown

[1420] WorldCom Reply at 141; Z-Tel Comments at 32-33.

[1421] WorldCom Reply at 141.

[1422] AT&T Comments at 19-20; Z-Tel Comments at 47; Navigator Comments at 4.

[1423] Z-Tel Comments at 32, 36, 47.

[1424] *See* NewSouth Reply at 27-28; NewSouth Fury Reply Aff. at para. 6.

[1425] *See* Letter from Ruth Milkman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 3 (filed Dec. 5, 2002) (WorldCom Dec. 5, 2002 *Ex Parte* Letter); Letter from Donna Sorgi, Vice President, Federal Advocacy, WorldCom, to William F. Maher, Chief, Wireline Competition Bureau, FCC, at 5, *in* Letter from Gil M. Strobel, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 8, 2003) (WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter) (stating that the hot cut process permits a few thousand transactions per month, not the million needed to bring competition to the mass market); Letter from Ruth E. Holder, Legal Specialist for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 12, 2003) (WorldCom Feb. 12, 2003 *Ex Parte* Letter) (showing hot cut NRCs and how they vary across the country).

[1426] Market data confirm that, by the end of 2002, competing carriers served an estimated ten million residential and small business lines via unbundled loops combined with unbundled local circuit switching. PACE Jan. 14, 2003 *Ex Parte* Letter at 2.

that, although they have used hot cuts to serve certain small segments of the market, no competitive carrier relies on hot cuts to offer service to significant numbers of customers served by voice-grade loops. Having reviewed the record evidence, we find that it is unlikely that incumbent LECs will be able to provision hot cuts in sufficient volumes absent unbundled local circuit switching in all markets. For instance, AT&T has presented evidence in the record that, despite years of effort to serve low-volume business locations with a UNE-L strategy that relied on hot cuts, hot cuts could not be provided in the volumes required to support AT&T's customer demand, leading to cancellation of orders for AT&T's competitive service offering.[1427] GCI, a carrier operating in Alaska, attempted to rely in part on hot cuts to provide service to the mass market, but it claimed that it had "continual problems with provisioning unbundled loops, especially for small business loops which require a hot cut."[1428] GCI states that its business plan required the incumbent LEC to perform approximately 500 hot cuts per day, but that the incumbent LEC at its peak has averaged only approximately 100 per day.[1429] McLeod states that in the former Ameritech region, SBC has performed at most 35 hot cuts per central office per day.[1430] Moreover, the evidence in the record shows that some incumbent LECs expressly limit the number of lines that can be cut over in a given day.[1431] Specifically, Broadview states that Verizon limits the number of lines that can be cut over in a given day to 125 for the entire region.[1432]

469. While incumbent LECs reference the Commission's determination in multiple section 271 orders that BOCs provision hot cuts at a level of quality that offers efficient

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[1427] AT&T Comments at 219-20; AT&T Brenner Decl. paras. 39-42.

[1428] GCI Comments at 8.

[1429] *Id.* These problems so adversely affected its business plans that GCI determined that it would "pa[y] the cost" for the incumbent LEC "to hire 25 additional workers to increase hot cut volume, which cost GCI over $3 million per year." *Id.* at 34; *id.*, Declaration of Frederick W. Hitz, III at para. 14.

[1430] Letter from Stephen C. Gray, President, McLeodUSA, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147, 02-33 at 12 (filed Dec. 17, 2002) (McLeodUSA Dec. 17, 2002 *Ex Parte* Letter).

[1431] *See id.* (noting in general that "RBOCs typically impose limitations on the number of conversions from UNE-P to stand-alone unbundled loops that [can] be performed in a given CO in a given day," and notes that SBC is "most restrictive" with a limit of 25-35 orders per central office per day in the SBC Midwest region).

[1432] Letter from Rebecca M. Sommi, Vice President, Operations Support, Broadview, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Oct. 16, 2002) (Broadview Oct. 16, 2002 *Ex Parte* Letter). *But see* Letter from W. Scott Randolph, Director – Federal Regulatory Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 6 (dated Dec. 23, 2002) (Verizon Dec. 23, 2002 Hot Cut *Ex Parte* Letter) (claiming that Verizon's current internal guidelines contemplate as many as 150 hot cuts per central office). Verizon's filing, however, provides no evidence that the company has actually been able to perform hot cuts at such volumes consistently over a long-term period, as would be required upon any transition away from unbundled switching. Moreover, while Verizon claims that its guidelines could be adjusted to permit more than 150 hot cuts per day if necessary, Verizon provides no evidence that its current processes are sufficient to meet that increased demand.

competitors a meaningful opportunity to compete,[1433] and argue that performance data show that current hot cut performance is satisfactory, even as the number of hot cuts has increased,[1434] we find that the number of hot cuts performed by BOCs in connection with the section 271 process is not comparable to the number that incumbent LECs would need to perform if unbundled switching were not available for all customer locations served with voice-grade loops.[1435] In the

[1433] *See, e.g., SWBT Texas 271 Order*, 15 FCC Rcd at 18490-93, paras. 268-73.

[1434] *See* Verizon Dec. 23, 2002 Hot Cut *Ex Parte* Letter at 3. Verizon states that between 2000 and 2001, its hot cut volume increased by 50% in Massachusetts (14,114 to 21,089), 40% in Pennsylvania (22,184 to 31,592), and more than 200% in New Jersey (3,918 to 11,845). *Id.* at 3. Verizon claims that its on-time performance in those states was 98.41%, 97.56%, and 95.91%, respectively. *Id.* Qwest also contends that its hot cut performance is excellent. Letter from Cronan O'Connell, Vice President – Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 5 (filed Jan. 7, 2003) (Qwest Jan. 7, 2003 *Ex Parte* Letter); *see also* Letter from Lawrence E. Sarjeant, Vice President Law and General Counsel, USTA, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Dec. 11, 2002) (USTA Dec. 11, 2002 *Ex Parte* Letter) (stating that "USTA incumbent LEC members are able to perform hot cuts in volumes and timeframes that, in the context of their particular circumstances, support the finding that the removal of switching from the UNE list will not impair the ability of competitive LECs to provide local exchange and exchange access services"). Verizon states that its performance data show that it "routinely meets 95 percent or more of its installation appointments on time." Verizon Comments at 102.

[1435] Based entirely on the Commission's prior findings in section 271 orders, Chairman Powell and Commissioner Abernathy claim that incumbent LEC hot cut processes cannot be a source of impairment. *See Chairman Powell Statement* at 4-5; *Commissioner Abernathy Statement* at 5-6. To begin with, the dissenters completely ignore the volume of evidence in the record of this proceeding that hot cuts create significant barriers to providing service, offering no response or explanation whatsoever. Moreover, contrary to their contentions, the Commission's prior findings in section 271 orders do not support a finding here that competitive carriers would not be impaired if they were required to rely on the hot cut process to serve all mass market customers. At most, these orders found that the specific companies at issue "will be able to handle reasonably foreseeable demand volumes." *Commissioner Abernathy Statement* at 6 (quoting *Bell Atlantic New York 271 Order*, 15 FCC Rcd at 3993, para. 89). Leaving aside the fact that these orders applied only to specific BOCs in specific states and by no means make any findings with respect to BOCs or incumbent LECs generally, these orders examined the adequacy of hot cuts at a time when competitive LECs were principally using unbundled local circuit switching to compete for mass market customers. Indeed, the BOCs frequently relied on evidence of customers being served by unbundled loops combined with unbundled local circuit switching to support their Track A findings of sufficient facilities-based competition. *See, e.g., BellSouth Georgia/Louisiana 271 Order*, 17 FCC Rcd at 9026-27, para. 15; *SBC California 271 Order*, 17 FCC Rcd at 25656, para 12; *Application of Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions) and Verizon Global Networks Inc. for Authorization to Provide In-Region, InterLATA Services in Massachusetts*, CC Docket No. 01-9, Memorandum Opinion and Order, 16 FCC Rcd 8988, 8990, para. 224 (2001) (*Verizon Massachusetts 271 Order*); *Verizon Global Networks Inc., and Verizon Select Services Inc. for Authorization to Provide In-Region, InterLATA Services in Vermont*, CC Docket No. 02-7, Memorandum Opinion and Order, 17 FCC Rcd 7625, 7630-31, para. 11 (2002) (*Verizon Vermont 271 Order*); *Application by Qwest Communications International, Inc. for Authorization to Provide In-Region, InterLATA Services in the States of Colorado, Idaho, Iowa, Montana, Nebraska, North Dakota ,Utah, Washington and Wyoming*, WC Docket No. 02-314, Memorandum Opinion and Order, 17 FCC Rcd 26303, 26317, para. 29 (2002) (*Qwest 9-State 271 Order*); *see also* Letter from Brad E. Mutschelknaus, Counsel for Broadview *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 21, 2003) ("Notably, all four of the RBOCs have relied, in one or more States, upon the presence of UNE-P, to advance their bids for Section 271 authority."). And Chairman Powell and Commissioner Abernathy repeatedly voted to approve orders characterizing such deployment as "facilities-based competition" for purposes of meeting section 271's requirement of the "presence of a facilities-based competitor." *See, e.g., Qwest 9-State 271 Order*, 17 FCC (continued....)

states where section 271 authorization has been granted, unbundled local circuit switching has been available and, accordingly, the BOCs' hot cut performance has generally been limited.[1436] Moreover, we find that the issue is not how well the process works currently with limited hot cut volumes, rather the issue identified by the record identified is an inherent limitation in the number of manual cut overs that can be performed, which poses a barrier to entry that is likely to make entry into a market uneconomic.[1437] Our finding is also corroborated by the comments of

(Continued from previous page)

Rcd at 26303, para. 29 (stating that Qwest satisfies Track A, section 271(c)(1)(a)); *SBC California 271 Order*, 17 FCC Rcd at 25657, para. 15 (stating that SBC satisfies Track A, section 271(c)(1)(a)); *Verizon Vermont 271 Order*, 17 FCC Rcd at 7630-31, para. 11 (stating that Verizon satisfies Track A, section 271(c)(1)(a)). Furthermore, even in those states where there was not significant unbundled switching-based competition (*see Commissioner Abernathy Statement* at 6-7 n.12) when the Commission granted the section 271 applications for those states, the availability of unbundled loops combined with unbundled switching as a mode of entry informed the Commission's determination of reasonably foreseeable demand volumes. Here, we must consider the adequacy of current hot cut practices for handling the volumes that would be expected if competitive LECs were denied unbundled access to unbundled local circuit switching – something that was by no means "reasonably foreseeable" in the context of the section 271 orders. The section 271 orders thus tell us very little about a BOC's ability to provision large batches of cut overs in a timely and reliable manner under these circumstances. In Broadview's experience, for example, Verizon's performance measures do not apply to bulk migrations on a project-managed basis. Broadview Jan. 15, 2003 *Ex Parte* Letter at 4; *see also Application by Verizon New Jersey Inc., Bell Atlantic Communications, Inc.(d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a/ Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization to Provide In-Region, InterLATA Services in New Jersey*, CC Docket No. 02-67, Memorandum Opinion and Order, 17 FCC Rcd 12275, 12326, para. 109 n.309 (2002). Accordingly, the Commission's section 271 holdings by no means find that incumbent LEC performance is now adequate to meet the demands of UNE-L-based competition. Finally, our decision does not overlook the possibility that if in some markets the incumbents' ability to perform batch hot cuts does not pose impairment, the states may simply make findings to this effect.

[1436] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 9-10.

