as a two wire point-to-point configuration suitable for local exchange service and will be provided to AECs without use or user restrictions. USWC proposes to charge a Subscriber Line Charge (SLC)[16] and a flat rated Carrier Common Line Charge (CCLC) on the LIS-Link. USWC states that the interstate SLC and CCLC are a critical part of its revenues and must be recovered from the AECs. USWC has filed a waiver with the FCC seeking permission to recover these charges.

GTE. GTE argues that unbundling should involve a minimum of regulatory intervention. The Commission should only establish general unbundling guidelines to encourage competition. Because unbundling raises the same public policy, economic and business issues as the introduction of new services, LECs should be permitted to determine the appropriate level of unbundling dictated by the marketplace. GTE maintains that LECs should not be compelled to unbundle simply because competitors find it more efficient to rely on LEC facilities.

GTE proposes three unbundled loop and three unbundled port services. It opposes feeder/distribution unbundling and does not propose any new services with regard to signaling ports and links. It recommends LTR for trunkside interconnection and tandem switching. GTE states that most of the building blocks recommended by Staff are currently offered on an unbundled basis. It asserts that nearly all building blocks will be available if its LTR and unbundled loop and port proposals are adopted.

GTE's unbundled loop proposals include (a) an analog two-wire basic loop (or special access line); (b) an analog four-wire loop; and (c) a digital two-wire loop. At present, GTE's two-wire special access line is primarily used for point-to-point services and to facilitate foreign exchange service. As an unbundled service, it could be used to provide basic exchange service for single line, multiline, private branch exchange (PBX), and public access line (PAL) service. GTE proposes to treat unbundled loops as dedicated lines to avoid application of the interstate SLC and CCLC. Bundled switched local exchange loops, however will continue to include the SLC and CCLC.

GTE's proposed port services would provide dial tone and a telephone number to enable customers to make and receive calls. An unbundled GTE port would also provide service-enabling features and functions, such as translations, switching, announcements, supervision, and touch tone capability. It could also provide access to GTE-provided operator services, usage-based services, switch features and presubscribed interexchange carriers.

The four port services recommended by GTE include Basic Exchange/PBX, PAL, PBX Ground Start, and customer owned pay telephone (COPT) ports. The Basic

[16] The SLC is an interstate rate element charged to all end users who subscribe to switched local exchange telephone service. It is designed to recover part of the allocated interstate cost of subscriber lines. The remainder of the cost is charged to interexchange carriers via the interstate Common Carrier Line Charge (CCLC). The CCLC is a per minute rate assessed on all interexchange carriers that use local switching and subscriber lines to originate and terminate interstate interexchange traffic.

Exchange/PBX port is a two-wire analog port providing basic network access, including touch tone capability and other features. It is compatible with single line, multiline, and PBX systems that require loop start signaling. The PAL port is similar to the Basic Exchange/PBX port, but is intended for use with "smart" payphones that have internal routing and rating functions. It has available PAL service options for specialized line translations which restrict certain call types and is subject to certain conditions. A COPT port may be used with either public or semipublic telephone service and is intended for "dumb" payphone sets that lack any call processing or programming. It includes line translations that restrict certain call types and provides central office functions that enable coin collection and control features. The PBX Ground Start port provides ground start signaling in addition to the features described for Basic Exchange/PBX ports.

GTE observes that its network provisioning and administrative systems were not designed for managing an unbundled network. It anticipates that orders for unbundled loops and ports will have to be processed manually, adding substantially to the cost and time necessary to provide those services. GTE has formed a task force to investigate process changes in several areas, including meet point coordination, end-to-end testing, service quality measurement, handling customer complaints, technician and dispatch services, responsibility for trouble isolation, and installation services. GTE also anticipates that unbundling will impact departments and processes relating to planning, engineering, forecasting, capital provisioning, construction, maintenance, repair, and service center assignment.

GTE also argues that unbundling creates significant risk for the company because of uncertainties regarding the demand for unbundled elements and the evolution of the telecommunications market. It suggests that high initial demand for unbundled elements may cause GTE to invest large sums to develop and modify systems, create new procedures, train employees and invest in new facilities. GTE fears it may be left with stranded investment if changes in technology and market conditions subsequently cause demand for unbundled elements to decline.

United. United encourages the Commission to authorize only that level of unbundling necessary to allow competitors to enter the market without undue constraints. It contends that the benefits of unbundling are unproved and theoretical. United claims that there has been no showing that the level of unbundling proposed by Staff or AECs (a) is technically feasible; (b) does not jeopardize network reliability; (c) provides benefits that exceed the costs; (d) satisfies an existing demand, and (e) is necessary for other telecommunications providers to compete.

United proposes to implement unbundling in two phases. The phased approach is designed to moderate customer rate impacts in United's predominantly rural service territory. In Phase I, United would unbundle loop facilities, implement the interstate LTR, and unbundle the special access NAC from channel performance. United proposes to unbundle the following loop facilities: a basic two-wire NAC, a four-wire NAC, a DS1 NAC and, possibly, a DS3 NAC. United's LTR provides customers with the same

switched access transport and trunkside interconnection options included in the USWC and GTE proposals. That is, customers may purchase tandem switched transport, which routes calls through a LEC tandem, or direct trunked transport, which routes calls directly to the end office. Customers also have the option of interconnecting at the tandem and self-provisioning transport facilities rather than purchasing them from the LEC.

Phase II of United's proposal would make lineside port service available for purchase. United proposes to defer implementation of Phase II until the first quarter of 1997 because it has no indication that there will be a demand for lineside interconnection at any time in the near future. It also prefers not to offer lineside interconnection until it has a better understanding of how it will be used and the technical specifications for the service.

As noted above, United falls within the rural exemption in Section 252(f) of the Act. The Act provides that a carrier must make a bona fide request of United to unbundle telecommunications services or provide network elements. The Commission must review the request, and may terminate United's exemption only if it finds that the request is not economically burdensome, technically infeasible, or inconsistent with universal service requirements.

United acknowledges that Act--specifically, the elimination of resale restrictions, and the potential for wholesale discounts--may accelerate competition in United's rural service territory. United states that it should be free to unbundle services prior to a bona fide request if it perceives that market opportunities exist. It is prepared to honor bona fide requests for the unbundled elements it has proposed as well as those contemplated by the Act.

Appendix B compares the building blocks proposed by Staff with those proposed by USWC, GTE and United.

AT&T Wireless recommends that the Commission adopt the level of unbundling proposed by Staff. The building blocks recommended by Staff will allow wireless carriers to simulate existing methods of interconnecting with the landline telephone network and will permit new methods to develop. Unbundled interconnection arrangements will also benefit PCS providers, and will encourage both wireless and wireline carriers to keep pace with competition by reconfiguring their networks and interconnection arrangements. Wireless carriers should be able to purchase unbundled network functions at the same, prices, terms and conditions as wireline competitors.

OCTA argues that competition and technology are changing the telecommunications marketplace in ways that are difficult to predict. In order to provide competitors the opportunity to establish economically and technically efficient system design, the Commission should adopt unbundling and interconnection policies that acknowledge the dynamic forces of competition and the need for flexibility.

OCTA agrees with Staff that basic service elements (BSEs) that have already been unbundled pursuant to the Commission's ONA rules should remain unbundled. In addition, the Commission should require greater NAC unbundling than that included in USWC's LIS-Link proposal. OCTA argues that a two-wire analog NAC will preclude competitors from offering more advanced telecommunications services such as ISDN and frame-relay services that require four-wire facilities.

ELI maintains that unbundling is important because it allows (a) competitive providers to purchase only those network functions that are necessary and cannot be self-provisioned economically; (b) new points of interconnection to be established, creating less reliance on the incumbent LEC's network and providing the opportunity for competitive providers to expand their networks more efficiently; (c) the Commission to better analyze cost studies and pricing proposals of the incumbent LECs, and (d) new entrants to expand their geographical reach and serve customers that would not otherwise have a choice of local exchange providers.

ELI recommends unbundling LEC services into 87 building blocks. It argues that this is the minimum inventory of building blocks that must be provided to permit facilities-based local competition. ELI urges the Commission to adopt the more extensive level of unbundling proposed by Staff, noting that it will promote more efficient use of telecommunications facilities and prevent discriminatory pricing of services using the same functionality.[17]

ELI also proposes that testing access, *i.e.*, the cost of equipment necessary to provide access to NACs for testing purposes, should be tariffed as a separate building block rather than bundling it in the NAC rate. ELI asserts that AECs should have the opportunity to test NACs themselves, rather than rely on the LECs for this service.

ELI argues that the limited level of unbundling proposed by the LECs will inhibit the development of local exchange competition because key network components needed by potential competitors would not be unbundled. Like OCTA, ELI argues that USWC's proposal to restrict NAC unbundling to two-wire analog service will impede the offering of advanced telecommunications services that require four-wire facilities. It urges the Commission to require the LECs to offer different types of NACs, including two wire and four wire digital NACs capable of providing ISDN, DDS, DS1 and DS3 services. ELI also agrees with Staff that USWC's EICT service should be unbundled into its component

[17] According to ELI witness Robert McMillin, the main difference between Staff's list of building blocks and ELI's proposal is that Staff includes switch features (such as call waiting) and certain ancillary services. ELI did not include these building blocks because it intends to provide these functions with its own switching equipment. Non-facility based resellers may be interested in purchasing unbundled switch features, however. In addition, Mr. McMillin stated that the Commission should require unbundling of two ancillary services identified by Staff but not included on ELI's original list--Busy Line Verify and Busy Line Interrupt.

building blocks,[18] each of which should be separately tariffed in accordance with building block costs developed in Phase I of this docket.

ELI argues that extensive unbundling will foster the development of effective competition and provide customers with lower prices, accelerated innovation and improved service quality. Any costs associated with unbundling will be small compared with these benefits. In addition, the potential for LEC revenue erosion can be minimized by making interconnection building blocks available initially only to certificated AECs. The availability of building blocks to other end users could be assessed after the Commission considers the need for LEC retail rate rebalancing.

ELI disagrees with LEC claims that extensive network unbundling will result in network failures and diminish the integrity of the local exchange network. ELI observes that these arguments mirror those raised by the LECs when competition was contemplated in the interexchange and customer premises equipment markets.

MCI claims that unbundling benefits consumers in several ways. At the most basic level, it permits competitive entry and gives consumers a choice of telecommunications providers. Unbundling also encourages providers to compete on quality, service and price. It stimulates the creation of new products by allowing new entrants to combine unbundled functions with other services, to create new services or to enhance existing services. Without unbundled loops, for example, an entrant can serve only customers on or very near its SONET ring, thus depriving the benefits of competition to consumers who are not located close to the ring. Access to unbundled loops allows an entrant to serve all consumers interested in obtaining telecommunications services from a alternative provider.

MCI recommends that the Commission require the incumbent LECs to unbundle the list of 34 functions which it claims are necessary to permit competition to develop. Based on the evidence produced at hearing, MCI recommends two additional building blocks--Concentration for Transport and Four Wire Channel Out of a D4 Channel Bank (Four Wire Channel) -- are essential for competitors to provide service.[19]

MCI opposes the unbundling proposals offered by the LECs. It claims that USWC's LIS-Link proposal is a bundled offering that is inadequate for digital services such as ISDN. Competitors who need four wire NACs must purchase from USWC's private line tariff. MCI states that private line services are end-to-end bundled services

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[18] According to USWC witness Karen Baird, the building blocks associated with the EICT include jumper NACs, distributing frame termination, cross-connects, multiplexing and, possibly, regenerators.

[19] Concentration is multiplexing technology that permits carriers to use longer loops more efficiently by using fewer pairs to carry more traffic. This is advantageous to collocated AECs because a large portion of their loop plant is considerably longer and more costly than that of the incumbent LEC. The Four Wire Channel building block is a component of a four wire digital NAC.

which include channel performance, testing, and monitoring functions that can be self provisioned by a competitor. Likewise, MCI observes that GTE's proposed lineside ports are not ISDN compatible. Additional concerns raised by MCI with respect to the LEC unbundling proposals are addressed below.

AT&T urges the Commission to order the LECs to unbundle their networks into the building blocks identified by Staff. It argues that extensive unbundling is essential for interconnection because competitors rely on a variety of network functions as inputs to provide service. AECs will have limited facilities in place when they enter the telecommunications market. Unbundling removes a barrier to entry by enabling the entrant to supply certain building blocks and rely on the LECs for other network components. Competitive entry is fostered by reducing the initial capital requirements that new providers encounter.

AT&T joins ELI and MCI in recommending unbundling of (a) feeder and distribution associated with the NAC; (b) USWC's proposed EICT; (c) intrapremises cable and wire facilities, and: (d) ISDN user part (ISUP) and Transactions Capability Application Part (TCAP). These issues are addressed below.

Issue I(a): Lineside Interconnection.

Lineside interconnection refers to a customer's ability to receive dial-tone services through a physical connection to a LEC's end-office switch without being required to purchase any outside plant facilities (*i.e.*, NACs) from the LEC. Lineside connections use line cards that are designed to provide a customer with access to switching functions, dial tone, and a seven-digit telephone number. Lineside connections are necessary for customers who desire to provide their own NACs but not switching. See *e.g.*, Order No. 94-1851 at 8.

Trunkside interconnection, on the other hand, is a connection to a LEC switch that does not include dial tone. Trunkside connections are necessary for customers who have both switching and NAC capabilities but desire to interconnect to the existing LEC network. Trunkside connections use trunk cards which rely on a secondary switch to provide the first point of switching, station numbers and features. According to Staff witness Jon Wolf, there is little difference between lineside and trunkside connections. The costs are nearly identical, and both utilize the same interconnecting elements. The primary difference is in the termination card and the functionality served by each.

Staff, ELI, MCI, AT&T, OCTA, and **AT&T Wireless** all support unbundling of lineside interconnection. These parties emphasize that lineside connections are necessary for competitive providers who do not have a switch to provide local exchange service. For example, a lineside port would allow a competitor to attach its NACs to a LEC central office switch to create a local exchange access service.

GTE and **United** also agree that lineside ports should be provided on an unbundled basis. As noted above, however, United does not propose to make lineside interconnection available until 1997 because of lack of demand for unbundled ports. GTE acknowledges that its proposed lineside ports are not ISDN compatible. It also states that physical provisioning of lineside connections may cause network operation problems. For example, potential feature activation problems (*e.g.*, inability to use CLASS services) may result if a customer elects to purchase a block of lineside connections from GTE and then resells those connections to customers with a mix of services.

USWC does not propose to offer lineside interconnection. It argues that competitive local exchange carriers can and will provide their own central office switching and do not require direct connection of their NACs to USWC switches. USWC maintains that central office switches identical to those used by USWC are widely available and are used by many AECs. It contends that unbundled lineside ports are not required for the development of effective competition. According to USWC, the primary interface required by AECs is trunkside interconnection, which will allow access to the public switched network in the same manner that independent LECs currently interconnect with USWC's network.

Issue I(b): Feeder Distribution Outside Plant Unbundling.

"Feeder" refers to the outside plant closest to a LEC central office. It is the primary distribution plant (*i.e.*, large cables) between the LEC's wire center or central office and a cross-connect in its local distribution network. "Distribution" refers to the outside plant closest to a LEC customer location. The distribution component is the portion of the outside plant between the cross-connect and the actual customer drop or service connection wire.

Staff does not recommend unbundling of the NAC into feeder and distribution components at this time because it is difficult to clearly identify where feeder ends and distribution begins in existing LEC networks. However, Staff notes that interconnection may still take place at locations other than a LEC's central office. For example, a customer could request the placement of a virtually collocated piece of equipment at a LEC's controlled environment vault and then purchase a DS1 or DS3 circuit from that point to the LEC's central office. This arrangement would essentially replicate the unbundling of feeder from a customer's own distribution system. Also, an effective separation of feeder and distribution may occur when a customer aggregates it own distribution systems and then connects to a LEC via a DS1 or DS3 circuit between the customer's premise and the LEC's serving wire center.

GTE, United and **USWC** oppose feeder/distribution unbundling for various reasons, including concerns about feasibility, interconnection and network inefficiencies, space limitations, network integrity and security.

GTE asserts that modern telecommunications networks have become more "distributed" in nature. Instead of large copper cables radiating from LEC central offices, modern network configurations join distributed switching and digital pair gain centers with fiber optic links, resulting in more node locations and shorter average customer loops. Although this is beneficial from a customer service standpoint, it creates problems for unbundling because of the additional costs to provide service.

GTE witness Terry Falls explained how GTE provisions local loops. Universal Digital Loop Carrier (UDLC) devices use an analog interface to the LEC central office. These devices are more flexible because they may be used with any central office, but are more costly because each line requires two interface circuits at the central office. Although UDLCs have significant capacity, some special services (*i.e.*, caller number identification, PBX trunks) will not work on this device. According to Mr. Falls, it is generally not a problem to provide unbundled NACs to customers served by UDLC sites or pure copper facilities.

Alternatively, end user customers may be served through remote switching devices (RSDs), or integrated digital loop carrier (IDLC) devices which are connected to the central office through fiber optics and digital trunking. The RSD is capable of providing approximately 300 special circuits per site. IDLCs, on the other hand, can provide a total of 24 special circuits. Both IDLC and UDLC pair gain devices are located in cabinets with limited power and space capability.

According to GTE, a limited number of unbundled NACs could be provided from RSD sites, but it would erode GTE's ability to service special circuits for its customers. For economic reasons, GTE is unwilling to provide feeder facilities from its central offices to IDLC sites, or to provide distribution interfaces from IDCL sites. As a consequence, GTE estimates that loop unbundling will be limited or unavailable for approximately 27 percent of its Oregon access lines, or 106,000 customers.

GTE also argues that the integrity of the telecommunications network will be placed in jeopardy if other firms are given access to GTE's cross connect locations in order to connect and disconnect facilities. Typically, cross connects are housed in locked metal cabinets located throughout an exchange, and only GTE employees are now authorized to access them. Aside from the potential for physical damage to the network, GTE contends that it will be difficult, if not impossible, to maintain updated records of work performed by non-LEC personnel. GTE also asserts that third party access to cross connect locations may interfere with GTE's Express Dialtone process and create other security problems.

United also maintains that it is not feasible to disaggregate NACs into feeder and distribution elements. First, United claims that there is no such thing as a standard or normal loop because some loops have no distribution component, while others have no feeder component. Consequently, it is not possible to distinguish outside plant facilities in this manner. Second, United argues that unbundling the loop into feeder and distribution

will compromise network efficiencies and increase costs by interfering with integrated functions designed to minimize service activation and repair problems. Third, NAC disaggregation requires additional interconnection sites, equipment and technicians. It also prevents United from remote testing in the event repairs are necessary.

USWC also opposes feeder distribution unbundling. It argues that interconnection within cable vaults, manhole, digital loop carriers and other outside plant facilities is not an effective or efficient means of providing network interconnection, and is unnecessary for competition to develop. This level of unbundling also raises issues regarding space limitations in cable vaults and manholes; additional costs for electronics and termination equipment; disruptions in service, and administrative problems. USWC suggests that feeder distribution unbundling, together with the elimination of use and user restrictions would enable end users throughout Oregon to use portions of USWC's feeder and distribution network.

USWC also opines that feeder distribution unbundling will severely jeopardize network integrity. Like GTE and United, USWC asserts that the combination of loop facilities with several interconnection points, different providers, and different technicians will compromise network security and reduce service quality.

ELI, MCI and **AT&T** advocate unbundling of the NAC into feeder and distribution components. ELI witness Robert McMillin explains that, because the NAC is seldom one continuous cable pair, logical points of interconnection exist where different network facilities are interconnected. For the NAC, the most logical point of interconnection is the point where distribution plant interconnects to feeder facilities.

ELI notes that there are instances where it is inefficient for a LEC to provide an unbundled NAC to an AEC collocated in the LEC's central office. This occurs when the LEC has utilized IDLC or RSD facilities which allow incoming calls to the LEC switch to bypass the LEC's main distribution frame. Unless there are special access circuits available to bypass the IDLC or the RSD, an AEC cannot reach customers served by the those facilities, because it cannot connect to the central office.[20] ELI claims that a more efficient and cost effective means of interconnection under these conditions is to allow the AEC to interconnect on the distribution (customer) side of the IDLC or RSD. According to ELI, this type of interconnection is similar to the type of collocation that occurs at a LEC's central office.

ELI also recommends unbundling of riser cable facilities in buildings where a LEC assumes responsibility for those facilities. In order to obtain access to cable facilities

[20] Where trunk concentration is not provided by an IDLC or RSD, traffic is routed through the LEC's MDF. Traffic may be passed from the MDF to an AEC's collocated equipment simply by using a jumper NAC. Traffic going through an IDLC or RSD, however, goes straight to the LEC switch, bypassing the MDF. GTE witness Terry Falls agreed that an AEC cannot pick up traffic that travels through an IDLC unless special circuits are provided at additional expense.

controlled by USWC, an AEC must purchase two and four-wire channel terminations from USWC's private line tariff. The total cost for an AEC for use of the two-wire cable pair is $3.80 monthly plus a $100.00 nonrecurring charge. ELI argues that these charges drive up the cost for AECs to serve customers. It proposes that the Commission require LECs to develop cost studies for riser cable facilities within 60 days of a final order in this proceeding. ELI further recommends that the LECs offer riser cable on an unbundled basis priced at TSLRIC. AT&T and MCI concur with ELI's proposal.

MCI also argues that there are clear demarcation points within the NAC where interconnection can occur. LECs should be ordered to unbundle the NAC so that customers can select among providers for part of the NAC, thereby allowing competition to bring down the cost of the NAC. This is particularly important because the NAC is the most costly building block. Actions that lower even a portion of the NAC cost can translate into significant cost reductions for residential and business customers.

Where trunk concentration is provided through an IDLC, MCI states that AECs must be allowed to crossconnect on the customer side of the IDLC. If AECs are forced to purchase special circuits to get NACs from the customer side of the IDLC to the host central office, they will be not be able to effectively compete for customers served by LEC IDLCs. Similarly, where a LEC provides service using an RSD, and connection through the RSD's MDF is feasible, AECs should be permitted to collocate at that location.[21] Where collocation at the RSD is not feasible, interconnection at the RSD should be treated in the same manner as interconnection at an IDLC.

MCI contends that the security concerns raised by the LECs regarding feeder distribution unbundling are unwarranted. Currently, when two LECs exchange traffic and agree to meet points, the meet point is controlled by one of the participating LECs. It is simply a matter of protocol to determine access to the splice box or whatever equipment constitutes the meet point. MCI suggests that the same procedures should apply to feeder distribution unbundling. Protocols should be established to govern access to AEC/LEC meet points.

MCI recommends that the Commission require feeder distribution unbundling in separate stages. The first stage would require the LECs to provide sufficient unbundling of feeder and distribution to permit AECs to obtain access to all IDLC and RSDs within 90 days of the date the Commission order is issued in this docket. Within 120 days, the LECs would be required to implement feeder distribution unbundling at cross connects in all LEC cable vaults. Finally, within 180 days of the order, LECs would be required to submit detailed plans for unbundling of any remaining feeder and distribution. The LECs would also be required to identify any location where feeder distribution unbundling is not considered feasible, together with a proposal for resolving those problems.

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[21] GTE witness Falls testified that feeder distribution unbundling might not be required at RSD sites if collocation were available at the RSD. Mr. Falls did not know whether GTE currently offers physical or virtual collocation at GTE RSDs. Both OAR 860-35-020(27) and Order No. 96-079 require that virtual collocation be provided at remote network facilities.

Issue I(c): Signaling Ports and Links

The Common Channel Signaling Network (CCSN) is a digital data network carrying signaling information that interfaces with the voice/data network. The network protocol used is Signaling System 7 (SS7), a form of out-of-band signaling. In the SS7 environment, a dedicated path is used to carry signaling information for a number of voice/data trunks. All of the signaling information associated with the placement of a call is sent over high speed links instead of over the trunk paths themselves. The information processed includes supervisory, addressing, and routing data for call setup and clearing.

Within the SS7 network, a variety of aggregated connection points are established to take advantage of scale economies. These connection points have two basic functions. Signal transfer points (STPs) act as call processors that concentrate signaling for a large number of trunks. Signal control points (SCPs), on the other hand, provide data base information used in the processing of the call. Various links are also used to connect the SS7 network together. SS7-equipped end office switches are dubbed service switching points and are connected to STPs through the use of Access Links. STPs are connected to other STPs or to SCPs through the use of Bridge Links.

Staff recommends that SS7 be aggressively unbundled to provide customers with new service options and to avoid duplication of services where customers have provided their own signaling systems. Staff witness Wolf emphasizes that it is important to unbundle the SS7 system because it offers numerous advantages over in-band systems. Signaling processing is much faster and the associated voice/data trunk in the network can be used more efficiently. A large number of services rely on the SS7 network, including CLASS services, enhanced 800 data base services, and ISDN call setup and control. SS7 also allows advanced intelligent network applications (AIN) including virtual networking, centralized call accounting and advanced network management.

Although Staff acknowledges that SS7 is an integrated system within the LEC network, it contends that SS7 unbundling is necessary in a multiprovider environment. Staff's proposal assumes that the physical aspects of the network will be unbundled into various functional components that will be offered separately. These include STPs, SCPs, Access Links, and Bridge Links. Also, regardless of the components purchased by a customer, Staff recommends that the messages and protocols which comprise the SS7 signal--the ISUP and the TCAP[22]--be delivered intact and without interference, in a manner consistent with the way a LEC processes these messages between its own switches. Staff's SS7 building blocks are as follows:

[22] The ISUP message determines the procedures for setting up, coordinating, and taking down trunk calls on the SS7 network. TCAP provides the signaling function for network databases.

SS7 SSP (including ISUP and TCAP messages)[23]
SS7 STP
SS7 SCP
SS7 Access Links
SS7 Bridge Links

USWC states that its CCSN tariff already provides direct access to its STPs, as well as links to connect AECs or IXCs. Customers transporting information between their Signaling Point of Interface and a USWC STP would use Common Channel Signaling Access Capability. That capability consists of three network components:

(1) STP access connection-- a connection between a customer's Signaling Point of Interface and the USWC STP serving wire center. Two interconnection options are available: Option A provides a DS1 dedicated facility from the Signaling Point of Interface to the STP serving wire center. The remainder of the connection is also a DS1 facility. Option B provides the same DS1 connection from the Signaling Point of Interface to the STP serving wire center, but the remainder of the connection may be either a DS0 or DS1 connection.

(2) STP Link-- a digital signaling transmission channel between adjacent nodes in the CCS network, such as the SP and the STP.

(3) STP Port--the point where the switching capability of the STP takes place. The STP port is dedicated to the customer.

USWC's current tariff specifies that for every port, a link must be purchased. Also, the STP access connection is priced on a bundled transport basis, assuming the need for entrance facilities a collocated customer may not require. USWC proposes to restructure the transport for the STP access connection in a manner consistent with its proposed Local Transport Restructure. This price restructure will provide options for transport flexibility and allow greater network efficiency, such as allowing a DS1 carrying a common channel signaling link to be placed on a DS3 facility that also carries voice circuits. For example, approval of USWC's EICT will mean that a collocated customer will not be required to purchase entrance facilities.

Although USWC proposes to maintain a separate price element for the STP port, it does not agree to physical unbundling of the port from the STP link. It argues that certain standards and reliability issues need to be resolved before physical unbundling should take place, and recommends that customers seeking this type of unbundling use the ONA request process set forth in OAR 860-35-070.

[23] Staff states that the SSP, STP, and SCP may each be characterized as ports which allow for access to the functionalities and signal processing capabilities of each site. Costs still need to be developed for these building blocks before they may be offered separately.

