Before the

STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

In the Matter of the Application of Verizon New Jersey, Inc. For Approval (i) of a New Plan for an Alternative Form of Regulation and (ii) to Reclassify Multi-Line Rate Regulated Business Service as Competitive Services, and Compliance Filing	**Docket No. TO01020095**

Direct Testimony
on Structural Separation
of

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witness for the

State of New Jersey
Division of the Ratepayer Advocate

August 3, 2001

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STRUCTURAL SEPARATION OF VNJ WHOLESALE AND RETAIL OPERATIONS

Introduction

Q. Please state your name, position and business address.

A. My name is Lee L. Selwyn; my business address is Two Center Plaza, Boston, Massachusetts 02108. I am President of Economics and Technology, Inc.

Q. Have you filed other testimony before the Board in this proceeding?

A. Yes. I filed direct and supplemental direct testimony on May 15, 2001 and June 14, 2001, respectively, on behalf of the State of New Jersey Division of the Ratepayer Advocate.

Q. What is the purpose of your testimony at this time?

A. This testimony addresses the Cross-Petition filed by AT&T asking that the Board adopt a plan for the structural separation of Verizon-New Jersey ("VNJ" or "Company") into separate "retail" and "wholesale" affiliates.

Structural separation of VNJ's wholesale and retail operations is required in order to achieve full parity of treatment for VNJ and CLEC competitive service activities relative to their respective access to underlying VNJ monopoly services, functions and resources.

Q. Do you support the concept of structural separation of the wholesale and retail components of VNJ's operations?

A. Yes, I do, and for several important reasons.

It is nearly a decade since the New Jersey legislature enacted the 1992 *Telecommunications Act*,[1] legislation that was intended to encourage and facilitate the development of competition in the New Jersey local telecommunications market. And it is some five and a half years since the US Congress passed the *Telecommunications Act of 1996*,[2] landmark legislation that not only sought to encourage telecommunications competition at the local level,[3] but set in motion a series of regulatory processes that were supposed to force incumbent LECs ("ILECs") to open their networks to competitive entry without requiring that entrants first replicate the incumbents' embedded infrastructure.[4]

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1. *N.J.S.A.* 48:2-21.16 *et seq.* Among other things, the *Act* set out the policy of the State "[p]rovide diversity in the supply of telecommunications services and products in telecommunications markets throughout the State ..."

2. Pub. L. 104-104, 110 Stat. 56 (1996), ("Telecommunications Act of 1996").

3. Congress described the *Telecommunications Act of 1996* as "An Act To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." P. L. 104-104, preamble.

4. *See* 47 U.S.C. §§ 251, 252. Sections 251 and 252 of the *Act* confer upon incumbent local exchange carriers ("ILECs") certain specific duties aimed at facilitating competitive

(continued...)

Yet by Verizon-NJ's own evidence as submitted in this proceeding, in all of this time competitive LECs ("CLECs") have succeeded in capturing only a minute fraction of the local exchange service market.[5] But not for want of trying. As VNJ witnesses Taylor, Shooshan and West have themselves observed, some 68 CLECs have filed petitions and have been approved by the Board to enter the New Jersey local telecom market, including several major firms with extensive telecommunications experience and billions of dollars of capital.[6] The persistence of VNJ's overwhelming dominance notwithstanding, these attempts at entry cannot be dismissed as a lack of effort on the part of those CLECs that have tried to stake out a market position in New Jersey. Rather, it can only be attributed to the extraordinary level of difficulty that entrants continue to encounter in accessing VNJ's network resources.

History is of course repeating itself. Two decades ago, the former Bell System was confronted with nascent competition from "Other Common Carriers" ("OCCs") seeking to compete in the long distance market. But in order to provide their services, OCCs

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4. (...continued)
entry (a) by means of the resale of bundled ILEC services that the ILEC itself provides to its own retail customers, (b) through the use of "unbundled network elements" ("UNEs") provided by ILECs for use by competitive LECs ("CLECs") either in conjunction with the CLEC's own facilities or entirely through the use of ILEC facilities, and (c) by means of facilities provided by the CLEC. Sections 271 and 272 of the *Act* confer certain additional obligations upon Bell Operating Companies ("BOCs") that a BOC must satisfy before it will be permitted to offer "in-region" interLATA services in a given state. Verizon-New Jersey is, of course, both an ILEC and a BOC, and is subject to all of these sections of the 1996 *Act*.