[1437] The dissents assert that the majority makes unwarranted assumptions about incumbent LECs' ability to handle increased volumes in the absence of unbundled loops combined with unbundled local circuit switching. *Chairman Powell Statement* at 5; *Commissioner Abernathy Statement* at 5. It appears that they would support a finding of no impairment based on affidavits and declarations submitted by incumbent LECs attesting to their willingness and ability to handle any requested volume of hot cuts. *Commissioner Abernathy Statement* at 5. We find, however, incumbent LECs' promises of future hot cut performance insufficient to support a Commission finding that the hot cut process does not impair the ability of a requesting carrier to provide the service it seeks to offer without at least some sort of unbundled circuit switching. While incumbent LECs state that they have the capacity to meet any reasonable foreseeable increase in demand for stand-alone loops that might result from increased competitive LEC reliance on self-provisioned switching, there is little other evidence in the record to show that the incumbent LECs could efficiently and seamlessly perform hot cuts on a going-forward basis for competitors who submit large volumes of orders to switch residential subscribers. As described above, moreover, we ascribe more weight to actual evidence of competitive entry serving the relevant market than to predictive claims of incumbents' ability to handle hypothetical volumes – and the incumbents have been unable to offer compelling evidence that they have actually provisioned hot cuts in the requisite quantity. Moreover, where incumbent LECs have undergone comprehensive testing of their loop provisioning processes, state commissions have found difficulties regarding hot cut performance. Indeed, in its initial comments in this proceeding, the New York Department recognized the hot cut process as one of the "major issues that hamper the development of facilities based competition," and concluded that "[u]ntil hot cuts can be performed in much greater volumes, competitive LECs' lack of access to the UNE-P will materially diminish their ability to provide local service." New York Department Comments at 3.

state commissions, most notably the New York Department, which concluded that "Verizon would need to dramatically increase the number of hot cut orders per month if UNE-P was terminated and CLEC customers were switched."[1438] The New York Department concluded that "it would take Verizon over 11 years to switch all the existing UNE-P customers to UNE-L."[1439] Indeed, the New York Department is currently examining ways to "migrat[e] large volumes of customers from Verizon's switches to CLECs' switches more efficiently."[1440] For those reasons, the Commission's prior findings in section 271 orders do not support a finding here that competitive carriers would not be impaired if they were required to rely on the hot cut process to serve all mass market customers.

470. Competitive carriers also argue that the cost of hot cuts, exacerbated by churn, creates a cost disparity that makes it uneconomic to serve mass market customers.[1441] Competitors seeking to use their own switches must incur the costs associated with a hot cut, including both the charges assessed by the incumbent LEC and their own costs of managing and participating in the hot cut process.[1442] The hot cut cost assessed by the incumbent LEC is a non-recurring per-line charge on competitive carriers that connect their own switches to unbundled loops.[1443] The record shows that the cost of connecting each customer to the competitive LEC's switch makes it difficult to compete.[1444] Although hot cut costs vary among incumbent LECs, we find on a national level that that these costs contribute to a significant barrier to entry.[1445] WorldCom submitted hot cut non-recurring costs (NRCs) for several states, with an average non-

[1438] New York Department Comments at 4 n.18.

[1439] *Id.*

[1440] *Id.* at 3.

[1441] *See, e.g.*, WorldCom Comments at 33 ("[A]fter a comprehensive evaluation, WorldCom concluded that it did not make economic sense to spend additional capital necessary to attempt . . . to enter the mass market through end-to-end facilities-based service.").

[1442] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4-5.

[1443] *See, e.g.*, ASCENT Comments at 36; Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Michelle Carey, Chief, Competition Policy Division, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 (filed Nov. 15, 2002) (WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter).

[1444] *See, e.g.*, AT&T Comments at 216; ASCENT Comments at 36; GCI Comments at 36; WorldCom Comments at 86; ASCENT Reply at 7. If the competitive LEC uses unbundled incumbent LEC loops, this "loop access" cost includes the nonrecurring costs of moving the customer's line to the competitive LEC switch and establishing a collocation arrangement, and the recurring costs of maintaining collocation and transport to connect the customer's POTS line to the competitive LEC's switch. Because competitive LECs generally do not collocate a switch in every incumbent LEC end office but rather serve a number of collocation arrangements from a single switch, competitive LECs generally connect their switches to unbundled loops via transport facilities.

[1445] *See, e.g.*, ASCENT Comments at 36 (noting "repeated attempts by incumbent LECs to dramatically increase hot cut charges . . . confirm that hot cut costs will continue to be a highly adverse factor"); ASCENT Reply at 7; AT&T Reply at 321 (stating that "the current charges for hot cuts in many states forecloses the use of UNE-L, even in narrow situations"); BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 5 n.12.

recurring charge of approximately $51, with several states having NRCs in excess of $100.[1446] According to WorldCom, in New York, the hot cut NRC will soon rise to $185 (from $35) for each line served.[1447] Z-Tel's analysis of the New York market indicates that even if the switch itself, collocation, and maintenance were free, with a non-recurring hot cut charge of $185 per line, it would not be economic to deploy a switch to serve mass market customers in New York.[1448] In addition to the high non-recurring charges imposed by the incumbent LECs, the evidence in the record shows that hot cuts also require significant internal resources and expenditures which must be borne by the competitive LEC. Thus, the record evidence indicates that the non-recurring costs associated with cutting over large volumes of loops would likely be prohibitively expensive for a competitive carrier seeking to provide service without the use of unbundled local circuit switching.

471. Moreover, the evidence in the record demonstrates that there is a significant amount of churn, or movement, among mass market customers. Mass market customers move freely from carrier to carrier when they desire, and have come to expect the ability to change local service providers in a seamless and rapid manner.[1449] We find that this movement, or churn, happens most frequently in the first few months after the customer switches to a new carrier and is often driven by "winback" activities.[1450] WorldCom, for example, states that it loses 50 percent of its new local customers within the first three months of signing up for service.[1451] Z-Tel estimates that at least four percent of its lines turn over each month.[1452] Because of this churn, Z-Tel asserts that carriers in a competitive market cannot expect to keep any particular customer for more than 18-24 months.[1453] The evidence in the record demonstrates that customer churn exacerbates the operational and economic barriers to serving mass market customers. For

[1446] WorldCom Feb. 12, 2003 *Ex Parte* Letter at 2-3; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 5 n.12.

[1447] WorldCom Feb. 12, 2003 *Ex Parte* Letter at 2-3.

[1448] Z-Tel Oct. 10, 2002 *Ex Parte* Letter at 2. Considering only the non-recurring cost of hot cuts, Talk America estimates that it would incur costs of $840,000 just to convert its existing customer base in New York served by unbundled loops combined with unbundled local circuit switching to stand-alone loops based on the promotional rate of $35 per hot cut adopted by the New York Department. Talk America Reply at 25.

[1449] *See, e.g.*, UNE-P Coalition Comments at 46 (noting that mass market customers are not used to and will not tolerate service degradation as a cost of moving from one carrier to another); Z-Tel Comments at 46-47 (stating that mass market customers expect to be able to switch their local carriers seamlessly as they can switch long distance carriers).

[1450] WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter at 1-2.

[1451] *Id.* WorldCom estimates that, for customers that choose its "Neighborhood" bundled local and long distance products, on average, it loses 25% of its customers within three months, 50% within six months, and 4% to 6% per month after the six-month threshold. *Id.* Although we do not rely on any individual competitors churn data, we agree that the evidence in the record establishes that churn in the mass market affects the economics of serving this market.

[1452] Z-Tel Comments at 31.

[1453] *Id.* at 33.

example, competitive LECs incur non-recurring costs upon establishing an end user's service, but generally recover those costs over time, spreading them out over monthly customer bills; high churn rates thus often deprive competitive carriers the opportunity fully to recover those outlays. The record demonstrates that the current level of churn for carriers providing service to the mass market has significant negative revenue effects on the ability of competitive carriers to recover the high costs associated with manual hot cuts.[1454] Finally, higher volumes of customer turnover necessitate higher volumes of hot cuts than the record demonstrates incumbent carriers are currently able to provide.

472. In making our national finding of impairment due to the incumbent LEC hot cut process, we do not rely on the results of the cost studies and business case analyses some commenters submitted concerning the economic feasibility of competitive entry into the mass market without access to unbundled switching. Specifically, BellSouth and SBC presented studies in support of their claim that economic entry by competitive LECs was possible using UNE-L without unbundled switching, at least in wire centers with 5,000 lines or more.[1455] AT&T and WorldCom claimed that competitive LECs were impaired without unbundled switching based on studies estimating the cost disadvantage relative to the incumbent LEC experienced by competitive LECs serving customers using UNE-L, although WorldCom's study suggested that it may be possible to alleviate the impairment in the largest wire centers.[1456] These studies are discussed in detail below.[1457] We find that technical shortcomings in each of these studies preclude us from relying on their results to evaluate impairment at the national level.[1458] These shortcomings include: (1) failure to use the proper framework when determining impairment;[1459] (2) insufficient granularity in their analyses;[1460] (3) failure to consider the typical revenues gained from serving the average customer in the market; and (4) inadequate support for the parameters

[1454] Competitive LECs contend that, given the high degree of churn and relatively low monthly revenues for mass market customers, it is difficult to recoup this non-recurring charge over the entire customer base. WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter at 2 (stating that the high non-recurring costs associated with the hot cut process are almost impossible to recover for customers that switch to another carrier within the first six months). Z-Tel states that even if a competitive LEC received revenues of $30 per month, it would take the competitor more than six months to recover the hot cut costs, a long period of time for a market with significant churn. Z-Tel Comments at 35-36. To ameliorate these cost disadvantages, WorldCom states that UNE-L would be more feasible in many areas if competitive carriers could obtain volume discounts for hot cuts, lower transport rates, and lower collocation charges, or alternatives (other than collocation) for accessing the loop, such as EELs. *See* WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 6.

[1455] *See generally* Letter from Glenn T. Reynolds, Vice President – Federal Regulatory, BellSouth, to Marlene H. Dortch, Secretary, FCC (filed Jan. 30, 2003) (BellSouth Jan. 30, 2003 *Ex Parte* Letter); SBC Jan. 14, 2003 *Ex Parte* Letter.

[1456] *See generally* AT&T Jan. 17, 2003 *Ex Parte* Letter; WorldCom Jan. 8, 2003 *Ex Parte* Letter.

[1457] *See infra* Part VI.D.6.a.(i).

[1458] *See supra* para. 178 (discussing the shortcomings of the studies).

[1459] The AT&T and WorldCom studies do not consider the potential revenues available to an entrant.

[1460] All of the studies rely on averages, and fail to provide geographically disaggregated results.

they employed. Each study's particular inputs and assumptions heavily influenced its results, and there was significant disagreement in the record about the proper inputs and assumptions.[1461] Although we are not able to rely on the results of these studies with respect to our national finding of impairment, the studies do highlight various factors which should be evaluated by the states on a market-specific basis as part of their impairment analyses, as discussed in greater detail below.[1462]

473. Our national finding of impairment is based on the combined effect of all aspects of the hot cut process on competitors' ability to serve mass market voice customers. Thus, while many of the factors discussed above may vary from location to location, such as hot cut NRCs,[1463] we find the overall impact of the current hot cut process raises competitors' costs, lowers their quality of service, and delays the provisioning of service, thereby preventing them from serving the mass market in the large majority of locations. However, observed variations in these factors suggest that requesting carriers may not be impaired without access to unbundled switching in some particular instances, but evidence in the record is not sufficiently detailed to identify these specific markets. Therefore, as described in detail below, we ask the states to identify where competing carriers are not impaired without unbundled switching, pursuant to the triggers and analysis of competitors' potential to deploy.

474. The record evidence strongly suggests that the hot cut process could be improved if cut overs were done on a bulk basis, such that the timing and volume of the cut over is better managed.[1464] We expect that such improvements would result in some reduction of the non-recurring costs that, according to competitive carriers, prevent entry. Indeed, at this time, we find such improvements are likely to be essential to overcome the operational impairment that competitors face in serving mass market customers.[1465] Without such improvement, the record shows that carriers are likely to be unable to economically serve a market characterized by low

[1461] For example, the commenters disagree about what revenues to use when calculating net profits, and use different estimates regarding the size of the wire center and where it is located, the competing carrier's predicted market share, the cost of inputs such as transport and collocation, the estimated revenue, and whether the competing carrier had existing facilities. *See* AT&T Jan. 17, 2003 *Ex Parte* Letter at 3; WorldCom Jan. 8, 2003 *Ex Parte* Letter at Attach. A, 3-6; SBC Jan. 14, 2003 *Ex Parte* Letter at 3; BellSouth Jan. 30, 2003 *Ex Parte* Letter at 2-8, Attach. at 4, 7-9.

[1462] *See infra* Part VI.D.6.a.(i) (discussing other factors which potentially could cause impairment, but for which the present record does not warrant a national finding of impairment).

[1463] According to one commenter, non-recurring charges for hot cuts can vary from $2 (in Minnesota) to $117 (in Oregon). WorldCom Feb. 12, 2003 *Ex Parte* Letter at 2.

[1464] Verizon states that it can efficiently manage the conversion of the anticipated hot cut volumes associated with the embedded base on a negotiated project managed basis, as it has done with carriers like AT&T and Broadview. *See* Verizon Dec. 23, 2002 Hot Cut *Ex Parte* Letter at 2, 5-6. We note, however, that there is no completion interval associated with such conversions, and that Verizon therefore is not subject to penalties for inadequate performance.

[1465] We recognize that any such "operational" impairment would result in a disparity between an incumbent's cost to serve a customer and a new entrant's cost to serve a customer. We will treat any such cost disparity separately from other economic issues because it is tied closely to the hot cut process, which is uniquely within the control of the incumbent LEC.

margins. Incumbent LECs argue that Frame Due Time (FDT) and project managed approaches offer sufficient efficiency. With FDT cut overs, both the incumbent and the competing carrier perform necessary work at pre-arranged times, with no communication required at the time of the hot cut. Project managed cut overs involve the conversion of a number of lines at one time, pursuant to provisioning requirements and intervals negotiated by the incumbent and the competitive LEC. We find that these approaches are not sufficiently developed or widespread enough to adequately address the impairment created by the loop cut over process. The evidence in the record demonstrates that the carriers that have used project-managed cut overs have used them only for business customers,[1466] and only after acquiring the customer through a means that offered the use of incumbent LEC loops and switches in combination.[1467] Further, competitive carriers rarely know in advance the precise locations of new mass market customers, and the facilities used to serve them, hindering the use of project managed processes, which must be negotiated well in advance of customer conversion.[1468] In addition, the FDT and project managed approaches do not offer rates (*i.e.*, volume discounts) that reflect efficiencies to these approaches. Finally, because there generally are no performance intervals associated with these approaches, incumbent LECs are not subject to financial penalties for inadequate performance.

475. Accordingly, we conclude that the operational and economic barriers arising from the hot cut process create an insurmountable disadvantage to carriers seeking to serve the mass market, demonstrating that competitive carriers are impaired without local circuit switching as a UNE. Although we find that current conditions at the national level demonstrate that competitive LECs are impaired without unbundled switching for mass market customers based on the costs and delays associated with hot cuts, we take affirmative steps to reduce this impairment and promote an environment suitable for increased facilities-based competition. As described below, we find that the present impairment can be mitigated by an improved loop provisioning process.

(i) Other Operational and Economic Impairment

476. Above we have concluded that economic and operational barriers associated with the hot cut process justify a national finding that requesting carriers are impaired without access to unbundled local circuit switching. We have, however, asked states to identify markets in

[1466] *See* Letter from Rebecca Sommi, Vice President – Operations, Broadview Networks *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 6 (filed Jan. 15, 2003) (Broadview *et al.* Jan. 15, 2003 *Ex Parte* Letter) (asserting that the project managed hot cuts had been primarily used with small business customers as opposed to mass market customers); BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 11 (asserting that the project managed hot cuts were mostly used for business customers). Broadview states that the Commission should accord no credibility to Verizon's claim that it can handle hot cuts on a project-managed basis as well as it handles hot cuts on an order-by-order basis, given the fact that Verizon has failed to provide the data that indicate that the quality of the hot cut is not impacted when managed as a project. Broadview *et al.* Jan. 15, 2003 *Ex Parte* Letter at 6.

[1467] AT&T Brenner Decl. at 44-55; Broadview *et al.* Jan. 15, 2003 *Ex Parte* Letter at 6; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 11.

[1468] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 11.

which requesting carriers are not impaired without access to unbundled local circuit switching, pursuant to the guidance set forth below.[1469] In doing so, we ask the states to examine evidence of sources of impairment other than hot cuts, in the manner we describe below, as the record shows that requesting carriers may be impaired without access to unbundled incumbent LEC local circuit switching because of operational and economic factors other than those associated with hot cuts. Commenters have alleged that these barriers – which include poor incumbent LEC performance in fulfilling unbundling, collocation, and other statutory obligations, difficulties in performing customer migrations between competitive LECs, difficulties in performing collocation cross-connects between competing carriers,[1470] and the significant cost disadvantages competitive carriers face in obtaining access to the loop and backhauling the circuit to their own switches[1471] – can be sufficient to hinder or prevent entry even if impairment caused by hot cuts were fully resolved. Although these factors *do not* form the basis of our national impairment finding,[1472] we recognize that the record evidence indicates that these factors may give rise to impairment in a given market, even setting aside the problems associated with hot cuts, and that they therefore will be relevant to state commissions' determinations with respect to unbundled local circuit switching. We describe these potential barriers here.

(a) Operational Factors

477. *Collocation.* We find that the absence of sufficient collocation space in the incumbent LEC central office or offices might in some markets render competitive entry impossible and thus result in impairment. The record evidence indicates that in some markets, competitive LECs may face a lack of sufficient collocation space in the incumbent LEC's central office or offices. For competitive LECs that rely on the incumbent LEC's transmission facilities but not on unbundled local circuit switching, collocation of facilities in the incumbent's central office is essential to the provision of local service. The incumbent's failure to provide adequate collocation space may render competitive entry uneconomic. Thus, as set forth below, when states evaluate the prospects for self-provisioned switching in a given market, we direct them to consider whether a lack of sufficient collocation space gives rise to impairment in that market.

478. *Incumbent LEC Provisioning of Competitive LEC-to-Competitive LEC Cross – Connects.* We further find that an incumbent LEC's failure to provide cross-connections[1473]

[1469] State commissions can alternatively make a finding that there is impairment based on other economic and operational factors in the manner explained below.

[1470] *See, e.g.*, BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter.

[1471] *See* UNE-P Coalition Comments at 44-46; WorldCom Jan. 8, 2003 *Ex Parte* Letter at 3 (noting that switching has high fixed costs that must be spread over a large number of customers if a competitive carrier is to achieve cost efficiencies similar to those enjoyed by the incumbent LEC).

[1472] The evidence in the record is not sufficiently detailed to conclude that impairment exists on a national basis due to these factors, as they vary on a geographic basis.

[1473] Cross-connection is the "attachment of one wire to another usually by anchoring each wire to a connecting block and then placing a third wire between them so that an electrical connection is made." *Id.*; *see also* AT&T Brenner Decl. at para. 21; Z-Tel Comments, Declaration of Peggy Rubino at para. 12.

between the facilities of two competitive LECs on a timely basis can also result in impairment. Competition in the absence of unbundled local circuit switching requires seamless and timely migration not only to and from the incumbent's facilities, but also to and from the facilities of other competitive carriers.[1474] Such interconnection requires that the incumbent LEC place cross connections between the competitive carriers' facilities in its central office on a timely basis. The incumbent's failure to do so will tend to delay competitors' entry, and thus to increase competitors' costs. We conclude that in some cases, such failure can give rise to impairment in the absence of unbundled local circuit switching.

(b) Economic Factors

479. Competing carriers contend that many economic factors also prevent them from using UNE-L and thus impair their ability to serve the mass market without access to unbundled switching. Competing carriers maintain that even using the most efficient network architecture available for entry using the UNE-L strategy, they are at a significant cost disadvantage vis-à-vis the incumbent in all areas. In addition to the hot cut-related costs discussed above, competitive LECs cite the cost of backhauling the voice circuit to their switch from the customer's end office.[1475] They allege that these hot cut and backhaul costs are not faced by the incumbent, and thus put competing carriers at a significant relative disadvantage.[1476] The costs faced only by competitive LECs are, they claim, especially burdensome given the high churn rates associated with serving mass market customers that they face in the first few months of service. Incumbent LECs respond that the marketplace evidence showing deployment of switches for both business and residential customers, and an analysis of the costs and revenues of entry using the UNE-L strategy, demonstrate that competitors are able to enter the voice mass market economically, and that economic factors do not justify a national impairment finding. As described above, we believe that economic and operational barriers associated with the hot cut process do justify such a national finding, but authorize the state commissions to find otherwise where there is no

[1474] *See Collocation Remand Order*, 16 FCC Rcd at 15436, 15464-78, paras. 2, 55-84 (concluding that "while an incumbent LEC need not allow collocators to install and maintain cross-connects between different carriers' collocated equipment, an incumbent LEC itself must provide these cross-connects upon reasonable request"); *Local Competition Order*, 11 FCC Rcd at 15801, para. 594 ("We believe that it serves the public interest and is consistent with the policy goals of section 251 to require that incumbents permit two or more collocators to interconnect their networks at the incumbent's premises."); *UNE Remand Order*, 15 FCC Rcd at 3777-78, paras. 178-79.

[1475] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 3-4; Letter from Joan Marsh, Director, Federal Regulatory Affairs, AT&T, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-5 (filed Nov. 26, 2002) (AT&T Nov. 26, 2002 *Ex Parte* Letter); AT&T Oct. 4, 2002 *Ex Parte* Letter at 8-9, 21; Letter from Joan Marsh, Director, Federal Regulatory Affairs, AT&T, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 6-11 (filed Nov. 12, 2002) (AT&T Nov. 12, 2002 *Ex Parte* Letter); WorldCom Oct. 12, 2002 *Ex Parte* Letter, Attach. at 34-38; WorldCom Bryant Reply Decl. at paras. 22-24.

[1476] *See, e.g.*, ASCENT Comments at 36; ASCENT Reply at 7; WorldCom Nov. 15, 2002 Customer Churn *Ex Parte* Letter; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4; CompTel/PACE Oct. 31, 2002 *Ex Parte* Letter at 2-4. The current system of hot cuts involves a constant charge per line, such that there are no benefits from handling larger volumes. This may change with the use of a batch cut over system, however, if volume discounts are provided to competitors.

impairment. In this section, we discuss economic factors that, based on our record, may be relevant to the states' determinations.

480. The need to backhaul the circuit derives from the use of a switch located in a location relatively far from the end user's premises, which effectively requires competitors to deploy much longer loops than the incumbent.[1477] Competing carriers assert that the costs of backhaul, which include the costs of collocating in the customer's serving wire center,[1478] installing equipment in the wire center in order to digitize, aggregate, and transmit the voice traffic, and paying the incumbent to transport the traffic to the competitor's switch, put them at a significant cost disadvantage to the incumbent.[1479] Since many of these costs are fixed, competitors argue that these costs must be spread over a large number of customers if a competitive carrier is to achieve cost efficiencies similar to those enjoyed by the incumbent LEC.[1480] Thus in smaller wire centers, where the competitors' customer base is likely to be smaller and they are unable to take advantage of scale economies, the cost disadvantage due to backhaul is much larger.[1481]

[1477] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 3; AT&T Oct. 4, 2002 *Ex Parte* Letter at 8.

[1478] On average, for example, NewSouth estimates that it incurs costs totaling approximately $500,000 over the first 3 years at each collocation site. NewSouth Reply at 25-26; NewSouth Fury Reply Aff. at para. 4. According to NewSouth, these costs include expenses associated with building the collocation space, recurring charges for rent and power, and the costs of purchasing and installing the equipment in the collocation space. NewSouth Reply at 26; Fury Reply Aff. at para. 4.

[1479] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 3-4; AT&T Nov. 26, 2002 *Ex Parte* Letter at 2-5; AT&T Oct. 4, 2002 *Comparing ILEC and CLEC Local Network Architectures Ex Parte* at 8-9, 21; AT&T Nov. 12, 2002 *Ex Parte* Letter, Attach. at 6-11; WorldCom Oct. 12, 2002 *Ex Parte* Letter, Attach. at 34-38; WorldCom Bryant Reply Decl. at paras. 22-24.

[1480] WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 3-4.

[1481] BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 4-6; Letter from Access Integrated Networks *et al.*, to Marlene Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3-6 (filed Dec. 11, 2002) (Access Integrated Networks *et al.* Dec. 11, 2002 *Ex Parte* Letter). For example, WorldCom finds that the average monthly cost of collocation, transport, hot cut, and collocated equipment assuming that it serves 7% of the local service market and has no physical network to begin with, is $11.40 per line served in incumbent end offices with switches larger than 25,000 lines, and $49.92 in incumbent end offices with switches under 5,000 lines. WorldCom Comments at Appendix, Table 1. AT&T examined the costs attributable to hot cuts and backhaul that are not faced by the incumbent. In the first study it found that for a model competitor, the cost disadvantage for a 20% market share is $9.53 per line served in a typical incumbent end office of 15,000 lines and $8.12 per line in a wire center of 100,000 lines. AT&T Jan. 17, 2003 *Ex Parte* Letter at 2-3. The second study examined the cost of serving customers in every existing incumbent wire center for a model competitor, assuming that collocation space and backhaul are being used for other purposes as well as for serving analog loops. The study showed that to serve all incumbent wire centers with at least 5,000 lines, a competitor with 5% market share will suffer a cost impairment per line of $4.72 for collocation and digitization/concentration equipment costs, $0.84 for backhaul transport, and $2.44 for hot cuts, with a cost offset of $0.60 because the competitor is able to use all digital lines, for a net cost disadvantage of $7.41. If the competitor has a 20% market share in each end office, the net cost disadvantage falls to $6.24, taking into account the $0.60 cost offset. AT&T Jan. 17, 2003 *Ex Parte* Letter at 3-4 & n.9.

481. In support of their arguments, several parties have submitted detailed cost studies and business case analyses concerning whether entry into the mass market is economically feasible without access to the incumbent's switch.[1482] The studies submitted by AT&T[1483] and WorldCom[1484] examine only the costs a competing carrier would incur that would not be incurred by the incumbent to determine whether a competitive LEC utilizing UNE-L would suffer a cost disadvantage relative to the incumbent.[1485] AT&T submitted two studies, one of which found that competitors suffer from a cost disadvantage of at least $8 per line in larger wire centers, and from a greater cost disadvantage in smaller incumbent end offices.[1486] AT&T argues that this cost disparity means that competitors are impaired without access to the incumbent's switching. WorldCom's study purports to show that, assuming a market share of seven percent, WorldCom suffers from a cost disadvantage of at least $10 per line, in wire centers where it has its own collocation, transport and nearby switch, and that this disadvantage rises to $21.59 per line in wire centers where it lacks facilities and collocation. WorldCom further argues that in central offices with fewer than 25,000 residential lines, the cost of UNE-L service will constitute an insurmountable barrier to entry and competition, even if there are significant reductions in

[1482] *See generally* AT&T Jan. 17, 2003 *Ex Parte* Letter; BellSouth Jan. 30, 2003 *Ex Parte* Letter; BellSouth Jan. 30, 2003 *Ex Parte* Letter; Letter from James C. Smith, Senior Vice President, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 14, 2003) (SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter); WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter.

[1483] AT&T Jan. 17, 2003 *Ex Parte* Letter.

[1484] WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter.

[1485] In addition, Birch and PACE submitted a joint analysis of the costs of market entry. *See* Letter from Genevieve Morelli, Counsel for PACE, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 4, 6 (filed Dec. 9, 2002) (PACE *et al.* Dec. 9, 2002 *Ex Parte* Letter). Although not a full cost study, this analysis purported to show that it was uneconomic for competing carriers to serve DS0 customers via either existing enterprise switches or alternative approaches such as the use of EELs or incumbent LEC multiplexers. *Id.* Granite also submitted an analysis of its projected costs to enter a market using its own switch. *See* Letter from William B. Wilhelm, Jr. and Patrick J. Donovan, Counsel for Granite, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1-2 & Attach. (filed Dec. 16, 2002) (Granite Dec. 16, 2002 *Ex Parte* Letter). This analysis suggests that, to enter the Boston local market, a competing carrier using its own switch would incur costs of $12 million during the first year. *Id.*, Attach. at 3. Based on this analysis, Granite argues that migration from service using unbundled incumbent LEC local circuit switching to UNE-L is not economically feasible. *Id.* at 1-2.

[1486] In the first study, AT&T found that for a model competitor, the minimum cost disadvantage to a competing carrier is $8.12 per line, assuming a 20% market share in a wire center of 100,000 lines. The cost disadvantage was larger for smaller wire centers and lower market shares. For a typical incumbent end office of 15,000 lines, the total net impairment was found to equal $9.53. AT&T Jan. 17, 2003 *Ex Parte* Letter at 2-3. The second study examined the costs of serving customers in every existing incumbent wire center for a model competitor, assuming that collocation space and backhaul were being used for other purposes as well as serving analog loops. The study showed that to serve all incumbent wire centers with at least 5,000 lines, a competitor with 5% market share will suffer a cost impairment per line of $4.72 for collocation and digitization/concentration equipment costs, $0.84 for backhaul, and $2.44 for hot cuts, with a cost offset of $0.60 because the competitor would be able to use all digital lines, for a net cost disadvantage of $7.41. If the competitor had a 20% market share in each end office, the cost disadvantage would fall to $6.24, taking into account the $0.60 cost offset. *Id.* at 3-4 and n.9.

incumbent LEC charges.[1487] WorldCom also claims that in central offices serving 25,000 or more residential lines, competitive LECs that achieve a reasonable (*e.g.*, seven percent) market share can economically migrate customers served by unbundled local circuit switching to their own switches, provided that operational and economic barriers have already been substantially reduced or removed by state commissions.[1488]

482. The studies presented by SBC and BellSouth examine whether economic entry is possible, taking into consideration the revenue opportunities available and the typical costs of utilizing a UNE-L strategy. The incumbents claim that competitive LECs have successfully served the business market using self-provisioned switches, and that they could use these switches to serve the mass market as well, thus taking advantage of economies of scope.[1489] They note, too, that competitive LECs are free to serve only high-margin customers, rather than being required, as are the incumbents, to provide underpriced service to rural and/or residential consumers.[1490] Moreover, incumbent LECs contend that switches deployed by competitive LECs may be able to serve larger geographic areas than switches deployed by the incumbent LEC, thereby reducing the per-line fixed cost of purchasing circuit switching capability and allowing requesting carriers to create their own switching efficiencies.[1491] Based on the prices competitors have charged to high-revenue mass market customers, and the likely scale economies entrants could achieve using a UNE-L strategy with collocated transmission equipment, incumbent LECs argue that competitors could economically enter and serve the mass market using their own centrally located switches.[1492] Specifically, SBC and BellSouth claim that competitive LECs can

[1487] WorldCom examined the additional costs (in the major categories of collocation, digitization and concentration, transport, switching, OSS, and hot cuts) incurred in serving residential customers in BOC territories using WorldCom switches, based on WorldCom's existing network. WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter. BOC central offices were classified into three groups: offices where WorldCom already has collocation, on-net transport, and nearby switching (case 1); offices where WorldCom has a switch in the LATA but no collocation or transport (case 2); and offices with no WorldCom collocation, switching or transport (case 3). Estimates of the cost disadvantage were broken down by case, size of wire center, WorldCom's assumed market share, and whether WorldCom uses UNEs or special access for transport. WorldCom claimed that, assuming a 7% market share, on average WorldCom would be at a 56% ($10.03), 178% ($17.92), and 301% ($25.84) cost disadvantage using UNE-L relative to the BOCs' unbundled loop and circuit switching combination cost (excluding the cost of the loop for both) for cases 1, 2, and 3, respectively. WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 2-3, Attach. A at 6-7 and Appendix Table 1. We note that most of the additional costs were due to the costs of collocation and of the equipment needed for backhaul. For example, for case 3 with 7% market share, the digitization, concentration, and switching equipment and OSS cost $6.70 and collocation $11.08, while transport was $1.31 and hot cut charge was $2.50, for a total cost of $21.59. MICRA Jan. 8 Study at 3-6 and App. Table 1.

[1488] *See* WorldCom Jan. 8, 2003 Switching *Ex Parte Letter* at 7; Letter from A. Richard Metzger, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 23, 2003) (WorldCom Jan. 23, 2003 Unbundled Switching *Ex Parte Letter*).

[1489] BOC UNE Fact Report 2002 at II-10-11.

[1490] *See* Verizon Reply at 42-43; SBC Reply at 2, 26; BellSouth NERA Reply Decl. at viii.

[1491] *See* BellSouth Comments at 79-80 (citing BOC UNE Fact Report 2002 at II).

[1492] SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter.

earn a positive margin providing facilities-based residential service in wire centers with 5,000 or more lines.[1493] SBC further asserts that any losses in the wire centers of under 5,000 lines would be more than offset by the profits a competitive LEC will accrue from serving wire centers of 5,000 lines or more. Thus, SBC argues, a competitor could economically serve all wire centers.[1494]

483. We find that these studies fail to provide sufficient evidence to form a basis for making a national finding of no impairment, or a finding of impairment on the basis of non-hot cut factors alone. These studies either failed to adopt the proper framework for determining impairment, were insufficiently granular, or failed to provide sufficient support for the parameters they employed. We observe that the results of these studies were very sensitive to the inputs used and the assumptions employed. The studies' cost estimates depend on the competitor's predicted market share in each incumbent end office and the size of the end office, as well as on the cost of various UNEs and equipment, some of which were disputed.[1495] The cost estimates were also sensitive to whether or not the competing carrier was assumed already to have installed facilities, such as collocation, transmission equipment and backhaul, a switch,

[1493] *See* SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter at 2; BellSouth Jan. 30, 2003 *Ex Parte* Letter. In its study, SBC assumes that MCI had deployed switches to serve residential customers in wire centers with 5,000 or more lines (which, according to SBC, accounts for 57.7% of SBC wire centers in suburban and rural areas). In California, Michigan, and Texas, the SBC study determines that MCI would be able to cover its UNE-L provisioning costs if MCI set its retail prices (for residential customers) at $40-$60 per line and had a market share of at least 5% in each wire center with more than 5,000 lines. SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter at 3. SBC's model compares the costs of a UNE-L arrangement to the residential revenue opportunities available to competitors. *See* Letter from Jay Bennett, Executive Director – Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 4 (filed Jan. 24, 2003) (SBC Jan. 24, 2003 *Ex Parte* Letter). Specifically, SBC concludes that competitive LECs winning 5% to 10% of access lines in wire centers of 5,000 access lines or more can profitably serve residential customers using their own switches. *Id.*

BellSouth examines whether a competitor with a 5% market share could profitably serve customers in wire centers of various sizes, grouped into the following categories: greater than 25,000 lines, 15,000 to 25,000 lines, 5,000-15,000 lines, and under 5,000 lines. The study relies on the cost estimates supplied by WorldCom, to which BellSouth adds the cost of an average UNE loop. *See generally* WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter. Under each of the three scenarios presented, which varies according to the estimates of collocation costs and retail revenues available, BellSouth's study determines that competitors could profitably serve the groups of wire centers with greater than 5,000 lines, and would lose money only for wire centers of less than 5,000 lines. BellSouth Jan. 30, 2003 *Ex Parte* Letter at 7-9.

[1494] SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter at 3-4 ("The critical issue is not whether CLECs can serve every wire center profitably, but whether they can viably serve a particular *market*. Because wire centers with fewer than 5,000 lines account for a minority of all subscriber lines, notwithstanding that they represent almost half (42.3%) of SBC's wire centers, its is reasonable to assume that any losses a CLEC incurs in those wire centers will be more than offset by profits earned in larger wire centers in those same markets.")

[1495] Besides the total number of lines in each incumbent end office and the competitor's market share, other input parameters that affect the calculation included competitor capital costs; depreciation rates; maintenance costs; customer churn rates; collocation space preparation costs and monthly rental fees; digital loop carrier equipment costs, capacities and degree of concentration; UNE transport and special access charges; competitor switch termination costs; and hot cut costs. AT&T Jan. 17, 2003 *Ex Parte* Letter at 2.

and/or their own transport network, for the purpose of providing other services – for example, to serve the medium and large enterprise market.[1496] The studies failed to provide sufficient support for many of these parameters, and often failed to take into account geographic variations in these parameters. While providing significant evidence that competitors operate at a cost disadvantage compared to the incumbent, the studies presented by WorldCom and AT&T also did not adopt the proper framework, because they failed to consider all revenue opportunities associated with entry. These studies were therefore unable to determine when entry would be uneconomic. The incumbent LEC studies also used incorrect revenues, failing to use the likely revenues to be obtained from the typical customer. Moreover, all of the studies relied on averages, either national or regional, for some of their revenue and cost parameters, despite the fact that a granular analysis must wherever possible account for market-specific factors. Accordingly, based on the foregoing, the studies provide insufficient evidence either for or against a finding of impairment.

484. However, we are persuaded that other economic factors, in addition to the economic and operational barriers associated with the current hot cut process that we have already identified, may make entry uneconomic without access to the incumbent's switch. If nothing else, the evidence provided to us demonstrates that whether entry will be economic depends critically on the values of certain factors affecting a competing carrier's likely costs and revenues,[1497] and that these factors vary significantly among locations and types of customers.[1498] It is quite possible that carriers can economically enter with their own facilities in low cost, high

[1496] Thus, a competitor may have already set up collocation and transport (using the incumbent's transport network) for a particular end office, and installed its own switch, in order to serve business customers in that end office. Some competing carriers also have established extensive fiber transport networks in metropolitan areas. Use of these facilities would potentially reduce or eliminate the costs of collocation, transmission equipment, backhaul, and switching. AT&T Jan. 17, 2003 *Ex Parte* Letter at 3; WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter, Attach. A at 3-6; SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter at 3. In these cases, the cost of these facilities would have already been recovered by the revenues recovered in connection with these other services, and thus the carriers would be taking advantage of the scope economies available from the facilities' other uses.

[1497] According to the standard set forth above, our analysis must take into consideration the full range of revenues that are likely to be obtained by an entrant providing voice and related services, and the costs likely to be incurred. All factors affecting a competing carrier's likely revenues and costs must be examined to determine if they affect its ability to enter a market economically. Because economic entry depends on whether the sum total of all likely revenue sources exceeds the sum total of all likely costs of serving the market, any factor that limits or lowers the potential revenues available to a competing carrier, or raises the cost of serving a set of customers, is a potential barrier to entry. It is only by evaluating all the factors together that we may determine whether the likely revenues from entry will exceed the likely costs. Therefore, no factor should be examined in isolation.

[1498] To utilize a UNE-L strategy, which is the most likely network architecture a new competing carrier would use to serve a mass market voice customer in the absence of unbundled switching, a competing carrier would have to incur costs for the loop, backhaul, collocation space, digitizing and aggregating equipment in the customer's wire center, a switch, interconnection, transport, and the transfer of the customer to its switch using a hot cut, as well as internal administrative costs, the cost of capital, and other costs. Likely revenues depend on the prevailing retail rate and other revenues to be gained from selling local service, including those associated with access charges and vertical features. Also important is whether a competing carrier can sell other products in the region or wire center, which might generate sufficient revenues to help justify expenditures on collocation, backhaul, and a switch.

revenue locations, but not in high cost, low revenue locations.[1499] Although we lack sufficient evidence in the record to determine the accuracy of the inputs used to generate their results, we observe that all of the studies mentioned – including the BOC studies – suggest that it would be uneconomic for a competing carrier to serve customers in smaller wire centers. All the studies found that in such wire centers, entry would be much more expensive for the competitive LEC than for the incumbent, or simply would be uneconomic. WorldCom found that, for customers for which it lacks facilities, its cost disadvantage rises from an average of $11.40 per line for wire centers of over 25,000 lines, to $49.92 for wire centers of under 5,000 lines.[1500] AT&T's study shows that, assuming a market share of seven percent, a competitor's cost disadvantage rises from $8.78 for a wire center of 100,000 lines to $71.73 for a wire center of 2,000 lines.[1501] Even the studies by the incumbent LECs, SBC and BellSouth, found that entry would be uneconomic for wire centers of under 5,000 lines.[1502] BellSouth found that for wire centers of under 5,000 lines,[1503] a competitor would likely experience a net loss of $1.93 per line assuming BellSouth's average retail local revenues.[1504] However, as discussed above, there was significant disagreement concerning whether entry would be economic for larger wire centers.[1505]

485. All of these studies, including those provided by the BOCs, strongly support the need for a more granular analysis of impairment. We have insufficient evidence in the record, however, to conduct this granular analysis. Such an analysis would require complete information about UNE rates, retail rates, other revenue opportunities, wire center sizes, equipment costs, and other overhead and marketing costs. While some of this information was submitted to us, or is available to us from other sources, the available data do not sufficiently facilitate a granular inquiry into precisely where entry is economic. That market-specific data is needed is indicated by the significant variation in the costs and revenues an efficient entrant is likely to face. For example, costs appear to vary significantly among locations and types of customers.[1506] The recurring and non-recurring charges for critical UNE inputs such as collocation, loops, and

[1499] Entry is more likely to be economic in locations served by larger wire centers with greater line density, and in areas with low UNE loop rates, high retail rates relative to cost, high subscription rates for vertical features, large numbers of business customers, low UNE rates, and high retail rates. This list does not necessarily include all possible factors that may vary.

[1500] WorldCom Jan. 8, 2003 *Ex Parte* Letter at 2-3, Attach. A at 6-7 and App. Table 1, Case 3.

[1501] AT&T Jan. 17, 2003 *Ex Parte* Letter, Attach. 1 (using 7% market share and switch sizes of 100,000 and 2,000 lines used as inputs).

[1502] SBC admits that competitive LECs cannot earn a profit serving customers in wire centers of under 5,000 lines, but provides no analysis of the likely per-line losses. SBC Jan. 14, 2003 *Ex Parte* Letter.

[1503] The average size of these wire centers is 1,968 lines. BellSouth Jan. 30, 2003 *Ex Parte* Letter at 8.

[1504] BellSouth Jan. 30, 2003 *Ex Parte* Letter at 8.

[1505] *See supra* Part VI.D.4.a.

[1506] *See supra* note 1498.

transport often vary substantially between states.[1507] Within a state UNE loop rates can vary tremendously among rate zones.[1508] Parties also agree that the average cost per customer for collocation and equipment varies according to the number of customers served in a wire center, which is likely to depend on the size of the wire center and the likely market share of an efficient competitor.[1509] Some costs also vary according to the total size of the market served.[1510] The revenue estimates, which depend on customers' predicted expenditures on local voice service, were particularly controversial, and appear to have had a significant impact on the results.[1511] Retail rates can vary between states, by the type of customer, and within the state.[1512] Other revenues from mass market customers,[1513] and additional revenue opportunities from other types of customers,[1514] may also vary between and within states. Therefore, we expect that the states will consider the economic factors discussed here on a market-by-market basis and will determine whether it is appropriate to find "no impairment" in any particular market. This approach is consistent with our standard, which requires a determination of impairment on a granular basis, and with the dictates of *USTA*.[1515]

[1507] *See supra* note 1301.

[1508] Most states have adopted three rate zones, which is the minimum required by the Commission. *See Local Competition Order*, 11 FCC Rcd at 15882-83, para. 765. Some states have adopted four zones.

[1509] *See supra* Part VI.D.6.a.(i).

[1510] AT&T Jan. 17, 2003 *Ex Parte* Letter at 2-3, 7-8 (discussing collocation space costs, which relate to the number of customers served, and backhaul costs, which relate to the distance between the customers' premises and the competitive LEC's switch); WorldCom Jan. 8, 2003 Switching *Ex Parte Letter*, Attach. at 7 ("Economies of scale are critical to the level and structure of costs incurred by the CLECs.").

[1511] There is significant disagreement concerning what revenues to use in calculating net profits. AT&T, WorldCom, and Z-Tel argue that retail rates should not be relied upon, and that instead we should examine the cost disparity the competitor suffers using UNE-L relative to the incumbent. AT&T Jan. 17, 2003 *Ex Parte* Letter at 3; WorldCom Jan. 8, 2003 Switching *Ex Parte Letter* at Attach. A, 3-6. SBC and BellSouth argue that we should examine whether entry is economic using typical retail revenues. SBC Jan. 14, 2003 Unbundled Switching *Ex Parte* Letter at 3. In its study SBC used the typical retail revenue charged by WorldCom for its nationwide offering of combined local and long distance service, called The Neighborhood. *Id.* BellSouth suggests using the incumbent's average retail per-line local revenues, or the price of the incumbent's retail local offerings as the basis for determining competitor's revenues. BellSouth Jan. 30, 2003 *Ex Parte* Letter at 2-8.

[1512] *See supra* note 1303.

[1513] Revenues associated with related services purchased by mass market customers, such as vertical features, are not included in residential rates, and may vary among the states and within a state. Revenues can also vary according to the state Subscriber Line Charge (SLC) and the state and federal access charges that can be applied. FCC Reference Book at 1; *MAG Plan Order*, 16 FCC Rcd at 19636-37, 19669, paras. 47, 131. Many state commissions report setting intrastate access charges above cost. GAO Report on Universal Service at 18.

[1514] Additional revenue opportunities are likely to be greatest in areas with large numbers of enterprises, especially if some of those enterprises are heavy users of telecommunications services.

[1515] *USTA*, 290 F.3d at 422-26.

(ii) State Actions and Determinations

486. In this section, we ask state commissions to take certain actions designed to alleviate impairment in the markets over which they exercise jurisdiction. We also set forth a detailed process by which states may perform analysis on a more granular basis, and may identify where competing carriers are not impaired without access to unbundled switching.

(a) Incumbent LEC Batch Cut Processes

487. We have found that a seamless, low-cost batch cut process for switching mass market customers from one carrier to another is necessary, at a minimum, for carriers to compete effectively in the mass market.[1516] We conclude that the loop access barriers contained in the record may be mitigated through the creation of a batch cut process by spreading loop migration costs among a large number of lines, decreasing per-line cut over costs.[1517]

488. State commissions must approve, within nine months of the effective date of this Order, a batch cut migration process to be implemented by incumbent LECs that will address the costs and timeliness of the hot cut process. Alternatively, state commissions must make detailed findings explaining why such a process is not necessary in a particular market, as described below. We find that state regulators are closest to the facts particular to the provisioning issues applicable to their respective markets, and are in the best position to judge whether the incumbent LEC has indeed developed an efficient loop migration process. There can be no doubt that state commissions possess the competence to implement a cost-effective and fast process for provisioning unbundled local loops. State commissions possess the requisite expertise to apply Commission-prescribed standards, and they routinely utilize the processes and

[1516] Commissioner Abernathy emphasizes that despite the availability of a managed hot cut process in some states, carriers with their own switches have been increasing their reliance on unbundled switching. *See Commissioner Abernathy Statement* at 5 n.9. However, the record evidence demonstrates that competitive LECs have been forced to abandon plans to provide switch-based services to mass market customers because of the difficulties associated with the current hot cut process. *See supra* para. 466. Moreover, Commissioner Abernathy overlooks the fact that current market conditions warrant the availability of unbundling at a minimum, to transition to competitive switch deployment. *See* WorldCom Reply at 155. More importantly, Commissioner Abernathy fails to recognize that the record evidence indicates that incumbent LECs are not well-equipped to handle hot cut volumes even with the existence of a procedure to manage bulk migrations on a project-managed basis. Indeed, in New York, where Verizon has worked with carriers such as Broadview and AT&T to handle bulk migrations on a project-managed basis, there continue to be quality issues associated with hot cuts. Broadview Jan. 15, 2003 *Ex Parte* Letter at 6. This fact is illustrated by an order issued by the New York Department confirming that although the New York hot cut process is "working" and is "well refined . . . at least at current volumes," "an efficient bulk-hot-cut process and rate is critical to the development of facilities-based competition," and thus instituted a proceeding to address that problem. *See* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 9 n.26 (citing Order Instituting Proceeding, *Proceeding on Motion of the Commission to Examine the Process, and Related Costs of Performing Loop Migrations on a More Streamlined (e.g., Bulk) Basis*, Case 02-C-1425 (Nov. 22, 2002)).

[1517] In theory, electronic loop provisioning might one day obviate the need for a hot cut when migrating a loop from one carrier's switch to another's. *See, e.g.*, AT&T Comments, Attach. C, Declaration of Irwin Gerzberg, at paras. 6, 18-19, 25-28; Z-Tel Reply at 53. As discussed below, however, the record in this proceeding does not support a determination that electronic provisioning is currently feasible.

procedures – including discovery, sworn testimony, and cross examination on the record – that are essential to reasoned fact-finding. Should a state commission fail to approve a batch cut migration process or provide a detailed explanation why such a process is not necessary within nine months of this Order's effective date, an aggrieved party will be permitted to initiate a proceeding with this Commission.[1518]

489. As an initial matter, state commissions should adopt a batch cut over "increment" for migrating customers served by unbundled loops combined with unbundled local circuit switching to unbundled stand-alone loops. In other words, states should decide the appropriate volume of loops that should be included in the "batch." In conjunction with incumbent LECs and competitive LECs, states should also approve specific processes to be employed when performing a batch cut. The processes adopted will necessarily vary based on the relevant incumbent's particular network design and cut over practices. Generally, however, we expect these processes to result in efficiencies associated with performing tasks once for multiple lines that would otherwise have been performed on a line-by-line basis. For example, pursuant to the processes in place in at least some states, the incumbent LEC currently will pre-wire circuits on the central office frame, verify the presence of dial tone, and communicate with competitive LECs regarding problems encountered on a line-by-line basis.[1519] Under a batch cut process, these activities might be undertaken simultaneously for all lines affected by a given batch order. In addition to developing a cost-effective hot cut process, state commissions should evaluate whether the incumbent LEC is capable of migrating batch cutovers of unbundled loops combined with unbundled local circuit switching to unbundled stand-alone loops for any requesting carrier in a timely manner. Specifically, state commissions may require that incumbent LECs comply with an average completion interval metric, including any further disaggregation of existing loop performance metrics (*i.e.*, quality or maintenance and repair metrics), for provisioning high volumes of loops. Finally, if they have not done so already, state commissions should adopt TELRIC rates for the batch cut activities they approve. These rates should reflect the efficiencies associated with batched migration of loops to a competitive LEC's switch, either through a reduced per-line rate or through volume discounts.

490. If a state should conclude that the absence of a batch cut migration process is not causing impairment for a particular market, however, that conclusion will render the creation of such a process unnecessary. For example, in a small, rural wire center, where there is not a significant volume of customer migrations, the absence of a batch cut process may not cause impairment.[1520] In such cases, the state commission may decline to institute a batch cut process,

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[1518] *See supra* Part V.E.2.a (discussing the role of the states).

[1519] *See, e.g., Application by Verizon New Jersey, Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization To Provide In-Region, InterLATA Service in New Jersey,* Supplemental Declaration of Patrick A. Garzillo and Marsha S. Prosini at Attach. 2, WC Docket No. 02-67 (filed Mar. 26, 2002) (describing Verizon's hot cut process in New York and New Jersey).

[1520] *See* BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 7 (noting that Commission has found current hot cut processes adequate for the relatively small volumes under consideration in section 271 proceedings).

so long as it instead issues detailed findings regarding the volume of UNE-L migrations that could be expected if competitive LECs were no longer entitled to unbundled local circuit switching, the ability of the incumbent to meet that demand in a timely and efficient manner using the existing hot cut process, and the non-recurring costs associated with the hot cut process. If a state commission determines that these findings demonstrate that existing hot cut practices would be adequate even in the absence of unbundled local circuit switching, and that the costs of such processes will not deter entry by competitive LECs, it may conclude that a batch cut process is not necessary. Only such detailed findings, however, will serve as an adequate substitute for the development of a batch cut migration process. We emphasize, moreover, that a state's decision not to develop a batch cut process will not relieve the state commission of its obligation to conduct the analysis set forth below in assessing whether requesting carriers are actually not impaired without access to unbundled switching in any given market.

491. *Other Issues.* We note that AT&T and WorldCom propose other mechanisms intended to mitigate the disruptions and other practical difficulties inherent in the current loop infrastructure.[1521] First, AT&T argues that unbundled switching for voice-grade loops is essential until incumbent LECs offer an electronic loop provisioning (ELP) method of transferring large volumes of local customers in the mass market from one carrier to another that it describes as being analogous to the existing process used to change a customer's long distance provider and as eliminating the need for physical hot cuts.[1522] We agree with AT&T that it is easier for a competitive LEC to manage the hot cut process when migrating large numbers of lines served by unbundled loops combined with unbundled local circuit switching to stand-alone loops than in individual hot cut situations, because the conversions can be project-managed by both the incumbent LEC and the requesting carrier.[1523] However, the evidence in the record suggests that an ELP process, to be effective, would require significant and costly upgrades to the existing local network at both the remote terminal and central office. AT&T's ELP proposal proposes to "packetize" the entire public switched telephone network for both voice and data traffic, at a cost one party estimates to be more than $100 billion.[1524] Incumbent LECs state that AT&T's proposal would entail a fundamental change in the manner in which local switches are provided and would require dramatic and extensive alterations to the overall architecture of every incumbent LEC local telephone network.[1525] Given our conclusions above, we decline to require

[1521] *See* AT&T Comments at 63; *see also* Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Michelle Carey, Chief, Competition Policy Division, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Nov. 13, 2002) (WorldCom Nov. 13, 2002 DS0 EELs *Ex Parte* Letter).

[1522] AT&T Comments at 235-39. The UNE-P Coalition states that electronic provisioning will allow thousands more migrations per day, thereby affording more consumers a competitive choice of provider. UNE-P Coalition Comments at 7.

[1523] AT&T Comments at 237.

[1524] *See* SBC Reply at 131 (estimating that, including the entire cost of all equipment necessary to implement AT&T's proposal, and assuming that a rough benchmark based on SBC's Project Pronto would be applicable to other incumbent LECs, it could cost more than $100 billion to implement ELP nationwide).

[1525] *See, e.g.*, SBC Reply at 129 (stating that AT&T's proposal would require substantial modifications to outside plant equipment, central office equipment, and OSS).

ELP at this time, although we may reexamine AT&T's proposal if hot cut processes are not, in fact, sufficient to handle necessary volumes.

492. In order to mitigate perceived difficulties with a transition from unbundled loops combined with unbundled local circuit switching to stand-alone loops, WorldCom proposes to establish rules ensuring that competitive LECs may obtain concentrated EELs at the DS0 level.[1526] WorldCom asserts that "TELRIC-priced EELs with concentration" could facilitate the competitive growth based on a UNE-L strategy.[1527] We agree with WorldCom that DS0 EELs can minimize collocation costs and increase the geographic reach of competitive LECs, thereby facilitating the expansion of competition based on UNE-L strategies in some markets.[1528] We decline, however, to establish at this time rules requiring concentration. The record demonstrates that DS0 EELs could increase loop costs[1529] and may raise several additional operational issues.[1530] Accordingly, we are not convinced, based on the limited record before us, that we should require incumbent LECs to include concentration when they provide UNEs to requesting carriers.[1531]

(b) State Commission Determinations

493. Although we find competitors to be impaired without access to the incumbent LEC's switch on a national level when serving the mass market, we authorize state commissions

[1526] WorldCom Nov. 13, 2002 DS0 EELs *Ex Parte* Letter. The term "concentrated EELs" refers to an arrangement in which the competitive LEC utilizes concentration equipment allowing it to transport four to six DS0s or more on a single DS0-equivalent circuit. Thus, for example, using concentration a competitive LEC might use one DS1 circuit to carry 144 (rather than only 24) DS0s. WorldCom claims that such aggregation allows it to reach more customers more efficiently. *See id.* at 2; *see also* Letter from Jay Bennett, Executive Director – Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147, Attach. at 4 (filed Nov. 14, 2002) (SBC UNE-Loop/Special Access *Ex Parte* Letter); Letter from Rebecca M. Sommi, Vice President – Broadview Networks *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Nov. 26, 2002) (Broadview *et al.* Nov. 26, 2002 *Ex Parte* Letter).

[1527] WorldCom Nov. 13, 2002 DS0 EELs *Ex Parte* Letter.

[1528] *Id.*

[1529] Letter from Access Integrated *et al.*, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Dec. 11, 2002) (Access Integrated *et al.* Dec. 11, 2002 *Ex Parte* Letter); Letter from AT&T *et al.* to Michael K. Powell *et al.*, Chairman, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 4, 2003) (AT&T *et al.* Feb. 4, 2003 *Ex Parte* Letter).

[1530] Letter from David A. Kunde, Executive Vice President of Network Operations, Eschelon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Oct. 21, 2002) (Eschelon Oct. 21, 2002 *Ex Parte* Letter).

[1531] According to WorldCom, some variant of the DS0 EEL is available and has been priced in at least the following states: Arizona, Arkansas, Colorado, Idaho, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, and Wyoming. WorldCom Nov. 13, 2002 DS0 EELs *Ex Parte* Letter at 3 n.8.

to play a fact-finding role – as set forth below – to identify where competing carriers are not impaired without access to unbundled local circuit switching.[1532] As discussed above, the record does not contain sufficient detail concerning which geographic and customer markets may in fact allow economic entry. In addition, impairments that exist today in certain markets may be remedied in the future due to the implementation of a batch cut process, as discussed above. Because our standard and the guidance from the *USTA* decision require that the determination of impairment be made on a granular basis, and because the record provides insufficient evidence concerning the characteristics of particular markets, we find it appropriate to ask the states to assess impairment in the mass market on a market-by-market basis.[1533]

494. We expect state commissions to follow a two-step process in determining whether to find "no impairment" in a particular market. In the first step, states will apply self-provisioning and wholesale triggers to a particular market to determine if the marketplace evidence of deployment of circuit switches serving the mass market requires a finding of no impairment. If the triggers are satisfied, the states need not undertake any further inquiry, because no impairment should exist in that market.[1534] If the triggers are not satisfied, the state commission shall proceed to the second step of the analysis, in which it must evaluate certain operational and economic criteria to determine whether conditions in the market are actually conducive to competitive entry, and whether carriers in that market actually are not impaired

[1532] Chairman Powell asserts that this proceeding has "transformed into a battle not over what should be unbundled, but who should decide – this Commission or the states." *See Chairman Powell Statement* at 3 (emphasis in original). Chairman Powell essentially characterizes the Commission's decision regarding unbundled switching as a battle over forum shopping. To the contrary, throughout the decision the Commission sets forth the same analytical framework – not only for the unbundled switching element but for other elements, including transport – that provides specific federal guidance under which the states perform a granular analysis to identify where competitive carriers are not impaired without access to a particular element. Surprisingly, Chairman Powell seems troubled by the framework as applied to unbundled switching yet appear unfazed by its existence and support its similar application to other elements.

[1533] Chairman Powell contends that with respect to unbundled switching there is a "default assumption of impairment" and that "[o]nly when all barriers to profitability have been eliminated does this Commission empower states to eliminate" unbundled switching. *Chairman Powell Statement* at 10 (emphasis in original); *see also* Commissioner Abernathy Statement at 6 (stating that "[t]he majority's multifactor test starts with a default presumption of impairment and cannot be overcome unless every conceivable obstacle to profitability has been eliminated."). That is incorrect. First, the Commission's decision makes a national finding "that competitors are not impaired without unbundled access to incumbent LEC local circuit switching when serving DS1 enterprise customers." Second, as to determinations of impairment regarding unbundled switching for mass market customers, the framework of analysis is essentially the same as the "assumptions" used to make findings of impairment for other elements, such as transport facilities. For example, for both unbundled local circuit switching and transport, the Commission requires states to examine triggers based on actual competitive deployment first, and when neither of these triggers is satisfied, the Commission sets forth factors that state commissions must apply to determine whether a market allows self-provisioning of the element. Where these factors suggest feasibility of self-provisioning of the element, states may render a "no impairment" finding. The dissent not only mischaracterizes the Commission's impairment test on unbundled switching, it also chooses to ignore the fact it supported application of the same test to other elements.

[1534] As explained below, we recognize that exceptional circumstances may preclude a state determination that there is no impairment in a given market even when one of the triggers has been satisfied.

without access to unbundled local circuit switching. The states should evaluate evidence of switch deployment that does not automatically satisfy the triggers, but nonetheless may demonstrate the absence of impairment in the market.[1535]

(i) Defining the Market

495. The triggers and analysis described below must be applied on a granular basis to each identifiable market. State commissions must first define the markets in which they will evaluate impairment by determining the relevant geographic area to include in each market.[1536] State commissions have discretion to determine the contours of each market, but they may not define the market as encompassing the entire state. Rather, state commissions must define each

[1535] *Commissioner Abernathy states that, throughout this proceeding, she was willing to "peg[] non-impairment findings to deployment of a threshold number of switches." Commissioner Abernathy Statement* at 3. However, throughout this process and prior to February 20th, she has been unwilling to distinguish the enterprise and mass markets in this analysis – the approach we adopt here. We believed – and continue to believe – that our approach is more consistent with the general impairment section approved unanimously by the full Commission. In that section, we agree to "conduct separate . . . impairment analyses based on [among others] two relevant customer classes – the mass market and the enterprise market." *See supra* para. 197.

[1536] Chairman Powell's criticism of the discretion we give states to define the relevant geographic market for purposes of the switching analysis is misplaced. *See Chairman Powell Statement* at 6-7. It is fundamental to our general impairment analysis to consider whether alternative facilities deployment shows a lack of impairment in serving a particular market. Indeed, we adopt triggers for the states to apply to measure impairment by considering this alternative facilities deployment in our analysis of loops, transport, and switching. Although the incumbent LECs argue that we should apply a zone approach to transport and loops, we define the relevant geographic market for transport as route-by-route, and the relevant geographic market for enterprise loops as customer-by-customer, because of the economic and operational issues associated with alternative transport and loops deployment. As Chairman Powell recognizes, a switch can theoretically serve wide areas (provided that the costs of transporting traffic back to the switch are not cost prohibitive), so one would expect a broader market definition for switching than for loops or transport. *Chairman Powell Statement* at 7. Indeed, because we measure alternative "switching" in a given market, not switches located in that market, the physical location of the switch is not necessarily relevant to defining the geographic market. For example, a switch located in Rhode Island could satisfy the switching trigger in Massachusetts if it is serving customers in the relevant market in Massachusetts. *Chairman Powell Statement* at 7. To the extent the states define a geographic market broadly, it is more likely that such geographic market will capture sufficient switching alternatives to satisfy the trigger, thus resulting in removal of the particular UNE in that geographic market (a result the dissents would seem to endorse). The exact parameters of these geographic markets, however, cannot be defined nationally for switching because, as both incumbent LECs and competitive LECs agree, there are extreme variations in population density, and thus wire center line densities, across the country. *See generally* AT&T Jan. 17, 2003 *Ex Parte* Letter; SBC Jan. 14, 2003 UNE P *Ex Parte* Letter; WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter. States are, therefore, better positioned to draw these lines. Because states are more familiar with how these variations have affected competitive entry, and because there was no credible record evidence to show how we could establish these boundaries based on a national rule, we ask the states to create these boundaries. We do, however, provide the states significant guidance. We require state commissions to define each geographic market on a granular level and direct them to take into consideration the locations of customers actually being served by competitors, the variation in factors affecting competitors' ability to serve each group of customers, and competitors' ability to target and serve specific markets economically and efficiently using currently available technologies. We make clear that state commissions cannot define a market as encompassing an entire state and that they should not define the market so narrowly that a competitor serving that market alone would not be able to take advantage of available scale and scope economies from serving a wider market.

market on a granular level, and in doing so they must take into consideration the locations of customers actually being served (if any) by competitors,[1537] the variation in factors affecting competitors' ability to serve each group of customers,[1538] and competitors' ability to target[1539] and serve specific markets economically and efficiently using currently available technologies. While a more granular analysis is generally preferable, states should not define the market so narrowly that a competitor serving that market alone would not be able to take advantage of available scale and scope economies from serving a wider market. State commissions should consider how competitors' ability to use self-provisioned switches or switches provided by a third-party wholesaler to serve various groups of customers varies geographically and should attempt to distinguish among markets where different findings of impairment are likely. The state commission must use the same market definitions for all of its analysis.[1540]

496. Thus, for example, a state commission may choose to consider how UNE loop rates vary across the state, how retail rates vary geographically, how the number of high-revenue customers[1541] varies geographically, how the cost of serving customers varies according to the size of the wire center and the location of the wire center, and variations in the capabilities of wire centers to provide adequate collocation space and handle large numbers of hot cuts. We recognize that many states have implemented varied administrative tools to distinguish among certain markets within a state on a geographic basis for other purposes including retail ratemaking, the establishment of UNE loop rate zones, and the development of intrastate universal service mechanisms. If a state determines, after considering the factors just described, that these already-defined markets would be appropriate to use in this context as well, it may choose to use these market definitions.

497. For purposes of the examination described here, mass market customers are analog voice customers that purchase only a limited number of POTS lines, and can only be economically served via DS0 loops. Some mass market customers (*i.e.*, very small businesses) purchase multiple DS0s at a single location. The previous Commission determined that incumbent LECs that make the EEL combination available are not obligated to provide unbundled local circuit switching to requesting carriers for serving customers with four or more

[1537] For example, if competitors with their own switches are only serving certain geographic areas, the state commission should consider establishing those areas to constitute separate markets.

[1538] For example, if UNE loop rates vary substantially across a state, and this variation is likely to lead to a different finding concerning the existence of impairment in different parts of the state, the state commission should consider separating zones with high and low UNE loop rates for purposes of assessing impairment.

[1539] For example, competitors often are able to target particular sets of customers, or customers in particular wire centers or rate zones.

[1540] Therefore the market definitions used for the analysis of the triggers must also be used for the second step of the analysis, if the triggers are not satisfied.

[1541] These include, for example, business customers, as well as those residential customers likely to take vertical features and ancillary services such as data and voice mail service.

DS0 loops in density zone one of the top fifty MSAs.[1542] The previous Commission found that under such circumstances, lack of access to unbundled local circuit switching would not impair requesting carriers in these specific areas.[1543] At some point, customers taking a sufficient number of multiple DS0 loops could be served in a manner similar to that described above for enterprise customers – that is, voice services provided over one or several DS1s,[1544] including the same variety and quality of services and customer care that enterprise customers receive. Therefore, as part of the economic and operational analysis discussed below, a state must determine the appropriate cut-off for multi-line DS0 customers as part of its more granular review. This cross over point may be the point where it makes economic sense for a multi-line customer to be served via a DS1 loop. We expect that in those areas where the switching carve-out was applicable (*i.e.*, density zone 1 of the top 50 MSAs), the appropriate cutoff will be four lines absent significant evidence to the contrary. We are not persuaded, based on this record, that we should alter the Commission's previous determination on this point.[1545] Accordingly, we authorize the states, within nine months of the effective date of this Order, to determine the appropriate cross over point.[1546]

[1542] *UNE Remand Order*, 15 FCC Rcd at 3822-31, paras. 276-98.

[1543] *Id.*

[1544] The evidence in the record indicates that it may be viable to aggregate loops at a customer location and provide service at a DS1 capacity or higher. Specifically, if a customer has enough lines to justify the expense of purchasing multiplexing equipment and a high-capacity line, it makes sense to aggregate the customer's loops at the customer's premises, which avoids the need for hot cuts at the incumbent LEC's central office.

[1545] Because the previous carve out only applied where "new" EELs were made available and because this Commission allowed state commissions to require switching to be unbundled even in areas where the carve-out test was met, it appears that the four-line carve-out was adhered to in very few areas in the country. SBC Reply at 30; BellSouth NERA Reply Decl. at 51-52. As part of their analysis, we expect states to make a finding of whether or not the carve out was in effect.

[1546] Commissioner Abernathy claims that our decision not to preserve the previous Commission's four-line carve-out represents a "potentially massive expansion" of unbundled switching. *Commissioner Abernathy Statement* at 8 n.27. This claim makes no sense. If a state finds that the appropriate cut-off for distinguishing enterprise from mass market customers in density zone 1 of the top 50 MSAs is four lines, there will be no more unbundled switching available than there was under the previous carve-out. Indeed, since the previous carve-out was conditioned on the availability of EELs and appears to have actually been in effect in very few areas of the country, *see supra* note 1545, setting the cut-off at an unconditional four lines would result in more customers being treated as enterprise customers subject to our finding of no impairment. If, on the other hand, a state finds based on record evidence that a cut-off of more than four lines is appropriate, more multi-line customers will be treated as mass market customers. But in no way will this result in an "expansion" of unbundled switching. To the contrary, as Commissioner Abernathy points out, "dozens of CLECs serve business customers of such size using their own switches." *Commissioner Abernathy Statement* at 8 n.27. Such widespread deployment of competitive switches would be considered under our mass market triggers. In such markets, then, it is more likely that there will be a finding of no impairment for the entire market, leading to significantly less unbundled switching than was available under the previous four-line carve-out.

(ii) Triggers

498. We adopt triggers as a principal mechanism for use by states in evaluating whether requesting carriers are in fact not impaired in a particular market. As noted above, we give substantial weight to actual commercial deployment of particular network elements by competing carriers.[1547] We find that the presence of facilities-based competitors is the best indicator that requesting carriers are not impaired. Therefore, our triggers identify existing examples of multiple competitive LECs using their own switches to serve mass market customers, or to provide a switching wholesale service. We require state commissions to find "no impairment" in a particular market when either trigger is satisfied, subject to the limitations described below. The use of triggers keyed to objective criteria can avoid the delays caused by protracted proceedings and can minimize administrative burdens.[1548] Our selection of various thresholds is based on our agency expertise, our interpretation of the record, and our desire to provide bright-line rules to guide the state commission in implementing section 251.

499. The triggers we set forth rely on the number of carriers that self-provision switches or the number of competitive wholesalers offering independent switching capacity in a given market.[1549] In both cases, the competitive switch providers that the state commission relies upon in finding either trigger to be satisfied must be unaffiliated with the incumbent LEC and with each other.[1550] In addition, they should be using or offering their own separate switches.[1551]

[1547] *See supra* Part V.B.1 (discussing the impair standard).

[1548] *Pricing Flexibility Order*, 14 FCC Rcd at 14267-68, para. 84.

[1549] As in the impairment triggers for high-capacity loops and dedicated transport, states also shall consider carriers that provide intermodal voice service using their own switch facilities (including packet and soft switches) that meet the requirements of these triggers and Part V above. *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); *see also supra* paras. 332, 337 and notes 1256, 1278. In deciding whether to include intermodal alternatives for purposes of these triggers, states should consider to what extent services provided over these intermodal alternatives are comparable in cost, quality, and maturity to incumbent LEC services. *See supra* para. 97. For example, we note that CMRS does not yet equal traditional incumbent LEC services in its quality, its ability to handle data traffic, its ubiquity, and its ability to provide broadband services to the mass market. *See supra* para. 230. Thus, just as CMRS deployment does not persuade us to reject our nationwide finding of impairment, *see supra* para. 445, at this time, we do not expect state commissions to consider CMRS providers in their application of the triggers. In applying the triggers, states must consider packet switches to the extent they are used to provide local voice service to the mass market.

[1550] Affiliated companies will be counted together, in order to prevent gaming. 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).

[1551] While the record indicates that competitors do not currently purchase wholesale switching from non-incumbent-LEC providers, we find, for the limited purposes described herein, that if a carrier were to acquire the long term right to the use of a non-incumbent-LEC switch sufficient to serve a substantial portion of the mass market, that carrier should be counted as a separate, unaffiliated self-provider of switching.

This requirement avoids counting as a true alternative a provider that uses the switching facilities of the incumbent LEC or *another* alternative provider that has already been counted. Moreover, the identified competitive switch providers should be actively providing voice service to mass market customers in the market. They must also be operationally ready and willing to provide service to all customers in the designated market.[1552] They should be capable of economically serving the entire market, as that market is defined by the state commission. This prevents counting switch providers that provide services that are desirable only to a particular segment of the market. Identified carriers providing *wholesale* service should be actively providing voice service used to serve the mass market, and providing it at a cost and quality and geographic scope that allow resellers to serve the entire market. However, the competing carriers' wholesale offerings need not include the full panoply of services offered by incumbent LECs.[1553]

500. For the purposes of these triggers, we find that states shall not evaluate any other factors, such as the financial stability or well-being of the competitive switching providers.[1554] Competing carriers in Chapter 11 bankruptcy protection are often still providing service. Regardless of their financial status, the physical assets remain viable and may be bought by someone else and remain in service.[1555] We note that requiring states to determine the financial ability of competitive wholesale providers to provide service in the future could hamper economic recovery efforts of companies in financial distress. The key consideration to be examined by state commissions is whether the providers are currently offering and able to provide service, and are likely to continue to do so.[1556]

(a) Self-Provisioning Trigger

501. We determine that – subject only to the limited exception set forth below – a state must find "no impairment" when three or more unaffiliated competing carriers each is serving mass market customers in a particular market with the use of their own switches.[1557] We set the number of competitive facilities at three for several reasons. First, we choose three self-

[1552] In circumstances where switch providers (or the resellers that rely on them) are identified as currently serving, or capable of serving, only part of the market, the state commission may choose to consider defining that portion of the market as a separate market for purposes of its analysis.

[1553] We expect, however, that providers of switching will have an incentive to offer competitive terms with those of the incumbent LEC.

[1554] For the potential deployment analysis, however, the state commission may consider financial evidence relating to the difficulty in serving the mass market by existing competitive switch providers.

[1555] BOC UNE Fact Rebuttal Report at 20-24, 41-43.

[1556] For instance, states should review whether the competitive switching provider has filed a notice to terminate service in that market.

[1557] Competitors with their own switch that are providing service only on a wholesale basis should be counted for this test. Thus, for example, this test will be satisfied if there are three carriers providing service to mass market voice customers using their own switch, with two of the carriers providing only retail service, and one providing only wholesale service.

provisioners as the appropriate threshold in order to be assured that the market can support "multiple, competitive" local exchange service providers using their own switches.[1558] Second, setting the trigger at three competitive facilities takes into consideration the likelihood that self-providers will not offer their service for wholesale, based on the evidence that local exchange service providers have generally not shown an interest in providing wholesale services, in contrast to the wholesale trigger, described below, which is met if there are two actual wholesalers.[1559] Finally, we believe that the existence of three self-provisioners of switching demonstrates adequately the technical and economic feasibility of an entrant serving the mass market with its own switch, and indicates that existing barriers to entry are not insurmountable.[1560]

502. We find, based on our review of the record, that competitive carriers providing service to mass market customers are impaired without access to local circuit switching.[1561] We determine that this is caused, in part, by the problems with the hot cut process identified above. We believe that this is unlikely to change until incumbent LECs implement batch cut processes. Nevertheless, particularly in light of the batch cut processes we are requiring states to approve and implement, we believe that competitive carriers will likely begin to utilize self-provisioned switches in greater numbers going forward. As discussed below, we require state commissions to monitor circumstances in their respective states for any significant changes in factors that may cause impairment.[1562] After a batch cut process has been put into place, we expect state commissions in subsequent reviews to reevaluate the circumstances surrounding self-provisioning, and expect that states will begin to find that requesting carriers are *not* impaired

[1558] We therefore deny Bell Atlantic's petition seeking the elimination of unbundled switching in all geographic markets for all customer classes where a single competitive switch has been deployed. Verizon Feb. 17, 2000 Petition for Reconsideration at 9-11.

[1559] *See* Talk America Reply at 19; SWCTA Comments at 8-9; SWCTA Reply at 7; Supra Comments at 36; Navigator Comments at 6; Eschelon Comments at 28-29.

[1560] We recognize that when one or more of the three competitive providers is also self-deploying its own local loops, this evidence may bear less heavily on the ability to use a self-deployed switch as a means of accessing the incumbent's loops. Nevertheless, the presence of three competitors in a market using self-provisioned switching and loops, shows the feasibility of an entrant serving the mass market with its own facilities.

[1561] The Chairman claims that "the Majority blinds itself to the significant self-provisioned switching capacity that exists in the market and the fact that a number of competitors have overcome whatever economic impediments exist and are using that switching capability to serve mass market customers." *Chairman Powell Statement* at 7-8. This claim is simply wrong. We require the states to apply triggers that look only at actual deployment as the principal mechanism for evaluating impairment in a particular market. If the deployment triggers are met, the states must find no impairment. Even if these triggers are not met, we require the states to give evidence of a single competitively deployed mass market switch "particularly substantial weight" and evidence of enterprise switch deployment "substantial weight" in determining whether entry is economic. *See supra* paras. 508, 510. Moreover, the Chairman's contention that significant competitive mass market switching deployment exists currently, while unbundled switching is universally available, is in direct tension with his claim that "it is unreasonable to expect that competitors will utilize self-provisioned switching capacity while a steeply-discounted and long-term UNE-P alternative exists." *Chairman Powell Statement* at 6.

[1562] *See* Part VI.D.6.a.(ii)(e) (discussing continuing review).

without access to unbundled switching as competing carriers self-provision switches in greater numbers.[1563]

503. *Exceptional Sources of Impairment.* In exceptional circumstances, states may identify specific markets that facially satisfy the self-provisioning trigger, but in which some significant barrier to entry exists such that service to mass market customers is foreclosed even to carriers that self-provision switches. For example, if there is no collocation space available for additional competitive LEC equipment, further competitive entry may be impossible, irrespective of other economic or operational circumstances. Where the self-provisioning trigger has been satisfied and the state commission identifies an exceptional barrier to entry that prevents further entry, the state commission may petition the Commission for a waiver of the application of the trigger, to last until the impairment to deployment identified by the state no longer exists.[1564]

(b) Competitive Wholesale Facilities Trigger

504. Separate from the inquiry into self-provisioning, we direct states to consider whether switching facilities are available from competitive wholesale providers in a given market to serve mass market customers. Consistent with our approach with regard to transport and loops, we determine that carriers are not impaired if they are able to obtain switching from third parties offering access to their own switches on a wholesale basis. While the record shows that such wholesale alternatives are not generally available at this time, we establish this trigger as a mechanism for identifying markets with adequate wholesale alternatives, in the expectation such alternatives may well develop in the future. Therefore, state commissions should identify those markets in which requesting carriers are not impaired without unbundled local circuit switching because two or more competing carriers, not affiliated with each other or the incumbent LEC, offer wholesale switching service for that market using their own switch.[1565] In those markets, states should determine that requesting carriers are not impaired without access to unbundled local circuit switching. This test will ensure that local circuit switching can readily be obtained from a firm using facilities that are not provided by the incumbent.

505. We choose two competitive wholesale providers as the appropriate threshold because this standard ensures that states will only find "no impairment" where the market can support "multiple, competitive supply" and establishes an incentive for new local circuit

[1563] We note, as described below, that state commissions will undertake subsequent granular reviews. *See infra* Part VI.D.6.a.(ii)(e) (discussing continuing review).

[1564] We do not find these types of barriers to be applicable to the wholesale trigger described below, because if the wholesale trigger is satisfied, even if further facilities-based entry is inhibited, the existence of two wholesale providers already provides a certain assurance that necessary facilities can be obtained by new entrants at competitive rates. Therefore we limit the state's ability to petition us, when an exceptional barrier to entry has been identified, to the application of the self-provisioning trigger.

[1565] We note that carriers providing switching services to the mass market not willing to provide wholesale services will be counted in the self-provisioning trigger described above.

switching facilities deployment while allowing competitive pressures from the wholesalers to control pricing and terms. A competitive carrier that is considering deploying switching facilities for the purpose of providing a wholesale offering is likely to be encouraged to deploy if its deployment will eliminate switching priced at TELRIC rates. Because we want to provide an incentive for competing carriers to deploy facilities, we do not demand the presence of more than two competitive wholesalers.[1566] Finally, we find that two wholesale providers, in addition to the incumbent LEC, should provide competitive pressures on pricing and terms and minimize the risk of "umbrella pricing" while encouraging deployment.[1567]

(iii) Analysis of Potential Deployment

506. Above, we have found that actual competitive deployment is the best indicator that requesting carriers are not impaired and, therefore, emphasize that the states should apply the self-provisioning and wholesale triggers described above, in their determination of whether impairment exists. We recognize, however, that the self-provisioning trigger discussed above identifies only the existence of *actual* competitive facilities serving the mass market and does not address the *potential* ability of competitive LECs to deploy their own switches to serve this market. For example, there may well be markets where self-provisioning of switching is economic notwithstanding the fact that no three carriers have *in fact* provisioned their own switches. In such cases, we expect states to find "no impairment." Therefore, we find that where neither of the triggers described above have been satisfied, the state must conduct further analysis to determine whether the market in question is suitable for "multiple, competitive supply."

507. In evaluating whether to find that requesting carriers are not impaired without access to local circuit switching, notwithstanding a market's failure to satisfy the triggers described above, the states shall evaluate three types of evidence, set forth more fully below. First, states must examine whether competitors are using their own switches to serve enterprise or mass market customers in the market at issue. Second, states must consider the role of potential operational barriers, specifically examining whether incumbent LEC performance in provisioning loops, difficulties in obtaining collocation space due to lack of space or delays in provisioning by the incumbent LEC, and difficulties in obtaining cross-connects in an incumbent's wire center, are making entry uneconomic for competitive LECs. Third, states must consider the role of potential economic barriers associated with the use of competitive switching facilities. Analyzing these factors in concert, state commissions must determine whether, in any particular market or markets, it is appropriate to find "no impairment."

[1566] Thus, if we were to establish a higher number than two as the threshold, such as four, to ensure the market is fully competitive, the first facilities-based potential entrant might be deterred from entry by the prospect of facing competition from providers using unbundled local circuit switching for a long time – until three other facilities-based competitors enter. With a threshold of two, the first facilities-based entrant need only wait until one other facilities-based entrant appears, before a finding of no impairment is warranted and they no longer face competition with switching priced at TELRIC.

[1567] *See supra* para. 413 (describing umbrella pricing).