USWC claims that it cannot unbundle the STP port to allow customers to connect at the SCP and self provision transport from the STP to the SCP. Under the current network configuration, two critical network functions--Global Title Translation and Gateway Screening--occur only at the STP. Global Title Translation controls the data base services available to a customer from a SCP. USWC asserts that, if a customer bypassed the STP, USWC could not control the databases the customer could access or ensure that the proper rates were paid. Gateway Screening prevents the unauthorized use of USWC network message transport facilities and unauthorized actions that may be initiated by a customer's interconnected network. It also preserves CCSN network resources by preventing the network from processing excess traffic capacity and prevents unauthorized access to confidential and proprietary data in USWC databases USWC claims that, if it is required to provide direct access to the SCP, it will be necessary to incorporate all gateway screening functions into its SCPs. USWC maintains that this process would be expensive and could impair the stability of the SS7 network.

United also opposes the level of unbundling proposed by Staff and other non-LEC parties. To ensure that network integrity is not compromised, the only potential point of interconnection is at the STP. Because United contracts with another LEC to provide STPs, it claims that the contract provider should be responsible for any unbundling or signaling interconnection arrangements.

GTE did not provide the specifics of its proposal for unbundling of signaling ports and links, but does not foresee any problem in the provisioning of SS7-related interconnection in an unbundled environment. It states that SS7 port termination on an STP is currently available from many providers.

ELI and **MCI** agree with Staff that incumbent LECs should be required to provide signaling interfaces at the same points they use when transmitting signaling information among their own network components. Specifically, ELI states that the STP port should be unbundled from the link. This will allow AECs to purchase STP ports from the LEC, and supply their own links.

Issue I(d): Trunkside Interconnection and Transport

USWC, GTE, and **United** all recommend LTR as the means to unbundle trunkside interconnection and transport. The LTR proposals are described above.

As noted, **Staff, ELI, AT&T** and **MCI** all recommend a greater level of unbundling. These parties argue that USWC's proposed EICT consists of a number of discrete building blocks that should be unbundled and tariffed separately. ELI states that the EICT represents a substantial cost to providers purchasing unbundled NACs and includes functionalities that competitors can provide themselves. ELI notes that USWC has already developed cost estimates for each of the building blocks that comprise the EICT.

Issue I(e): Tandem Switching

USWC, GTE and **United** propose to charge separate prices for tandem switching and local transport in their LTR proposals.[24] Under LTR, customers pay for tandem switching only if they use that function.

ELI and **MCI** argue that LTR is not true unbundling because tandem switching remains bundled with tandem switched transport. In other words, carriers purchasing tandem switching must also purchase tandem switched transport from the LEC. While these functions have different prices under LTR, they cannot be purchased separately. ELI argues that LTR should be considered a minimum level of unbundling.

Commission Findings and Decision: Issue I, Unbundling and Interconnection

Based on the evidence and arguments presented, the Commission finds that the public interest requires USWC and GTE to unbundle their telecommunications services at the level recommended by Staff.[25] We also find that USWC and GTE should provide the additional building blocks discussed on pages 45-46 of this order. As noted, United is subject to the rural exemption in Section 251(f) of the Act, and is not required to comply with the unbundling requirements in this order.

As we emphasized in Order No. 90-920, unbundling is a necessary part of a regulatory structure designed to respond to an increasingly competitive telecommunications environment. Unbundling at the level recommended by Staff will stimulate the development of effective competition and result in customer benefits that include lower prices, greater choice, better service quality and accelerated innovation. It will also promote other important public policy objectives, including cost-based pricing, non-discriminatory availability of building blocks, correct price signals and efficient use of telecommunications facilities.

In reaching this decision, we emphasize that unbundling is not designed merely to encourage the development of effective local exchange competition. Indeed, our original decision to authorize unbundling in Order No. 90-920 was made well before the advent of local exchange competition. While the AECs--and local exchange customers generally--will benefit from access to unbundled network elements, other potential purchasers include IXCs, CAPs, and other telecommunications carriers. Over time, we also propose to permit businesses and individuals to purchase unbundled network functions from the LECs. This capability will enable customers to reduce cost, configure their networks

[24] The LTR filing made by USWC enables a competitive provider to choose signaling options that will allow it to use its own tandem switches. United's LTR does not make this option available.

[25] For purposes of this order, the Commission considers the switched and dedicated terminations and facilities of interoffice transport identified by Staff witness Wolf as separate building blocks rather than simply rate elements.

more efficiently and avoid the unnecessary duplication of facilities. Unbundling will also stimulate greater innovation and technological improvements in the provision of telecommunications services.

The Staff unbundling proposal is consistent with the level of unbundling contemplated by our Open Network Architecture rules and the Telecommunications Act of 1996. The ONA rules provide that unbundling shall occur at the building block level. Building blocks are defined in OAR 860-35-020(7) as "an element or group of elements representing the smallest feasible level of unbundling capable of being tariffed and offered as a service." Similarly, Section 251(c)(3) of the Act requires that incumbent LECs shall provide "any requesting telecommunications carrier . . . with nondiscriminatory access to network elements at any technically feasible point on terms and conditions that are just and reasonable." As noted, the term "network element" is defined in Section 3(a)(45) as a "facility or equipment used in the provision of a telecommunications service," and includes "features, functions and capabilities that are provided by means of such facility or equipment . . ." Staff's proposal unbundles sufficient network functionalities to satisfy the requirements of the Act and our ONA rules, and will enable telecommunications carriers to purchase the functions they require. Additional functions may be requested by carriers under the ONA request process in OAR 860-35-070, or through negotations pursuant to the Act.

LEC Unbundling Proposals. The level of unbundling proposed by the LECs, on the other hand, does not fully comply with the Act or the requirements in our ONA rules. Although the LECs propose to make several building blocks available, a number of critical network functions are not included or are offered only on a bundled basis. The following paragraphs illustrate some of the more serious deficiencies in the LEC unbundling proposals:

(a) USWC's proposal omits a lineside NACC. GTE does offer an unbundled lineside port, but it is not compatible with ISDN service. As we observed in Order No. 94-1851, this network function is required so that a telecommunications carrier may provide NACs in competition with the incumbent provider without having to supply its own switch. Failure to make a lineside NACC available impairs the ability of alternative providers to compete and limits the range of options available to end users. As GTE witness Falls points out, shared tenant service providers, cable television companies and electric utilities are all potential loop providers that may seek access to unbundled ports.

(b) USWC's proposed EICT is not fully unbundled, but is comprised of a number of discrete building blocks (*e.g.*, jumper NAC, cross-connect, multiplexing), which may not be required by telecommunications providers. The EICT also represents a substantial cost element to competitive providers. While the Commission does not object to USWC offering the EICT as a bundled service, it should also be required to offer the building blocks that comprise the EICT so that customers pay only for the network functions that they actually use.

(c) USWC's LIS-Link unbundled NAC proposal is inadequate. LIS-Link is offered only as a two wire point to point configuration capable of providing analog local exchange service. USWC does not guarantee that LIS-Link could be used to provide digital or high capacity services. USWC witness Karen Baird acknowledged that LIS-Link has very limited application in a business context where DS1 and DS3 NACs are more commonly used. It is not sufficient that DS1 and DS3 services are currently available under USWC's private line tariff. The private line tariff includes conditioning and channel performance features that may not be required by customers.[26] We find that failure to offer unbundled NACs capable of providing digital services such as ISDN will impede competition and disadvantage end user customers generally.

(d) The LEC proposals regarding unbundling of signaling ports and links are also inadequate.[27] Many telecommunications services such as CLASS services, enhanced 800 data base services, and ISDN call set up and control, rely on the operation of the SS7 system. SS7 is also the platform for a variety of advanced network applications. We agree with Staff that the SS7 system must be unbundled extensively to provide customers with new service options and to avoid unnecessary duplication where customers provide their own signaling systems.

(e) USWC, GTE and United all refuse to unbundle "dark fiber" NACs. Dark fiber is a fiber optic line which provides transmission functionality without the aid of LEC supplied electronics. Use of dark fiber is not limited to specific band width applications such as DS0, DS1 or DS3. Staff advocates unbundling dark fiber from LEC electronics where adequate facilities exist to permit such an application. It argues that dark fiber should be made available both from any given customer location to an LEC's network and between LEC switches as an alternative to interoffice transport.

The LECs argue, *inter alia*, that the dark fiber building block is not a "service" within the scope of Commission jurisdiction. We disagree. Dark fiber is equipment used to provide telecommunications service and falls squarely under the definition of "service" in ORS 756.010(8), discussed above. In addition, dark fiber is clearly a "network element" as that term is defined in Section 3(a)(45) of the Act. Accordingly, incumbent LECs are also obligated under federal law to unbundle dark fiber just as they must unbundle other facilities and equipment used to provide telecommunications service.

GTE maintains that dark fiber unbundling will undermine network capacity and flexibility by seriously disrupting forecasting, engineering and operational efforts. It

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[26] GTE's proposed unbundled loop offerings only includes a two wire digital NAC. Customers seeking four wire digital DS1 or DS3 service would purchase this capability out of GTE's private line (special access) tariffs. The record does not disclose whether GTE's private line tariffs include additional charges for conditioning and channel performance.

[27] USWC and United propose to unbundle signaling ports and links only after a request is made by a customer pursuant to the ONA request process in OAR 860-35-070. The details of GTE's proposal are unclear.

maintains that existing fiber plant is sized based on current and projected loads, and is not designed to accommodate the demand or inefficiencies produced by a multi-provider environment. GTE further alleges that mandated unbundling would require construction of additional fiber facilities that are not needed for the company's integrated operation. The Commission is not persuaded by these arguments. Taken to their logical conclusion, they militate against the unbundling of any LEC network function. GTE is not arguing that it is technically infeasible to provide dark fiber, merely that the company did not plan on making these facilities available to other telecommunications providers. That is not a sufficient justification for not unbundling dark fiber. Obviously, consideration must be given to GTE's existing and future network requirements when faced with a request to supply unbundled fiber plant. The capacity of existing facilities and the need to construct new facilities are issues that should be negotiated under the Act by the incumbent LEC and the telecommunications provider seeking unbundled access.

LEC Arguments in Opposition to Unbundling. In addition to the jurisdictional arguments addressed earlier in this order, the LECs also advance several other arguments in opposition to unbundling:

(a) The LECs maintain that extensive unbundling will cause them to incur substantial costs without producing discernible benefits to end users. For example, GTE witness Falls details a long list of administrative expenses relating to maintaining records, coordinating meet point arrangements, testing, service quality measurement, handling customer complaints, and dispatching service technicians. We acknowledge that unbundling will entail certain costs. However, we do not expect that the costs will be prohibitive or outweigh the substantial benefits derived from making building block services available for purchase. As ELI emphasizes, unbundling will foster effective competition by providing end users with a true alternative to the services supplied by the incumbent. Competitive pressure, in turn, will drive prices closer to cost, accelerate the availability of new services and provide a level of service quality that is customer and market driven, not dependent on regulatory monitoring.[28] Evidence regarding the Portland high capacity private line market, for example, shows that USWC is facing pressure to improve service quality to avoid losing additional market share to competitive providers.

(b) The LECs also argue that the level of unbundling proposed by Staff may cause network failures and diminish the overall integrity of the local exchange network. These arguments are reminiscent of those raised when competition was first contemplated in the interexchange and customer premises equipment markets. We recognize that, as operational issues arise, procedures will need to be developed to accommodate an unbundled multi-provider environment. Initially, there may be some delays while provisioning arrangements are worked out between carriers. As in the case of interexchange competition, however, these problems are not insurmountable. None of the testimony presented on this issue is sufficient to persuade us that unbundling should be

[28] See Order No. 96-021 at 12, 20.

postponed for an indefinite period while every possible operational detail is resolved in advance.

(c) In addition to the foregoing, the LECs contend that unbundling will subject them to substantial financial risk, including the prospect of stranded investment. In the pricing section of this order, we discuss steps we have taken to minimize the financial impact of unbundling on the LECs. These include (a) including contribution to joint and common costs in building block rates; (b) limiting the availability of unbundled building blocks to carriers rather than all customers; (c) maintaining certain use and user restrictions; and (d) postponing the availability of wholesale pricing. We believe these actions will reduce the financial risk of LECs until such time as their rates can be reviewed in appropriate rate proceedings. In the event LECs experience an earnings reduction before such review is complete, they may seek interim rate relief pursuant to ORS 759.185.

Although the Commission has acted to minimize the potential decline in LEC revenues, it is not inevitable that earnings deterioration will occur. We anticipate that the initial demand for unbundled building blocks will focus primarily on loop facilities, as competitive local exchange providers seek to extend their geographical reach. We also expect that competition will center primarily on business exchange service because of the pricing constraints placed on residential and access rates. This competitive activity should exert downward pressure on LEC business rates, reducing the amount of contribution generated by those services.

At the same time, there is no reason to believe that the market for business services will remain static as competitive entry occurs. For example, USWC revenues in the Portland high capacity dedicated services market have grown notwithstanding a decline in market share due to competitive entry, a clear indication of overall market growth.[29] This is precisely the situation AT&T experienced in the interLATA toll market as competition began to take hold. In view of these facts, the Commission has every reason to believe that competitive entry will also stimulate market growth for local business services.

Overall growth in telecommunications markets should also diminish the probability of stranded investment for the LECs. Increased demand for services coupled with strong population growth throughout Oregon does not suggest that LEC's will encounter problems with stranded plant anytime soon. Indeed, our experience with USWC has been that the company is having major problems installing facilities fast enough to serve the needs of its customers. Moreover, we contemplate that interconnection negotiations among providers will address issues relating to the utilization of LEC facilities placed on behalf of competitive providers. Finally, we note that in UM 767, a USWC depreciation

[29] Remarkably, the evidence shows that USWC's revenues from high capacity services have grown even though the company's service quality does not meet customer expectations. As we noted in Order No. 96-021, increased competition will force incumbent carriers to become more concerned with service quality.

docket, we considered the need to retire utility plant before it is no longer functional when setting depreciation rates. *See* Order No. 96-117.

(d) USWC argues that Staff has not demonstrated that its proposed building blocks are technically feasible to provide. The record shows otherwise. Staff witness Wolf testified that:

> Staff's proposed building blocks do serve a network function and *in all cases* conform to the agreed upon definition of a building block as defined in Phase I of this proceeding. A building block is the smallest level of network functionality that feasibly may be tariffed and offered as a service. (Emphasis supplied.)

MCI witness Dr. Cornell also testified that unbundling was technically feasible. No party presented evidence refuting Mr. Wolf's or Dr. Cornell's testimony. Indeed, a review of Appendix B discloses that the LECs are offering to provide many of the same building blocks as Staff. On examination, USWC witness Baird agreed that it is possible to unbundle to a greater extent than that proposed by USWC.

(e) USWC argues that unbundling should be limited to building block functions for which there is known customer demand, or for which it is reasonably certain that demand will develop. It emphasizes that competitive providers have not specified any demand for unbundled facilities or shown that they will offer any new or different services to customers.

The Commission is not persuaded by these arguments. In the first place, USWC's focus on "new and different" services misses the point. As we observed in Order No. 96-021:

> When new markets first open to entry, the initial offerings are usually similar to those already available; that will likely be the case here. As competition takes hold, incumbents and new entrants will likely compete on the basis of customer service. By their very presence in the market, AECs will provide customers with enhanced operational and strategic security, by serving as redundant carriers. The fact that customers will have a choice of service provider is also new. At the very least, competition should improve the quality of service and enhance economic efficiency of all participants in the local exchange market. . . . .In the long term, competition should promote the new products, innovation and the deployment of existing technologies not yet in widespread use.[30]

Second, there is also no merit to USWC's claim that there should be a known demand before building blocks may be unbundled. We rejected a similar argument in Order No. 94-220, in docket AR 264. In that case, USWC argued that a viability test should be applied to determine if customer demand existed prior to unbundling optional

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[30] Order No. 96-021 at 20.

features and functions (*i.e.*, BSEs and CNSs). We rejected this argument, emphasizing that the unbundling requirement in OAR 860-35-030 is "not triggered by customer requests or other independent or external events," but is rather "a threshold requirement intended to initiate the creation of a more open and accessible network." In addition, we held:

> Because an open network does not now exist, it is not surprising that demand for some services is difficult to assess. It may not be possible to adequately assess the demand for optional features and functions until they are offered on an unbundled basis. As noted above, it is a primary purpose of these rules to create an environment where both existing and new services can be offered in innovative and competitive ways.

The rationale articulated in Order No. 94-220 is equally valid as it pertains to the network building blocks under consideration in this docket. Moreover, we agree with AT&T that "requiring a known demand is not a characteristic of competitive markets. Competitors are always looking for a 'better idea or mousetrap, and new market niche, a product for which they will create demand.'"

(f) USWC and United maintain that unbundling denies LECs access to their own facilities because two carriers cannot share the local loop. We disagree. To begin with, it is not accurate to say that two carriers cannot share loop facilities in all circumstances. As staff points out, time-sharing of loop facilities is possible where a subscriber carrier is used to serve customers. More importantly, the Commission is convinced that loop unbundling is absolutely essential if effective competition is to develop in telecommunications markets. If competitors must construct all of their own loop facilities, meaningful competitive entry will not occur in the foreseeable future. As MCI explains:

> If there were realistic available choices for the supply of unbundled loop elements, MCI and other potential entrants would not be asking the Commission to order USWC, GTE and United to unbundle their networks. Moreover, if loops were competitively available, the incumbent LECs would not only not be resisting the unbundling of their networks, they would be volunteering to supply them.
>
> . . . [USWC] was able to construct its ubiquitous network over several decades under the protection of monopoly status, with the advantages of a favorable, exclusive government franchise, rate of return regulation, access to rights of way, and other government assistance. Forcing the replication of USWC's facilities [by competitors] would be inefficient, would delay the advent of effective competition substantially, and would deprive Oregon consumers of years of competitive offerings.

(g) USWC argues that wireless service is a viable alternative to landline local exchange service. The LECs also note that loop facilities may soon be available from other providers such as cable television and electric utilities. Although the Commission

expects that alternative loop facilities may someday compete with LEC NACs, there is an inadequate basis in this record to conclude that these options are currently a cost effective solution for a significant percentage of customers or that such loops are available in numbers sufficient to permit meaningful competition.

Given that alternative loop suppliers may enter the market in the not too distant future, we have difficulty understanding why any LEC would hesitate to unbundle its loops. Failure to unbundle will only accelerate efforts by competitors to acquire alternative technology to bypass LEC loop facilities. Once LEC loops are bypassed, all of the LEC loop investment attributable to customers that switch to competitors using alternate technology is effectively stranded. On the other hand, if loops are unbundled now and leased to competitors, it will reduce the incentive to bypass and still enable the LECs to recoup the cost of their loop investment, even if customers choose another telecommunications provider. From an economic perspective, therefore, opposition to loop unbundling is contrary to the financial well being of the LECs.

(h) USWC argues that the Commission cannot require unbundling of any element that does not function, standing alone, as a service. We disagree with this characterization. Neither the relevant statutes nor our ONA rules mention "stand alone" services. OAR 860-35-020(7) defines "building block" as the smallest feasible level of unbundling capable of being tariffed and offered as a service. While Staff witness Wolf testified that all of the building blocks proposed by staff serve an actual network function, there is no requirement that each unbundled building block must function independently, or apart from other network functions. As we have noted, the level of unbundling envisioned by the ONA rules is consistent with the "network element" unbundling contemplated by Section 251(c)(3) of the Act.

Additional Building Blocks. In addition to the building blocks identified by Staff, the Commission finds that the following building blocks should also be offered on an unbundled basis:

(a) Four Wire Channel out of a D4 Channelbank. The record indicates that this building block is a component of a four wire digital NAC and must be made available if customers are to purchase such facilities.

(b) Testing Access. We agree with ELI that testing access--the cost of equipment necessary to provide access to NACs for testing purposes--should be unbundled from the NAC rate and tariffed as a separate building block service. The record shows that it is possible for an interconnecting carrier to perform throughput testing of loops where it has collocated at a LEC wire center and has installed an integrated test unit.

(c) Intrapremises Riser Cable Facilities. We agree with ELI that LECs should unbundle riser cable facilities in buildings where the LEC assumes responsibility for those facilities.

(d) Concentration for Transport. We agree with MCI that interconnecting carriers should be able to purchase concentration for transport on an unbundled basis from the LECs. Where a LEC provides concentration for its own loops, an interconnecting carrier should be able to purchase concentration (and associated repeater or other signal treatment or channel performance items) from the LEC of the same quality and standard provided by the LEC for its own use. Where it is not feasible for an interconnecting carrier to provide transport concentration for its longer loops by collocating at a LEC central office, the carrier should be permitted to purchase concentration from the LEC as a component of the NAC or transport.

(e) Interconnection at RSDs and IDLCs. Where trunk concentration is provided through an IDLC, interconnecting carriers must be allowed to cross-connect to the IDLC. Otherwise, carriers will be forced to incur additional costs to purchase special circuits. Where a LEC uses an RSD to serve customers, carriers shall be permitted to interconnect at the RSD. Where it is not possible to collocate at an RSD, carriers shall be allowed to interconnect in the same manner as the LEC. These interconnection building blocks are necessary if competing carriers are to have reasonable access to the customers served by IDLC and RSD devices. Access to these facilities is consistent with our ONA rules, which permits collocation at LEC premises, including central offices, remote network facilities, or any other similar location owned by the LEC. It is also mandated by Section 251(c)(2)(B) of the Act, which obligates incumbent LECs to provide interconnection "at any technically feasible point within the carrier's network."

(f) Interim Service Provider Number Portability. This building block was authorized in Order No. 96-021. Interim service provider number portability tariffs have been filed by USWC and GTE and are under review in dockets UT 129 and UT 130.

The Commission finds that USWC and GTE should develop the relevant costs for the building blocks listed in (a)-(e) within 120 days of the date of this order. The tariffs shall specify building block rates that include markups consistent with the average markup for other building blocks in the same category. For example, the RSD interconnection building block shall incorporate the same average markup as the NACC category of building blocks.

Issue II: Signaling

On June 7, 1995, Commission staff filed a motion to limit signaling issues to the physical unbundling of signaling network equipment discussed under Issue I(c). Staff sought to exclude Issue II, dealing with message generation and signaling parameters (ISUP and TCAP), because it deals with highly technical issues relating to unbundling signaling software from signaling network equipment.

MCI opposed limiting signaling issues. It argued that transmission of the full ISUP message across interconnected networks is the only way for a carrier in a multiprovider environment to provide CLASS services for all of its subscribers' incoming and outgoing

calls. MCI argued that Staff's motion would preclude the Commission from making a determination on the technical feasibility of unbundling, and unnecessarily delay bringing the benefits of unbundling to consumers.

On August 9, 1995, the ALJs issued a ruling granting Staff's motion. The Commission concurs with that decision. For purposes of this docket, the level of signaling unbundling proposed by Staff will allow transmission of the full ISUP and TCAP message, and will permit entrants to offer their customers the full range of CLASS, ISDN, and 800 data base services. Issue II involves disaggregating the signaling message itself, which implicates a number of technical issues, including Advanced Intelligent Network issues. If necessary, we address those issues in a future proceeding.

Issue III: Imputation

The Commission addressed imputation issues in Orders No. 94-1851 and No. 95-313 in this docket. Imputation is a regulatory device which establishes a price floor on LEC services that include one or more essential functions; that is, functions that must be used by other telecommunications service providers. It requires a LEC to charge itself the same price that other providers must pay to purchase essential functions from the LEC. Imputation thus prevents a LEC from creating a competitive advantage for itself by manipulating the price of LEC-supplied functions where no adequate alternative exists in the marketplace. In addition, LECs must impute the cost of all nonessential functions necessary to provide a service. This prevents LECs from engaging in anticompetitive conduct by pricing functions below cost or by cross subsidizing network functions.

Orders No. 94-1851 and No. 95-313 provide that:

1. The method of imputation shall correspond to the test set forth in ORS 759.050(5)(b). Thus, whenever a service offered by a telecommunications utility includes an essential function, the price of that service may not be less than the TSLRIC of the nonessential functions plus the price of the essential functions.

2. An essential function is a functional component necessary to the provision of a service by a telecommunications provider for which there is no adequate alternative in terms of quantity, quality and price to the incumbent telecommunications utility.

3. LECs shall impute prices for essential functions they actually use when those functions are also available to other telecommunications providers. When the functions used by a LEC are not available to another telecommunications provider, the LEC must impute the price of the essential function that the other provider must purchase to provide a service.[31]

[31] In the case where a LEC can choose between two similar functions to provision a service, and both functions are available to competitors, the LEC should impute the function it uses. Where only one of the functions is available to competitors, the LEC must impute the price of that function.

4. Imputation should be applied at the service level rather than each element within a service, provided LEC services are narrowly defined.

5. Where an essential function is unbundled and offered as a separate service, the LEC must impute the price it charges to other telecommunications providers for that function/service.

6. All building blocks, whether offered separately or as part of a bundled service, should be classified as essential functions until such time as the incumbent telecommunications utility demonstrates that there are adequate alternatives in the relevant marketplace comparable in quantity, quality and price.

AT&T, ELI, MCI, OCTA, ETI, UNICOM and **Staff** generally support the imputation policy articulated in Orders No. 94-1851 and No. 95-313.

ETI recommends that, until such time as LEC rates are rebalanced, existing bundled services should not have to pass an imputation test. Such an approach is necessary to ensure that resellers will be able to continue providing service to their customers. This is particularly important if the Commission adopts Staff's proposal to make building blocks available only to AECs until LEC rate rebalancing takes place.

USWC, GTE and **United** disagree with the imputation principles set forth in Orders No. 94-1851 and No. 95-313. Their positions and proposed modifications in imputation policy are discussed below.

USWC states that the primary purpose of imputation is to provide for competitive fairness. It argues that imputation policy should adhere to the following principles: (a) a service's price should be greater than TSLRIC; (b) imputation should establish equitable price floors to ensure that a price squeeze cannot exist; (c) imputation should be applied when a service is competitive and at least one of the components making up the competitive service is an essential function; (d) imputation should be based on the principle of competitive necessity[32]; (e) essential components may not be essential across all markets, (f) LECs should impute using the essential components as they are experienced by the most efficient competitor; and (g) for purposes of establishing price floors, the competitive necessity principle should supersede other imputation methods.

GTE argues that the imputation test in Orders No. 94-1851 and No. 95-313 is only a special case of the correct imputation method. According to GTE witness Dr.

[32] According to USWC, if a component is required by a competitor and that component (or a functionally substitutable component) is not reasonably available from a source other than the incumbent LEC, the price of the essential component should be imputed into the LEC's finished service at the same rate that would be charged to the competitor for that same level of functionality. If a component used by the LEC is not an essential component, then it should be included in the price floor at TSLRIC.

Edward Beauvais, the test articulated by the Commission is correct only if (a) the cost incurred by a LEC to supply a service is the same as the cost paid by competitors to the LEC for that service, and/or (b) there are no qualitative or quantitative differences in the facilities used by the LEC and its competitors to supply the service. In all other cases, the economically correct imputation price floor should equal the marginal cost of supplying a service plus the contribution (price less marginal cost) realized by the LEC. Dr. Beauvais argues that his imputation approach recognizes that a LEC may provision competing services differently than its rivals, and takes into account the possibility that different facilities may be used and different costs incurred.

United requests that the Commission (a) affirm that the purpose of imputation is to prevent price squeeze because a competitor has no feasible alternative but to purchase the building block from the LEC; (b) reject Staff's proposal to consider criteria such as price-to-cost ratios, barriers to entry, market share, etc., in deciding whether building blocks are essential; (c) allow exceptions to imputation to meet public policy goals; (d) affirm that imputation will not be required immediately or affect existing rates; (f) apply the imputation price floor at the service level; (g) require imputation of nonessential functions at TSLRIC to prevent predatory pricing[33] ; (h) apply imputation in a manner that allows LECs to capture any efficiencies they achieve; and (i) reject proposals to include the SLC credit in the imputation analysis.

The LECs recommend the following changes in imputation policy:

(a) USWC, GTE and United do not agree that all building blocks should be classified as essential functions until a LEC demonstrates that adequate alternatives exist in the relevant marketplace. *See* Order No. 95-313 at 5. The LECs assert that there is ample evidence in the record for the Commission to conclude that many of the building blocks are generally available from other suppliers. For example, USWC observes that many competitors have their own switches and loop facilities, and that competitive local exchange providers are operating in other jurisdictions without unbundling functions such as interim number portability.

(b) The LECs argue that treating all building blocks as essential functions for imputation purposes will raise the price floor for telecommunications services and jeopardize public policy objectives such as universal service. Also, since competitors are "price takers," the Commission would control prices for telecommunications services rather than foster competition. USWC and United emphasize that such an approach will result in substantial rate increases for residential customers, as illustrated in Tables II and III of the price matrices.

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[33] The test for cross subsidization adopted by the Commission in Order No. 93-1118, and reaffirmed in Order No. 94-1851 requires that building block prices exceed TSLRIC. TSLRIC is defined as building block volume sensitive costs plus building block volume insensitive costs and any service specific costs. United agrees that, at the service level, group related volume insensitive costs and other common overheads should not included in TSLRIC because they cannot be directly attributed to a particular service without resorting to arbitrary allocations.

(c) The LECs argue that they should not have to prove that a building block is not essential by showing that it is available from other providers at terms comparable in quantity, quality and price. Relying on ORS 759.050, USWC and GTE claim that this showing should be made by the party seeking unbundling. In other words, either the Commission or a competitive provider should have to show that adequate alternatives are not available in the market before a service may be unbundled and treated as an essential function. The LECs assert that they are not in a good position to determine whether adequate alternatives to LEC building blocks are available to competitive providers.

(d) The LECs maintain that they should not be required to impute the price of a building block if it can be self-provisioned by a competitive provider or obtained from any other source. In other words, if a competitor self-provisions a building block, there is an "adequate alternative" to purchasing from the incumbent LEC and the building block cannot be considered an essential function. According to USWC witness Dan Purkey, "use [of an alternative] by one competitor provides the demonstration needed to show that something is nonessential, since it should be assumed that the competitor would not use the alternative if it was not adequate for their purposes." In support of this argument, GTE and USWC rely on dictionary definitions which define the term "adequate" to mean "minimally sufficient" or "barely satisfactory or sufficient."

(e) USWC argues that Orders No. 94-1851 and No. 95-313 do not acknowledge the possibility that regulatory requirements imposed only on LECs may result in an imputed price floor for LECs that is higher than competitors may experience. Imputation policy should therefore take into account for "identifiable inequities" imposed on the LECs by regulation. As an example, USWC suggests that, to account for the burden it faces as a designated toll carrier, originating switched access charges paid to independent LECs should not be included in an imputation test for intraLATA toll. According to USWC, these costs should be excluded to ensure that regulation does not unfairly disadvantage the incumbent provider.

(f) USWC argues that the costs developed in Phase I of this docket are not the proper costs to use in developing an imputation test. It states that TSLRIC is the sum of service specific volume sensitive and service specific volume insensitive costs of a service. In USWC nomenclature, this is referred to as Average Service Incremental Cost (ASIC) and is the proper cost to use to establish a price floor for a specific service. Where group related volume insensitive costs exist, however, Average Direct and Shared Residual Cost (ADSRC) is the appropriate method of calculating TSLRIC for imputation purposes. Neither approach, however, should be used to set the actual price for services. This is because ASIC does not include group related volume insensitive costs, and ADSRC does not include other common costs of the company.

USWC explains that its cost terminology is aligned with "services," while the Phase I terminology is aligned with building blocks. Because the Phase I costs used to prepare the price matrices (Tables I-III) in this case do not include group related costs or

marketing costs necessary to provision a service, they should not be used to establish a price floor for imputation purposes. Rather, the cost of a particular service should be determined by combining the appropriate building block costs and all other costs caused by the decision to offer the service.

(g) USWC recommends that the Commission clarify Order No. 94-1851, which states that imputation is a regulatory device that imposes a price floor on LEC *services supplied to other providers* of telecommunications services. USWC contends that the focus should be on LEC price floors for competitive services provided to end users, not the services the LEC provides to competitors. Thus, it is more accurate to say that imputation imposes a price floor on LEC services which are in competition with other providers of telecommunications services who must use the essential functions provided by the LEC.

(h) United and GTE suggest that provisions in the Act relating to elimination of resale restrictions and resale at wholesale rates mitigate the need for an imputation test because they serve as a safeguard against price squeezes. GTE opines that, while cost floor analyses may still be relevant, the Commission should consider removing the imputation requirement for LEC retail bundled services.

Commission Findings and Decision: Issue III, Imputation

After reviewing the arguments presented on this issue, the Commission finds that the imputation policy articulated in Order Nos. 94-1851 and 95-313 is reasonable and should be reaffirmed. As most parties acknowledge, imputation is necessary where a competitor must purchase essential functions from a LEC in order to provide a competing service. Requiring the LEC to impute the price of essential functions into the price of its own bundled services ensures that the LEC will not have an unfair competitive advantage over its competitors. The other half of the imputation test--requiring that non-essential functions be imputed at TSLRIC--also ensures competitive fairness by preventing a LEC from pricing services below cost and cross subsidizing services. As Dr. Cornell explains:

> The purpose of imputation is to prevent a bottleneck monopoly supplier of an input from abusing that position to prevent the development of competition for the end user services that require the use of the bottleneck monopoly input. . . . By definition, competition is not possible for the provision of the bottleneck monopoly input. If there is to be competitive supply of the end user service, no firm requiring use of the bottleneck monopoly input can acquire it on more favorable terms and conditions, including price, than any other firm requiring its use. If this requirement is violated, then the firm that acquires the bottleneck monopoly input on more favorable terms and conditions, including price, will be able to capture more market share than is warranted by its efficiency in providing the inputs that are subject to competition. This is bad for both the development of competition and for consumers.

The Commission disagrees with LEC arguments regarding the definition of "essential function" used in the imputation test. The definition of "essential function" we have adopted for imputation purposes is defined in ORS 759.050(1)(c) as "a functional component necessary for the provision of a service by a telecommunications provider, for which there is no adequate alternative in terms of quantity, quality or price to the incumbent telecommunications utility." In interpreting this term, we reject the argument that an "adequate alternative" is one that is minimally sufficient. The word "adequate" is derived from the Latin word "aequare," which means "to equal." Black's Law Dictionary defines "adequate" as "sufficient, proportionate, equally efficient, and equal to what is required." More importantly, the plain language of the statute states that an adequate alternative to a functional component provided by a telecommunications utility is one that may be purchased by a competing telecommunications provider in the relevant market at a comparable quantity, quality and price.

We also disagree with the LEC argument that an adequate alternative exists in the market if a competitive provider supplies a function to itself. A decision by a competitor to self provision a function is not a sufficient basis upon which to conclude that the function is available in the market at terms that are comparable in quantity, quality and price to functions offered by the incumbent. For example, a competitor may elect to self provision certain functions for reasons relating to its specific network architecture or because it wants to build redundancy into its system. This does not mean that the self provisioned function can be purchased in the quantity desired or at a cost and quality comparable to purchasing the function from the incumbent.

Likewise, the fact that there are one or more other suppliers of a network function does not necessarily mean that an adequate alternative for the function exists so as to render the function nonessential for imputation purposes. As we have emphasized, this determination requires an examination into whether the function offered by alternative suppliers in the relevant market is comparable in terms of quantity, quality and price. An affirmative finding will warrant the conclusion that the function is not essential, even though it may only be offered by a single alternative provider.[34]

We agree with Dr. Hellman that the appropriate analysis for determining essentiality is basically the same as that required to conclude that effective competition exists for the network function in question. In making this determination, we will consider a number of factors, including comparability of products (availability, quality, terms and conditions); price to cost ratios; existing barriers to entry; market share and concentration; and number of suppliers. We will also consider the competitive yardsticks set forth in OAR 860-32-035(5), including the characteristics of supply side substitutability (including competitor share of overall market capacity, revenues, and minutes) and demand side substitutability (including customer perceptions of competitors as viable alternatives, customer switching behavior, and the variety of services offered to customers). If, after

[34] We also agree with Staff, ELI and GTE that a building block may be essential in one market, but nonessential in another.

reviewing these factors, we conclude that the relevant market places substantial constraint on the prices charged by the LECs, price imputation will not be required.

Along the same lines, we disagree with USWC's claim that there is sufficient evidence in the record to conclude that adequate alternatives exist for many LEC services. Although USWC and the other LECs have offered a number of observations and conclusions regarding the state of competition, there are no facts in the record upon which to conclude that the competitive alternatives they mention are comparable in terms of quantity, quality and price. If the LECs wish to present facts in support of their claims, the Commission will review them and make the necessary determination. In the meantime, however, we decline to accept such representations merely on faith.

The LECs also allege that treating all building blocks as essential will unnecessarily increase the overall price floor and result in unreasonably high customer rates. Order No. 95-313 states that all building blocks should be considered essential functions *until the incumbent demonstrates otherwise*. This policy will prevent entrants from being disadvantaged by the exercise of LEC market power.[35] The Commission may authorize exceptions to the imputation policy to maintain universal service or advance other public policy goals.

We are also not persuaded by the claim that it is burdensome for the LECs to demonstrate that adequate alternatives exist in the relevant market. As we explained in Order 95-313, the LECs should have no difficulty ascertaining whether building block functions are available from other providers at terms comparable in quantity, quality and price. In addition, the showing that the LECs are required to make is comparable to the showing a telecommunications utility must make in order to obtain price listing authority under ORS 759.030.

There is no merit to the argument that the burden of proving nonessentiality should, by law, fall upon competitive providers or the Commission. GTE's procedural argument is premised on its interpretation of "essentiality" and the Commission's authority under ORS 759.050. As we have explained, the Commission's authority to prescribe imputation requirements does not derive from the competitive zone statute. In fact, price imputation was required well before the passage of that law.[36] Furthermore, the primary purpose of price imputation is to ensure that competitors are not disadvantaged by the manner in which the incumbent monopoly prices bundled services that contain essential functions. If a LEC wants to impute less than price for a given function, it should be required to prove that the function can be purchased elsewhere. Assigning the burden of

[35] Local exchange service offers a good case in point. The incumbent LECs currently serve 100 percent of the local exchange market in Oregon. It is reasonable to presume that the LECs retain monopoly control over the network functions necessary to provide local exchange services until a showing is made to the contrary.

[36] See Order No. 88-665, PUC Docket UT 47.

proof to competitors is illogical because it requires them to prove a negative, *i.e.*, that adequate alternatives do not exist in the marketplace.

We do not agree with USWC that a LEC should be allowed to impute the price of network functions that the most efficient competitor would use. We agree with AT&T witness Robert Kargoll that:

> It is as equally important that the LECs be made to focus on how they, as opposed to their competitors, provision a service in calculating their price floor for end-user services. Staff witness Mr. Hellman correctly notes that the LEC should impute the price for those essential services the LEC actually uses (Staff/3, Hellman/7). The LECs, on the other hand, would have the Commission adopt an imputation standard that allows them to focus on how the most efficient service provider provisions its service. As I discussed in my direct testimony, twisting the imputation standard in this manner will lead to inevitable, and numerous disputes over how a more efficient competitor might provision a service. It will also allow the LECs to improperly "impute" to themselves efficiencies that their competitors may have been able to obtain. Such efficiencies must be earned by the LECs, and not misappropriated from their competitors, if the LECs wish to establish a lower imputed price floor for their services.

In addition, the Commission is not persuaded by USWC's claim that "regulation imposes specifically identifiable inequities" on LECs that should be accounted for in the imputation process. For example, USWC contends that costs associated with traffic originating in independent LEC territory should not be imputed to compensate for the burdens it faces as the designated toll carrier. We do not agree. In the first place, USWC has not established that its designated carrier status is a regulatory burden, rather than a benefit.[37] Second, removing direct costs from an imputation test is inconsistent with the fundamental purpose of imputation, which is to prevent anticompetitive price squeezes. Modifying imputation policy to account for perceived regulatory burdens would render the test useless. Finally, we agree with ELI that USWC's concerns could be alleviated by petitioning the Commission to implement statewide intraLATA equal access. IntraLATA dialing parity, would stimulate competition and substantially reduce, if not eliminate, the need for designated toll carriers.[38]

We do not agree with USWC that ADSRC should be substituted for the methodology to calculate TSLRIC approved in Phase I of this docket. Specifically, it is

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[37] In Order No. 96-021, we rejected similar arguments relating to USWC's carrier of last resort obligation. Order No. 96-021 at 59-60.

[38] We note that Section 251(b)(3) of the Act requires telecommunications carriers to provide dialing parity to competing providers of telephone exchange and telephone toll service. Section 271(e)(2)(A) of the Act further provides that a Bell operating company (such as USWC) granted authority to provide interLATA toll service originating within an in-region State must provide intraLATA toll dialing parity throughout the State coincident with the exercise of that authority.

incorrect to include group related volume insensitive costs in the TSLRIC price floor calculation as ADSRC does. Group related or "shared" costs are not an appropriate measure of economic cost because they cannot be traced to individual services. Although several methods exist to assign shared costs to products and services, such methods are inherently arbitrary because there is no criterion based on objective efficiency or equity by which such assignments can be carried out.[39] By including shared costs in TSLRIC, it would be possible to deter competition by purposely assigning more shared costs to essential functions. While we recognize that a firm must price its services to recover both shared and direct costs to remain viable, shared costs should not be included in the economic price floor calculation for imputation purposes.

The Commission does not agree with GTE that the imputation method recommended by Dr. Beauvais should be adopted. To begin with, we are not persuaded that GTE's approach is theoretically superior to the methodology set forth in Order Nos. 94-1851 and 95-313. Second, the imputation method we have adopted is consistent with the statutory approach set forth in ORS 759.050 and 759.250, and does not adversely affect the LECs. Finally, as Dr. Cornell points out, GTE's imputation approach may deter competitive entry by creating an incentive for the incumbent to ensure that it costs more to supply access to a dependent competitor than to itself. Dr. Cornell states:

> The incumbent controls how it is going to provide access to its dependent competitors. Thus, it can do so in ways that it can then translate in its cost studies as costing more than when providing that access to itself. Under this approach, entry never occurs, even if another firm is just as efficient at providing the non-access components as the incumbent. Indeed some firms that may be more efficient than the incumbent at supplying the non-access components are also prevented from entering.
>
> If Dr. Beauvais' approach to imputation is accepted, Oregon will face real dynamic losses. The history of entry in telecommunications shows that entry has been far more effective than any other spur in promoting cost-reducing technological change and the implementation of new technologies and service offerings. Blocking entry by allowing the incumbent to claim lower costs to provide itself with access than the costs to provide entrants with access will impose very high dynamic costs to consumers over time.

USWC requests that the Commission clarify its imputation discussion in Order No. 94-1851. Page 4 of that order provides that a LEC shall impute the price of essential functions:

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[39] Edwin D. Rosenberg, *A Note on the Concept and Application of Long-Run Incremental Cost in Telecommunications,* The National Regulatory Research Institute, at 3 (1994). See also William J. Baumol, *Superfairness: Applications and Theory* (Cambridge, Massachusetts: MIT Press, 1986), Chapter 7.

> actually used [to provide a service] when those functions *may be purchased by* other telecommunications providers. When functions used by a LEC *cannot be purchased* by another telecommunications provider, the LEC should impute the price of the essential functions that the other provider must buy. (Emphasis supplied.)

To avoid misinterpretation, the words *are available for purchase* and *are not available for purchase*, may be substituted for the italicized language in the first and second sentences noted above. In other words, a LEC may only impute an essential function that it also makes available to its competitors. Thus, in a situation where it is possible to provision a function in more than one way, the LEC may not impute a less expensive function while supplying a more expensive function to a competitor.

As a final matter, both United and GTE argue that the wholesale/retail provisions in Section 251(c)(4) of the Act mitigate the need for an imputation test. GTE further states that such provisions may the eliminate any future need for an imputation test on LEC bundled services. The LECs do not explain their position, but their argument appears to be premised on the assumption that if wholesale rates are set at TSLRIC, competitors will face rates equal to LEC cost. However, the Act does not specify that the appropriate wholesale rate is TSLRIC. Nor is that a position that GTE and United advocate in this case; indeed, both vehemently oppose TSLRIC pricing. In any event, there is no basis in the record upon which to conclude that the prospect of wholesale prices is a sufficient safeguard to justify abandoning an imputation test.

Once resale restrictions for LEC bundled services are removed, as required by the Act, some may claim that the imputation test is satisfied because AECs can purchase bundled services at prices no higher than those charged by the LECs to end users. Removing resale restrictions, however, does not change the need to apply the imputation test. Unless an imputation test is applied, LEC bundled service prices would not be constrained by the prices of unbundled functions. This would impede facilities based competition and limit most competitors to pure resale of LEC services. As noted earlier, one of the Commission's objectives is the development of facilities based competition.

Issue IV: NAC Deaveraging

Currently, LEC local exchange services are priced on an averaged basis. Customers who are more costly to serve -- those who live in areas with low population density and are served by very long loops -- pay the same rates as other customers in their class who live in high density areas and are much cheaper to serve. One of the purposes of UM 351 is to set prices to better reflect the underlying cost to provide telecommunications service. To realize that goal, it may be necessary to deaverage network access channels (NACs). Comprehensive deaveraging of NAC prices would result in significant rate shock for some customers, however, because NACs are the most costly network component. Customer rate increases could be mitigated or offset by contributions from the universal service fund or by other Commission action.

Staff position. Cost studies conducted in Phase I and adopted in Order No. 93-1118, show significant cost difference among the three NAC types.[40] Staff argues that it is important to reflect these cost differences in LEC rates. Averaging all NACs together masks cost differences and does not allow customers to properly evaluate the true cost associated with purchasing additional NACs. Average NAC prices also send misleading signals to potential competitors.

Staff initially proposed to deaverage NACs and flow through price differentials to relevant local exchange services. Staff's price matrix instructions separated NACs into three categories for dense, less dense, and sparse NACs. Staff proposed different local exchange rates corresponding to each of the NAC offerings.

Staff's long term goal is to deaverage NAC prices based on population density and loop distance. After reviewing the cost and price matrices submitted by USWC, GTE, and United, however, Staff now believes that deaveraged NAC rates would result in too great a rate increase for local exchange customers in less dense and sparsely populated areas. Moreover, a deaveraged rate structure would introduce additional administrative and billing costs. For the time being, therefore, Staff proposes statewide average rates for local exchange service across all density and distance categories. Average NAC rates should be based on the average total service long run incremental cost (TSLRIC) of each NAC type (voice grade, DS1, DS3, etc.).

Staff anticipates that the LECs may deaverage NAC prices within the competitive zones designated by the Commission pursuant to ORS 759.050. *See* Order No. 96-021. If the zone-specific TSLRIC for a NAC is below the LEC's statewide average TSLRIC, the LEC may reduce NAC rates within the zone below NAC rates charged outside the zone. Rates for bundled services within the zone would likely reflect the lower zone-specific rates the LEC charges for component building block services.

Staff does not object to the deaveraging proposals offered by USWC and United, but recommends that implementation be deferred until a rate case is conducted for each carrier. On the other hand, Staff opposes GTE's NAC deaveraging approach because it does not reflect density related cost differences. GTE proposes to charge the same rate for all NACs served by the same switch, despite the fact that each switch can serve many different NAC densities. Staff recommends that the Commission direct GTE to develop a deaveraging NAC proposal in its next rate case that is similar to that recommended by USWC or United.

Position of the LECs. GTE advocates repricing local exchange services on a deaveraged basis. The cost studies produced in Phase I of this proceeding show that

[40] The Phase I cost studies used five different NAC distribution types. In Phase II, Staff combined the first two NAC distribution types to form the "dense" NAC building block. Staff combined the third and fourth NAC categories to form the "less dense" NAC building block. The fifth NAC type was used to represent the "sparse" NAC building block.

NAC cost varies widely based on the density of the area served. Competition makes it imperative for LECs to deaverage prices to reflect cost, supply and demand, and other market considerations. Otherwise, competitors will self provision facilities in low cost areas and purchase averaged NACs in high costs areas, giving them an artificial advantage over LECs.

GTE proposes to deaverage local exchange rates on a revenue neutral basis to reflect cost differences at the exchange level. Exchanges would be classified into three market areas--urban, suburban, and rural-- based on the number of access lines per square mile or other appropriate geographic or market considerations, such as proximity to a dense urban area.

Under GTE's proposal, an urban exchange has more than 1,000 access lines per square mile; suburban exchanges have between 51 and 1,000 access lines per square mile; rural exchanges have 50 or fewer access lines per square mile. A suburban exchange may be classified as urban if it is contiguous to an urban exchange.

GTE regards its exchange level deaveraging plan as a short-term solution that will provide the pricing flexibility necessary to meet the rapid changes occuring in telecommunications markets. Unlike the approaches suggested by USWC and United, GTE argues that its transitional approach mitigates rate shock for customers in low density, high cost portions of its exchanges. In the future, GTE intends to develop rates based on volume and term commitments. GTE requests authority to present its proposals as part of a revenue neutral rate redesign.

USWC contends that averaged prices need to be replaced with deaveraged or situation specific prices in a competitive environment. Otherwise, LECs will be vulnerable to competitive providers who will have pricing flexibility and can target profitable market segments where LEC rates are averaged and do not reflect actual costs.

USWC proposes a small initial list of building blocks for deaveraging: two-wire analog NACs, toll, DDS, DS1,[41] and DS3 NACs, and local exchange service (residence and business services). For all products that include a two-wire analog NAC, including the unbundled LIS-Link, USWC proposes a two zone NAC deaveraging structure. NACs are priced depending on their relationship to a central office and metropolitan statistical areas (MSA). Lower Zone 1 rates apply if a customer is located within 5 miles of a switch in an MSA or within 2.5 miles if switch is located outside an MSA. Otherwise, the higher Zone 2 rates apply. USWC realizes that this proposal may cause some rate aberrations and is willing to work with Staff to produce a viable plan.

For DDS, DS1 and DS3 NACs, USWC proposes to mirror the FCC three-zone deaveraging methodology. That methodology reflects the relative density for each serving wire center. The zone appropriate for each wire center is based upon minutes of use per

[41] This includes deaveraging of all products that use a DS1 NAC, including ISDN Primary Rate.

square mile. The three zones were established to allot roughly equal amounts of DS1 and DS3 demand into each zone on a company wide basis.

USWC argues that its proposal reflects distance and density factors that drive NAC costs, and is a reasonable first step toward changing historical pricing practices. The proposal also minimizes customer rate increases, since 92 percent of business customers and 85 percent of residential customers would be eligible for lower Zone 1 prices.

USWC opposes arguments by ELI and others that cost should be the only basis for deaveraging rates. It cites Order No. 94-1851 for the proposition that prices in competitive markets should reflect a wide variety of market factors. USWC asserts that competitors will deaverage rates by offering volume discounts, long-term discounts, and other incentives that allow customers to receive services below the average price for the service. To ensure a balance between regulation and competition, the Commission should establish pricing policies that acknowledge the need to respond to market conditions.

In addition, USWC notes that the legislature anticipated the need for LEC pricing flexibility when it passed the competitive zone statute, which permits telecommunications utilities to offer customers within a competitive zone different prices and terms for service from those offered outside the zone. USWC asks the Commission to acknowledge the clear intent of the statute and allow LECs to deaverage in response to competitive pressures. It also points out that deaveraging of local exchange services will be necessary for the LECs to draw Category 1b universal service support authorized in UM 731.[42]

USWC urges the Commission to reject MCI's position that revenue losses within competitive zones should not be recouped by offsetting rate adjustments outside of the zones. USWC claims that, as long as the Commission retains its ratemaking function, it must provide incumbent LECs an opportunity to earn a reasonable return on utility investment.

USWC argues that its deaveraging proposal is consistent with the Act. It observes, however, that Section 254(b)(3) requires rural and urban services to be priced at reasonably comparable rates.

United recommends that the Commission support basic service deaveraging. United argues that deaveraging is integral to economically efficient pricing and is an important pricing tool in a competitive environment. Deaveraging sends correct signals and may attract competitive entry in traditionally high cost areas. It also allows LECs the opportunity to compete effectively in high density, low cost areas. United argues that the record supports cost based deaveraging, that is, deaveraging that reflects cost variations

[42] In Order No. 95-1103, the Commission adopted a high cost support mechanism for regulated LECs not participating in the Oregon Customer Access Fund. Universal service fund support is based on LEC overall intrastate revenue requirement per network access channel. Category 1b universal service fund amounts would be paid directly to the LEC.

caused by loop density and distance. The Commission should endorse this approach as competition develops.

United proposes that the Commission establish general principles for deaveraging rather than endorsing any specific plan at this time. United proposes to segregate NACs into two categories, with different rates for customers within and outside a base rate area. The base rate area would include approximately 90 percent of United's customers. The customers outside the base rate area are served by very long NACs in sparsely populated areas.

To avoid substantial rate increases in sparse areas, United emphasizes that deaveraging should be coordinated with the amount of competitive entry and the implementation of a universal service plan. If deaveraging is implemented too far in advance of competition, customers will incur sizable rate increases without corresponding benefits. If it is implemented too late, customers will receive incorrect pricing signals and entrants will be able to exploit pricing anomalies. Accordingly, the Commission should allow for flexibility not only in the implementation, but also in the structure of deaveraging.

United points out that Section. 254(g)[43] of the Act prohibits toll deaveraging, but not local rate deaveraging. The provisions of Section 254(b)(3) regarding universal service specify that rates for services in sparse, insular, and high cost areas should be priced reasonably compared to rates in dense areas. United argues that this principle may be met through sufficient federal and state mechanisms to preserve and advance universal service. See Section 254(b)(5). The higher sparse rates are set relative to urban rates, the greater the potential for burdening universal service funds. According to United, it is reasonable to expect the Joint Board on universal service to establish local rate thresholds that limit federal contributions so that certain states do not benefit more than others because of state pricing policies.

Positions of the Intervenors. ELI, MCI and **AT&T** argue that deaveraging should be allowed only if it is based on actual cost differences. Deaveraging should not be permitted if the cost exceeds the potential gain in economic efficiency, causes rate shock or endangers public interest goals.

MCI acknowledges that the cost of providing loops varies across service areas because of the different physical characteristics of exchanges. The Commission may deaverage loop prices to recognize that cost variation, but should do so with extreme

[43] Section 254(g) provides: Interexchange and Interstate Services.--Within 6 months after the date of enactment of the Telecommunications Act of 1996, the Commission shall adopt rules to require that the rates charged by providers of interexchange telecommunications services to subscribers in rural and high cost areas shall be no higher than the rates charged by each such provider to its subscribers in urban areas. Such rules shall also require that a provider of interstate interexchange telecommunications services shall provide such services to its subscribers in each State at rates no higher than the rates charged to its subscribers in any other State.

caution. Prices for deaveraged loops should correspond to changes in legitimate cost drivers. Discriminatory rates or rate structures with anticompetitive effects should not be permitted.

ELI and AT&T agree that the wholesale rate for the NAC should be deaveraged in the competitive zones in relation to rates established outside the competitive zones. Under this proposal, the wholesale rate for NACs in the Portland competitive zones would be a weighted average of the basic NAC TSLRIC in the first two density zones, using the density zones in USWC's price/cost matrices. The wholesale price for basic network access channels throughout the rest of the state would be a weighted average of all three density zones.

According to ELI, deaveraging wholesale rates for basic NACs in this manner will reduce the ability of LECs to impose a price squeeze and alleviate Staff's concern that deaveraged rates will produce large rate increases. Competitors could be placed in a price squeeze if LECs deaverage the price of retail services in competitive zones without reducing the underlying wholesale price for the basic NAC. AT&T recommends that competitors be permitted to purchase deaveraged NACs at wholesale prices at the conclusion of this docket. Implementation for other customers should be deferred.

ELI, MCI and AT&T oppose allowing the LECs to deaverage prices on a revenue neutral basis. ELI points out that USWC's proposal to deaverage digital NACs is not based on underlying cost, and would shift revenue recovery from one class of customers to another. According to MCI, deaveraging should not be used to impose a greater contribution recovery to NACs that do not face competition. Instead, the Commission should set rates for a LEC's entire service territory. Once those rates are set, deaveraging within the competitive zone should not be offset by price increases outside competitive zone. Loss of market share should lead LECs to reduce costs, not raise prices. If LECs are allowed to offset losses inside the competitive zone by increasing prices outside the zone, they are effectively insulated from competition.

OCTA supports Staff's deaveraging proposals as a long term goal, but urges the Commission to maintain averaged NAC rates in the near term. OCTA members are local exchange business customers who would be harmed by immediate deaveraging. OCTA urges that deaveraging should be related to the level of competition. To allow NAC deaveraging before meaningful competition arises will allow incumbent LECs an effective tool to limit competitive entry.

OCTA also asks the Commission to consider the harmful effects of secondary line price discrimination. This occurs when a customer receives a preferential price that injures competitors. In Oregon, the market boundaries of competitive providers may not match telephone exchange and competitive zone boundaries. OCTA argues that it is unfair for a business operating in a designated competitive zone to receive lower priced telecommunications service relative to competing businesses located outside the zone.

Unicom argues that the current proposal for deaveraging establishes a costing scheme under which the pricing elements are lower in the largest cities and substantially higher elsewhere. The costing differential will thwart competition except in the cities. Zone 1 should be defined as any metropolitan area within the State that has a population in excess of 10,000 people. By broadening the definition in this way, the majority of the citizens in the state would reap the benefits of competition at the local exchange level.

Commission Findings and Decision: Issue IV, NAC Deaveraging

Based on the preponderance of evidence in the record, the Commission makes the following findings:

The Phase I cost studies adopted in Order No. 93-1118 show significant cost differences among the three NAC types in dense, less dense, and sparse population areas. Most parties agree that these cost differences should be reflected in rates at some point. The Commission concurs. Because averaged NAC prices do not reflect underlying costs, they send misleading signals to consumers and competitors and lead to uneconomic consumption of telecommunications services. At the same time, we are concerned that NAC deaveraging will produce substantial rate increases for certain customers. For that reason, we adopt Staff's proposal to retain statewide average local exchange rates across all density and distance categories.

We acknowledge that LECs have pricing flexibility under the competitive zone statute to implement deaveraged NAC rates between and among the different competitive zones that we have authorized. The statute also permits the LECs to charge different prices for NACs sold within and outside of the zones. The Commission will monitor the pricing flexibility exercised by the LECs to ensure against pricing anomalies and anticompetitive conditions.

On a conceptual basis, the Commission has no major objections to the NAC deaveraging proposals offered by USWC and United. Their proposals are cost based, and the zone approach minimizes the number of customers subject to rate increases. Universal service support can offset potential rate increases for residential customers served by less dense and sparse NACs. The details of each deaveraging proposal will be examined at the time a rate case is conducted for each LEC.

We agree with Staff that GTE's NAC deaveraging proposal does not reflect customer specific cost differences related to density factors. GTE proposes to charge the same rate for all NACs served by the same switch, even though each switch may serve many different NAC densities. In its next general rate case filing, GTE should develop a revised deaveraging proposal that better reflects underlying NAC cost elements.

Issue V: Pricing, Markups, and Contribution

The Commission's pricing policy is set forth in Orders No. 90-920, 94-1851 and 95-313. Those orders adopt the following pricing principles:

a) Cost of service is the appropriate starting point for determining rate levels. LECs should have flexibility, within reasonable parameters, to propose prices that respond to competition and other market objectives. LEC rate filings for new services should include justification whenever proposed rates vary significantly from the average markup over cost exhibited by overall LEC rate levels.

b) Prices should conform to the test for cross subsidization adopted by the Commission in Order No. 93-1118. The Commission may permit exceptions to the requirement for public policy reasons.

c) LEC rates should be revised over time to better reflect costs and encourage economic efficiency. The Commission will endeavor to adjust price gradually to minimize customer rate shock, subject to the constraints imposed by competition.

d) The level of contribution in LEC rates will depend on several factors, including the economic price floor, market forces and public policy considerations. These factors may dictate different contribution levels for different building blocks or services. Bundled service rates may also vary between customers who are not similarly situated, but the price of unbundled essential functions should be the same for all customers.[44]

The parties recommend several different approaches to pricing telecommunications services. Those proposals are set forth below:

Staff Rate Design. Staff endorses the pricing principles in Orders No. 90-920, 94-1851, and 95-313, and envisions a multi-step approach to developing LEC rate designs. The first step is to develop a rate spread in which rates are set above the average total cost estimates[45] by an equal percentage markup, so that expected LEC revenues will achieve the Commission's overall revenue target for the LEC. Second, the rate spread

[44] We also observed that charging the same price for the same function encourages effective competition by minimizing the potential for anticompetitive pricing. It also permits the Commission to accurately identify the level of contribution or subsidy inherent in current rates. Order No. 94-1851 at 6. For the present, we find that building blocks should be available for separate purchase only by telecommunications carriers, rather than all customers.

[45] The costs used to develop the price matrices include the sum of the service volume sensitive and volume insensitive costs, plus a share of applicable group-related volume insensitive costs. The matrix costs differ somewhat from the cost methodology adopted in Phase I of this docket. The Phase I cost methodology defines TSLRIC as the sum of the volume sensitive and volume insensitive costs of the building blocks that comprise the service, plus any service specific costs, but excludes group-related volume insensitive costs.

should be examined to determine if it meets public policy objectives, such as universal service. If rates for certain services need to be adjusted, Staff recommends uniformly adjusting the percentage markup above average total costs for the affected building blocks. Corresponding rate adjustments would be made to the bundled services using those building blocks.

Staff contends that an equal percentage markup approach to designing LEC rates will result in rates that more uniformly reflect costs, promote economic efficiency and reduce the potential for price discrimination. Rates for new LEC services should range from a price floor of TSLRIC (as estimated in Phase I of this docket), or the minimum imputed price, whichever is applicable, to a price ceiling equal to the Table I average total cost plus three times the LEC's average percentage markup. Staff maintains that allowing a LEC to price new services at three times its average percentage markup will allow sufficient pricing flexibility and still maintain a reasonable relationship between rates and costs. The LEC or Staff could seek exemptions from the proposed price ceiling if conditions warrant.

Although Staff agrees that LECs should have pricing flexibility to meet competition, it argues that the amount of flexibility should be a function of the degree to which the relevant market places pricing constraints on the LEC. Thus, pricing flexibility is appropriate if there are viable alternatives to a LEC-provided service and effective competition exists in a particular market. On the other hand, if the LEC maintains market power over a service, continued regulatory oversight is required to prevent discriminatory and economically inefficient rates. Staff asserts that, for the most part, the LECs have not shown that competition has limited their market power.

Staff's proposed rate design starts with the development of rates at the building block level. Each building block is priced based on the formula approach described above.[46] Once building block prices are established, they are added together to form prices for bundled services. Staff argues that its pricing method will allow greater consistency between and among existing LEC services because prices will reflect the cost of each building block used in packaging a service. Competitors will benefit because they will be able to avail themselves of unique elements of network functionality that the incumbent LECs provide. All other customers will benefit because through greater application creativity and technological innovation that comes from correct market signals.

Staff's rate design limits the markup on NACs. According to Mr. Wolf, NACs are the most costly element of local service, and a high NAC contribution would result in very high bundled service prices. Constraining the percentage markup on NACs will foster competition by lowering the price that customers pay for NACs, and produce lower

[46] The pricing of both bundled and unbundled services starts with approved Phase I costs. An equal percentage contribution is determined to enable the LEC to recover total revenues equal to their current earnings. Contributions are then adjusted to reflect Staff's view of appropriate prices for each function. Each function has the same contribution level in all cases, but different functions may have different contribution levels.

local exchange bundled service prices than would otherwise be the case. By constraining the NAC markup, Staff's formula produces a basic local service rate of $20.43 for USWC customers, compared with a rate of approximately $26.00 without the contribution constraint. GTE and United local service customers would pay NAC-constrained local service rates of $20.47 and $27.18, respectively.

After calculating NAC rates and revenues, Staff marked up all other functions on an equal percentage basis sufficient to cover the LEC's current total revenue for all services. Staff's argues that its proposed rate levels, together with the proposed elimination of use and user restrictions, will stimulate demand for building blocks and create new services capable of producing substantial revenues for LECs. At the same time, the ability to purchase building blocks on an individual basis represents an alternative to purchasing existing LEC bundled services and will result in some degree of revenue erosion.

Staff proposes a single local rate for business and residential customers prior to application of the FCC SLC and any universal service charge required by the Commission.[47] In order to enhance economic efficiency and nondiscriminatory rates, Staff's rate design also eliminates use and user restrictions, such that all local private line, switched access, and special access customers pay the same price for the same network function.

Staff acknowledges that, once network functions are unbundled and made available to all customers without use and user restrictions, limitations on resale no longer make sense. As a consequence, Staff's rate design does not distinguish wholesale rates from retail service rates. Staff argues that once bundled services have been repriced, unbundled functions should be universally available and that any resale should be based on economic efficiency, not regulatory arbitrage.

Staff's rate proposal will have a significant impact on switched access rates, because switching rates will decline substantially from current rate levels. Staff's proposed switching rate does not include any subsidy elements such as the residual interconnection charge (RIC), CCLC, or universal service charge. The reduction in the switching rate shifts revenue recovery from access services to local services.

Staff's proposed switching rate also causes a substantial reduction in intrastate LEC toll rates. USWC toll rates currently range from $0.26 per minute for and initial minute to $0.07 per minute discounted for time of day. Under Staff' s building block pricing approach, USWC's toll rate would be $0.03 per minute on average. GTE's toll rates would experience even greater reductions.

Because of the proposed reductions in toll rates, Staff recommends eliminating flat rate and measured EAS charges. EAS, like toll, would be offered on a measured rate

[47] The local flat rate is created by combining the NAC, NACC, switching, and transport building blocks.

basis. Effectively, there would be no difference between the EAS rate and the corresponding toll rate.

In addition to the revenue shifts from access and toll to local services, the elimination of use and user restrictions will also have a major impact on local rates. Business rates will decrease while residential rates will increase. Also, there will no longer be a rate difference between the types of business service usage. For example, Centrex and PBX customers will pay the same rate per line. In the case of USWC, the basic flat rate proposed by Staff for all business and residential customers is $20.43. Excluding the SLC, USWC's current business and residential rates are $30.87 and $12.80, respectively.

Staff acknowledges that its rate design will result in a substantial rate increase for residential customers. At the same time, customers will benefit from much lower intraLATA toll rates and a sizable reduction in switching feature rates. To mitigate the impact on residential customers, the Commission would have to (a) retain a use and user classification specifically for residential customers; (b) ascertain a maximum rate for residential customers; (c) implement a rate design mechanism to produce sufficient revenue to cover the residential rate/revenue shortfall, and (d) decide who should contribute to such a mechanism. If the Commission caps residential rates below $20.43, Staff recommends increasing either the terminating switching rate or the interoffice transport rate to compensate for the revenue shortfall that would otherwise result. For example, Staff estimates that capping USWC's residential rate at $15.00 will produce a monthly revenue shortfall of approximately $3.5 million.

Staff proposes that the LECs seek a waiver from the FCC to permit them to charge a uniform SLC on all bundled local exchange services[48] and all NAC building block services. The SLC is an interstate rate element charged to all end users who subscribe to switched local exchange telephone service. It is an add-on to the intrastate rates and is designed to recover part of the allocated interstate cost of subscriber lines. The remainder of the cost is charged to interexchange carriers via the interstate CCLC. As noted above, the CCLC is a per minute rate assessed on all interexchange carriers that use local switching and subscriber lines to originate and terminate interstate interexchange traffic.

Currently, the SLC is recovered from end-user customers at the rate of $3.50 for residences and single line businesses, and $6.00 for the second and each successive business line. Staff's proposal eliminates the existing residential/business distinction, and results in a uniform SLC to recover the appropriate interstate revenue requirement for each LEC. Staff further recommends that the waiver filed with the FCC include a request to allow the LECs to bill AECs for the SLC whenever the AEC purchases the unbundled equivalent of a subscriber line (*i.e.*, a NAC and NACC). In addition, Staff proposes that

[48] Staff recommends that the LECs charge the same bundled rate for business and residential local service. LEC intrastate tariffs would still distinguish residential from business customers, however, in order to allow for differential application of universal service credits.

the LECs request FCC authority to charge AECs a flat rated CCLC on the purchase of each unbundled NAC.