5. The proprietary figure for CLEC business market share is provided in my direct testimony in this proceeding, at page 102. CLEC residential market shares are considerably smaller.

6. Shooshan/Weber/Taylor (VNJ), at 41.

needed to interconnect their long distance networks with the Bell Companies' local networks so as to reach individual subscribers. However, at that time the Bell companies were themselves the dominant long distance service provider, and so had inherent financial and business incentives to — and did — limit those rivals' access to the monopoly local networks. Specifically, competing OCCs were afforded substantially inferior access relative to that which the Bell companies provided for their own long distance service, including the requirement that OCC customers dial many additional digits to complete a long distance call.

The solution was a dismemberment of the integrated Bell System into local Bell Operating Companies ("BOCs") that were subject to specific "line of business restrictions" *prohibiting* them from providing long distance services, and AT&T, which was to operate the long distance network. Coupled with the divestiture was a mandate that BOCs provide "equal access" to all interexchange carriers (IXCs), a process whose implementation began almost immediately following the January 1, 1984 break-up and that was substantially completed in a little over five years. The break-up of the former Bell System made the divested BOCs both *financially and competitively indifferent* as to which IXC purchased and used their "access services." Without an inherent incentive to provide preferential treatment to AT&T, the non-AT&T IXCs were able to compete with the incumbent long distance carrier on an equal basis and, in so doing, to acquire a substantial fraction of the interLATA long distance market.[7]

7. For example, from 1984 to 1989 (when equal access was substantially complete), AT&T's share of the interLATA toll market had decreased from 90.1% to 67.5%. As of 1999, AT&T's share had dipped to 40.7%. FCC, Industry Analysis Division, Common Carrier Bureau, *Trends in Telephone Service*, December 2000, at Table 10.8.

But the break-up of the former Bell System did not occur until nearly a decade after the onset of competition in the switched long distance market which, prior to the break-up, was having a great deal of difficulty getting started. The present situation with local service competition is a direct parallel, and the lessons learned from the long distance situation twenty years ago are equally applicable here.

There is no question but that a separation of the monopoly "last mile" network from those segments of VNJ’s business for which competition is economically feasible will have the same competition-stimulating result for local services as the break-up of the former Bell System had for the long distance market. In that regard, I concur with the notion that the remedy of structural separation as between VNJ’s monopoly and (potentially) competitive activities requires careful consideration. At the same time, I believe that it may be possible that somewhat less ambitious measures can be pursued — measures that can be implemented more rapidly than formal structural separation — with the specific caveat that absent compelling evidence that VNJ’s treatment of competitors has achieved full parity with its treatment of its own competitive business units, formal structural separation would be pursued by the Board.

Q. How should the Board address the issue of structural separation in this proceeding?

A. Rather than focus upon the *process* (i.e., the precise form of structural separation that would be pursued), the Board should instead establish a set of policy objectives that are to be achieved, and then devise a plan to reach those goals.

Q. How should the Board go about devising a set of policy objectives that would be addressed through some form of structural remedy?

A. There are basically two overarching goals that should guide the formulation of structural remedies for the present lack of effective competition in the New Jersey local telecommunications market. The solution should assure that

(a) VNJ is prevented from favoring, by virtue of its control of monopoly "essential facilities," those VNJ or Verizon affiliate business segments in which competition is economically feasible and has the potential to develop relative to nonaffiliated competitors, and that

(b) VNJ is prevented from leveraging its monopoly control of the "last mile" and related essential facilities so as to monopolize what would otherwise be adjacent competitive markets.

There are strong and obvious parallels here with the 1984 Bell System break-up. At that time, the prevailing view was that local service (including the subscriber line and the local interoffice switching and transport network) was a "natural monopoly" while long distance service, customer premises equipment, information services, and equipment manufacturing were all either competitive or potentially competitive. The structural remedy that was adopted at that time was to separate the monopoly business segment from the competitive business segments, thereby eliminating altogether the monopolist's incentive and its ability to favor an affiliate in a business segment in which competition is possible. In the intervening decades, the scope of the telecommunications "natural monopoly" has narrowed, and is now generally recognized as being largely limited to what is colloquially referred to as the "last mile," i.e., the distribution facilities running between individual customer premises to the ILEC "wire center," and various other network and corporate functions that possess high degrees of integration economies with that "last mile."

Q. What segments of VNJ’s activities are presently or potentially competitive such that they should be separated in some manner from the underlying monopoly "last mile" functions?

A. The segments of VNJ’s operations that are now potentially competitive include the following:

- The *retailing* of all services, even where the underlying network service remains an absolute or near-absolute VNJ monopoly;

- The provision of certain facilities-based local services in those limited geographic areas in which competing facilities-based carriers have established a substantial presence;

- The provision of on-line information services, including Internet access; and

- The provision of central office-based services that provide functionalities that are alternatively available through the use of customer premises equipment, such as Centrex, Voice Mail, and speed dialing.

Q. What are the segments of VNJ’s business that remain either absolute or near-monopolies?

A. These consist of the following:

- Except for *specific customer premises* at which competing facilities are deployed, the provision of outside plant between the subscriber’s premises and the serving VNJ wire center, including building cable on the VNJ side of the demarcation point, drop wire, distribution cable, remote terminals and cross-connect points, copper or fiber optic feeder cable, channel multiplexing and terminating equipment associated with the subscriber outside plant, the Main Distribution Frame (MDF) at the serving wire center, and intrabuilding cable and wire running between the MDF and a competitor’s collocation "cage" in the wire center building;

- Other network facilities that derive disproportionate and non-replicable economies of integration with VNJ’s monopoly subscriber outside plant, including central office switching facilities that provide dial tone, intraoffice and interoffice switching, switched access to/from IXCs, various vertical features that are built on the basic dial tone platform (e.g., call waiting, caller ID, call return, etc.), and the interconnection of competitively-provided subscriber facilities with VNJ-monopoly subscriber facilities;

- Switched and special access services, unbundled network elements, and access to and use of Operations Support Systems (OSS) for purposes of ordering, configuring, and maintaining underlying monopoly services;

- Transport and termination of CLEC-originated traffic to VNJ subscribers;

- Transport and hand-off of VNJ-originated traffic to CLEC subscribers; and

- Ancillary functions associated with facilitating competitive retail provision of services that are supplied from VNJ monopoly network resources, including customer usage and service data that is required for billing and related customer service functions.

VNJ's existence as a vertically integrated wholesale and retail service provider affords the Company both the incentives and opportunity to favor its own retail and other competitive operations with respect to their access to underlying monopoly network services, functions and resources.

Q. How and in what respects is VNJ able to favor its own competitive business units vis-a-vis its nonaffiliated rivals with respect to these monopoly services and functions?

A. There are essentially two sources of such favorable or, more generally, discriminatory treatment, both of which are themselves highly interrelated:

(1) There exist actual economies of integration as between the provision of the underlying monopoly service or function and the provision of the competitive function; and

(2) VNJ has adopted deliberate measures and practices whose effect is either to deny competitors access to those same economies of integration, or has introduced measures or practices whose effect is actually to introduce inefficiencies in the manner in which competitors access and utilize underlying VNJ services, facilities and resources.

Q. Where an actual economy of integration is present, how can this be extended to nonaffiliated competitors?

A. This can be accomplished by permitting competitors to have the same functional access to the underlying monopoly resources as is provided to the VNJ competitive business unit. Consider two examples:

(1) VNJ retail customer service representatives are provided with workstations that give them direct on-line access to VNJ customer and network resources databases and to OSS. CLECs are generally required to interact with VNJ by submitting Local Service Requests ("LSRs") that are processed by a special bureau dedicated to dealing with CLEC transactions, and/or via Internet-based GUIs (Graphical User Interfaces) that afford a more limited access to some, but not all, of these same systems and databases. The economy of integration that is afforded VNJ's own retail

business units could be readily extended to CLECs by providing them with the same type and level of access to the underlying VNJ systems and databases.

(2) When VNJ provides service at retail to an end user, the Company prepares monthly bills for that customer directly from source data accumulated in various service and usage databases that are maintained as part of the underlying service provisioning activities of the network services business units. When VNJ provides services to a reseller, it utilizes essentially the same retail billing systems to provide bills *to the reseller* that are in essentially the same form and format as the bills VNJ prepares for its own retail customers. The reseller is not afforded the ability to access and utilize the same underlying VNJ databases to prepare its own retail bills, but must instead rely upon various "data feeds" and paper billing (or electronic analogs of paper bills) to prepare bills to the reseller's customers. Were the reseller afforded identical access to the underlying VNJ databases as VNJ affords its own retail billing operations, this billing economy of integration would be extended to the reseller, placing it in essentially an equal position vis-a-vis VNJ's own retail operations.

Although achieving parity in treatment for CLECs is theoretically possible without structural separation, the utter lack of success that has been realized thus far in accomplishing this goal requires that structural remedies be afforded serious consideration at this time.

Q. Is the type of structural separation that is envisioned by AT&T a necessary precondition for assuring these kinds of parity access to VNJ's service ordering, provisioning and billing data collection functions?

A. No, in theory VNJ could certainly design and operate its various systems so as to provide full parity access even under its existing integrated operation. However, repeated and concerted efforts by CLECs to achieve such parity treatment has thus far failed to bear fruit. Structural separation, under which VNJ's own retailing operations would become "just another CLEC" from the perspective of VNJ's wholesale network business, would achieve the kind of parity treatment that has thus far been elusive.

Q. But what if, for whatever reason, it is simply impractical for VNJ to extend its own economy of integration to its competitors because, for example, to do so would entail extensive modifications to and reconstruction of VNJ's existing systems. How should competitors be treated in that circumstance?

A. The critical point is that VNJ's own competitive operations and business units be afforded not just some sort of functional equivalency (as VNJ may itself define it) but rather than these operations be afforded treatment that is in all material respects *identical* to that afforded CLECs — i.e., true parity of treatment. If for whatever reason VNJ cannot provide its CLEC rivals with direct access to its underlying systems and databases, forcing them to interact with these resources via LSRs and Internet-based GUIs, then VNJ's own retail and other competitive activities must be required to interact with the underlying systems in precisely the same manner. Even if the end result for a CLEC of submitting an LSR is ultimately the provision of a VNJ service or UNE, if the CLEC is required to jump through any hoops that VNJ's own integrated retailing functions are allowed to bypass, then the access is not equivalent or equal, and the goals of fair and nondiscriminatory access are not being maintained.

True parity of treatment as between by VNJ with respect to VNJ's own competitive business units and nonaffiliated competitors is critical to the development of competition; the "separate but equal" theory under which VNJ treats CLECs does not produce true parity and does not create the environment in which competition can be expected to develop and flourish. There is no question but that the best solution for achieving parity would be for VNJ to *upgrade* the manner in which competing providers access its monopoly network and monopoly support resources to the level that VNJ furnishes to itself; if that is not possible (and I do not accept the notion that it is not possible), then the "second best" alternative is still full parity, even if that involves foregoing some of the integration economies that VNJ presently enjoys.

Certainly that was the policy decision that was made when the former Bell System was broken up: The pre-divestiture Bell System had advanced exactly the same type of "efficiency loss" arguments that VNJ has advanced here, and there can be no question that some efficiency losses and new costs attributable to the Bell System divestiture were experienced as a consequence of that policy decision. But those fundamentally *short-run* costs and static losses have been more than offset by the enormous dynamic efficiencies that have resulted from the break-up of the former Bell System.[8] Competition has developed in each of the major market segments from which the divested BOCs were removed. Since 1980, long distance rates have decreased (in real terms) by more than 93% and far more than the reduction in traffic-sensitive access charges. The Internet has

8. *See*, e.g., Krouse, Clement G., Kenneth L. Danger, Christos Cabolis, Tanja D. Carter, