STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. 5713

Investigation into NET's tariff filing re: Open Network Architecture, including the unbundling of NET's network, expanded interconnection, and intelligent networks In Re: Phase I	)))))	Hearings held at Montpelier, VT July 21, 27-28, August 28-31, 1995

Order entered: May 29, 1996

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Hearing Officer

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PHASE I

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I. INTRODUCTION

> *This "telephone" has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.*
> Western Union internal memo, 1876

This matter arose in connection with the filing by the New England Telephone & Telegraph Company ("NYNEX" or "Company") of its Open Network Architecture ("ONA") tariff on September 19, 1993. ONA describes a broad range of pricing methodologies by which a telecommunications provider (most often a local exchange company, or "LEC") makes certain elements of its network available to other competitors. In opening this investigation, the Public Service Board recognized that the issues to be explored would go well beyond the narrow set of five services offered in the tariff:

> In order to reap the benefits of competition and to promote diversity and innovation in the supply of telecommunications services (and telecommunications-based applications), competitors, enhanced service providers, and end-users must have equal and fair access to the public switched network and its manifold capabilities.
>
> The time has come, therefore, for a thorough investigation into the relevant components and functionalities of the network, their costs, and methods for pricing them and making them available to competitors, enhanced service providers, and end-users generally.[1]

It may be taken as axiomatic that today's telecommunications industry is undergoing tremendous, radical change. Rooted in rapid technological advance, the ever-expanding capabilities and shifting economics of the telephony system challenge our traditional methods—and justifications—for regulatory intervention, and warn us that even our humblest attempts to prophesy are not merely quaint (as perhaps they were in 1876), but dangerously hubristic. We may imagine the future, but hardly can we ordain it.

Even so, we are not freed of our obligations to oversee and organize certain activities so as to promote society's welfare. In the face of swiftly evolving markets, our task today is to find new ways to meet customers' growing and varied demand for services,

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1. Order Opening Investigation, 2/18/94, at 6.

where the efficient methods of providing those services differ wildly depending on their economic properties, jurisdictional assignments, and perceived benefits. More prosaically, but in practice far more complex, we must create new mechanisms that will allow for greater competitive entry in those market segments where competition promises to stimulate innovation and most efficiently meet demand for service.

More than a generation ago, the incipient technological and economic revolution in telecommunications catalyzed the regulatory processes of which this docket is a small but vital part. Competition for interstate long-distance toll traffic received early attention of policy-makers and the federal judiciary, and led eventually to the signal event of the last decade: the divestiture of AT&T's regional operating companies in 1984. Since then, the market for interstate toll service, already under pressure from alternative providers, has acceded more and more to competitive forces. Though important regulatory and technological advances were still necessary to make that competition more robust, there seems little doubt that it has generated immense benefits for the country's citizenry.

The competitive challenge spread naturally to intrastate toll. In the eleven years following the break-up of the Bell System, every state in the nation, by regulatory action or legislative fiat, authorized competitive delivery of intrastate toll service. And most recently, a number of states have set out to introduce competition into their local exchange markets, the last major component of the monopoly telephone system.

Today's report and proposed decision is a first step toward the development of a competitive local exchange market in Vermont. It recommends that the Board implement a series of new regulatory policies whose purpose is to assure the fair and orderly transition of the local exchange market from one that is essentially monopolistic in character to one that is primarily, if not wholly, competitive. This proposed decision also recommends that the Board adopt specified rules to govern critical aspects of the competitive process, most notably the terms, conditions, and pricing of competitors' access to essential monopoly facilities.

In ways that defy their foretelling, competition will fashion the composition and complexion of the nation's telecommunications industry for many years to come. The

intent of today's recommendations is to harness those chaotic and creative forces to best serve our state's citizens, today and in that unknowable future.

II. BACKGROUND AND HISTORY

A. Background

On September 19, 1993, NYNEX filed its tariff for the provision of certain ONA services in Vermont. The tariff was filed pursuant to directives stemming from a comprehensive proceeding initiated by the Federal Communications Commission ("FCC" or "Commission"), the first phase of which occurred more than two years after the divestiture of American Telephone & Telegraph's Bell Operating Companies ("BOCs"). In that docket, the FCC decided to remove the structural separation between, on the one hand, AT&T's and the BOCs' common carrier operations and, on the other hand, their enhanced service and customer premise equipment operations. In its place, the FCC instituted a regime of ONA, accounting, and other non-structural safeguards to protect against cross-subsidization and anti-competitive behavior by the BOCs.[2]

On November 24, 1993, the Department of Public Service ("DPS or "Department") filed a letter and report detailing its objections to the proposed tariff and recommending that the Board suspend the tariff prior to its effective date and open "an investigation into the filing and the broader issue of Open Network Architecture and network unbundling." The Department pointed out that the proposed tariff was "new and potentially far-reaching" and raised issues that warranted a detailed investigation by the Board.[3] On February 18, 1994, the Board opened this docket.[4]

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2. *BOC Safeguards Order*, CC Docket No. 90-623, 12/20/91, 6 FCC Rcd. 7571 (1991). *See Order Opening Investigation*, Docket 5713, 2/18/94, for more detail.

3. DPS Letter, 11/24/93, at 1, 5.

4. The Board did not, however, suspend the tariff, stating:

> Lastly, it is unclear whether, under the VTA, this tariff could be suspended as requested by the DPS. For two reasons, we decline to do so. One, the tariff creates an interim framework for dealing with ONA issues while this investigation is on-going. And two, even in its absence, we would expect NET or any other Vermont LEC to respond—in good faith and at reasonable rates, terms, and conditions—to requests for unbundled components or interconnection in the general course of business.

Order Opening Investigation, 2/18/94, at 8.

B. Statutory Authority and Essential Prior Orders

No party has raised a challenge to the Board's authority to conduct this investigation or implement rules and procedures for the competitive delivery of local exchange services. Still, a review of the applicable statutes and relevant case law offers some added context for the findings of fact and discussion that follow.

1. Title 30

Title 30 of the Vermont Statutes Annotated sets out the Public Service Board's jurisdiction.[5] In numerous decisions, the Board has interpreted its authority. With respect to telecommunications providers, the Board stated that:

> the statutory scheme is complex, but its mandate is clear. Parties are subject to the jurisdiction of the Board if they meet the two-part test of offering their service to the public, and conducting a business described in section 203.[6]

Sections 203 and 209 of Title 30 give the Board broad jurisdiction over utilities in Vermont. Section 203 provides, in pertinent part, that the Board and Department shall have jurisdiction over, among others, "a person or company offering telecommunications service to the public on a common carrier basis." In addition, the statute empowers the Board to exercise its authority "so far as may be necessary to enable [the Board] to perform the duties and exercise the powers conferred upon [it] by the law."[7]

Section 209 provides the Board with jurisdiction "to hear, determine, render judgment . . . in all matters provided for in the charter or articles of any corporation subject to supervision under this chapter . . . ."[8] The same section, furthermore, provides the

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5. The Public Service Board has the power of a court of record in determining and adjudicating matters over which it has jurisdiction; it may render judgments, make orders and decrees, and enforce the same by any suitable process issuable by courts in this state. 30 V.S.A. § 9. Also, the Board, with respect to any matter within its jurisdiction, "may issue orders on its own motion and may initiate rule-making proceedings." 30 V.S.A. § 2(c).

6. *Petition of Burlington Telephone Company requesting the Board to find that the restriction of resale of wide area telephone service (WATS) in New England Telephone Company tariff P.S.B. Vt. - 20, Section 10.2.1.A, is invalid*. Docket 4946, Order of 2/21/86 at 62.

7. 30 V.S.A. § 203(5).

8. *Id*. at § 209.

Board with jurisdiction in all matters respecting . . . "[t]he manner of operating and conducting any business subject to supervision under [30 V.S.A.]," and "the price, toll, rate or rental charged by any company subject to supervision under this chapter, when unreasonable or in violation of law."[9]

In addition to the general jurisdictional grants of sections 203 and 209, there are other pertinent grants of jurisdictional authority in Title 30 which authorize the Board to conduct this investigation. The Board has authority over basic exchange telecommunications service contracts found under section 226a.[10] This section requires companies providing basic exchange telecommunications services to file with the Board any basic exchange services contract.[11] Section 2701 contains explicit Board authority to require interconnection. It also provides the authority to impose charges to "support the service."[12] The Board is also empowered to approve incentive regulation plans for basic exchange telecommunications providers, to review the acquisition of control of any company subject to Board authority, and to implement universal telecommunications service.[13]

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9. *Id.* at (a)(3)-(4).

10. 30 V.S.A. § 226.

11. This section, in addition to explicitly requiring the filing of contracts for basic services, also calls for companies to file all materials which it provided to the Department during contract negotiations. *See* §§ 226(b)(1)-(7). While this section delegates negotiations to the Department of Public Service, the final product of those negotiations—the contract itself—is to be filed with the Board. After notice and a minimum 45-day period, the Board is required to hold a hearing to approve or disapprove the contract. 30 V.S.A. § 226(c). The Board also retains jurisdiction over the contract once it has been approved. 30 V.S.A. § 226(d).

12. 30 V.S.A. § 2701(a), (b).

13. 30 V.S.A. §§ 226a, 226b, 515, 7501-7525. In 1993, the Vermont legislature enacted § 226b, which provides for "incentive regulation of basic exchange telecommunications providers." The statute allows the Board to approve "alternative forms of regulation other than the traditional methods based upon cost of service, rate base and rate of return."

The statute contains criteria which must be met before the Board can approve an alternative form of regulation. Among them are the following: consistency with the state telecommunications plan [§ 226b(c)(3)], promotion of the public interest [§ 226b(c)(4)], and protection of universal service [§ 226b(c)(5)]. Any form of alternative regulation must also "provide reasonable incentive for the creation of a modern telecommunications infrastructure" [§ 226b(c)(6)], support competition [§ 226b(c)(9)], and avoid cross-subsidization of regulated services by nonregulated services [§ 226b(c)(10)].

Alternative regulation is intended to provide incentives similar to those of competitive markets, and thus can function as a transitional mechanism to competition.

2. Prior Orders

Two Board decisions in particular are central to an understanding of how the competitive telecommunications market has developed in Vermont. The first is Docket 4946, decided in 1986; the second is Docket 5608, a 1993 decision.[14]

a. Docket 4946

Nine years ago, in Docket 4946, the Board first opened Vermont's regulated telecommunications monopolies to limited competition. It also outlined the applicable statutory authority for new market entrants. The Board also concluded that telecommunication companies in Vermont have no statutory right to an exclusive franchise.[15]

In that docket, the Board reviewed a petition by Burlington Telephone Company which claimed that the tariff of New England Telephone & Telegraph Company (*i.e.*, NYNEX, then doing business as "NET") prohibiting the resale of intrastate Wide Area Telecommunications Service ("WATS") and Message Toll Service ("MTS") services violated Title 30.[16] The investigation also reviewed a petition by ComTech Pay Services, Inc. requesting that it be allowed to resell local exchange service and intrastate MTS throughout Vermont and to allow the attachment of "customer-owned coin-operated telephones" ("COCOTS") to the intrastate public switched network. The Board declared the NET tariff at issue void, and also granted ComTech Pay Services, Inc. its petition.

In addition to deciding the particular issues raised by the parties, the Board's Order in Docket 4946 had broader policy implications for Vermont's entire telecommunications

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14. *See also Generic Investigation Into the Regulation of Cellular Telecommunications Services in the State of Vermont*, Docket 5454, Order of 1/8/92. In that Docket, the Board articulated a policy for promoting competition and for minimizing regulation where competition or the potential for competition may be sufficient to protect consumers; and *Petition of Burlington Telephone Company for a Certificate of Public Good to Operate as a Reseller of Telephone Services Within the State of Vermont*, Docket 5012, Order of 5/27/86.

15. Docket 4946, Order of 2/21/86 at 26, fn. 2. The Board stated simply that "There is no statutory right to an exclusive franchise, nor is [*sic*] there any territorial boundaries implicit in Title 30, V.S.A."

16. In particular, 30 V.S.A. § 218. *See* Docket 4946, Order of 2/21/86 at 26, fn. 1. The petition asked the Board to consider whether the NET tariff was "unjust, unreasonable, insufficient or unjustly discriminatory," in violation of the statute. *Id*. at 2.

market. The Board considered two general questions. The first was whether the entry into Vermont of service providers in competition with the existing monopoly providers should be allowed. And the second was, if competitive entry were allowed, how should the new entrants be regulated, if at all, and whether it was appropriate to continue to regulate the incumbent firms as they had been prior to such entry.[17]

The Board stated that new entrants to the Vermont market would be subject to a number of statutory requirements.[18] In 1986, there were nine certificated telephone companies in Vermont, regulated both as to price of service and return on investment.[19] Also regulated were their conditions of service, including deposits, disconnections, line extensions and service quality. The Board concluded that the statutory obligations that applied to the nine existing companies should also apply to new entrants, including the requirement that they have a certificate of public good ("CPG") before offering services in-state.[20]

The Board also addressed the question of franchise exclusivity.[21] It concluded that in Vermont telecommunications providers have no statutory right to exclusive franchises.[22] With respect to the nine Vermont telephone companies, the Board stated that "they have had by tariff but not by statute the exclusive right and, by Board policy, have had the

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17. Docket 4946, Order of 2/21/86 at 25.

18. The Board cited 30 V.S.A. §§ 203(a)(5), 209, 201(a) (definitions of "company"), 102 (CPG petition and notice), 231 (parallels 102, CPG and hearing), and 225-227 (rates, filing, and amendment). *Id*. 61-63.

19. *Id*. at 26.

20. *Id*.

21. The issue of franchise exclusivity and whether or not the Board is authorized to grant such franchises was addressed in both Dockets 4946 and 5608.

22. In 1994, when it adopted the Hearing Officer's proposal for decision in Docket 5608, the Board would reiterate this point:

> Lest there be any doubt as to my ruling on this matter, I include the following portion of the Procedural Order of 12/31/92 at 7.:
>
> > First, in Docket No. 4946, the Board concluded that there is no statutory right to an exclusive franchise, and that there are no territorial boundaries implicit in Title 30, V.S.A. Vermont telephone companies are regulated as economic monopolies because of their actual economic power, rather than because of legally-protected franchises. Order of 2/21/86 at 26.

Docket 5608, Order of 3/16/94 at 78.

obligation to serve."[23] The Board would revisit the issue of telecommunications franchises and its own authority eight years later in Docket 5608, an investigation into the entry into local service of the first competitive access provider in Vermont.

b. Docket 5608

In Docket 5608, the Board further opened Vermont to competition by issuing a CPG to Hyperion Telecommunications of Vermont ("Hyperion"). The CPG authorized Hyperion, a competitive access provider ("CAP"), to offer certain telecommunications services on a limited basis.[24] Specifically, the Board authorized Hyperion to provide four types of services: "carrier to carrier,"[25] "back-haul switched access,"[26] "carrier to end-user,"[27] and "point-to-point."[28]

The Board explicitly decided to restrict Hyperion's CPG to these four services. The Board reasoned that, because the listed services do not involve local switching capability and because Hyperion was explicitly limited to the four, it was not necessary "to include a separate condition prohibiting it from offering switched services."[29]

In addition to imposing particular requirements on Hyperion, the Board also reviewed the issue of franchise exclusivity. In its discussion, the Board reiterated its holding in Docket 4946: "in effect, . . . there is no bar to competition in local exchange service and . . . such competition would be acceptable."[30] The Board did, however, add a caveat:

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23. *Id.* at 26.

24. Docket 5608, Order of 3/16/94.

25. This is a backup service purchased by an interexchange carrier ("IXC") to ensure that, if service which the IXC provides is interrupted or in use to capacity, the IXC will be able to transport communications over the facilities of another IXC. *Id.* at 5.

26. This service allows an IXC to connect its point of presence ("POP") with a local exchange company's central office.

27. For the purpose of transporting interstate (interLATA) calls, this service connects an IXC's point of presence directly with an end-user.

28. This service connects one set of customer premises equipment with that of another customer located in Vermont, thus providing direct connection between customers without use of the public switched network.

29. Docket 5608, Order of 3/16/94 at 81.

30. *Id.* at 78.

> because the Order [in Docket 4946] was issued before the first competitive access providers had come into existence, the Board could not have been contemplating the detailed significance of CAPs [such as Hyperion] as competitors to LECs. It follows from this that the Board's statement in Docket No. 4946 should not be viewed as pre-approval for any and all kinds of competition in the local exchange market.

In a final note, the Board added that the resolution of the broader implications of competition would not be appropriate for Docket 5608, but would be addressed at a later date in a generic investigation (namely Docket 5713).[31]

3. Procedural History of this Docket

This docket was opened on February 18, 1994, and a prehearing conference was held a month later, on March 17th. At that time, the investigation in Dockets 5700/5702 was in full tilt and early activity in this case was necessarily deferred. On June 14, 1994, I issued a *Prehearing Conference Memorandum*, setting a schedule for the filing of comments on the docket's procedural structure and other related matters.

In light of the comments submitted, I issued a procedural memorandum on December 22, 1994, detailing my proposal for the docket's organization and schedule. By this time, the final Order in Dockets 5700/5702 had been issued, requiring, among other things, that NYNEX conduct cost studies of its network and that the Hearing Officer in this docket oversee the management and ultimate use of those studies.[32] Consequently, the parties' comments on my December 22nd memorandum (filed in early February 1995) addressed not only procedural questions but also substantive ones with respect to NYNEX's cost study proposal.

On March 1, 1995, I issued an *Order Re: Procedural Schedule and Motions to Intervene*, breaking the docket into three major phases. Phase I addresses costing and pricing issues and the public service obligations which should be preserved in an open, fully

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31. *Id.* at 95-96. The Board stated: "[W]e will include the issue of competition in local telephone service as a module in Docket No. 5713 . . . ."

32. Dockets 5700/5702, Order of 10/5/94 at 129.

competitive market. Phase II will focus on technological issues.[33] Phase III will review regulatory and other institutional issues, with specific attention to mechanisms for implementing state telecommunications and other public service policies. Also in that March 1st Order, I set a detailed procedural schedule and granted all motions to intervene.[34]

Several changes to the procedural schedule were made during the spring and summer of 1995, delaying the Phase I hearings by a little more than a month. A preliminary workshop was held on June 29th, followed by seven days of evidentiary hearings in July and August. Initial briefs were filed on October 6, 1995, and reply briefs were filed two weeks later, on October 20th.

C. Positions of the Parties

There are twenty-seven parties to this proceeding.[35] Not all of them participated actively in this phase of the docket. The particular and detailed positions that they

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33. Initially, it was intended to divide this phase into two modules: the first to look at intraLATA toll issues, trunk-side interconnection and transmission matters, and questions related to enhanced/information services ("content" services) and the switch; and the second to focus on local service issues. Since that time, I have asked the parties to consider consolidation of the two modules. Order of 10/27/95 at 1.

34. All but one of those motions were granted unconditionally. In the case of Design Access Network, I limited intervention to issues associated with the costing and pricing of E-911 services, GIS services, and Internet interconnectivity. Order of 3/1/95 at 14-15.

35. They are the Department, NYNEX, Frontier Communications of New England, Inc. ("Frontier"), Sprint Communications Company, L.P. ("Sprint"), Atlantic Cellular Company, L.P. ("Atlantic Cellular"), Hyperion Telecommunications of Vermont, Inc. ("Hyperion", together with Atlantic Cellular the "Alternative Technology Providers" or "ATP"), AT&T Communications of New England, Inc. ("AT&T"), MCI Telecommunications Corporation ("MCI"), Design Access Network, Inc. ("DAN"), Small Cities Cable Television, L.P., Small Cities Cable of Newport, Inc., Chittenden Community Television, Inc., Enhanced 911 Board ("E-911 Board"), Chittenden County Cable Access Advisory Board, Channel 17 Policy Board, Lake Champlain Access Television, Inc., and Vermont Access Network.

Also parties are Vermont's ten independent local exchange companies ("independent LECs," or "ILECs"). Nine of them participated jointly; they are Shoreham Telephone Company ("Shoreham"), Waitsfield-Fayston Telephone Company, Inc. ("Waitsfield"), Northfield Telephone Company, Ludlow Telephone Company, Perkinsville Telephone Company, Champlain Valley Telephone Company, Franklin Telephone Company ("Franklin"), Topsham Telephone Company ("Topsham"), and STE/NE Acquisition Corporation, d/b/a Northland Telephone Company of America ("Northland"). The tenth, Vermont Telephone Company, did not participate actively in this phase.

advocated will be discussed in the relevant sections of this proposed decision. Here I simply wish to make several observations about their general positions.

All of the participants agree that competition in the local exchange will be beneficial to Vermont. It will provide incentives for companies to offer high quality service at the lowest possible cost, to expand service offerings, and to innovate in response to market demand. The parties also recognize that the Board has a role to play in this process, and that that role is critical to the orderly transition to a competitive telecommunications market in Vermont.[36] Noting their small sizes in relation to NYNEX, the independent LECs advocate the development of standards and requirements applicable to them that differ from those to be imposed on NYNEX.[37] There are, of course, particular issues over which the parties disagree; but, broadly speaking, this phase of the docket has been marked by substantial agreement on many issues. The parties share objectives, but differ in several ways on means.

Today's proposed decision is the culmination of Phase I of this investigation. The issues with which we have been struggling are by no means uncomplicated or of little moment. The efforts that the parties have so far put into this endeavor have been superb: incisive, professional, and cooperative. I am grateful to them.[38]

III. FINDINGS OF FACT AND DISCUSSION

Based on the testimony and evidence presented in this phase of the docket, I hereby report, pursuant to 30 V.S.A. § 8, the following findings of fact and conclusions.

A. General

Many of the parties in this case argue that monopoly organization of the telephony system, particularly the local exchange system, no longer serves the long-term public

36. AT&T Brief at 7; NYNEX Brief at 7; DPS Brief at 8; and Frontier Brief at 9.

37. Independents Brief at 5.

38. As I am to my colleagues at the Board for their assistance in putting together this proposed decision. Two in particular deserve especial thanks. Riley Allen and David Farnsworth dedicated many hours to the fair and thoughtful resolution of the issues raised in this phase of the docket, and also drafted large portions of this text.

interest. They argue that, as the technology and economics of the telecommunications industry have rapidly evolved, much of the system no longer manifests the characteristics of a natural monopoly[39] and, furthermore, that an acknowledgement that certain components of the system appear to be subadditive does not justify the continued treatment of the entire local exchange system as a regulated monopoly.[40]

State telecommunications policy, as expressed in the Department's 1992 *Ten-Year Telecommunications Plan* ("TYP" or "Plan"), also recognizes the changing environment. Specifically, the Plan states that:

> The two driving forces in the telecommunications arena are developments in technology and the resulting market response.
>
> • • •
>
> Some aspects of telecommunications remain monopolies, or effective monopolies. In those and, perhaps other areas, the fundamental need for price or service quality regulation and consumer protection remains, while we foster policies to encourage innovation and efficiency and to establish fair and effective competition.[41]

Given these changing circumstances, it is the purpose of this investigation to develop rules and mechanisms to allow for the competitive delivery of those local exchanges services that are amenable to competition. In this phase of the docket, the parties presented evidence and testimony on protocols for unbundling, pricing, interconnection, and basic service.[42]

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39. Or, more accurately, of subadditivity, as described by William Baumol, which is to say that the minimum average cost of production occurs at a rate of output more than sufficient to supply the entire market at a price covering full cost. We generally think of a natural monopoly as an industry whose production function is characterized by a negatively sloped long-run average cost curve for all quantities of output, but this in fact is too narrow a definition. Simply, natural monopoly exists when a single firm can produce a desired level of output at a lower cost than any output combination of more than one firm. This is subadditivity, and it can occur even under conditions of rising marginal and average cost curves. *See* Gould and Ferguson, *Microeconomic Theory* (Homewood, Ill.: Richard D. Irwin, Inc., 1980) at 200, 248; and Yale Journal on Regulation, Vol. 10:3, 1993, at 67.

40. *See* tr. 8/31/95 at 410-411.

41. TYP at ii.

42. At this point, a note on terminology is appropriate. Many and various references to local exchange companies—LECs—are made in this proposed decision. The terms are used in the following ways. Any provider of local exchange service is a LEC. Those companies currently providing such services in Vermont—NYNEX and the ten independent LECs that control "essential" facilities—are often described as "incumbent LECs" or, simply, "incumbents." Firms desiring to enter the local exchange market are called

B. Unbundling

1. Definition and Purpose

"Unbundling" is the practice of identifying and disaggregating essential bottleneck components of the local exchange network into smaller parts which can, in turn, be individually priced, costed, and interconnected to provision all service offerings for sale by various market participants.[43] The goal of unbundling is to provide access, under reasonable terms and conditions, to useful parts of existing networks.[44] This will permit new entrants to lease capabilities from the unbundled network owner and to provide competitive services.[45] I note, however, that an initiative to unbundle the Vermont network should be taken for the benefit of ultimate consumers, rather than solely for the competitive advantage of market entrants.[46]

Unbundling permits entry without requiring the competitor to develop a complete telecommunications network for offering essential services.[47] Absent access to unbundled elements and the opportunity to repackage and resell them with other network elements, new entrants face significant barriers to market entry and are constrained in their ability to expand their networks.[48] There is general agreement among the parties that network unbundling will lower entry barriers and promote efficiencies in the network.[49]

2. Principles for the Unbundling Obligation

The objective of the unbundling effort will be to set forth network functions that are available on a tariffed basis at rates that (1) promote economic efficiency, (2) are not subsidized, and (3) are non-discriminatory and without preferential terms for select

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competitive LECs, or "CLECs," or sometimes "competitive providers" or "competitors." In general, the meaning of these terms should be clear from the contexts in which they are used. I should point out that, in a competitive market, all LECs (including the incumbents) will in fact become CLECs.

43. Riggert pf. at 3; Calabro pf. at 8.
44. Raymond pf. at 8.
45. *Id*. at 13; Calabro pf. at 8-9.
46. Raymond pf. at 13.
47. *Id*.; Calabro pf. at 9.
48. Ankum pf. at 3; and Calabro pf. at 8.
49. Absent unbundled services, new entrants would need to duplicate existing plant. Raymond pf. at 13.

carriers.[50] Non-discrimination means the availability of a function to all takers, timely notification of costs and availability of unbundled functions, timely provisioning and repair, prompt and comprehensive disclosure of network changes, use of standard interfaces, maintaining privacy of customer information, and imputation.[51]

3. Identification of Network Elements to be Unbundled

a. The Unbundling Obligation: Scope of Services and Facilities

There is substantial agreement as to the necessity of unbundling the essential facilities of the monopoly provider.[52] I conclude that unbundling is only necessary for monopoly network elements.[53] Monopoly network elements have alternatively been referred to as "bottleneck" or "essential" facilities.[54] As such, I conclude that NYNEX and the independent LECs in Vermont shall have an obligation to unbundle all essential facilities consistent with the Department's proposal outlined below.

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50. Ankum pf. at 7. Network unbundling must be based upon the principal of non-discrimination. Raymond pf. at 16; Kahn pf. at 6; Taylor pf. at 51; Schoonover pf. at 22.

51. Raymond pf. at 17. For purposes of promoting economic efficiency, legitimate and verifiable cost-based differences among carriers may be reflected in wholesale prices so long as the drivers of those differences can not be captured through rate design. See Section III.D.4.d., Imputation. Ideally, the cost analysis of features and functions in the network should capture differences in costs in a manner that is consistent with cost drivers, and the tariff should reflect these differences. (Such legitimate and verifiable differences in costs among competing carriers should, however, be identified and made explicit by analysis of costs in the total service long-run incremental cost—"TSLRIC"—study.)

52. Calabro pf. at 8; tr. 8/30/95 at 50-51; tr. 8/31/95 at 15.

53. Ankum pf. at 7.

54. NYNEX recommended a three-part definition for essential facilities, as follows: (i) the input is essential to the supply of some other service; (ii) the service is exclusively supplied by the provider in question; and (iii) the provider and competitor compete with one another in the supply of some other service for which the service in question is an essential input. Taylor pf. at 52; tr. 8/31/95 at 138-39. I recommend that this definition be adopted as the test for an essential monopoly or bottleneck facility for the purposes of determining the network elements that should be unbundled. I also recommend, however, that the standard should be met throughout the service area of a given service provider (or the relevant area to which the service obligation applies). That is, an obligation to unbundle should apply throughout a service area in which it is offered, if it remains a monopoly facility in a portion of that service area, with the following clarification. I also conclude that the standard of "exclusively supplied" should recognize the practical economic impediments associated with accessing realistic competitive alternatives; that is, the access to an alternative provider should not merely be a theoretical one, but a practical one as well: that is, access to a viable competitive alternatives is provided. At the outset, I conclude that this obligation should extend to the categories of facilities and services identified below.

In order for unbundling to proceed, the emphasis which has been placed on the services that a network can provide must be refocused upon the functions that are aggregated in the course of providing service to a customer.[55] I adopt, therefore, the "functional approach" to unbundling proposed by the Department. These functions include the link, end-office switching, inter-office transport, tandem switching, and signaling.[56] In addition to the five categories proposed by the Department, I include a category of "ancillary services" that provide other services and capabilities. Each function is briefly described below:

(1) Link: The "link" or end-user network connectivity includes basic network access, from customer premises to the home exchange switch or gateway to the network. "The demarcation point between the link and other network functions is that which first acts on the input provided by the user."[57]

(2) End-office switching: End-office switching "provides cross-connection between user and inter-office transport facilities or other users for the creation of a call path."[58] Each isolatable function within the end-office switching class may be available for unbundling.[59] End-office switching is "distinct conceptually from non-switch functions such as Basic Service Elements."[60]

(3) Inter-office Transport: "Inter-office transport" includes transmission functions between end offices or other trunk-side demarcations or between end-office switching to the tandem.[61] The paths may be configured as "switched" or "dedicated" transport, or as a "virtual dedicated" hybrid.[62]

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55. Raymond pf. at 18.

56. *Id*. at 19-21. The Department's proposal corresponded with or overlapped that of other parties in this case. The independent LECs grouped the services into four categories that included the following: (1) network access; (2) switching and switch functions; (3) transport-dedicated and switched services; and (4) ancillary services. Schoonover pf. at 23-24. MCI grouped services into categories of (1) network access, (2) switching and switch functions, and (3) transport. Exh. MCI-2. AT&T established six major groupings: (1) loop facility; (2) local serving wire center; (3) transport facility; (4) signaling facility; (5) operations support systems facilities; and (6) ancillary service facilities. Riggert pf. at 7.

57. Raymond pf. at 19.

58. *Id*. at 20.

59. *Id*.

60. *Id*.

61. *Id*. at 21.

62. *Id*.

(4) Tandem Switching: "Tandem switching" involves switched connection between a local network and an interexchange carrier ("IXC") network, and also between local networks."[63] While the switch function does provide some network management functions, such functions could be considered distinct from switching and be grouped with other signaling functions.[64]

(5) Signaling: Signaling provides network management and call processing functions independently of the switch. Signaling includes the following three elements of the network: Signaling Links that carry out-of-band signaling traffic between and among switches, signal transfer points, and signal control points; Signal Transfer Points ("STPs") that provide the function of connecting signal links; and Service Control Points ("SCPs") that contain customer specific information and processes information requests.[65]

(6) Ancillary Services: This is a general building-block category. At a minimum I will include the types of services that AT&T witness Riggert proposed. These include call completion, call assistance, directory assistance, and access to E-911 services. I also include here operations support systems.[66]

I conclude that there should be a presumption that any category or service within the categories listed above constitutes an essential service. I recognize, however, that there are aspects of telecommunications services in Vermont within these categories that either are or can be competitively provisioned and, therefore, are not essential services.[67] Services that are no longer deemed "essential" in nature, and therefore are competitive, should not fall under an obligation for unbundling. I conclude that a formal unbundling process need not be established for service categories that are determined to be competitive. I believe that the Phase II workshops will also be potentially helpful in defining the range of services within these broad categories that should be considered

63. *Id.*
64. *Id.*
65. *Id.*; Riggert pf. at 17.
66. Riggert pf. at 20-22; Schoonover pf. at 23-24.
67. I direct the parties, in Phase II, to propose a standard and an administratively efficient mechanism for establishing whether a service is essential.

"essential" in nature.[68] Incumbent LECs may petition the Board for a determination that a service no longer meets the standard of "essential facilities" as defined earlier.[69]

b. Criteria for Feature Unbundling

There is disagreement over the appropriate test for the unbundling of facilities and services that are not currently unbundled and offered to competitors and end-users. NYNEX argues that essential facilities should be unbundled but that its other services and facilities (*i.e.*, non-essential facilities) should be subject to discretionary unbundling when three criteria are met: technical feasibility, economic or financial viability, and sufficient demand.[70]

The Department recommends that the majority of network telecommunications facility categories be unbundled.[71] The Department recognizes that, either for reasons of changing demand or service opportunities, unbundling should evolve as a dynamic requirement.[72] For identifying specific elements to be unbundled, the DPS proposes a test whose criteria resemble the first and third elements of NYNEX's test: respectively, technical feasibility and adequate demand.[73] In addition, the Department recommends that there be a presumption of demand for functions that NYNEX has unbundled in other states or in the federal jurisdiction.[74]

The independent LECs recommend that unbundling should not be required until a *bona fide* request is made by a potential competitive service provider.[75] They further argue

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68. I agree with the position of some parties that Phase III of this investigation will establish a standard for competition relevant to such determinations. Nevertheless, I believe that Phase II can be useful in identifying and narrowing the range of features or functions that can generally be acknowledged to be "non-essential" based on the criteria established here.

69. The burden of proof for such a determination should rest with the incumbent LEC.

70. Calabro pf. at 9-10.

71. Specifically: the Link, End-Office Switching, Tandem Switching, Transport, and Signalling. Raymond pf. at 19-22.

72. *Id.* at 14.

73. Raymond reb. pf. at 16-17.

74. Raymond pf. at 23-24.

75. Schoonover pf. at 25.

that the technical and economic feasibility criteria should be met before the requested unbundling is required.[76]

The standard put forth by MCI is to require the incumbent LEC to unbundle "down to the level of the smallest piece of network that can be separately identified and tariffed for prospective users."[77] AT&T recommends disaggregation of the local exchange into Basic Network Functions ("BNFs") based on four criteria which emphasize uniformity across networks and consistency with existing network architecture: (1) the feature must have a clearly identified and standard interface; (2) it must be (or potentially be) measurable and billable; (3) it must use transmission protocol and physical interconnection standards of an acknowledged industry body; and (4) it must have the potential to be provisioned by a competitive service provider.[78]

I conclude that the Department's test for identifying the specific unbundled service elements or Basic Network Functions, *i.e.*, the BNFs, is reasonable.[79] All requests for unbundling of the incumbent's network should meet these two criteria:

(1) Technical Feasibility: The requested feature or service should be available on a stand-alone basis and measurable for purposes of billing separately from other network functions. Where the function can be isolated in more than one way, the party making the request should be free to choose from among them. Technical feasibility should also include considerations of network reliability and impacts on network performance.[80]

(2) Adequate Demand: There should be adequate demand, or a rational expectation of adequate demand, for the feature or function at reasonable prices sufficient to cover the incremental costs of provisioning the feature for resale.[81]

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76. *Id.* at 25.

77. Ankum pf. at 3.

78. Riggert pf. at 6.

79. I conclude that the concept of financial viability as proposed by NYNEX is vague and probably overlaps with technical feasibility and demand standards that I have adopted in this proposed decision.

80. Raymond pf. at 16.

81. I direct NYNEX and the Independent LECs, in Phase II, to propose a definition for "adequate demand", as well as an administrable test for determining whether an unbundling request meets the standard.

I conclude that the availability of a feature or function in another of the jurisdictions in which NYNEX (or the independent LEC) operates should establish a rebuttable presumption of demand sufficient to trigger a mandatory unbundling requirement in Vermont.[82]

I also conclude that the widespread availability of a function or service in Vermont by an incumbent LEC, together with a *bona fide* request for the function by a potential competitive service provider in Vermont, should constitute a rebuttable presumption of demand for the unbundling of that function or service.[83]

At this time, I find that there is an inadequate basis in the record to conclude that either of the specific proposals of MCI and AT&T should be adopted as a minimum standard for unbundling. I believe that the workshops in Phase II will provide an appropriate forum for screening features and functions against the criteria established here. At this point, I recommend that the parties include the features and functions identified in the Oregon Building Block proposal in their consideration of features and functions appropriate for unbundling.[84]

Also in Phase II, I will encourage development of unbundled service elements that are, to the greatest extent possible, consistent with the basic network functions recognized in other jurisdictions. It seems sensible from the standpoint of promoting standard interfaces, and also of fostering conformity among jurisdictions, thereby facilitating the entry into the Vermont market of providers that are competing in other jurisdictions.

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82. This standard of a "rebuttable presumption" characterized here and below is consistent with the request for a waiver process of the independent providers. Schoonover pf. at 26.

83. A *bona fide* request here refers to any request for service by a certified telecommunications service provider in Vermont who is willing to cover the incremental costs of wholesale service provisioning (either under tariff or on an individual case basis) or is willing to make a term commitment to purchase the service.

84. Tr. 8/29/95 at 231-233.

4. Processes for Future Unbundling Requests and Dispute Resolution

I conclude that a process for reviewing unbundling requests similar to the FCC ONA model should be adopted for Vermont.[85] Such a process is as follows:

(1) A written request for unbundling will be reviewed by the facilities-based LEC, to determine if the request is technically feasible using existing or planned technology.[86]

(2) Within 120 days of submission of a complete request, the incumbent LEC will indicate if the service or function can be offered, the timeframe in which it will be made available, the estimated rate (assuming demand meets the requesting party's projections), and other potential technical issues that the request may raise.[87]

(3) If it is determined that the requirements for an unbundled facility are not sufficient to encourage the incumbent to offer the facility under tariff, deployment of some of the capabilities may be possible on a case-by-case (and cost-to-provide) basis.[88]

(4) If the requesting party believes it is aggrieved by the incumbent's decision, it would have thirty (30) days in which to file a petition with the Board, for hearing on the matter.[89]

5. Reciprocal Unbundling Requirements

There was broad agreement among many of the parties that the obligation to unbundle should be reciprocal with respect to carriers requesting interconnection.[90] I conclude that, over time, this obligation will enhance the efficiency of the network. I conclude, however, that this obligation should apply (1) only to those portions of the network that are interconnected to that of the incumbent LEC and (2) only to the extent that the facilities of the newly established carrier permit. I conclude that no obligation to perform cost studies by these competing carriers should be required. So long as the service

85. Calabro pf. at 14; tr. 8/29/95 at 7-8; Raymond reb. pf. at 21-22.

86. Calabro pf. at 14.

87. *Id.* The 120-day period is supported by the evidence, but it seems possible that this period could be significantly shortened. The parties will consider this question further in Phase II.

88. *Id.*

89. *Id.*

90. Raymond pf. at 17.

in question is not essential, it should not be subject to the other pricing and unbundling rules recommended herein.[91]

6. Relief from Unbundling Requirements

Unbundling obligations should continue until such time as a market for a feature is truly competitive.[92] Relief from unbundling obligations should also be available in instances where the standard of either technical feasibility or adequate demand is no longer met. Approval of the Board will be required before an incumbent LEC may discontinue providing any of the unbundled service elements that are mandated as a result of this investigation or that emerge in accordance with the criteria for mandatory unbundling set out herein.

C. Pure Resale

Pure resale describes a CLEC's wholesale purchase of services from an established facilities-based provider (such as an incumbent LEC) and resale of those services to its own end-users without utilizing any of its (the CLEC's) own facilities.[93] There was substantial agreement among the parties that resale opportunities will help new firms enter the Vermont market.[94] AT&T observes that economically viable resale will be a critical requirement should the Board order CLECs to serve given geographic areas.[95] MCI recommends that the Board eliminate all resale restrictions and require LECs to allow entrants to purchase their end-user services. MCI further recommends that wholesale services should be equivalent in quality to the incumbent's equivalent retail services.[96]

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91. Cornell reb. pf. at 15-16.
92. Raymond pf. at 21.
93. Salvatore pf. at 11-12.
94. *Id.* at 11.; tr. 8/30/95 at 272; Ankum pf. at 6; DPS Brief at 51.
95. AT&T Brief at 30.
96. MCI Brief at 5. MCI notes in its Brief that "although Rochester Telephone ("RTC") has been developing a resale product for the last two years, the product that Rochester telephone offers . . . has numerous technical and operational impediments which degrade the overall service quality of its resale product" and place competitors at a disadvantage.

As a general matter, I believe that the availability of reasonably priced products for resale will reduce barriers and thereby facilitate market entry for new firms.[97] Resale will promote local exchange competition by providing a vehicle by which CLECs can enter the market quickly and easily.[98]

As set out in Section III.F., I expect to recommend the establishment of geographic service area obligations for CLECs that are certified to receive universal service funding. Absent resale, it is unlikely that any CLEC would be able to meet, at least early on, a requirement to offer service throughout a specified geography; consequently, without resale, a service area obligation would pose a potentially significant, probably overwhelming, barrier to entry.[99]

The record suggests that resale restrictions will likely be unsustainable in a competitive environment. Such restrictions are generally inconsistent with the requirements for unbundled network services established elsewhere in this proposed decision and, furthermore, that they would impose an unnecessary barrier to entry. I conclude that, once the terms and conditions for entry into the market for local service have been established, resale restrictions on local service should be removed.[100] I also conclude that such wholesale service should be of a character and quality comparable to that of the incumbent LEC's retail service. Consistent with the recommendations for cost and pricing in Section III.D., resold local service should be made available at rates either built up from the relevant "building blocks" or discounted by an amount that, at a

97. Ankum pf. at 6.

98. AT&T Brief at 28; Salvatore pf. at 11; tr. 8/30/95 at 270-271.

99. Tr. 8/30/95 at 272; Salvatore pf. at 11.

100. This is a general proposition, but it deserves more detailed examination in Phase II. It is conceivable that removal of all restrictions on resale could create unintended and adverse effects. I seek comment, therefore, on any categories or aspects of service for which a resale restriction in some form should remain, if only during a transition period. By way of example, there may be reasons to perpetuate class restrictions on resale (*i.e.*, resale of residential service to business customers).

minimum, reflect the differences in cost between wholesale and retail provision of the service.[101]

In Phase II of this investigation, with the intent of devising clear and workable rules for resale, the parties shall comment on the following:

- Categories or aspects of service for which resale restrictions should continue;
- Establishment of specific service obligations for pure resale of local basic service by incumbent LECs;
- The specific aspects and assurances needed to provide a wholesale basic service package of comparable quality to that of the incumbent LEC;
- The extent to which the incumbent LEC should be obligated to provide end-user services (*e.g.*, billing and collection) that could potentially be competitive in nature.

D. Costing and Pricing Issues

In Dockets 5700/5702, the Board established the total service long-run incremental cost ("TSLRIC") methodology as the appropriate cost basis for purposes of setting price floors and protecting against anti-competitive practices, such as the cross-subsidization of competitive offering with monopoly rents.[102] In this proposed decision, I reaffirm that conclusion of the Board. Also, I recommend a set of additional rules by which wholesale and retail pricing should be guided during the transition to a more competitive local exchange market.

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101. In providing wholesale rather than retail, the incumbent LEC will avoid at least the following: (1) uncollectables; (2) billing and collection; (3) service order processing; (4) sales; and (5) product marketing. Salvatore pf. at 13.

If the resale service were offered at wholesale rates that were greater than the costs incurred by the incumbent (or essential facilities provider) and above permitted local service price ceilings, then any support payments associated with universal service would need to flow to the reseller, not the incumbent. If the incumbent were required to offer local service for resale at rates below cost, any universal service payment would be made to the incumbent.

102. In the final Order in Docket 5700/5702, the Board states: "Setting prices for NET's services and bottleneck monopoly inputs on the basis of [TSLRIC] is necessary to assure reasonable competition." Docket 5700/5702, Order of 10/5/94 at 128. As for the incentive to cross-subsidize, ATP witness Cornell pointed out that it "is really an artifact of regulation" and is not behavior that unregulated monopolists generally would engage in, since to do so is to sacrifice profits to a competitive endeavor from which it is highly unlikely that they would ever be recovered. Tr. 8/29/95 at 107. No evidence was presented that established that NYNEX is currently engaging in such cross-subsidization. *Id*. at 108.

1. Purpose

The primary purpose of establishing costing and pricing rules is to prevent competitive pricing abuses by the monopoly provider of essential facilities. Preventing such market abuses will promote an economically efficient and effective market for telecommunications services.[103] Establishing appropriate rules for exchange of services among competing providers will also reduce the costs and uncertainties of CLECs entering Vermont's telecommunications market. Such requirements, however, may not be necessary over the long term once a fully competitive market has been developed.

2. Theory of Cost and Price

It is a general rule of economics that prices should reflect and, to the extent possible, fully cover the incremental costs of providing a service. Meeting this rule is necessary to achieving the goal of economic efficiency: mismatches of price with the incremental cost of production (which equals the value of other goods or services foregone when that particular consumption decision is made) will result in misallocation of society's resources.[104] Put another way, incorrect prices falsely represent the cost to society of producing the good demanded, which in turn leads to either over- or under-consumption of

103. The witnesses in this docket used the term "efficiency" in several ways, consistent with standard economic theory. In this proposed decision, I have done the same, as follows: "Economic efficiency" refers to efficiencies in the consumption or production of goods and services; social welfare is improved as economic efficiency is increased. More specifically, I am referring to (1) efficiencies in consumption arising from the allocation of goods, (2) efficiencies in production arising from the allocation of inputs to the production process, and (3) other production efficiencies, or X-efficiencies, arising from how nearly management maximizes output for a given level of inputs. *See* Layard and Walters, *Micro-Economic Theory* (New York, NY; McGraw Hill Book Company, 1978) at 7-14 and 252-255. "Static efficiency" refers to allocative efficiencies associated with a restrictive set of assumptions at a given point in time. As used here, "dynamic efficiency" refers to those efficiencies (including innovation and technological development) that arise over time from the stimulus of competition in an environment of flux.

104. Economic efficiency is met in this way: so, in my view, is fairness. Those who cause a cost to be incurred ought also, as a general matter, be required to pay those costs. Nevertheless, there may very well be circumstances that warrant deviations from this rule, as a matter of public policy.

that good. The Board has long accepted these general principles and has striven to set prices according to them.[105]

With respect to regulated monopolies, prices should also give existing carriers an opportunity to recover their embedded (historic total) costs.[106] Such costs are relevant only so long as their recovery is deemed appropriate by standards of recovery in rate-setting and is consistent with the obligations of the service providers.[107]

Pricing rules are needed here to guard against price discrimination, cross-subsidies, and other potential market abuses.[108] With respect to price discrimination, the incumbent LEC should charge itself rates for services that are no less than those it charges competing providers (*see* Section III.D.4.c., Imputation, below).[109] The price for a service should be no less than the TSLRIC of that service, unless there is explicit public policy reason for doing otherwise (*see* Section III.D.3., following).[110]

3. Cost Studies

Setting prices appropriately in regulated markets requires, in the absence of competitive pressures to drive prices down to costs, the production of forward-looking cost

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105. *See*, *eg.*, Docket 5426, Order of 7/22/92 at 10-28. In particular, at page 11, the Board states that "The critical point is that, to the greatest extent possible, price should approximate marginal cost, since marginal cost reflects the true value to society of allocating its resources to the particular good demanded." *See also* Dockets 5700/5702, Order of 10/5/94 at 117-120.

106. Taylor pf. at 25-26 and 27. This goes directly to questions of fairness and the financial well-being of the regulated firm. To the extent that certain aspects of the telephone system are characterized by declining production costs across the full range of demand, they differ from firms in competitive markets: prices set at incremental cost will fail to generate revenues sufficient to cover a firm's total costs. *See* Footnote 39.

107. This, of course, is not a guarantee of cost recovery, and therefore it gives a company some incentive to manage its cost efficiently.

108. Even here, our purpose is to capture efficiencies in the market, rather than necessarily pursue fairness to competitors. Inefficiencies in production, for example, may arise from the inability of efficient alternative providers (with a competitive advantage) to enter and compete against artificially depressed prices unrelated to the cost of producing the services by the incumbent on a forward-looking basis. Cost-based pricing of wholesale will help avoid inefficient duplication of scarce resources. Weiss reb. pf. at 6. For issues of efficiency, prices should not deviate substantially from the underlying costs. Taylor pf. at 15.

109. Ankum pf. at 17-19.

110. Weiss pf. at 7.

studies.[111] Forward-looking cost studies provide the information necessary to set prices for new and existing services and/or functions.[112] Forward-looking cost studies also may be used to examine cross-subsidies (*i.e.*, whether revenues from one service are covering the costs of another) where such subsidies are unwarranted.[113] Where subsidies are deemed appropriate, forward-looking cost studies can be used to determine the magnitude of the subsidy.[114]

a. Cost Study Methodology

The evidence in this docket, like that in Dockets 5700/5702, demonstrates that prices should be based on the total service long-run incremental cost of producing a service and that studies are necessary to establish the TSLRICs of NYNEX's relevant services.[115] The parties all agree that TSLRIC is the appropriate methodology for identifying cross-subsidies, although NYNEX maintains that TSLRIC is appropriate for that purpose *only* and that the long-run incremental cost ("LRIC") methodology provides the correct test for establishing a floor on prices.[116] Most other parties in this investigation disagreed with the

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111. In a competitive market, prices are set according to the laws of supply and demand. If the market is efficient, price will equal the incremental cost of production.

112. Weiss pf. at 8; Ankum, pf. at 11; and Salvatore pf. at 3-4. If a cost can be avoided by a decision not to produce a good or service, then it is "forward-looking." It is also assumed that a forward-looking cost is based on the least-cost technology to be used in order to meet demand for a particular service. Again, the issue is one of determining what resources are to be dedicated to meeting demand for service. Resources that have already been deployed are of no relevance to pricing, since their costs have already been incurred, or "sunk"; for the regulator and economist the question is: what additional (or incremental) resources will be necessary to meet expected demand over the long-term? It is the costs of these resources (capital, operating, and labor) that should be reflected in prices.

113. Ankum pf. at 12.

114. Weiss pf. at 7.

115. The TSLRIC of a particular product (say, "Service A") is defined as the difference between the total cost of producing the *entire* output of a firm (that is, all its goods and services, including Service A) minus the total cost of producing the firm's entire output, excluding Service A. Tr. 8/28/95 at 131; tr. 8/29/95 at 111-114. By definition, TSLRIC is forward-looking and consists of least-cost technology. Refer to Appendix I for relevant definitions and more detailed description of key elements of the methodology.

116. Salvatore pf. at 4-9; Kahn reb. pf. at 2-4; Cornell reb. at 3-5; Weiss pf. at 6, 15; Weiss reb. pf. at 6-8; Ankum pf. at 11-17; Taylor pf. at 19; Taylor reb. pf. at 10-11 and 13; tr. 8/28/95 at 113; and tr. 8/29/95 at 110. However, NYNEX conceded that the practical differences between LRIC and TSLRIC should generally be "minimal." The record suggests that forward-looking service specific fixed costs will be small relative to the total costs of the service. Taylor pf. at 23-24 and Taylor reb. pf. at 13-14. *See also* Dockets 5700/5702,

position of NYNEX, arguing that TSLRIC represents the appropriate floor for prices.[117] The Department noted that, until a truly competitive market has been created, it would be improper to rely on LRIC as the price floor.[118]

On the basis of the evidence, I conclude that a study of service costs using the TSLRIC methodology is appropriate, and that the results of such a study should be used for the purposes of testing for cross-subsidies and determining price floors. There is no dispute with respect to cross-subsidization: all the parties agree that a service that does not generate revenues to cover its costs must, if it continues to be offered, necessarily be subsidized by other revenue sources. As for setting price floors, the evidence establishes that TSLRIC, not LRIC, is the appropriate methodology because, in an environment of declining costs and unrestricted resale, arbitrage opportunities would ultimately undermine the ability of the incumbent carrier to cover its costs.[119]

Order of 10/5/95 at 119-120, fn. 44.

117. Salvatore pf. at 4-9; Kahn reb. pf. at 2-4; Cornell reb. at 3-5; Weiss pf. at 6, 15; Weiss reb. pf. at 6-8; Ankum pf. at 11-17; tr. 8/28/95 at 113; and tr. 8/29/95 at 110.

118. Weiss pf. at 12-13.

119. Cornell reb. pf. at 4. In reaching this conclusion, I do not have to reject the proposition that LRIC, rather than TSLRIC, may actually be the correct test from the narrow perspective of economic efficiency in the absence of resale opportunities. Taylor pf. at 29. It is merely a question of the slope of the supply curve and the sustainability of the firm over the long-term. Tr. 8/29/95 at 237; tr. 8/31/95 at 412-413. Prices at TSLRIC are necessary to ensure recovery of fixed costs and average volume-sensitive costs where economies of scope or scale are manifest and opportunities for resale exist. It therefore may be viewed as a "second best" solution from the standpoint of economic efficiency, but proper nonetheless given legitimate concerns for overall cost recovery. In any case, I believe that the arbitrage opportunities created by allowing an incumbent LEC to price an essential service at less than its TSLRIC would ultimately force the LEC to abandon such a policy and offer the service to all comers only at TSLRIC. (If an CLEC or end-user were able to purchase a service at a price below TSLRIC, it would have an incentive to resell that service to others of the incumbent's customers who are paying at or above TSLRIC; in the face of such a threat, one presumes that the incumbent would cease offering the service at less than TSLRIC.) I must emphasize that it is not to assure the maintenance of prices at TSLRIC that led me to conclude that restrictions on resale should be abolished. As I indicated earlier, resale restrictions are a barrier to competitive entry. It also happens that resale creates arbitrage opportunities that force prices in line with costs, which is of course a preferred outcome. Tr. 8/29/95 at 231-235.

The evidence in this case suggests that economies of scope or scale generally exist in the provision of telecommunications services. Taylor pf. at 29. This fundamental point, however, has not yet been established; indeed, it requires that the cost studies be performed. Nevertheless, the argument that non-network costs (*e.g.*, certain categories of ancillary services, such as billing and collection) are declining and are therefore susceptible to these same concerns is less persuasive. If it can be demonstrated that the incremental cost of delivery of either network or non-network service rises above its per unit average costs

Only the incumbent LECs should be required to produce cost-support for their prices.[120] However, with respect to the independent LECs, the evidence also suggests that the costs of performing cost studies may be very high in relation to their costs of service.[121] I recommend, therefore, that the independent LECs should be given added flexibility in meeting their obligations. I recommend several options:

(1) An ILEC may perform its own cost study of a given service or function;
(2) It may rely on the results of the NYNEX study;[122] or
(3) It may perform a separate study in cooperation with other Vermont ILECs.

b. Principles to Guide the Performance of the Cost Studies

The evidence demonstrates that the following principles should be adopted for purposes of identifying costs under the TSLRIC methodology:[123]

- Cost causation: The relevant costs are those that would be incurred if an activity were undertaken or saved if the activity were discontinued.[124]
- Least Cost: Estimates of costs should reflect the overall least-cost technology for the network.[125]
- Existing Network Configuration: The current location (or current planned changes in the location) of local switch centers should be used in estimating costs.[126]
- Long-Run: Long-run means that all inputs are avoidable.[127]

(*i.e.*, TSLRIC), then LRIC may be the appropriate methodology for determining the price floor. As a practical matter, it appears that the differences between the two methods are minor and, therefore, that the TSLRIC of a service should generally suffice as the relevant floor. Where differences between the two are significant, then the relevant pricing floor should be the greater of LRIC and TSLRIC.

120. Weiss pf. at 5.

121. *Id.*; tr. 8/31/95 at 325-326, 392-394.

122. Weiss pf. at 5. The results of the NYNEX studies should provide a reasonable proxy for independents' costs. *Id.* at 7. Potential differences between the costs of NYNEX and of the independent LECs should be able to be accounted for by ensuring that the NYNEX study appropriately differentiates costs by causal drivers. If costs are differentiated by cost drivers, then the results can be applied to smaller companies (assuming no other reason to doubt their applicability). The cost studies performed in Texas, Michigan and Oregon included density and loop length as cost drivers in determining the costs of the local loop. Tr. 8/28/95 at 131-132.

123. To the extent that LRIC is determined to be the relevant floor for purposes of setting a price, then, except with respect to the increment of demand, the same principles should generally apply.

124. Ankum pf. at 16-17; Taylor pf. at 15; exh. H-6.

125. Ankum pf. at 16-17; Tr. 8/28/95 at 131.; exh. H-6.

126. Tr. 8/28/95 at 48; Ankum pf. at 16-17; exh. H-6.

127. Ankum pf. at 16-17; exh. H-6.

- Total Service Increment: The relevant increment of demand is the entire range of demand for a particular function or service.[128]
- Costs Defined and Determined at the Building Block Level: Service level costs should ideally be built up from the component building blocks or unbundled functions. This avoids the problem of using different costs for similar services as a consequence of differences in historic usage patterns.[129]
- Factors and Loadings: Factors and loadings should be applied to capture costs that cannot be easily identified directly. (Factors and loadings consist of annual cost factors and investment loadings.)[130]

c. NYNEX's Cost Study Proposal

The evidence in this docket demonstrates that NYNEX's proposed cost study, submitted in December 1994, does not meet the requirements set out in the final Order in Docket 5700/5702.[131] The evidence on this point was extensive and unrebutted. Several flaws in the proposal were enumerated, among them the following:

- NYNEX does not specify in sufficient detail the services and functions that it intends to study.
- NYNEX should inform the parties and Board of its future network plans, which are necessary to determining the appropriate architecture to be evaluated.
- NYNEX's proposal does not adequately explain how shared costs will be quantified and treated in the study.[132]

For these reasons, I recommend that the Board not accept NYNEX's proposed cost study methodology until it is amended to resolve the disputed issues and incorporates other relevant principles set out in this proposal for decision.

NYNEX is still under order to perform the appropriate studies, and they should examine *all* of its services and functions.[133] I believe that those studies will be most expeditiously developed and conducted if, early in Phase II of this docket, the parties engage in a collaborative design process. To that end, I strongly encourage the parties to

128. Taylor pf. at 9; Ankum pf. at 16-17; exh. H-6.
129. Ankum pf. at 16-17; exh. H-6.
130. *Id.*
131. Weiss pf. at 17; exhs. H-5 and H-6.
132. Weiss pf. at 17-31.
133. *Id.* at 7-8.

consider the cost-study methodology developed in Oregon as a basis for refining the NYNEX proposal, in particular, for defining the appropriate building blocks.[134] I will invite comment on this suggestion at the beginning of Phase II.

I must note, however, that I share the concerns of the ATP that to proceed in this fashion may invite additional and unnecessary delay.[135] I therefore recommend that the Board direct NYNEX to file its modified cost study proposal within sixty days of this Order, regardless of whether discussions with other parties have borne fruit. That proposal will also set a date for the completion of the cost studies.

4. Pricing

It is clear from the previous discussion that the wholesale and retail prices of the incumbent's services and network functionalities are inextricably interrelated. All the parties agreed that fair and efficient competition depends critically on the rules for setting these prices. In the main, the parties also agreed on the constituent elements of wholesale and retail prices; however, there was one crucial area of disagreement—with respect to the wholesale pricing of essential services—that requires more detailed examination and resolution.

For the analysis that follows, it is helpful to have in mind the mathematical elements of wholesale and retail prices. On the basis of the evidence in this docket, the following three equations, which describe the possible components of wholesale and retail prices for both the incumbent LEC and CLECs, can be derived:[136]

(1) $\text{Retail}_{\text{LEC}} = \text{TSLRIC}_{\text{BNF}} + \text{TSLRIC}_{\text{BNF}\rightarrow\text{LEC}} + \text{TSLRIC}_{\text{LEC Retail}} + \text{Mark-Up}_{\text{LEC}}$

(2) $\text{Wholesale}_{\text{LEC}\rightarrow\text{CLEC}} = \text{TSLRIC}_{\text{BNF}} + \text{TSLRIC}_{\text{BNF}\rightarrow\text{CLEC}} + \text{TSLRIC}_{\text{Wholesale}} + \text{Mark-Up}_{\text{LEC}}$

134. Tr. 8/29/95 at 231-233. The record suggests that this methodology was developed with a broad array of interests represented and that it has served as a model in other jurisdictions.

135. ATP Brief at 13.

136. Exh. NYNEX-7; exh. AH-2; exh. DPS-4; Taylor pf. at 23-29; tr. 8/29/95 at 243-249; tr. 8/31/95 at 320-323, 363-370, 414; *see also* Dockets 5700/5702, Order of 5/10/94 at 117-124.

(3) $\text{Retail}_{CLEC} = \text{Wholesale}_{LEC\text{-}CLEC} + \text{TSLRIC}_{CLEC\ Retail} + \text{Mark-Up}_{CLEC}$

The notations deserve some explanation. Equation (1) shows the make-up of a LEC's retail price for a service that requires utilization of an essential basic network function or service.[137] The retail price is the sum of the TSLRIC of the BNF, the LEC's TSLRIC of actually providing the BNF to itself, the TSLRIC of providing to an end-user a retail service that utilizes the BNF, and finally any appropriate mark-up for common costs and accounting profits (*i.e.* the remaining revenue requirement).

Equation (2) details the cost elements of providing the BNF to the LEC's competitors. It differs from equation (1) in two respects. First is the cost that the LEC incurs to provide the BNF to the CLEC, which avoids a like (but not necessarily equal) cost of providing the BNF to itself. And second are any other incremental costs associated with providing the BNF at wholesale (*e.g.*, marketing, contracting, etc.). Lastly is the LEC's mark-up for common costs and profits (not necessarily the same as that in the LEC's retail price)[138]; the calculation of this mark-up and its inclusion in the wholesale price is the controversial issue at the heart of this debate.[139]

Equation (3) describes the price charged by the CLEC for the same retail service provided by the LEC in equation (1).

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137. The formulas refer to the costs of providing a BNF, but apply also to the costs of providing an essential service. The one subscript was used merely for simplicity's sake.

138. Tr. 8/31/95 at 367-369.

139. Tr. 8/31/95 at 403. From equations (1) and (2), the imputation test can be derived:

$$P_r \geq C_r + (P_{BNF} - C_{BNF})$$

Where:

P_r is the price of the retail service

C_r is the incremental cost of the retail service including all costs associated with provisioning the BNF (or service)

P_{BNF} is the wholesale price of the BNF (or service)

C_{BNF} is the incremental cost of provisioning the BNF (or service) at wholesale

$(P_{BNF} - C_{BNF})$ is the wholesale "mark-up" or "contribution"

a. Pricing Wholesale Services and Unbundled Service Elements

All the parties agreed that wholesale services and functions should be priced in accordance with a set of rules that are fair and will prevent competitive abuses. In the main, the parties also agreed on the general make-up of those guidelines. The evidence in this docket demonstrates that the following wholesale pricing rules are reasonable, and I recommend that the Board adopt them:

(1) TSLRIC: Prices for wholesale services shall be set at or above their TSLRIC, unless there is an explicit public policy to do otherwise.[140]
(2) Non-discrimination: The incumbent LEC shall not offer prices to itself or competing carriers at levels lower than those it charges other carriers that potentially compete for the same retail customers.[141] *See* Sections III.B.2. and III.D.4.d.
(3) Imputation: In order to prevent competitive pricing abuses, the imputation standards established for determining the boundary relationship between a retail floor or a wholesale price ceiling shall not be violated. *See* Section III.D.4.d.
(4) Demand Considerations: Demand considerations may play a role in establishing a mark-up above TSLRIC.[142] LECs may have discretion to propose prices for wholesale service that reflect these demand considerations.[143]
(5) Pricing to Reflect Cost Drivers: Ideally, rate design should reflect the underlying character of cost causation, *e.g.*, traffic-sensitive rates should generally not be associated with traffic-insensitive drivers.[144]
(6) Cost of Service: Finally, the overall level of retail rates and wholesale rates shall be set to recover the overall cost of service (including joint, common costs, and historic accounting costs potentially above TSLRIC) as

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140. Weiss pf. at 4. This rule establishes a price floor at least equal to the average incremental costs of service. All costs, including a share of fixed costs, should be reflected in the average. This does not imply, however, that the rate design should necessarily recover fixed costs in rates that are volume- or usage-sensitive (*e.g.*, minutes of use). Indeed, the fifth of these principles would generally argue against such rate design (though even here, practicality and other concerns may obtrude: as the Board noted elsewhere, in rate design "large doses of good judgment and common sense are needed"). Docket 5426, Order of 7/22/92 at 21, fn. 27.

141. Ankum pf. at 8.

142. Taylor pf. at 29; Ankum pf. at 18.

143. The pricing of wholesale services will need to recognize that facilities-based competition is likely to create an even greater challenge to the ability of LECs to recover their joint and common costs.

144. Ankum pf. at 16-17.

> determined through a regulatory rate-setting proceeding or as determined through an incentive regulatory regime.[145]

Relief from these pricing constraints and guidelines may be appropriate once it has been determined that the market for particular wholesale services is competitive. A local exchange carrier may petition the Board at any time for relief from one or all of these restrictions if it can demonstrate that the market is adequately competitive to protect the interests of consumers and that there is no longer a potential for cross-subsidies from its non-competitive services.[146]

i. Treatment of the Mark-Up

Some parties advocate that an additional constraint on the pricing of certain essential services be adopted.[147] Specifically, the ATP recommend that prices for certain essential services be set at their TSLRICs and that no mark-up for the LEC's (or, in the case of facilities-based competitors, the CLEC's) joint and common costs be included in that price.[148] ATP witness Cornell argued that "The full benefits of competition will come to consumers only if *all* of the costs of the incumbent local exchange providers are subjected to market pressures for greater efficiency."[149] The ATP assert that:

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145. This permits recovery of costs over TSLRIC that the Board finds to be just and reasonable. Raymond pf. at 24-26, 31; Riggert pf. at 4; Salvatore pf. at 7; tr. 8/28/95 at 44-45; tr. 8/30/95 at 244; Taylor pf. at 29. It has been asserted by many of the parties in this investigation that the TSLRIC is below the overall cost of providing service, including joint and common costs. Tr. 7/27/95 at 55; tr. 8/28/95 at 109. This, however, remains to be seen.

146. In Phase III, the parties should be prepared to develop and recommend criteria for determining whether a particular market is competitive.

147. Frontier Brief at 21-22; tr. 8/29/95 at 222; Cornell pf. reb. at 10.

148. Cornell reb. pf. at 10; tr. 7/27/95 at 33-34; tr. 8/28/95 at 144-148; exh. H-1 at 7; *see also* ATP Brief at 2-3 and Frontier Brief at 22. ATP witness Cornell also argued that mark-ups in the prices of intermediate goods, based on the elasticities of demand facing the wholesale supplier itself, will serve neither of the economic objectives of static and dynamic efficiency in downstream retail markets. Cornell reb. pf. at 7-8. I do not take Dr. Cornell's argument here as a blanket prohibition against wholesale mark-ups, but simply as a rejection of a method of establishing mark-ups on the basis of firm-specific—rather than industry-specific—elasticities of demand. I concur. Lastly, though she argues that no mark-ups above TSLRIC should be placed on the wholesale prices of any essential services, Dr. Cornell does not assert that mark-ups on non-essential wholesale services are also impermissible. Tr. 8/29/95 at 109-110.

149. Cornell reb. pf. at 10 (emphasis in original). *See also* tr. 8/29/95 at 242.

> All facilities-based carriers will have joint-and-common costs to recover for their own networks. By allowing these networks to terminate calls on competitors' networks at TSLRIC, the Board will signal that all carriers must ultimately recover their joint-and-common costs from retail customers, which in a competitive market can only be achieved by offering them better service at a lower cost.[150]

They contend that allowing an LEC to include a wholesale mark-up above TSLRIC to recover other costs will eliminate the LEC's incentive to efficiently manage those such costs. Competitors, in contrast, will nevertheless have to recover their own common costs entirely through retail sales, unlike the incumbent.[151] For the reasons that follow, I conclude that the arguments favoring such a pricing constraint are not persuasive.

This problem of common cost recovery is seen in sharper relief by reference to shared costs. Shared costs can be viewed as a subset of common costs, namely those costs that are common to the provision of, say, two services and would be avoided if the firm opted to no longer offer those services. A hypothetical example might be a certain software program resident in a switch, necessary to the provision of two particular essential switching functions and no others. The TSLRIC of each of those functions would not include the economic costs of this software, since this cost is not avoided if the firm ceases providing either function; but the TSLRIC of the two functions *combined* would naturally include these software costs.

What then are the appropriate wholesale prices of the two essential functions? Dr. Cornell's testimony would seem to suggest that price should be set at TSLRIC, neither more nor less; but I do not believe that this is her recommendation. Shared costs of this kind must be recoverable if the firm is to continue providing the essential services: removing them from the wholesale price will not subject them to competitive pressure at retail in any meaningful way.[152] The incumbent would be forced to recover these shared costs from its retail customers, thereby raising the price that they see for those functions

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150. ATP Brief at 6.

151. Frontier Brief at 21; Cornell reb. pf. at 10.

152. In fact, since this hypothetical assumes that prices are set at TSLRIC, the shared costs themselves represent a legitimate component of the TSLRIC of the two functions combined. This, at least in a static sense, means that those shared costs are themselves most efficient.

above the price that competitors' customers would face for the same functions (all else being equal). Consequently, I do not conclude that it is proper to exclude economic shared costs from wholesale pricing, particularly since imputation assures that all providers will pay the same price for the essential functions.[153] *See* Footnote 149, above.

But shared costs differ from common costs: in my example, they are necessary to the provision of the two functions, cannot be reduced or avoided by increased efficiency, and, unlike many common costs, are not marked by the sometime superfluities of the president's desk. The ATP argue that all firms in the market have common costs that they want to recover and that their ability to recover them is a function of their own efficiency and the competitive pressures that they face: "TSLRIC-priced interconnection will, therefore, provide an incentive for all carriers to reduce joint-and-common costs to the most efficient levels."[154]

This is a powerful argument and it has obvious attractions. Its appeal is tempered however by the consideration that, if local exchange interconnection and interLATA switched access are indeed essential services, then they probably remain most efficiently supplied by a single provider.[155] Unlike a firm in a competitive market, whose costs increase as output expands, a firm facing declining costs can only recover its total costs, including joint and common, by charging a price in excess of its TSLRIC for the particular service in question, or by recovering those costs in the prices of other services.[156] The ATP's recommendation means that, in the case of the incumbent LEC, each loss of local exchange revenues at retail would be partly offset by an increase in wholesale revenues: the difference would be the loss of "contribution" to the incumbent's joint and common

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153. Tr. 9/29/95 at 109-110, 221. I note, however, that Dr. Cornell's reference to shared costs in her prefiled rebuttal testimony injects some small doubt on this point. Cornell reb. pf. at 13.

154. ATP Brief at 6; tr. 8/29/95 at 220-221; *see also* the testimony of MCI witness Ankum, tr. 8/28/95 at 148-150.

155. Insofar as they are characterized by negatively-sloped marginal, and therefore average, cost curves. Tr. 8/28/95 at 149-150; tr. 8/31/95 at 410, 413.

156. In competitive markets, joint and common cost recovery is not generally an issue, since the firm increases output until it reaches that level where incremental cost equals average cost, and will price accordingly. In such circumstances, price equals TSLRIC, and all costs are recovered. Tr. 8/31/95 at 410, 413.

costs. This loss would either be made up in retail sales elsewhere or written off (*i.e.*, taken as reduced shareholder earnings).

The ATP assert that this is appropriate because *all* competitors will have joint and common costs to be recovered, and all will be forced to do so at retail. Therefore, the firm with the lowest joint and common costs will be most profitable (or least unprofitable), and prices will be driven down to the lowest total cost (all else being equal).[157]

NYNEX opposes this recommendation. It asserts that the economically efficient wholesale price for interconnection is the LRIC for the interconnection service *plus* a mark-up for the net retail revenues foregone by providing that service to a competitor.[158] The rule that NYNEX proposes to calculate that mark-up is the Efficient Component Pricing Rule,[159] which for the reasons detailed in Section III.B. I reject. Nevertheless, that does not resolve the question of whether some mark-up in wholesale pricing is appropriate.

A competitor's decision to enter the Vermont market *should* depend on its assessment of its relative efficiency and associated potential for profitability in marketing chosen retail services. The CLEC's ability to efficiently manage its common costs will ultimately determine whether it is generally profitable and satisfies its shareholder demands. It is not clear, however, that such costs and efficiencies should greatly affect how wholesale prices for essential facilities are set by the incumbent LEC. The practical effect of removing the "contribution" or mark-up to cover the incumbent's joint and common costs is to simply improve the CLEC's margin or potential profitability from the sale of retail services in the Vermont market. For those joint and common costs of the LEC that are economic and deemed appropriate for recovery, the resulting competitive pressures would simply necessitate shifting the foregone wholesale mark-up on essential services to other "non-essential" wholesale and retail services.[160]

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157. Cornell reb. pf. at 11; tr. 8/29/95 at 221; exh. H-2 at 7.

158. Taylor pf. at 29-31.

159. *Id.*; tr. 8/31/95 at 402; *see also* NYNEX Brief at 41-42.

160. Frontier and the ATP do not recommend that the wholesale prices of "non-essential" services and functionalities be prohibited from carrying a mark-up.

By definition, the truly "common" costs of new entrants are not incremental to their entry into the Vermont market.[161] As such, the entrants should not require an additional margin to cover their common costs in order to enter. While it seems plain that a greater wholesale-retail differential resulting from the exclusion of the LEC's mark-up at wholesale would likely, other things being equal, encourage entry, I do not believe it would do so in a way that would ultimately serve Vermont consumer interests in efficient competition.

This conclusion can be better understood by examining the differences between the services provided by a competitive entrant and those that are currently provided by an incumbent LEC. An entrant that purchases essential facilities from the LEC to deliver at retail is providing an exclusively retail service. The incumbent LEC, however, is functioning both as a retail service provider and as a provider of facilities for competitors. Even were the established LEC to abandon its role as a retail service provider (or were ordered to do so), it would still need to recover its economic common costs; I would doubt its ability to do so if it is prevented from marking up its wholesale prices. If, instead, the LEC continues to provide retail services but is constrained to recover its mark-up only on retail, it is still faced with the prospect of failing to adequately do so as the market becomes truly competitive: competition will force prices down to the sum of the wholesale price plus the efficient incremental cost to deliver the service at retail, and there will be no margin for legitimate joint and common costs. Note that in neither case does competition really force both the CLECs and the incumbent to efficiently manage their joint and common costs, because in this analysis the CLECs do not have any such costs to recover.[162]

I am not yet persuaded that the LEC's non-essential and competitive services can bear the burden of recovering all its joint and common costs; but a final conclusion must await the completion of the requisite cost studies. At this point, there is no evidence to establish whether additional efficiencies could be "wrung out" of non-essential and competitive services, sufficient to cover the LEC's common costs. Nor is there evidence on the magnitude of the "contribution" currently captured from the essential facilities. At this

161. Tr. 8/31/95 at 404.
162. Tr. 8/31/95 at 404-405.

time, lacking such evidence, I conclude that it would be inappropriate to restrict the pricing of essential facilities to no more than the TSLRIC.[163]

Notwithstanding this conclusion, I do share the concerns of the ATP that, under these pricing rules, competitors may be required to cover some uneconomic costs of the incumbent LEC. However, I believe that the question of uneconomic LEC costs can, and should, be resolved in the rate-setting process, be it rate-of-return or some form of alternative regulation (*e.g.*, price caps). In that context, the imposition of an additional constraint on the mark-up of wholesale prices may also be appropriate, for example in order to encourage a gradual "rebalancing" of retail rates through competitive pressures.[164]

b. Retail Prices

The incumbent LEC's retail prices should be set according to Equation (1), above. This embodies the imputation rule which is necessary to prevent anti-competitive practices on the part of the incumbent LEC. *See* Section III.D.4.d.

c. Calculation of the Mark-Up

It has been asserted many times in this investigation that the sum of the forward-looking cost estimates of all of NYNEX's services (as measured by TSLRIC) will be less than the Company's total embedded cost of service or revenue requirement. The revenue requirement consists of current operating and historic investment costs, including a return on that investment. It has been generally assumed by witnesses in this docket that NYNEX's historic investment costs are likely to be greater than the costs of current and future technology. If so, the TSLRIC of all services will also, by definition, exclude certain

163. Again, I must reiterate that, until the cost studies are completed, we do not know if essential services currently provide any "contribution" to joint and common costs or, if they do, whether that or any level of "contribution" should continue as we move to greater competition. If they do not, then the question of pricing them above TSLRIC at wholesale may effectively be mooted.

164. Managing wholesale pricing and mark-ups in this fashion will very likely have the same practical consequence as would adoption of the Department's proposal, namely, effecting a transition as competition increases. Raymond pf. at 8-9.

common costs because the telecommunications technologies exhibit substantial economies of scope and scale.

Various proposals have been advanced in this investigation for either removing portions of these costs from rates or enabling the recovery of such costs. In general, I conclude that legitimate costs in excess of the forward-looking costs of service should be recovered from all categories of services, at both the wholesale and the retail service levels, in a manner that is consistent with the above pricing principles. The level of such cost recovery should be determined either through a traditional rate case or through an incentive rate regime.

i. The Efficient Component Pricing Rule

NYNEX and the Independents propose that wholesale prices be calculated according to a methodology called the Efficient Component Pricing Rule ("ECPR") which, in essence, prescribes how to compute the level of the mark-ups to be added to the TSLRICs of wholesale services. ECPR, as proposed, requires that LECs price certain wholesale services at the sum of their forward-looking cost estimates and the retail contribution foregone (retail price less forward-looking cost) when those services are supplied to a competitor.[165] ECPR includes, as a cost, the lost *net* revenues associated with access and other retail services connected with the demand for the wholesale service.[166] The amount of "contribution" purported to be forgone by the incumbent LEC in reselling, for instance, the link (the connection between the final end-user and the first point of switching) includes net revenues associated with dial tone, carrier access services, local measured service, vertical services, and intraLATA toll services.[167] NYNEX argues that the ECPR should be adopted for two reasons:

- It will keep the LEC "whole," enabling it to recover the costs of past investments and potentially other on-going costs of providing service;[168] and

165. Taylor pf. reb. at 20.
166. Schoonover pf. at 32; Taylor pf. at 29; Taylor reb. pf. at 28-29.
167. Taylor pf. at 31.
168. Taylor pf. at 29; Schoonover pf. at 16-17; Cornell pf. reb at 10.

- It will promote economic efficiency through pricing.[169]

The independent local exchange providers argue that the issue of lost contribution is a special problem for them due to the heavy contribution from toll access revenues that would be eroded if competitors can purchase the link and bypass the toll access charges of the independent LEC.[170] The issue of bypass and lost revenues here will compound the pressures on basic rates that small independent companies are facing with respect to other federal cost support programs and methods for cost allocation.[171]

I conclude that the ECPR as proposed is administratively impractical, speculative, and unlikely to serve its theoretical objectives. Moreover, I conclude that the ECPR would create a barrier to competitive entry.[172] For the reasons that follow, I conclude that the efficient component pricing rule should not be adopted by the Board.

To begin, the lost revenues associated with the rule in its purest form would be a constantly evolving figure. Its use would require determination of the type and volume of vertical service demands for *every* LEC customer on a forward-looking basis.[173] On its face, such a proposal would be burdensome, potentially discriminatory, and administratively impractical. Furthermore, the "pure" ECPR would include undue speculation over the demands for future services that would otherwise have been provided

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169. Taylor pf. at 29.

170. Schoonover pf. at 7-9. As an illustration, Mr. Schoonover asserted that a loss of the top five percent would result in lost revenues that would correspond to rate increases ranging from 48.6 to 152.3 percent. Schoonover pf. at 17-19; exh. Independents PM-1. Cost recovery, however, for at least a major category of toll revenues for the independents (and, to a lesser degree, NYNEX), namely interstate access, occurs through a complex system of revenue-pooling among providers. "Cost-based" LECs settle with the National Exchange Carriers Association ("NECA") on the basis of investment and expenses, whereas "average schedule" LECs settle with NECA on the basis of reported demand units. The analysis of the independent LECs appears to reflect a proportional loss in jurisdictional revenues corresponding to the loss of interstate toll minutes of use. It is unclear, however, how the loss of interstate toll traffic could correspond to such a loss for the cost-based LECs, given other assumptions regarding the loss of intrastate traffic. *See, for example*, Parts 36.124 and 36.156. I also question whether the analysis should reflect reductions in costs (for savings) that might correspond to the revenue losses (*e.g.*, for services such as "billing and collection.") This question will be analyzed more fully in Phase II.

171. Schoonover pf. at 12; exh. Independents-3.

172. Cornell pf. reb. at 14.

173. Cornell pf. reb. at 8, 13. Included among the dynamic elements are the (1) demand levels for each of the vertical service offerings, (2) the array of vertical services being offered, and (3) prices associated with those vertical service offerings.

by the incumbent. And it would also create tremendous uncertainty with respect to the service demands that would migrate from the incumbent to potential competitors.[174]

I need not dismiss the possibility that, under certain restrictive assumptions, the ECPR could be effective in promoting efficiency in select portions of the retail market.[175] Nevertheless, I question whether the environment and related assumptions in which these arguments are made are indeed applicable to today's market for telecommunications services.[176] At a minimum, the efficiency rationale for the proposal is suspect in light of its potential to create investment and innovation distortions, including uneconomic bypass of the local loop.[177] I conclude that, when combined with other impediments to entry (largely environmental), the ECPR will forestall all but facilities-based competition, including that associated with potentially inefficient investment. This damping effect on competition will

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174. Taylor pf. at 31.

175. Tr. 8/31/95 at 316. Dr. Taylor and other economists argue that the ECPR is necessary to promote efficiency in the delivery of a retail service. Certain vertical services (services that depend on the link for use by consumers) are asserted to be priced well in excess of their incremental costs. If one assumes that these vertical services will necessarily migrate with the link to competing service providers of the link (or the basic service package that includes the link), then competitors can benefit from the high profit margins on these vertical services. If one prices the link at wholesale in a way that does not reflect the entire "margin" or "net lost revenue" from these vertical services, then even inefficient retail service providers can successfully compete in these markets. If, on the other hand, wholesale is priced in a way that incorporates these margins, then only efficient competitors (*i.e.*, entrants that compete for services such as retail marketing, and billing, and collection) can successfully compete against the incumbent. Key assumptions in this analysis include the following: (1) these vertical services would actually migrate with the link or basic service to a competitor; (2) the margin from these vertical services is not somehow retained and collected in the margin on wholesale services from the same incumbent provider (*e.g.*, through access charges on toll); and (3) that there is no significant threat of facilities-based bypass of the link. The analysis also assumes that lost revenues from other vertical services (*e.g.*, interstate access revenues) correspond to actual reductions in cost recovery and earnings; as suggested earlier, this assumption may be questionable. *See* Footnote 170.

176. Even assumptions that are static in nature may be drawn into question. NYNEX indicates that "when a provider is required to provide interconnection to a rival, it forgoes the opportunity to provide any retail services to the end user that will now be the rival's retail customer." NYNEX Brief at 39. In Rochester, New York, a CLEC which resells Frontier's local exchange services automatically receives the customer's intraLATA toll calling. AT&T is requesting a similar arrangement in Vermont. Salvatore pf. at 14.

177. Cornell pf. reb. at 10-11; tr. 8/31/95 at 395-396.

further diminish the dynamic efficiencies that would otherwise result from barriers being lowered through competitive entry into the market for local exchange services.[178]

NYNEX and the ILECs do not propose that the ECPR be implemented in its "pure" form. Rather, they recommend that the *average* revenue loss from vertical services would be used as the basis for the wholesale mark-up. Such a mechanism will not (by definition) recover all the "contribution" that would be lost as customers are selectively carved off by competitors.[179] As such, the ECPR as proposed would seem to fall short of achieving one of its ostensible objectives, namely keeping the incumbent "whole."[180] Consequently, it is unlikely to be an effective mechanism for the recovery of legitimate costs of service.

Finally, the experience with AT&T's entry into the local exchange market in the Rochester Telephone service area (under the terms of the "Rochester Plan") suggests that indeed there are many factors besides pricing that may be significant impediments to competitive entry.[181] Even under wholesale pricing arrangements that appear to be more favorable than the ECPR, competitive entry in that market has been limited.[182]

Although I reject the ECPR, I do not dismiss the concern that the LECs have raised in proposing a mechanism for the recovery of legitimate net lost revenues. I believe, however, that these concerns can be addressed by consideration of several factors that are

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178. Cornell reb. pf. at 7, 10. A mark-up for LECs to recover certain joint and common costs may be analogous to the "account correcting for efficiency" ("ACE") developed by Vermont regulators to compensate electric distribution companies for the net lost revenues that result from their energy efficiency or "demand-side management" ("DSM") program activities. ACE is intended to encourage an electric company to acquire societally least-cost resources: though in many cases DSM is less expensive than supply-side investments, the attendant reduction in sales constitutes a significant disincentive to the utility. ACE enables utilities to recover contribution to fixed costs that is lost when DSM programs cost-effectively reduce sales. Docket 5270, Order of 4/16/90, Vol. IV at 17-28.

179. Tr. 8/31/95 at 319-320.

180. Tr. 8/29/95 at 31-32; Cornell reb. pf. at 10. Keeping an incumbent "whole" is not an end unto itself. It is only appropriate insofar as the public good is promoted by doing so. Our goal here is to effect a smooth and orderly transit through the evolving market for telecommunications services, in a way that best serves the needs of Vermont's ratepayers.

181. Of the ten carriers that originally announced plans to enter and participate in this marketplace, only AT&T actually entered. The wholesale price for basic service was set at a five percent discount off the retail rate. AT&T asserts that it has sustained financial losses in this venture. Tr. 8/30/95 at 246, 265.

182. *Id.*

either not recognized in a static analysis or are ignored in the assumptions implicit in the ECPR. These factors include the following:

- In the main, the ECPR attempts to deal with the problem posed by the pricing of certain categories of vertical services (such as enhanced and toll access services) well in excess of their underlying costs, a pricing practice that may be unsustainable in a competitive market.[183] Competitive entry in telecommunications markets has been described as slow.[184] I conclude that the incumbent LECs will have an opportunity to gradually adjust rates, as appropriate, to better reflect the competitive character of the evolving communications market in Vermont.[185] A flexible incentive rate plan should complement efforts to ensure sustainable and efficient pricing of services in the face of competition.

- In the case of facilities-based competition, the incumbent will lose all "contribution" it receives from the retail customers who now switch to alternative providers.[186] Under the pricing rules and constraints that I have recommended, the LECs should have an incentive to price services at wholesale so as to mitigate the loss of revenues at the retail level.[187] I believe that, ultimately, the effect of implementing the ECPR would be to promote facilities-based bypass of the local loop.[188] This would not only

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183. Schoonover pf. at 13. "Vertical" services here refers to categories of services that fundamentally depend on the "link" or customer access to the network in order to deliver these services.

Until a forward-looking analysis of costs has been conducted, I am reluctant to conclude that any category of services has been "mispriced." Even if these vertical services are priced well above their forward-looking costs, that is not cause for concluding that other services, such as basic service, are being priced below their costs. It has also been asserted that there are economies of scope or scale in telecommunications services. As such, all categories of service may in fact be priced above their forward-looking costs. In that case, the only issue is where to place the mark-up over the forward-looking costs, for purposes of recovering "contribution" toward other categories of costs, such as joint and common, deemed appropriate for recovery in establishing rates.

184. Tr. 9/29/95 at 102-103; exh. H-2 at 8.

185. Raymond pf. at 9-10; tr. 8/31/95 at 397. And, indeed, the recent initiatives to bundle touch-tone into the basic service rate by Vermont LECs and the recent decreases in NYNEX's optional calling plan rates and access charges (resulting from Dockets 5700/5702) demonstrate that there has already been significant movement to reduce the rates for vertical services relative to the basic service charge.

186. Pricing the link at wholesale to reflect an estimate of lost revenues could well encourage bypass of the incumbent LEC's facilities. In encouraging facilities-based bypass, the issue of lost revenues could well be exacerbated as the LEC would likely lose any opportunity to collect contribution through the pricing of wholesale services, whether through vertical services or through the link itself.

187. Several witnesses in this case have indicated that some kind of mark-up of wholesale services in order to give an LEC a reasonable opportunity to recover its overall cost of service is appropriate. Tr. 8/28/95 at 46, 55, 60-61, 202-203; Salvatore pf. at 7.

188. Tr. 8/31/95 at 396.

encourage inefficient investment, but would also exacerbate concerns for lost contribution and the financial integrity of the incumbent LEC.

- So long as an LEC continues to provide certain services or functions as a regulated monopoly, its rates for those services (including relevant, prudently incurred costs and return on investment) will be set through the regulatory process, with any associated opportunities for cost recovery.

- The costs of providing services over the existing network can reasonably be expected to continue their historical decline.[189] Here I include both the cost of new facilities required for investment and the operating expenses of the local exchange providers. Innovation and technological developments that are further spurred on by the development of competition in the market for local exchange services (*i.e.*, dynamic efficiency) should also put downward pressure on costs.[190]

- I believe that growth in service demands can reasonably be expected to increase and thereby enhancing the on-going financial integrity of existing LECs.[191] There is no reason to conclude that significant growth in the demand for traditional telecommunications services will not continue.[192] Furthermore, as capabilities of the network continue to expand, there will be additional opportunities for incumbents to recover costs.

Cost recovery is of genuine concern to the incumbent LECs. Nevertheless, I conclude that adoption of the ECPR would not be in the best interests of Vermont's consumers. I believe that any strategy for implementing the ECPR will ultimately fail to bridge the gap between a potentially rational theoretical concern in a static environment and the rule's practical difficulties in an environment in the midst of great change.

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189. *See, e.g., The Ten-Year Telecommunications Plan* at 23.

190. Cornell reb. pf. at 7.

191. This expectation alone might be sufficient reason to reject the ECPR in favor of a much more narrowly calculated mark-up on wholesale. While I have not recommended that a mark-up on the wholesale prices of essential services be prohibited, neither have I concluded that all wholesale services should be eligible for a mark-up. At this point we have no evidence on how to properly calculate and assign a mark-up.

192. Here, I include both access line growth and the traffic that is associated with each access line. Growth in these areas is likely the result of the dramatic declines in the cost of usage and in the dramatic increases in consumer demands for complementary goods and services (*e.g.*, computers and on-line services). For example, nationally, interstate toll access minutes grew at 11.2 percent/year between the third quarter of 1984 and 1992 (37.5 billion to 87.9 billion). FCC *Statistics of Common Carriers*, Table 8.9 at 313.

In summary, I recommend that the ECPR not be relied upon for wholesale pricing. By adopting the principles that I have proposed, the Board can encourage pricing practices that are both sustainable and efficient.[193] For the reasons stated, therefore, I recommend that the Board reject the ECPR and direct the parties, in Phase II, to propose alternative mechanisms, as necessary, for addressing any residual concerns for providing incumbent LECs a reasonable opportunity to recover their just and reasonable costs of service, during the transition to a fully competitive telecommunications market.

d. Imputation

Imputation is a pricing rule that establishes a retail pricing floor or, minimum price, for each local service such that the retail price is greater than or equal to the sum of the price charged to competitors for relevant unbundled network services and the incremental cost of all other inputs used to produce the service.[194] The parties in this case generally agreed with the earlier conclusion of the Board that imputation rules were needed to safeguard fair and equitable competition.[195]

The imputation test is designed to prevent a "price squeeze" by the incumbent provider and to ensure that retail service is delivered at the lowest possible price.[196] As explained by ATP witness Kelly, setting the wholesale rate for interconnection equal to the retail rate will discourage efficient competition and result in unnecessarily high prices for consumers.[197]

The imputation rule proposed by NYNEX in this case differs somewhat from that proposed by others in this Docket.[198] NYNEX argues that every possible difference in costs between the LEC in providing service to itself and to competitors should be taken into

193. Cost studies should help both regulators and incumbent local exchange providers better understand the relationship between existing prices and forward-looking costs for purposes of establishing rates that meet those criteria.

194. Salvatore pf. at 16; Ankum pf. at 18.

195. Dockets 5700/5702, Order of 10/5/94 at 122; Ankum pf. at 10; Ankum pf. at 18; Frontier Brief at 19-20; Raymond pf. at 38; tr. 8/30/95 at 260-261, 277; Taylor reb. pf. at 21; Salvatore pf. at 17.

196. Taylor pf. at 47.

197. Kelly pf. at 8-11.

198. Taylor pf. at 47.

account in the pricing rules that the Board adopts.[199] To the extent that reflecting such cost differences in pricing will in fact promote economic efficiency, I conclude that it is appropriate to adopt the imputation rule proposed by NYNEX.

I conclude, then, that the pricing differential between the LEC's wholesale prices and its retail price should account for legitimate and quantifiable differences between self-provisioning and resale provision of the services.[200] I also conclude that retail pricing flexibility is appropriate if it is based upon a proper test for imputation.[201] Consistent with the Board's conclusions in Dockets 5700/5702, I believe that the imputation test should apply on a service-by-service basis.[202]

E. Interconnection, Equal Access, and Other Features Relevant to Fair Competition

1. General

The efficiency of a competitive market is improved when the costs of effecting transactions in that market are minimized.[203] Transaction costs, such as information and contracting costs, can represent significant barriers to competition. It is obviously critical, therefore, that the Board establish sensible mechanisms to assist competitors in reducing such costs. The major sets of barriers that were examined in this docket involve the

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199. *Id*.

200. I accept this test with some reluctance, for the reasons expressed by Dr. Cornell. Tr. 8/29/95 at 247-248. I believe that this is the appropriate test from the standpoint of economic efficiency, at least in a static sense; nevertheless, I am concerned that the incumbent LECs may have an incentive to either exaggerate their claims of differences between self-provisioning and provisioning for a retail competitor, or fail to design operations for efficient use of monopoly facilities by both the incumbent and its competitors. I believe that claims of exaggerated costs related to wholesale provisioning of services will merit special scrutiny by regulators and necessitate appropriate responses were such abuses to arise. In instances where there is reasonable doubt about either claims of cost differences or failure to reflect the least-cost method for wholesale provisioning, the imputation test should recognize no cost difference between self-provisioning and wholesale provisioning.

201. Raymond pf. at 40; Raymond reb. pf. at 38.

202. DPS Brief at 68; Dockets 5700/5702, Order of 10/5/94 at 123-124. In certain instances, wholesale prices will need to reflect the character of specific retail charges for the same services, for example, the caps that are applied to monthly charges for local measured service in Vermont.

203. This is a general principle of neo-classical economic theory. *See, e.g.*, Gould and Ferguson, *Microeconomic Theory* (Homewood, Ill.: Richard D. Irwin, Inc., 1980) at 241, 461-462.

interchange of traffic among providers and the technical and jurisdictional impediments to the provision of the various services.

2. Interconnection

As used in this docket, interconnection refers to any arrangement necessary to enable two or more competing local exchange carriers operating within the same geographic area to exchange calls among their respective networks. Interconnection is intended to assure the "seamless exchange of traffic" between competing networks, as if calls were being completed over a single network.[204]

All the parties in this docket agreed that interconnection is an absolute prerequisite to competition in the local exchange market. Several parties differ in their recommended approaches to interconnection—*e.g.*, technical and financial aspects[205]—but, all in all, there is broad agreement on the concept. The ATP specifically request that the Board affirmatively order incumbent LECs to interconnect with competitors.[206]

I adopt that recommendation. No provider of competitive local exchange services should be permitted to refuse a *bona fide* request for interconnection, and it must set a price for interconnection that meets the requirements set out in Section III.D. of this proposed decision.

a. Reciprocal Compensation

Inter-company interchange of traffic imposes costs. Specifically, a local exchange provider incurs a cost when terminating a local call, whether the call originates on the provider's own system or another. The parties agree that, assuming that it is properly

204. Calabro pf. at 17-18; Riggert pf. at 23.
205. *See* Calabro pf. at 22*ff* and Cornell reb. pf. at 10.
206. ATP Brief at 2.

priced, such terminating access should be billed to the company (and, ultimately, to the customer) that originated the call.[207]

I concur. The evidence on this point was straightforward and undisputed. I recommend that the Board instruct incumbent and competitive LECs to negotiate and implement mechanisms that will allow for the fair and efficient interchange among their respective local exchange systems, consistent with other relevant directives in this decision.[208]

b. Pricing for Reciprocal Compensation

Compensation for interconnection and termination of local exchange traffic should be priced according to the criteria set out in Section III.D., Costing and Pricing Issues.[209] For the reasons articulated in that section, I reject at this time the argument that the wholesale prices of these essential services should be set at TSLRIC and no more.[210]

I note that, in New York, NYNEX has jointly proposed with other interested parties a model interconnection agreement that provides for reciprocal compensation among facilities-based competitors at incremental cost only, with no mark-up for joint and

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207. Calabro pf. at 21, 24-25; tr. 8/31/95 at 191-192; Raymond reb. pf. at 43; Cornell reb. pf. at 10; tr. 7/27/95 at 33; tr. 8/28/95 at 144-148; exh. H-1 at 7; *see also* ATP Brief at 2-3. Specifically, NYNEX witness Calabro testified that "Local exchange carriers should be compensated fully for the actual consumption or use of their network, measured by minutes of use and attempts, if appropriate." I make no finding here as to the appropriate rate design for local exchange interconnection, although I note that, by application of the rule of cost causation in setting prices, it is certainly conceivable that interconnection charges need not be usage-sensitive, insofar as the costs of interconnection are not usage-sensitive. In any case, whatever the pricing structure settled on, the prices themselves must satisfy the pricing rules detailed in Section III.D., above.

208. This applies to facilities-based competitors as well as resellers. While an incumbent is not physically exchanging traffic with a reseller, there will nevertheless need to be contractual and administrative tools in place that provide for appropriate record-keeping and billing.

209. Here I am differentiating between, on the one hand, physically interconnecting one network with another and, on the other, terminating local traffic between the networks.

210. As I have stated several times before, this is a conditional conclusion. *See* Footnotes 163 and 191. I should also note here that it seems reasonable to suppose that the rates for terminating local exchange traffic should be the same among all firms competing in the same area, but it is not entirely clear that this symmetry necessitates regulatory intervention. Presumably, competition will force firms to charge similar, if not the same, rates.

common costs.[211] It appears from my review of that agreement that the charges for terminating traffic will be set at "incremental cost," but it is not clear that the prices for interconnection itself will be capped at incremental cost.

i. Mutual Traffic Exchange

One form of reciprocal compensation is referred to as "mutual traffic exchange" and it describes an interconnection arrangement whereby competing local exchange providers terminate each other's local exchange traffic at no charge. It is also called the "bill and keep" method.[212] The ATP and other potential CLECs argue that it is the best method for accounting and paying for interconnection: it reduces administration costs, implicitly sets interconnection prices at TSLRIC, and gives each firm an incentive to be more efficient, since it will reap the benefits of any savings that accrue.[213] Frontier in particular recommends that the Board direct that interconnection "be made available on the basis of mutual traffic exchange" until cost studies are completed that will form the basis for the pricing of interconnection (and switched access) at TSLRIC.[214]

NYNEX opposes the imposition of such a requirement, arguing that "bill and keep" encourages a CLEC to seek out new customers whose local exchange traffic, in the main, originates on others' networks and terminates on its own, which is to say that the CLEC receives revenues for services whose costs it does not fully bear (in this instance, the costs of originating calls).[215] In addition, NYNEX suggests this odd incentive will discourage firms from acting in ways that optimize interconnection efficiency.[216]

Though opposing, the positions of the CLECs on the one hand and NYNEX on the other are both reasonable. They are reconcilable only upon consideration of another variable, that of time. An incumbent LEC has little incentive to enter into mutual traffic

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211. Exh. H-2 at 7 and Att. 1. "Incremental cost" is not defined.

212. Tr. 8/31/95 at 192.

213. Tr. 8/29/95 at 110, 221-222; ATP Proposed Decision at 16-17; ATP Brief at 19; Frontier Brief at 23; MCI Brief at 2, 22.

214. Frontier Brief at 29.

215. Tr. 8/31/95 at 193-194.

216. *Id*. at 193-195.

exchange agreements so long as it perceives that the costs of doing so outweigh the benefits: in this example, the avoided billing and collection costs do not offset the loss in the incumbent's net revenues resulting from a disproportionate volume of uni-directional CLEC traffic. In contrast, mutual traffic exchange will likely yield some efficiency gains in the local market, mostly by eliminating a significant measure of administrative costs. As for the assertion that "bill and keep" creates a perverse incentive for inefficient network deployment, I simply cannot judge on the basis of this record.

The evidence supports a finding that mutual traffic exchange will work effectively when local exchange markets become more competitive, when traffic among networks is reasonably balanced.[217] A decision by the Board not to require mutual traffic exchange agreements from the outset will not create a significant barrier to competitive entry. The pricing rules and requirements for reciprocal compensation set out above, in union with other relevant directives herein, adequately promote fair competition in local exchange services. I therefore recommend that the Board not adopt Frontier's proposal at this time; but neither do I recommend that the Board prohibit "bill and keep" arrangements. One imagines that they will occur when they serve the respective interests of the contracting parties.

ii. "Pay or Play"

In place of mutual traffic exchange, NYNEX proposes that the Board implement a plan, referred to as "pay or play," that lays out criteria by which CLECs would be entitled to receive compensation for terminating other carriers' traffic on their networks. Specifically, only those CLECs who agree to provide local exchange service, including Lifeline, to a customer base in the same demographic proportions as those of the incumbent, and who do so within two years of their entry into the market, would be entitled to receive compensation from competing carriers for the use of their networks.[218]

NYNEX argues that the "pay or play" plan will:

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217. *Id.* at 194-195.

218. Calabro pf. at 22-25; tr. 8/31/95 at 70-71.

> encourage carriers who are truly interested in being full fledged competitive local exchange carriers in Vermont to commit themselves to serving a full range of end-users, or else be required to provide a contribution to those who do.[219]

NYNEX argues that carriers that do not serve residence and Lifeline subscribers in comparable proportions to incumbent carriers should not be able to charge the incumbents and other "full service" providers compensation for terminating traffic.[220] NYNEX reasons that, due to a historic "system of implicit price supports," those who provide universal service would be bearing the costs of that obligation twice: once in their own costs of service and again through an unnecessarily inflated payment to a carrier that is not so obligated.[221]

The Department, ATP, Frontier, MCI, and AT&T all oppose the "pay or play" proposal.[222] Their foremost reason for rejecting the plan is that is will erect a terrific barrier to entry, thereby stifling competition.[223] The "pay or play" proposal imposes costs on potential competitors that act, in effect, like a price squeeze:[224] first, by mandating that CLECs offer ubiquitous service in an unreasonable time frame and, second, by prohibiting them from receiving compensation for actual costs incurred on behalf of other carriers.[225] Furthermore, the plan:

> would stifle or preclude a significant benefit of competition—that [of] the diversity of services offered to customers is increased by allowing multiple service providers to enter (and exit) select market segments.[226]

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219. Calabro pf. at 22.
220. NYNEX Brief at 84.
221. *Id.* at 25-26; tr. 7/28/95 at 104, 118-119; tr. 7/29/95 at 192; NYNEX Brief at 83-88.
222. DPS Brief at 23-24; ATP Brief at 19-21; Frontier Brief at 25-26; MCI Brief at 19-21; AT&T Brief at 53-55.
223. Cornell reb. pf. at 20; Raymond reb. pf. at 42, 46; tr. 7/27/95 at 97.
224. Cornell reb. pf. at 21.
225. Raymond reb. pf. at 46; Cornell reb. pf. at 21-22.
226. Raymond reb. pf. at 46. Dr. Raymond goes on to point out that:

> In none of the emerging telecommunications services have providers been ordered "everywhere at once" or [to] serve a complete cross-section of the community. Besides, if the economics of pricing are done correctly, the incentives to "cream skim" will be greatly dampened, and the attractiveness of smaller markets can be increased.

Id.

Those opposing the "pay or play" plan maintain that the goals of competition and universal service are not mutually exclusive.[227] Frontier, MCI and, AT&T contend that a universal service fund such as that already implemented in Vermont will meet the public policy objectives in a competitively neutral fashion.[228] Lastly, the ATP argue that the record does not establish the veracity of the premise on which the "pay or play" proposal is based—namely that universal service is maintained by cross-subsidies internal to NYNEX's cost of service.[229]

I conclude that the evidence does not demonstrate that the "pay or play" proposal would best meet the objectives that it is ostensibly intended to serve: competitive neutrality and universal service.[230] On the contrary, the plan is anti-competitive, insofar as it imposes a universal service obligation upon competitors in a discriminatory fashion. As witnesses for the Department and the ATP rightly pointed out, there is no compelling public policy justification for linking universal service with an obligation to serve customer classes in proportions equal to those of the incumbent.[231] Indeed, the opposite seems to be the case: that such a linkage threatens fair competition and its attendant benefits.[232]

For these reasons, I recommend that the Board reject NYNEX's "pay or play" plan. I must point out, however, that rejecting "pay or play" is *not* the same as rejecting a requirement that all local exchange providers must offer service to all who request it within their certificated areas of service. Section III.F.3., below, examines this question in greater detail.

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227. Ankum pf. at 19; tr. 8/28/95 at 65; AT&T Brief at 55-56; MCI Brief at 15-16.

228. Ankum pf. at 24; tr. 8/29/95 at 197; Frontier Brief at 24-25; AT&T Brief at 55-57; MCI Brief at 20. It should be noted that these companies do not agree on the details of such a mechanism. *See* Section III.F. for a discussion of this issue.

229. ATP Brief at 20. The ATP point out that "evidence from other jurisdictions is, in fact, that basic service is not receiving a subsidy from other classes of service. *Re New England Tel. Co.*, 152 PUR 4th 1, 24 (N.E. 1994); *Re Telcom. Reg. within Michigan*, 116 PUR 4th 495, 521 (Mich. 1990); *General Investigation into IntraLATA Toll Competition Access Rates*, 1993 WL 475294, at 3-4 (N.H. P.U.C., June 10, 1993); *New England Tel. Generic Rate Structure Investigation*, 1991 WL 494307 at 66-67 (N.H. P.U.C., March 11, 1991)."

230. Cornell reb. pf. at 20-21; tr. 8/29/95 at 15-16.

231. Tr. 8/29/95 at 15-16; tr. 8/29/95 at 197-198.

232. Raymond reb. pf. at 46.

c. Interoperability, Minimum Service Requirements, and Points of Interconnection

Efficient, low-cost interchange of traffic requires that all facilities-based competitors meet minimum industry standards for transmission, signaling, call set-up, and call blocking.[233] In addition, specific interconnection requirements should include the obligation for all carriers to forward and honor customer privacy selections, *e.g.*, call blocking of customers of competing carriers where SS7 technology is available. This is essential to meeting the privacy expectations of Vermont consumers and the public policy objectives as set out in the *Ten-Year Plan* and earlier Board Orders.[234]

The evidence established that interoperability standards are necessary to protect competitors against discrimination in interconnection or information and to ensure fair treatment of all players. Such "open interfaces" require participation in the "existing industry-led, market-driven standards process", which creates standards that are "formally recognized by a national or international standards body."[235]

There was no dispute among the parties that minimum interoperability and service requirements standards must be set and adhered to if the efficient interchange of traffic among providers is to be achieved. In this phase of the docket, however, the Board has not been asked to rule on the specifics of any such requirements. Moreover, no detailed evidence was presented, with respect to either specified standards or formal institutions currently overseeing such a process.[236] At this point it appears that these questions are better addressed through direct negotiations among providers and in the workshops to be

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233. Calabro pf. at 18.

234. *Id*. at 19; exh. H-2 at 5-6; *see also The Vermont Ten-Year Telecommunications Plan* at 8, 63-68, and Docket 5404, Order of 2/12/93.

235. Riggert pf. at 25.

236. *See* Riggert pf. at 6. Mr. Riggert recommends that unbundled basic network functions be made available, utilizing "transmission protocol and physical interconnection standards, either existing or under development, that are recommended by an acknowledged industry body." This is a reasonable suggestion.

See also tr. 8/29/95 at 7. DPS witness Raymond described the recent efforts of the Inter-Industry Liaison Committee ("IILC"), designated by the FCC to develop standards for open network architecture. Dr. Raymond suggested that the IILC's accomplishments might serve as a "platform" for further work by the parties to this docket during workshops in Phase II.

conducted in the second phase of this docket. Disputes, as always, may be brought before the Board for resolution.

As to the question of the appropriate points for physical interconnection, NYNEX proposed a three-part rule, as follows:

(1) Interconnection of competing LEC networks for the interchange of traffic between an incumbent and a new entrant should be provided at both the end-office and tandem switching systems;
(2) Interconnection for access to unbundled services or facilities should be limited to central office locations where a suitable environment for interconnection is maintained; and
(3) Interconnection in outside plant locations, such as on telephone poles or in manholes or vaults, should not be required.[237]

AT&T witness Riggert testified that it will be necessary for competing carriers to designate interconnection points where traffic "hand-off" will take place, and that this designation process should not happen so as to erect inappropriate barriers for new entrants: for example, by requiring interconnection points at every end office of the incumbent.[238]

It is important to understand that Mr. Riggert differentiates this type of "inter-company interconnection" (*i.e.*, that which is necessary for traffic interchange) from interconnection "that will be required for each unbundled element" (basic network functions or "BNFs" as he describes them) of the incumbent's system that a competitor wishes to purchase in order to provide local service.[239] His testimony assumes that it is critical to assure that interconnection can occur in ways that enable competitors to purchase only those BNFs that it wants, no more nor less.[240]

I agree and recommend, therefore, that the Board reject NYNEX's three-part interconnection rule: it is unnecessarily restrictive. I note that interconnection will be determined largely by the prevailing set of unbundled elements; the technical feasibility of unbundling is in part a function of the ability to interconnect. As the set of BNFs changes

237. NYNEX Brief at 81.
238. Riggert pf. at 23-24.
239. *Id*. at 5-23.
240. *Id*. at 8-9, 24-25.

over time, so too will competitors' needs and methods for interconnection. Here again the market, far better than a regulator, will drive this process, which will be mainly contractual in nature. The Board is better situated to resolve disputes among negotiating providers than it is, today at least, to prescribe meticulous rules.[241] As for the costing and pricing of interconnection services, the rules as set out in Section III.D. of this proposed decision should naturally apply.

d. Access to "Pathways"

Related to the question of network interconnection is access to "pathways," *i.e.*, poles, conduit, building space, risers, and public rights-of-way. Such access must be non-discriminatory.[242]

This is a straightforward proposition. Again, the question is one of reducing barriers to competition: all competitors, including the incumbent, must have equal access to the pathways. Specifically, this means that the terms, conditions, and pricing (or imputation) rules of such access must apply equally to all players in the market.

e. Interconnection for Cellular Service

ATP witness Kelly gave detailed testimony on the types and relative prices of interconnection service that Atlantic Cellular purchases from NYNEX. For Type 2 interconnection calls, which are routed through a tandem office, NYNEX charges Atlantic Cellular the same terminating charge assessed on interexchange-carrier traffic.[243] For calls routed through a Type 1 interconnection, however, NYNEX charges Atlantic Cellular the sum of NYNEX's retail rates for local-measured service and wholesale rates for a T.1 facility; this arrangement is equivalent to Flexpath service, a business retail service offered

241. This, of course, may change more rapidly than one expects, and it may very well be that there are specific steps that the Board can take to reduce or eliminate interconnection barriers to effective competition. I therefore direct the parties to address in greater detail, in the next phase of this proceeding, the question of interconnection protocols and any recommended regulatory actions. Raymond reb. pf. at 47; *see* DPS Brief at 69.

242. Exh. H-2 at 6; *see also* MCI's Phase I Position Paper, 4/19/95, at 2.

243. Kelly pf. at 7-8.

by NYNEX.[244] Furthermore, Atlantic Cellular receives no compensation for terminating NYNEX's traffic, no matter where in Atlantic Cellular's service area the call is sent.[245] The ATP argue that:

> The current pricing for interconnection thus makes it impractical for Atlantic Cellular to offer a service that competes with Flexpath since one of its cost inputs would be the entire Flexpath retail price, including a per-minute charge that is the same as the measured rate for all of NYNEX's business and residential, basic-exchange customers.[246]

The ATP request that, "[a]t the minimum, the Board should order NYNEX and all LECs to offer (either by tariff or contract) wholesale rates for Type 1 interconnection."[247]

The ATP's request is reasonable, and I recommend that the Board grant it. Requiring interconnectors to pay wholesale rates that are equal to or greater than the incumbent's retail rates is not consistent with the pricing rules set out in Section III.D. Moreover, the failure of NYNEX to pay Atlantic Cellular for terminating its traffic is inconsistent with the requirements for interconnection and reciprocal compensation detailed in this section, III.E. Until the completion of the cost studies and the determination of prices therefrom, NYNEX and the LECs should be directed to negotiate interim interconnection agreements with Atlantic Cellular and other competitors.

3. Equal Access

a. Dialing Parity and Presubscription

Currently, NYNEX's intraLATA (in Vermont, in-state) long-distance toll service requires that a caller dial sequentially one, the area code (802), and the seven-digit phone number of the party called.[248] This is sometimes referred to as "1 + ten" dialing. Subscribers of competitive intraLATA toll providers follow the same procedure, but must first dial a five-digit access code, which identifies the carrier of the call, routes it, and

244. *Id.* at 8.
245. *Id.*
246. ATP Brief at 9; Kelly pf. at 8.
247. ATP Brief at 9.
248. *See generally*, Docket 5636, Order of 7/14/93.

establishes proper billing for it.[249] AT&T witness Salvatore argued that this lack of dialing parity constitutes a significant barrier to effective competition, since it imposes costs (dialing inconvenience) upon competitors' customers that NYNEX's own are spared.[250]

AT&T requests that, until presubscription and equal access are assured for all customers' local and toll traffic in-state, the Board should require that the provider (through resale) of a customer's local exchange service be also designated the provider of that customer's intraLATA toll traffic (in the absence of decision by that customer to utilize another long-distance carrier by dialing that carrier's five-digit access code).[251] AT&T argues that, in the absence of presubscription:

> the incumbent LEC automatically receives its residential and small business customer's intraLATA toll calling and, therefore, competitive parity requires that resellers also receive the intraLATA toll traffic of their local exchange end-users.[252]

NYNEX opposes AT&T's proposal on the grounds that this issue was not slated for examination in this phase of the docket. NYNEX contends that "The issues being considered here are too complex, and the stakes for the Vermont public are too high, to decide presubscription on anything less than a complete record."[253]

AT&T's proposal has a certain appeal. It seeks to redress a competitive inequity, and do so in a way that directly benefits customers. I note, however, that in this regard another asymmetry has gone unmentioned, namely that capability of competitors such as AT&T to provide both intra- and interLATA toll service, which NYNEX (and other BOCs) currently cannot do. That difference would seem to offer IXCs a marketing

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249. Tr. 7/27/95 at 137-138; tr. 8/29/95 at 211; tr. 8/30/95 at 94-95, 212-213.

250. Tr. 8/30/95 at 259. Dialing parity is also referred to as "presubscription," which describes a customer's ability to choose (or subscribe to) an intraLATA toll carrier in the same fashion that she may for an interLATA carrier: in advance of service taken and without any additional dialing requirements. Tr. 7/27/95 at 137-138; tr. 8/29/95 at 211; tr. 8/30/95 at 94-95, 212-213; Riggert pf. at 27-28.

251. Salvatore pf. at 14-15; tr. 8/30/95 at 258; AT&T Brief at 35-37.

252. AT&T Brief at 35-36.

253. NYNEX Reply Brief at 24.

advantage that the BOCs cannot match.[254] While that is not in itself a reason to deny AT&T's request, it is certainly worth considering in the light of more detailed evidence on the issue.

I agree with NYNEX that the question of presubscription was noticed for Phase II and that the record on this point is as yet insufficient upon which to render judgment. I expect the parties to more rigorously examine this and related issues in the next phase.

b. Balloting

InterLATA presubscription was instituted during the 1980s with the divestiture of AT&T's BOCs. Presubscription was initiated through a balloting process, wherein customers were given the opportunity to elect their long-distance providers. No party has yet suggested that a similar process with respect to local exchange providers take place in Vermont.[255] This question should be looked into in the later phases.

4. Number Portability

AT&T and the ATP raised the issue of local number portability ("LNP").[256] This refers to the "ability of end users to change local service providers while retaining their local telephone number, and retaining all existing functionality, *i.e.*, class services."[257] The telephony network today cannot support service provider number portability.[258]

AT&T believes that the absence of LNP is an impediment to the development of effective competition in local exchange service and, in support of that contention, offered

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254. This, of course, may change soon enough. Federal legislators are now considering an omnibus telecommunications bill that would remove certain restrictions imposed on the BOCs under the Modified Final Judgment.

255. Tr. 8/30/95 at 214-215.

256. lly pf. at 5; exh. H-2 at 6.

257. Riggert pf. at 26. Mr. Riggert goes on to explain that "It is typically assumed that LNP [applies] only to a change of service provider, and that the location of the end user is fixed, constraining the end user to maintain service at the same physical premises, or at an address that is served by the same wire center." *Id.*

LNP differs from customer number portability, which describes the capability of a customer to retain her phone number regardless of her physical location in the network. Tr. 8/29/95 at 259.

258. Exh. H-2 at 6.

evidence on the willingness of customers to change their local exchange providers, with and without the ability to retain their phone numbers.[259]

At this time, no party requests specific Board action on this issue. This question will be examined in greater detail in the next phase.[260]

a. Competitive Number Assignment and Neutral Third-Party Number Administration

AT&T witness Riggert testified that:

> Telephone numbers are a vital, finite, and shared resource in the telecommunications industry, and control over those numbers is an important component in the maximum feasible development of local exchange competition. . . . Today, NYNEX controls NXX assignment and administration, including NPA relief planning. This arrangement improperly places control of a scarce and shared resource in the hands of a single user group. . . .
>
> An impartial industry body, open to all interested parties and including limited government participation, could administer number assignment efficiently, reduce opportunities for abuse, and equitably represent the views of all interested parties.[261]

Mr. Riggert's points are well-taken. Certainly, competition is hindered by a single competitor's control over an important resource. Still, AT&T does not request that the Board take any specified action at this time, other than to find ways to support national efforts in this regard.[262] To the extent that there are particular steps that the Board can take to assist in the development of a competitively neutral mechanism for number assignment, the parties should present such evidence and recommendations during the next phases.

F. Public Service Objectives

1. Basic Service

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259. *Id.* at 26-27.
260. Docket 5713, Order of 3/1/94.
261. Riggert pf. at 28-29.
262. Tr. 8/30/95 at 213-218.

In this investigation, the Board must define the elements of basic telecommunications service ("basic service").[263] This is especially necessary in a competitive environment, in order to establish a "floor" for the purposes of eligibility for universal service fund ("USF") disbursements and also for determining "carrier of last resort" status.[264] Absent a clear definition, universal service support mechanisms could inappropriately fund distinctly different services. They could also subject providers to unequal responsibilities.[265]

Defined too broadly, basic service requirements risk being harmful to new entrants.[266] As the number of required basic services that a provider must offer (either as a minimum requirement or in order to be eligible for universal service fund support) increases, costs too will increase, possibly making it more difficult for new entrants to participate and grow in the market.[267]

A precise definition of basic service is intended to ensure a consistent standard for that service throughout Vermont, to minimize confusion, and to meet consumer expectations when switching service providers.[268] This is especially the case with that

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263. "Basic telecommunications service" is defined by statute, as is the term "telecommunications service." 30 V.S.A. § 7501(b)(1). While this statute is devoted to the state's universal telecommunications service funding mechanism, the sections's definition of "telecommunications service" provides valuable guidance to understanding the term in the broader context of local exchange competition. The statute defines it as ". . . the transmission of any interactive electromagnetic communications that passes through the public switched network. The term includes, but is not limited to, transmission of voice, image, data and any other information, by means of but not limited to wire, electric conductor cable, optic fiber, microwave, radio wave, or any combinations of such media, and the leasing of such service."

264. Friar pf. at 13-17; tr. 8/29/95 at 197-198.

265. *See* Frontier Brief at 26.

266. Ankum pf. at 22. While actual costs of providing the constituents of basic service are unknowable until costs studies are conducted, it is generally undisputed that the more items included in the definition of basic service, the larger the universal service fund will have to be. Tr. 8/23/95 at 80.

267. Wiginton reb. pf. at 2-3; tr. 8/23/95 at 81. Apart from the relative scale of various companies, the extent of universal service obligations required of new entrants in a competitive environment should be no different than those which NYNEX, as the incumbent LEC, will assume on a going-forward basis. Tr. 8/23/95 at 41, 80.

268. This does not mean that all local service offerings must meet specified minimum service requirements. In the next phases, the parties will be invited to comment on the administrative feasibility and desirability of permitting a more limited service package (*e.g.*, a service lacking, say, EAS provisions, CEA provisions, directory listings, provision of white pages, and/or installation of the phone service) not marketed as "Basic Service" (and not eligible for universal service support) which might, for example, be

segment of customers least likely to be inclined to sort through the potentially confusing aspects of a competitive market.[269]

Currently, basic service is defined by statute for purposes of universal service fund support.[270] It includes: (1) switched voice grade service; (2) the ability to transmit switching instructions through tones in customer-owned equipment; (3) the ability to transmit and receive computer generated data; (4) the ability to communicate with emergency response personnel; and (5) telecommunications relay service which meets required standards.[271]

The statutory list contains basic service elements for current universal service purposes and, as such, the Board lacks authority to order fewer services than those already named, so far as the state's USF is concerned. Still, the list is a useful guide for considering what additional services, if any, should be included in the basic service package of local carriers in a competitive market.

The parties have recommended definitions for basic service that include functions similar to those listed in 30 V.S.A. §§ 7501(b)(1)(A)-(E). Consequently, for the most part, there is general agreement as to what should constitute basic service in a competitive environment. Parties propose that the definition should include (1) switched voice-grade communications,[272] (2) touch-tone,[273] (3) toll service,[274] (4) emergency service,[275] and (5) relay service.[276]

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available for second and subsequent lines into homes or businesses.

269. NYNEX urges the Board to be guided by one of the TYP goals: service should be of a "quality that ensures that telecommunications be reliable, fast, responsive and *transparent to users' needs*." Calabro pf. at 3 (emphasis added).

270. 30 V.S.A. § 7501(b)(1)(A)-(E).

271. Relay service standards are mandated by the Americans with Disabilities Act of 1990, 29 U.S.C. § 706; 12101 *et seq*. and 47 U.S.C. §§ 152, 221, 225, and 611. *See also* 30 V.S.A. § 218a.

272. DPS Brief at 14, fn. 2; NYNEX Brief at 75; AT&T Brief at 58; ATP Brief at 23; MCI Brief at 17; and Frontier Brief at 26.

273. Calabro pf. at 27-28; Ankum pf. at 22; Friar pf. at 12-13. *See also* 30 V.S.A. § 7501(b)(1)(B); Docket 5702, Order of 5/17/95 (re: NET rate design changes, including the elimination of Touch-Tone charges).

274. Access to toll service should include the ability to conduct two-way voice and also voice-grade data transmission. Shapiro pf. at 14-15; Calabro pf. at 26; DPS Brief at 14.

275. DPS Brief at 14 fn. 2; AT&T Brief at 59.

276. Calabro Direct at 26-27; AT&T Brief at 58. *See also* 30 V.S.A. §§ 218(a) and 7501(b)(1)(E).

Parties have proposed other elements which are perhaps implicit in existing definitions of basic service. This is the case with installation,[277] repair service,[278] white pages (or equivalent service), and directory assistance.[279] I conclude that these proposed elements should be included for purposes of this docket in the definition of basic service.

Parties have also urged the Board to include further elements in its definition of basic service. In particular, parties propose to include (1) single party service,[280] (2) continuous emergency access ("CEA" or "left-in dial tone"),[281] and (3) extended area service.[282] Not surprisingly, these proposed elements parallel those basic service elements investigated in other Board dockets, two in particular.[283] In Docket 5700, the Board

277. The Department is the only party that has urged the Board to make installation an element of basic service. Shapiro pf. at 11. While obviously a necessary first step to any access whatsoever to the network, this key requirement could have been easily overlooked due to assumptions about initial connection to the local network.

278. Calabro pf. at 26-27; AT&T Brief at 58.

279. The DPS, NYNEX, and AT&T argue that basic service should include access to directory assistance and white page services. *See* DPS Brief at 14; NYNEX Brief at 75; and AT&T Brief at 58. It is not readily apparent that white pages, as we know them today, will survive in a competitive environment. The next phase of this investigation will need to revisit this issue. The parties should consider whether there is a need to establish ground-rules for sharing and updating a common database which could be available to and distributed by all service providers.

280. *See* DPS Brief at 14. "Two-way telecommunications service should be provided through single party lines to ensure access to emergency services and all telecommunications features." Shapiro pf. at 14; Dockets 5700/5702, Order of 10/5/94 at 151-154.

281. Tr. 8/28/95 at 91.

282. DPS Brief at 14; NYNEX Brief at 75; AT&T Brief at 59. While suggesting that not all competitors need configure local calling areas of the same size as those currently in effect, NYNEX maintains that the "existing local/toll definitions in place should apply to local/toll compensation." NYNEX at 75; Calabro pf. at 27. AT&T would limit the availability of local usage. AT&T Brief at 59.

283. Docket 5700/5702, Order of 10/5/94; and Docket 5670 (re: Extended Area Service), Order of 9/6/95.

ordered NYNEX to provide single-party service,[284] touch-tone service,[285] and CEA[286] as part of its basic service package.

There is no disagreement among the parties about including single-party service in basic service. There is, however, disagreement about including CEA in the definition. The evidence in this docket persuades me that CEA should be a component of the service obligation of CLECs, though it need not be treated as an element of basic service; this conclusion is certainly consistent with the Board's decision in Dockets 5700/5702. I direct the parties, in Phase II, to address issues associated with the administration of CEA in a competitive market.[287]

In Docket 5670, the Board investigated extended area service offerings and local measured rates in Vermont, as well as their applicability to all current local service providers.[288] The issue of including extended area service within the definition of basic service has been raised by the Department, NYNEX, and AT&T.[289] The Department urges the Board to adopt the minimum local service area requirements established in 5670 for the purposes of basic service.[290] NYNEX maintains that all competitors need not necessarily provide local calling areas of the same size as those offered by NYNEX, however, local/toll definitions currently in place ought to apply to local/toll compensation.[291]

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284. The Board ordered the elimination of multi-party service so that NYNEX subscribers would gain access to many of NYNEX's custom calling features and also the Enhanced 9-1-1 ("E-911") emergency response system mandated by 30 V.S.A. § 7051 *et seq.* Dockets 5700/5702, Order of 10/5/94 at 151-154.

285. The Board found that touch-tone service provided obvious consumer benefits such as ease of dialing and greater access to network services. It also found that touch tone imposed no additional costs. *Id.* at 155-156.

286. In Docket 5700, the Board found that CEA would assure that all subscribers and all service locations have access to emergency service, including 911, and access also to the telephone company itself for purposes of, say, ordering new service or negotiating bill-payment plans. The implications of requiring all service providers to include CEA with their basic service packages is not immediately apparent. *Id.* at 156.

287. For instance, for what period of time after disconnection shall CEA continue? What, if any, difficulties does CEA pose for celluar providers? What mechanisms can be established to ensure that the connection cannot be used to create or perpetuate an undue competitive advantage among providers?

288. Docket 5670, Order of 9/6/95.

289. DPS Brief at 14; NYNEX Brief at 75; and AT&T Brief at 59.

290. Raymond reb. pf. at 41; Shapiro pf. at 14; Wiginton reb. pf. at 7; DPS Brief at 14.

291. Calabro pf. at 26-27.

On review of the record, I conclude that basic service and other relevant obligations of the local exchange carrier should consist of (1) single-party service, (2) continuous emergency access, and (3) the availability of extended area service. Single-party service itself should be made up of several components: switched voice-grade communications, access to toll service, and relay service as appropriate. In addition, installation and repair services, white pages (or equivalent), and directory assistance should also be elements of the basic service package.[292]

As discussed in Section III.F.4. below, I am also recommending that service quality and privacy issues be investigated in a separate docket. I conclude that basic service must include certain minimum service quality, customer protections, and privacy assurances.

2. Universal Service

In 1993, the Vermont Legislature established a program which would assist "every Vermont household to obtain basic telecommunications service at an affordable price, and to finance that structure. . . ."[293] This program, called the Vermont Universal Service Fund, is funded by "a proportional charge on all telecommunications transactions that interact with the public switched network."[294] This mechanism has not as yet been authorized for use in providing high cost assistance and, in any event, it is capped by legislation at two percent of gross retail revenues.[295] Thus, by virtue of the local exchange company being a customer's sole connection to the public switched network, universal service funding is currently distributed on a provider-specific basis rather than on a customer-specific basis.

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292. There are, of course, questions still to be addressed, such as the length of time after disconnection that CEA should be maintained, and how access to all CLECs' business offices should be provided. Furthermore, there may be issues peculiar to wireless CLECs that justify different requirements for those companies.

293. 30 V.S.A. § 7501 *et seq*.

294. *Id*.

295. In Phase II, the parties will be asked to propose explicit and competitively neutral high-cost support mechanisms as alternatives to the Vermont USF, in the event that the legislature determines that the USF shall not be used for the purposes considered here (or shall not be the only mechanism for such purposes).

The advent of local competition will require a review of the provider-specific manner in which universal service funding is currently being allocated.[296] Several parties in this docket contend that the existing funding structure is inconsistent with effective competition, because it is based on an implicit system of pricing and transfer mechanisms.[297] Others acknowledge this and urge the Board to develop a mechanism that is competitively neutral and does not favor one provider over another.[298]

Two proposals for meeting the objectives of universal service have been advanced. The first is the "pay or play" plan forwarded by NYNEX. As described in more detail in Section III.E.2. above, "pay or play" is a compensation arrangement between interconnecting carriers who agree to meet certain service obligations, including geographic and customer-specific criteria, within an established timeframe in order to receive compensation from the incumbent LEC for terminating traffic.[299] For the reasons set out in that section, I have recommended that the Board reject the "pay or play" proposal.

The second proposal is for disbursement through the "virtual voucher." It is a means of providing individual customer funding and is proposed by MCI, Frontier, and Hyperion.[300] The virtual voucher system, in effect, provides universal service support to a customer rather than to an individual LEC. The system allows each customer to choose her own local exchange company; that company would then "receive from the fund (in the form of a credit) an amount equal to the required subsidy."[301]

The Department does not, at this point, propose a specific mechanism for supporting universal service, but the DPS does believe that the existing universal service funding mechanism can be adapted to meet its objectives in the competitive local exchange

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296. MCI Brief at 16 and 18.

297. Ankum pf. at 20-21; Cornell reb. pf. at 22.; MCI Brief at 16; DPS Brief at 16; and AT&T Brief at 59.

298. Shapiro pf. at 5; Friar pf. at 16; Raymond reb. pf. at 50; Ankum pf. at 21, 23-24; tr. 8/27/95 at 108, 115, 169; tr. 8/28/95 at 65; tr. 8/29/95 at 17; tr. 8/30/95 at 100; MCI Brief at 2; AT&T Brief at 59.

299. Calabro pf. at 24-25; tr. 8/31/95 at 71.

300. Tr. 8/27/95 at 108; MCI Brief at 18.

301. Ankum pf. at 24.

market.[302] However, the DPS argues that the development of such a mechanism warrants further investigation in this proceeding.[303] One issue to be resolved—the foremost issue according to the Department—is the size of the fund itself.[304]

I concur with the Department. This question has not yet been examined fully. In fact, it was never intended that this Phase would dispose of the issue; rather, our objective here was to explore the general relationship between competition and universal service, and to identify the issues pertinent to the equitable collection and disbursement of universal service funds in a competitive market.[305] At least in part, the Board's decision in this respect depends on the underlying costs of the elements of basic service and must await, therefore, the completion of the cost studies.

Several comments may help guide the parties in their further efforts in this context. The virtual voucher mechanism appears promising. My preliminary opinion is that it satisfies the requirement of competitive-neutrality in disbursement. However, at this point, I am not persuaded to accept the recommendation of AT&T that universal service "funding should only be provided based on economic need and should follow the subscriber."[306] Since the general premise for universal service support is to offset the high average loop costs faced by Vermonters, it would seem that a per-subscriber credit, regardless of income, would be appropriate. Other programs to meet the needs of, say, low-income customers (such as Lifeline and Link-Up) need not be affected by this.

We will address these issues in greater detail in Phase III, including the question of whether additional legislative action would be useful or necessary to achieve any recommended objectives.

3. Carrier of Last Resort and Service Area Requirements

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302. DPS Brief at 22.
303. *Id.* at 23.
304. *Id.*
305. Order of 3/1/95 at 6.
306. Friar pf. at 14; AT&T Brief at 57.

Carrier of last resort issues will be explored fully in the later phases of this docket.[307] At this time, however, several observations should be made.

The Board is entirely aware of the public interest implications of this subject. There is also no question among the parties of the necessity of assuring that a carrier of last resort is available to all Vermont customers.[308] Nevertheless, there is some disagreement among the parties that centers on the scope and application of the carrier of last resort requirements which have yet to be determined. MCI made the general suggestion to relax the carrier of last resort obligations.[309] AT&T is opposed to service area requirements on grounds that they constitute barriers to entry.[310] NYNEX, on the other hand, argues that such a requirement would be fair and reasonable.[311]

At this point, I conclude that, in conjunction with the network unbundling requirements and pricing rules recommended in this proposed decision, as well as appropriately designed local resale opportunities (to be developed in Phase II), certain service area obligations should not constitute a significant barrier to competitive entry. For example, it may be reasonable to require, as a condition for receiving universal service support, that a CLEC serve all customers who request service in those areas in which the CLEC is certified to operate. This would apply to the incumbent LEC as well. I cannot make a final recommendation on this question today—there are yet too many details to be resolved before a decision can be made—but I direct the parties to develop detailed proposals for consideration in Phase III.[312]

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307. *See* Shapiro pf. at 15; tr. 8/28/95 at 110; tr. 8/28/95 at 176, 226, and 305; DPS Brief at 60, 72-73.

308. "Every customer should have a carrier of last resort . . . to fulfill basic service obligations, including both Basic Facility and Basic Service." Shapiro pf. at 15; *see also* tr. 8/28/95 at 305.

309. Tr. 8/28/95 at 175.

310. AT&T Brief at 51, 53.

311. Calabro pf. at 7-8, 22, 24-25.

312. In particular, I would like to explore the relative advantages and disadvantages of the various alternatives for service area obligations, to wit: (1) state-wide, (2) exchange-level, (3) census block, (4) or any others that are reasonably proposed.

4. Minimum Service Quality Standards, Evolving Privacy Issues, and Other Consumer Safeguards

While not explored in much depth in this docket, service quality and customer privacy have been considered and acknowledged as issues worthy of further investigation as these markets become competitive.[313] At a minimum, the service quality, privacy protections, and other safeguards afforded consumers should not be degraded by competitors. The privacy selections available to consumers in the current environment should be extended to an environment with multiple providers. Finally, the actual privacy selections (*e.g.*, unlisted numbers, caller ID blocking) should be respected by all carriers. However, it is not necessary that these questions be resolved in this docket. Consequently, I recommend that the Board immediately open a separate and parallel investigation into these issues.[314]

5. Other Public Service Obligations

In the past, the LECs, the Department, and the Board have worked to establish existing consumer safeguards and protections.[315] In addition to customer privacy, discussed above, these protections have included, for example, protection from abuses associated with pay-per-call services.[316] These protections have also have been intended to satisfy certain customer expectations.[317]

No one argues that competition will obviate the need for such safeguards in the future. I see no reason to relax the customer protections developed under the current

313. Calabro pf. at 3 and 19; tr. 8/28/95 at 108 and 109.

314. I believe, however, that privacy issues in that docket will be most fruitfully reviewed once the mechanisms for sharing customer information between providers has been established in Phase II of this investigation.

315. Calabro pf. at 31; tr. 8/31/95 at 112.

316. *Id.*

317. Tr. 8/31/95 at 116.

regulatory system.[318] Nor is there any authority or reason to abandon other programs such as Lifeline,[319] Link-up,[320] 911,[321] or E-911.[322]

G. Industry Structure and Regulatory Requirements

1. Certificates of Public Good

Currently, a firm must be granted a certificate of public good ("CPG") by the Board before it may offer telecommunications services in Vermont. The Department and ATP recommend that the CPG requirements for new entrants be eased, although they do not suggest specific reforms.[323] The Department maintains that this is a question for Phase III.[324]

I agree. At this time, there is no reason to change the current regulatory processes with respect to CPGs. The parties are directed to consider this issue in the final phase of this docket.

2. Tariff Filing Requirements

As with CPGs, the record in this case so far does not support a finding that current regulatory requirements for the filing of tariffs by telecommunications providers should be altered. This too is a question for the third phase.

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318. Calabro testimony of 8/31/95 at 205.

319. Lifeline is a program through which low income Vermont customers can have access to dial tone at reduced charges.

320. The Link-up program is designed to connect low-income Vermont customers telecommunications installation at half the cost.

321. 911 service allows a caller to dial those three numbers and to be automatically connected to the local emergency service dispatcher, usually a police agency.

322. Enhanced 911, known as E-911, is a more expensive service which uses software that routes calls and dispatches emergency service based on caller location.

323. Raymond pf. at 10; ATP Proposed Decision at 20.

324. DPS Brief at 69.

H. Independent LECs

As described in Section III.D.3.a., Cost Study Methodology, I have recommended that the independent LECs be given some flexibility in determining the costs of their unbundled services. They should be given the option to perform their own cost studies, alone or in cooperation with other Vermont ILECs, or rely upon the results of a properly performed study by NYNEX.

IV. CONCLUSION

I recommend that the Board adopt the rules for network unbundling, costing and pricing, and interconnection that are set out in detail in Section III. In addition, I recommend that the Board direct NYNEX to modify its cost study proposal to meet the concerns raised by other parties and file it within sixty (60) days of this Order.[325]

Also in this proposed decision I have instructed the parties to prepare testimony and evidence on specified issues, for examination in Phases II and III. Those directives are, of course, in addition to the list of issues set out in my Procedural Order of March 1, 1995.

I have become convinced by the broad range and intricacies of the issues in this docket that Phase II will be more efficient if we proceed, at the start at least, with structured workshops of the sort described by the Department in its letter of June 28, 1995. In my procedural order of October 27th, I set January 23, 1996, as the date of the first workshop. Because of a scheduling conflict, that workshop must be moved back two days, to January 25th. At that time, the parties shall be prepared to propose detailed processes and objectives for those workshops, and a time-frame for their completion.

Also in that October 27th Order, I directed the parties to file their Phase II position papers on January 5, 1996. It appears more sensible to me now, in light of the extraordinary complexity of this case, that it is appropriate to extend the deadline for the position papers until after that first workshop. Accordingly, Phase II position papers shall be filed on or before February 2, 1996. In this way, the parties will have more time to file their comments on this proposed decision.

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325. *See* Section III.D.3.c.

This Proposal for Decision has been served on all parties to this proceeding in accordance with 3 V.S.A. § 811.

DATED at Montpelier, Vermont, this 8th day of May, 1996.

s/Frederick W. Weston

Frederick W. Weston, III
Hearing Officer

V. BOARD DISCUSSION

Today we issue a final Order in the first phase of this three-part investigation into competition in the local telecommunications market. We began this review in the conviction that the time has come to open the local exchange market to competitive forces in order to provide greater choice, enhanced capabilities, and improved service for all customers of the public switched network. Events have occurred since this investigation began that only underscore the need for clear and fair rules to manage the competitive process. This Order is a first step in the development of that new competitive environment in Vermont.

A. The Federal Telecommunications Act of 1996

On February 8, 1996, the Telecommunications Act of 1996 ("Act") was signed into law by President Clinton. It is the first comprehensive national telecommunications legislation to be passed since 1934. It implements significant legal and regulatory reforms at the state and federal levels, and imposes new duties and responsibilities on carriers for the purpose of opening telecommunications markets to competitive entry. In so doing, the Act seeks to subject telecommunications providers to the discipline of the marketplace, thereby stimulating technological innovation, efficiency, and improvements in service quality and reliability.

Our decision today is consistent with—indeed, complements—the Act. The principles and mechanisms that we adopt will facilitate the work that we do under the Act, and give much-needed guidance to market participants as they move forward in the competitive environment. Moreover, this Order provides a solid foundation for the resolution of the detailed technical and economic issues to be addressed in the later phases of this docket, and upon which fair competition over the long-term will depend.

We recognize, however, that the Act imposes some near-term obligations upon regulators, incumbent providers, and competitors that may require immediate action in the absence of complete information and a more fully developed record. Specifically, the Act sets compressed time-lines for the review, mediation, and arbitration of interconnnection

agreements. We may shortly be called upon to approve the rates, terms, and conditions of such agreements, even in the absence of reliable cost studies (conducted pursuant to Section III.D.3., above) and other relevant information. We fully expect parties to negotiate agreements that are consistent with the requirements of this Order and in the knowledge that future decisions in this docket may have impacts on the on-going administration and approval of such arrangements.

It is obviously necessary that this docket continue and that the parties and Hearing Officer take all reasonable steps to resolve outstanding issues in a timely manner. While we expect that our work under the Act will address a number of the issues that this docket has yet to fully explore (at least in some, perhaps interim, measure), many questions still deserve the considered study recommended by the proposal for decision. Among those issues are: the appropriate methodology for calculation of the "mark-up" for joint and common costs, rate design, service territory requirements, the obligation to serve, and universal service. Our reviews of interconnection agreements may deal with aspects of these issues, but we cannot expect to resolve them fully and finally in the time-frames contemplated under the Act. We commend the parties for their substantial efforts so far in this docket, and remind them that we all have much work yet to do.

B. Comments on the Proposed Decision

Generally speaking, the parties support the proposal for decision ("PfD") and recommend that the Board adopt it. Most commenters, however, also recommend that the Board amend certain provisions of it. Briefly, the parties' positions can be summarized as follows.

The Department of Public Service strongly supports the PfD and recommends that it be adopted, subject to several minor modifications.

NYNEX generally endorses the proposal for decision, but requests that it be modified in a number of ways. In particular, NYNEX requests that the Board modify the definition of essential services, adopt the Efficient Component Pricing Rule, decline to

order the Company to negotiate interconnection agreements with cellular providers, and approve NYNEX's "pay or play" proposal.

Three interexchange carriers—AT&T, MCI, and Frontier—also support the proposed decision, but urge the Board to modify it in certain ways. Specifically, MCI and Frontier recommend that the Board set the total service long-run incremental cost (TSLRIC) as the price ceiling for interconnection, with no mark-up for unrecovered joint and common costs. Frontier further recommends that, in order to assure that interconnection rates are set at TSLRIC and to reduce the administrative costs of all competitors, the Board should order "bill and keep" as the method of compensation for interconnection. And both AT&T and Frontier object to the Hearing Officer's recommended imputation standard, which recognizes potential cost differences between a LEC's provision of a feature or functionality to itself and its provision of that same feature or functionality to a competitor.

Atlantic Cellular and Hyperion (jointly the ATP) support the proposal for decision and, like Frontier and MCI, request that the Board cap interconnection rates at TSLRIC. The ATP also ask the Board to "specify on an interim basis . . . the physical and compensation terms for interconnection." ATP Comments at 3.

Lastly, the Independent LECs also support the PfD. They note several issues that they believe require further consideration in Phase II (*e.g.*, whether the ILECs are, indeed, natural monopolies and what the impacts on public policy of such a conclusion should be) and they request that the Board approve the ECPR as a method for calculating the "mark-up."

We have considered the parties' written comments on the proposal for decision and also their oral arguments. No new arguments on specific issues were raised, nor was it shown that the Hearing Officer had overlooked any relevant facts or other considerations in reaching his conclusions. Based on our review of the record and of the Act, and for the reasons detailed in the proposed decision, we adopt the Hearing Officer's findings and conclusions, with minor modifications as discussed below.

1. Pricing for Interconnection and Unbundled Network Functionalities

The proposal for decision describes six broad guidelines that a LEC must apply in setting both wholesale and retail prices. Among them are the requirements that prices be set no lower than the TSLRIC of a functionality or service, and that a LEC must charge itself the same prices for functionalities that it charges its competitors and other wholesale purchasers (the imputation rule).[326] The evidence on these points was detailed and persuasive, and the conclusion is consistent with our findings in Dockets 5700/5702.[327]

Beyond these general criteria, however, the proposed decision offers no greater specificity on pricing. In the absence of comprehensive cost studies and more detailed analysis of the network, the Hearing Officer did not recommend specific rate design policies.[328] Such questions were left to the subsequent phases of the Docket. This is appropriate.

Rate design is a complex process, affected by many technical factors and also by public policy considerations. The evidentiary record at this point does not allow us to reach definitive conclusions on a reasonable rate structure. We note that this Phase I

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326. PfD at 27-36. Specific concerns about the proposed imputation rule are taken up in Section V.B.3., below.

On the question of the resale of a LEC's retail services, the PfD notes that prices can be "either built up from the relevant 'building blocks' or discounted by an amount that, at a minimum, reflect the differences in cost between wholesale and retail provision of the service [*i.e.*, the 'avoided cost' method]." PfD at 26. In theory, the wholesale rates that result from either methodology should be the same. However, for this to happen in practice, the LEC's retail rates would themselves have to be "built up from the relevant building blocks." There is no evidence as yet to suggest that NYNEX's retail rates are set in that fashion.

In any event, we have been spared the effort of having to choose which methodology to employ in setting resale prices. The Act has disposed of this issue by requiring that state public utility commissions:

> determine wholesale rates on the basis of retail rates charged to subscribers for the telecommunications service requested, excluding the portion thereof attributable to any marketing, billing, collection, and other costs that will be avoided by the local exchange carrier.

Act, § 252(d)(3). Even so, we note our expectation that significant differences in wholesale prices set according to the two methodologies will not be long sustainable in a competitive market, because increased facilities-based competition will drive the LEC's retail prices closer to cost (which, in the long run, is TSLRIC).

327. Docket 5700/5702, Order of 10/5/94 at 128.

328. PfD at 40-41.

decision does not restrict our discretion in determining either the structure or levels of retail prices. No hard and fast rules for the treatment of, say, non-traffic-sensitive costs are being set. Should such costs be recovered through fixed, periodic charges or through usage-based rates, or through some combination of the two? Under longstanding principles of rate design, these are ultimately questions of judgment, not mathematics; our decisions will be informed by economic, legal, equitable, and other policy considerations.

Some guidance for the parties and Hearing Officer in the next phases may be helpful. The telecommunications policies of this state are expressed in statute (30 V.S.A. § 202c, 226a, and 226b), the DPS's *Ten-Year Telecommunications Plan*, and earlier Board Orders. In general, they call for reasonably-priced basic local exchange service, continuing infrastructure development, high service quality and reliability, promotion of universal service, and increased competitive delivery of services where appropriate. The design of a LEC's wholesale and retail rates can have a significant impact on the achievement of these objectives.

This Board remains committed to the principle that basic service rates should be comparable throughout Vermont. Competition and unbundling will be managed so as to ensure that local service in rural communities is reasonably priced in relation to equivalent service in more developed regions of the state. This is an established guiding principle in Vermont, and is explicitly recognized in the policies set out in the federal Act. *See* Act, § 254(f).

Therefore, we direct the parties, in their on-going negotiations and later in their testimony, to consider the implications for public policy of their recommendations. Among the issues to be addressed are the following:

- How can we assure that rates for basic local exchange service (both wholesale and retail) will be reasonable and affordable? Should interconnection rates, at least during the transition to a competitive local exchange market, be set to reduce pressures on a LEC to geographically de-average its dial-tone rates?

- What steps should be taken to protect and promote universal service? What broad-based, competitively-neutral mechanisms should be implemented to meet this goal?

- What general criteria should be considered when designing wholesale and retail rate structures? When, for example, should non-traffic-sensitive costs be recovered in fixed, recurring charges and when is it appropriate to recover them in usage-based rates?[329]

Lastly, the question of rate design must necessarily deal with the appropriate recovery of a LEC's joint and common costs. For the reasons given in Section III.D.4., we reject NYNEX's Efficient Component Pricing Rule as a method for doing so. However, we recognize that it will be necessary to develop a sensible and dynamic means of assigning certain joint and common costs to rates since, even under a TSLRIC-based pricing regime, not all reasonable costs of service would otherwise be collected. We direct the parties to develop alternative proposals for addressing this issue. Such proposals should take into account, as appropriate, other factors (such as changes in the overall demand for telecommunications services) that will affect the ability of a LEC to recover its reasonable joint and common costs.

2. Service Quality, Privacy, and Other Consumer Protection Issues

The PfD recommends that we open a separate investigation into minimum service quality standards, privacy protections, and other safeguards to which customers should be entitled, regardless of their chosen carriers. We concur. These questions are of critical importance to ratepayers and warrant the attention that they will be given in a tightly-focused investigation. We will open such an investigation now, with the objective of establishing benchmark standards within one year.

The new docket will focus on minimum standards that all carriers will have to meet in providing retail service to Vermont customers. Issues of minimum service quality standards and other related protections that a carrier must meet when providing services to *other carriers* rightly remain within the scope of Docket 5713. We recognize, however, that

329. The guidelines for the pricing of wholesale services and unbundled service elements set out in Section III.D.4. (pages 35-36, above) are general principles only. Deviations from these rules, particularly number 5, may very well be justified by other policy objectives. Designing rates to reflect the underlying character of cost causation does not necessarily lead us to conclude, for example, that the recovery of non-traffic-sensitive costs in usage-based rates is inappropriate.

the line between standards for carrier-to-end-user service and standards for carrier-to-carrier service is occasionally blurred; it seems reasonable to expect that, in certain instances, the minimum standards for retail service will determine the minimum requirements for wholesale service. Consequently, we intend to complete the separate investigation in time for its results to be taken into account during the third phase of Docket 5713, as appropriate.

3. Compensation Mechanisms for Interconnection

We adopt the Hearing Officer's recommendation that LECs be required to interconnect with competitors for the purpose of providing local exchange service. The Act also requires this. As to the question of pricing for interconnection, Atlantic Cellular and Hyperion recommend that we set the price at its TSLRIC and no more. Furthermore, in order to assure that interconnection rates for local exchange service are set at no greater than TSLRIC, the ATP urge us to require mutual traffic exchange, or "bill and keep," as the method of compensation. During oral argument, the ATP recommended that bill and keep be imposed at least during the initial stages of local exchange competition, until final rates for interconnection (reciprocal compensation) are determined. In addition, they argued that bill and keep will reduce administrative burdens to both competitors and incumbents and, more importantly, set interconnection prices effectively at TSLRIC. ATP Comments at 4; tr. 2/21/96 at 9-20.

For the reasons set out in Section III.E.2., above, we decline to order that interconnection rates be capped in all instances at TSLRIC. However, we do adopt bill and keep as our starting point for compensation arrangements among interconnecting local exchange carriers. The Act provides for incumbents and competitors to negotiate the full range of issues associated with interconnection, including compensation mechanisms. In instances where parties to a negotiation cannot agree on an acceptable compensation arrangement, we intend to order bill and keep. Of course, the Board remains willing to reconsider such a decision, upon receipt of a petition alleging substantial economic or other harm associated with the arrangement. Where a party has demonstrated a

substantial harm, we will consider imposition of an alternative reciprocal compensation arrangement.

There are several reasons for this decision to order bill and keep. First, we are not persuaded by the argument that CLECs will gear their marketing efforts to customers whose local exchange traffic terminates predominantly on the incumbent's network. NYNEX presented no compelling evidence on this point, and there is no reason at this time to conclude that the absence of reciprocal compensation will pose a significant threat to the Company's revenues. Second, by settling on bill and keep arrangements at least until a final order is issued in this docket, the incumbents and CLECs will likely avoid significant administrative, negotiation, and litigation costs. And, third, bill and keep also offers a powerful incentive to both competitors and incumbents to minimize their costs of interconnection.

On a final point, the Act states that:

> A local exchange carrier shall make available any interconnection, service, or network element provided under an agreement approved under this section to which it is a party to any other requesting telecommunications carrier upon the same terms and conditions as those provided in the agreement.

Act, § 252(i). This provision appears intended to assure that all competitors, insofar as they are purchasing similar features and services at wholesale, are treated in the same fashion by the incumbent. In this way, the incumbent cannot unduly discriminate among CLECs, and thereby distort the efficient workings of the market. We believe that this provision applies as well to the compensation arrangements that LECs offer for interconnection: unless justified by specific circumstances (such as, possibly, significant and costly differences in traffic patterns among CLECs), we see no reason to approve compensation arrangements that will impose heavier burdens on some competitors than on others.

4. Imputation

We adopt the imputation rule proposed by the Hearing Officer. It is correct in theory and applicable in practice.[330] It is intended to promote the most efficient use of the existing telecommunications network. However, we share the concern raised by the ATP and noted by the Hearing Officer that the recognition of cost differences between a LEC's provision of a service or functionality to itself and its provision of that same service or functionality to a competitor may create an opportunity for an incumbent to exaggerate such cost differences in order to erect barriers to entry and disadvantage CLECs.[331] To protect against this anti-competitive behavior, we will presume that no meaningful differences between the costs of self-provisioning and wholesale provisioning exist. This rebuttable presumption is supported by the record in this proceeding; while the parties disagreed as to the potential for such cost differences to arise, no party presented empirical data that any cost differences were of significance.[332]

Finally, along these lines, the DPS requested that we clarify the meaning of several terms in the formulas given in Section III.D.4., at page 34 above. Specifically, the Department states that the term $TSLRIC_{BNF \rightarrow LEC}$ in Formula (1) may be redundant, unless it is meant "to include the additional costs that the LEC may incur to make the facility available to itself. . . ." DPS Comments at 4. As for the third term in that formula, the DPS assumes that it refers to "the non-network costs of providing retail service, although the Proposal does not state so." *Id.*

The Department's general understanding of formulas is correct, but it confuses the meaning of the second term in Formula (1). The first formula describes the components of the retail price that a LEC charges for a service, built up from one or more Basic Network Functions, or BNFs. The term $TSLRIC_{BNF \rightarrow LEC}$ denotes the costs, not of the BNF itself, but rather of making the BNF available for the incumbent's own use. The costs of the BNF are

330. *See* Sections III.D.4. at 34-35 and 48-49.

331. *See* Section III.D.4.d., above.

332. Because the incumbent LECs are in possession of the relevant data necessary to reach a final determination on this question, it is appropriate that they bear the burden of proving the existence and magnitude of any such cost differences.

already recognized in the term $TSLRIC_{BNF}$ and are the same for both the incumbent and the CLEC, as the second formula makes clear. Formula (2) describes the components of the wholesale price for one or more BNFs. The term $TSLRIC_{BNF \rightarrow CLEC}$ in Formula (2) denotes only the costs that the LEC incurs to make the BNF available to competitors. In neither Formula (1) or (2) is the second term inclusive of the first; they are separate and distinct.[333] As for the third term in formula (1), the DPS's understanding of its meaning is correct.

5. Unbundling

The proposal for decision recommends that we adopt a two-part test for determining whether a request for unbundled service elements should be approved; namely, requested unbundling must be technically feasible and there must be adequate demand for the feature to justify its unbundling. The Act requires only that an incumbent has:

> The duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms of the agreement and the requirements of this section and section 252.

Act, § 251(c)(3).

To the extent that the Hearing Officer's recommendation is not consistent with the Act, the standard in the Act should apply. To the extent that demand is relevant at all, it is so as a matter of setting "rates . . . that are just, reasonable, and nondiscriminatory. . . ." *Id.* The point is that both the proposed decision and the Act require that a LEC be fairly

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333. An analogy may be helpful. General Motors ("GM") builds automobiles and sells them at retail. GM also produces parts for those cars, and sells them at wholesale to distibutors, repair shops, and auto-parts stores. It costs GM a certain amount to produce, for example, an alternator, and that cost does not change regardless of whether the alternator is to be installed in an automobile at the GM factory or shipped to a NAPA Parts Store in another state. What does change, however, are the costs of delivering the alternator: it may very well cost GM less to provide the alternator to its own factory than it does to deliver it to NAPA. It is that difference that the pricing formulas on page 34 reflect, but which, as we have just stated, we will presume to be of no meaningful significance, absent sufficient evidence to the contrary.

compensated for the use of its unbundled facilities. The nature and level of that compensation (*i.e.*, pricing) will naturally be a function of the expected demand for the unbundled elements: price varies with output.[334] There is nothing in the Act to suggest that such considerations should not be taken into account when determining whether the price for an unbundled element is just and reasonable.

VI. ORDER

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Public Service Board of the State of Vermont that:

1. The findings and recommendations of the Hearing Officer are adopted, as modified herein.

2. The rules and guidelines for unbundling, the performance of cost studies, wholesale and retail pricing, interconnection, and basic service as set out in Section III are adopted.

3. NYNEX shall file its modified total service long-run incremental cost study proposal within sixty (60) days of this Order.

4. NYNEX shall comply with all other directives set out in Section III.

5. An investigation into service quality, privacy, and other consumer protection issues shall be opened.

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334. In the case of a declining cost curve, price will decrease as output increases. TSLRIC-based pricing will reflect this relationship, if it exists. So, for example, if the expected demand for an unbundled service element is relatively small, its unit price will be comparably high: and this fact may further affect demand.

DATED at Montpelier, Vermont, this 29th day of May, 1996.

s/Richard H. Cowart)
) PUBLIC SERVICE
)
s/Suzanne D. Rude) BOARD
)
) OF VERMONT
s/David C. Coen)

OFFICE OF THE CLERK

FILED: MAY 29, 1996

ATTEST: s/Susan M. Hudson
Clerk of the Board

NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board of any technical errors, in order that any necessary corrections may be made.

Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.

Appendix A. Definitions of Cost[335]

Common Costs:	Fixed costs that cannot be attributed to any particular service.
Cost Causation:	The determination that an additional cost that would be incurred if an activity were undertaken or saved if the activity were discontinued.
Cost Recovery:	The act of setting prices to recover costs.
Economic Costs:	The forward-looking cost of accomplishing an activity in the most efficient way possible.
Embedded Costs:	The historic accounting costs of providing service.
Fixed Costs:	Forward-looking costs that do not vary with the volume of demand for any service.
Incremental Costs:	The costs that are incurred by a firm to produce the next increment of output. Short-run incremental costs are those incurred to supply the next increment using current capital stock and facilities. Long-run incremental costs are those incurred to supply the next increment assuming that all factors of production are variable, *i.e.*, so that firm can adjust all of its factors of production to meet increment demand at minimum cost.
Marginal Costs:	The costs that are incurred by the firm to produce a single additional unity of output, no matter how small.
Service-Specific Fixed Costs:	Fixed costs associated with the supply of a particular service.
Shared or "Joint" Costs:	Costs associated with a single physical asset which is necessary to produce two or more services (*e.g.*, cost of postage for billing for more than one service).
Shared Fixed Costs:	Fixed costs associated with the production of more than one, but fewer than all, of its services.

335. These definitions are derived from the prefiled testimony of Dr. Taylor (at 7-11) and exh. H-5.

Total Service Incremental Costs: The costs that are incurred by a firm to produce an increment of output equivalent to the entire volume of a service. Total service incremental cost differs from the ordinary incremental costs in two respects: (1) the per-unit total service incremental cost measures an average incremental cost over the entire range of output of the service; and (2) total service incremental cost includes service-specific fixed costs.

Appendix B. Common Abbreviations

Atlantic Cellular	Atlantic Cellular Company, L.P.
ATP	Alternative Technology Providers (Atlantic Cellular and Hyperion)
AT&T	AT&T Communications of New England, Inc.
BNF	Basic Network Function
BOC	Bell Operating Company
CAP	Competitive access provider
CEA	Continuous emergency access ("left-in dial tone")
CLEC	Competitive local exchange company
COCOT	Customer-owned coin operated telephone
CPG	Certificate of Public Good
DAN	Design Access Network
DPS	Department of Public Service (also "Department")
E-911	Enhanced 911 Board
EAS	Extended Area Service
ECPR	Efficient Component Pricing Rule
FCC	Federal Communications Commission
Frontier	Frontier Communications of New England, Inc.
Hyperion	Hyperion Telecommunications of Vermont, Inc.
IILC	Inter-Industry Liaison Committee
ILEC	Independent local exchange company
IXC	Interexchange carrier
LATA	Local Access and Transport Area
LEC	Local exchange company
LNP	Local number portability
LRIC	Long-run incremental cost
MCI	MCI Telecommunications Corporation
MTS	Message Toll Service
NECA	National Exchange Carriers Association
NYNEX	New England Telephone & Telegraph Company (also "NET")
ONA	Open Network Architecture
POP	Point of presence
SCP	Service control point
STP	Signal transfer point
Sprint	Sprint Communications Company, L.P.
TSLRIC	Total service long-run incremental cost
TYP	The DPS's 1992 *Ten-Year Telecommunications Plan*
USF	Universal Service Fund
WATS	Wide Area Telecommunications Service7