From a timing standpoint, Staff recommends that the Commission require the LECs to initially offer building blocks on an unbundled basis to AECs only. Staff also proposes that the LECs be required to develop revised rates and rate rebalancing proposals for all of their services, and file tariff changes pursuant to ORS 759.180. USWC filed its rate increase application in December 1995. Staff recommends that GTE and United should also be required to file revenue requirement case and rate rebalancing proposals. Staff proposes that the Commission suspend the filings, and after investigation, establish entirely new rates for each LEC. The new LEC rates would incorporate the unbundling and pricing decisions approved in this order.

Staff acknowledges that LECs will be exposed to a risk of revenue erosion if unbundling (including eliminating use and user restrictions and existing limits on resale) occurs prior to repricing the LEC's bundled service rates. The greater the time lag between unbundling and repricing, the greater the risk. Staff maintains that its approach will make unbundled services available where they are needed most--to AECs--while protecting LECs from significant revenue erosion caused by the substitution of building blocks for bundled services. Also, by restructuring LEC rates in rate proceedings, customers will be afforded an opportunity for notice and hearing on the potentially significant rate changes that may result.

Opposition to Staff Rate Design. Although there is general agreement that cost is the appropriate starting point for establishing LEC prices, several parties oppose Staff's recommended rate design. **USWC, GTE** and **United** argue that Staff's approach does not consider market factors or provide LECs with the pricing options necessary to accommodate emerging competition in telecommunications markets. GTE witness Dr. Beauvais observes that, in calculating the markups from marginal cost pricing, there should be as little distortion from the quantities which would occur if prices were set equal to incremental cost. The uniform pricing solution that results in the least distortion to efficient quantities calls for prices increases that are inversely proportional to the own-price elasticity of demand for a given service. Dr. Beauvais states that Staff's proposal for equal percentage markups above incremental cost is unlikely to result in the greatest efficiency gains possible. He emphasizes that both supply and demand determine price in the marketplace, not merely one or the other.

The LECs point out that Staff's formula approach would cause major rate shifts for existing services without regard to supply and demand or LEC revenue losses that may occur. They also emphasize that the Staff proposal shifts significant contributions from discretionary nonessential services to basic residential service without regard to customer rate shock and other public policy considerations. For example, the LECs note that Staff's rate design will produce drastic reductions in custom calling features, despite the fact that the market places a higher value on these services. USWC argues that the rates

proposed for custom calling are so low that they will discourage competitors from self provisioning the service.

The LECs argue that Staff's proposal does not conform with Order No. 94-1851, which contemplates that LECs should have pricing flexibility to respond to competition. They argue that they cannot survive in a competitive environment unless they have flexibility to adjust prices in response to market conditions. GTE further maintains that substantial price decreases for access, toll and custom calling services and the resulting increases for residence local service generated by Staff's pricing formula are not required by market conditions. Similarly, United observes that Staff's proposed Centrex prices cannot be sustained in a competitive market.

The LECs also oppose Staff's recommendations regarding timing and implementation. They maintain that any unbundling and repricing authorized in this docket must be revenue neutral. If not, LECs will be exposed to revenue erosion as customers begin to substitute building block services for LEC bundled offerings and resellers take advantage of price disparities. Also, while Staff's schedule assumes that AECs may purchase LEC building blocks for several months before LEC rates are rebalanced, that process may take longer to accomplish, further increasing the chances of LEC revenue loss. United argues that a sufficient record exists in this docket to reprice its services without the necessity of rate case proceedings. It contends that its rate design will move prices toward economically rational levels and reduce the risk of uneconomic entry without the customer rate shock associated with Staff's proposal. GTE and USWC make similar arguments in support of their respective unbundling and pricing recommendations.

AT&T, MCI and **ELI** argue that Staff's proposed rate design is inconsistent with the pricing standards in Section 252(d)(1) of the Act which requires network element prices to be based on cost without reference to a rate of return or other ratebase proceeding. AT&T, ELI and MCI contend that Staff's equal percentage pricing formula contravenes the Act because the proposed markup is designed to enable LECs to earn their respective revenue requirements.

In addition, AT&T, MCI and ELI argue that Staff's pricing proposal effectively prohibits competition from developing in the residential local exchange market. They allege that the building block prices proposed by Staff cannot be combined to create a service capable of competing with LEC flat rate retail offerings.

AT&T and ELI also argue that Staff's proposal to require purchasers of unbundled NACs to pay the SLC and CCLC will (a) insulate LECs from competition by insuring that revenue requirements are met; (b) eliminate efficiency incentives; and (c) create a price squeeze. AT&T further maintains that Staff's proposal ignores the manner in which competitors price their services. Although new entrants are not required to charge the SLC on customer services they provide, they will establish prices by looking to the market price set by the LECs (which includes the SLC). In a competitive market, the LECs will

respond to market pressures by reducing their prices. If LECs are instead allowed to charge the SLC and CCLC, they will enjoy a cost advantage over competitors to the detriment of consumers generally.

AT&T, MCI and ELI Pricing Proposal. AT&T, MCI, and ELI recommend that unbundled building blocks be priced at TSLRIC.[49] These parties allege that this approach will increase efficiency, drive retail prices closer to the actual cost of providing service, and force the incumbent LECs to be more responsive to customer needs. Moreover, all firms will be required to look to their retail customers for recovery of all joint and common costs.

AT&T, MCI and ELI emphasize that building block prices should not include any markup to recover contribution to common costs. Pricing building blocks above TSLRIC will cause the overall retail price floor to increase because competitors must recover not only their own direct and indirect costs, but also the indirect costs of the LEC. These parties point out that toll rates are priced substantially higher than TSLRIC because of the high level of contribution incorporated in LEC switched access rates. As noted above, AT&T also emphasizes that non-cost based elements such as the SLC and CCLC should be eliminated because of the adverse impact on competition and retail rate levels.

AT&T, ELI and MCI also contend that pricing building blocks above TSLRIC provides the incumbent LEC with an opportunity to abuse its market power. LECs will deliberately limit markups for customers with competitive alternatives, while imposing a disproportionate share of contribution on purchasers of essential building blocks in order to minimize revenue losses. Pricing building blocks at TSLRIC, on the other hand, will place the entrants on an equal footing with LECs.

In addition, AT&T, ELI and MCI maintain that setting prices based on a revenue requirement is obsolete in competitive markets. Under a revenue requirement approach, losses incurred by the LEC to provide competitive services may be offset by increases in rates for non-competitive services. LECs have little incentive to operate efficiently, and may incur uneconomic costs that are passed on to ratepayers. In competitive markets, on the other hand, firms cannot shift revenue requirements between services, and are forced to reduce costs, not raise prices. Moreover, since building blocks represent new services, it is not possible to accurately forecast the demand for building block services or the overall impact on LEC revenue requirements in any case.

AT&T, ELI, and MCI argue that pricing building blocks at TSLRIC will not preclude LECs from earning a fair rate of return. If necessary, the Commission can always intervene to revise rates. These parties also contend that pricing building blocks at TSLRIC is consistent with the pricing standard in Section 252(d) of the Act. While the Act permits prices to include a reasonable profit, a markup above cost is not mandated.

[49] ELI and MCI argue that interconnection building blocks they have proposed should be priced at TSLRIC. See ELI Exhibit 2; Staff Exhibit 21. AT&T argues that all unbundled building blocks should be priced at TSLRIC.

These parties assert that TSLRIC includes a return on investment that represents a reasonable profit for the LECs.

In the event the Commission finds that building block prices should include contribution to LEC common costs, AT&T, ELI, and MCI recommend that the maximum markup should be the common overhead factor presented by USWC witness Robert Bowman.[50] These parties claim that applying the common overhead factor will reduce USWC's concern that competitors are being subsidized by other retail customers, and eliminate Staff's concern that competitors will receive an economic windfall if building block prices are set at TSLRIC.

MCI Rate Design. In addition to its TSLRIC pricing recommendations, MCI proposed a rate design for USWC's network functions and bundled services. MCI's list of bundled services is similar to that included in the Table II price matrix, except that MCI maintains a distinction between residential and business rates. MCI recommends that rates for residential local exchange service should remain unchanged until a competitively neutral universal service support mechanism is implemented. In support of this proposal, Dr. Cornell testified that rates paid by USWC's residential local exchange customers, as a class, recover the TSLRIC of that service. Revenues received from residential customers in the dense and intermediate zones offset the revenue deficiency from residential customers in low density zones. Except for residential service, Dr. Cornell recommends that all other building blocks be priced on a nondiscriminatory basis.

According to MCI witness Don Laub, the starting point for MCI's proposal was the Table II price matrix filed by USWC, which specifies prices based on an equal percentage markup over cost and NAC deaveraging based on high, medium and low density zones. However, MCI did not adopt USWC's assumptions regarding demand shifts and competitive losses for several services. Also, rather than apply an equal percentage markup to USWC services, MCI's rate design recovers only the TSLRIC of non-competitive network functions. MCI also removed the margin obtained from high and medium density residential service from the markup calculation applied to all services.

MCI's rate design subtracts residential service revenues from the total amount of contribution received by USWC, and assigns an equal percentage to each of USWC's remaining retail services. For all monopoly building blocks except business NACs, an equal percentage is applied to the underlying cost unit. For business NACs, MCI calculated the total contribution attributed to business NACs as a group and marked up each of three different density NAC costs by an equal dollar amount. The equal dollar approach was used to ensure that rural business customers are not asked to recover a larger dollar amount of USWC indirect costs than are urban or suburban business customers.

[50] USWC's common overhead factor is a confidential number.

Mr. Laub testified that MCI's proposed rate design is revenue neutral to USWC. His proposals yield flat business rates ranging from $22.58 in Zone 1 to $49.92 in Zone 3. Measured business rates are approximately $3.00 higher in each Zone. MCI proposes an intraLATA toll price of $0.0307 per minute.

Opposition to MCI, AT&T and ELI Pricing Proposals. United, GTE, USWC and Staff oppose TSLRIC pricing recommendations made by MCI, AT&T and ELI and advance the following arguments:

- Pricing building blocks at TSLRIC will result in a windfall for AECs while driving up rates for LEC retail customers. In order for a LEC to earn its revenue requirements, retail bundled services would be set on a residual basis to include recovery of all joint and common costs. In effect, LEC retail customers would subsidize the services offered by competitive providers.

- There is no incentive for competitors to invest in infrastructure if they can purchase LEC network functions at TSLRIC. This is particularly true if the costs faced by the incumbents and entrants are the same, as AT&T alleges. According to GTE, TSLRIC pricing shifts all of the business risks to the LECs, who then become little more than network construction companies for competitive providers.

- TSLRIC pricing does not reflect real world competitive markets and pricing realities. The LECs maintain that competition does not drive prices to TSLRIC in industries with common costs. Competitive markets generally exert pressure to move prices toward cost, but firms cannot remain in business unless joint and common costs are also recovered. The competitors have not shown that they, or any other telecommunications firm, actually price services at TSLRIC.

- There is no evidence to show that TSLRIC pricing will translate into lower prices for customers served by competitive providers. USWC alleges that long distance rates have increased in interexchange markets even though access prices have declined.

- There is no evidence to support the claim made by ELI and AT&T that pricing building blocks above TSLRIC will stifle competition and guarantee high LEC earnings. United asserts that AT&T and MCI have not even prepared studies regarding their own incremental cost of production. Likewise, ELI has not performed any studies to determine the price at which competitive entry would be denied. USWC points out that IXCs have managed to compete successfully despite having to contribute to support of the local exchange network.

- TSLRIC pricing is inconsistent with the pricing standards in Section 252(d) of the Act, which require prices to be based on cost. GTE maintains that "cost" must include recovery of both direct and indirect (joint and common) costs; otherwise, a

firm cannot recover its total cost and will fail. Although TSLRIC includes a cost of capital (or return) component, an additional contribution to joint and common costs is necessary if LECs are to be profitable.

- If interconnection building block prices are set at TSLRIC, prices for remaining LEC services will be so high they cannot be sustained for any length of time. A decision to mandate TSLRIC prices is therefore arbitrary and an unconstitutional taking.

United Rate Design. United's pricing proposal corresponds with its two-phase unbundling initiative. The proposal is designed to adjust prices to reflect competition by reducing artificially high contribution levels and sending more accurate pricing signals to the market. At the same time, United emphasizes that the implementation of unbundling and pricing proposals should take into account in the fact that competition will come more slowly to United's rural markets. It contends that a flash cut approach to unbundling and repricing would create severe rate impacts that are not in the public interest.

In Phase I, United recommends: (a) reducing special access [51] (private line) rates to interstate levels, (b) unbundling the special access loop from channel performance, and; (c) restructuring switched local transport service to mirror the interstate LTR rate structure and approximate rate levels, without a residual interconnection charge.[52]

Also in Phase I, United proposed to merge special access and local private line tariffs to eliminate the distinction between local and intraexchange private line services. Merging these two tariffs will result in a slight increase for local private line customers. United also proposes term discounts in its special access tariff for customers purchasing for an extended period. In Phase I, special access rates are reduced 41 percent, switched access rates decline by approximately 12 percent and local rates increase by 14 percent. Residential local rates would increase by $2.56 per month.

United's LTR initiative unbundles local transport into the same rate elements included in the USWC and GTE LTR proposals. United notes that LTR, together with collocation, effectively unbundles transport from end office switching, and provides customers with a choice of purchasing or self-provisioning transport services. However, the high contribution margins in current access rates also provide customers with an

[51] Special access services are the foundation for United's unbundling and pricing proposals. Special access transport prices become the actual switched transport prices for direct trunked transport. In addition, the special access NAC is the basis for the local transport entrance facility price and United's unbundled NAC offering.

[52] United would prefer to reduce intrastate access rates to current interstate levels (without an RIC), but to do so would reduce access revenues by $5M and cause residential rates to increase by over $8.00 per month. Instead, United proposes to reduce only special access and local transport services in Phase I, with the remaining access reduction and corresponding increase in local service revenues to occur in Phase II. United states that this approach moves access rates closer to cost, minimizes arbitrage opportunities and imposes like charges for like services.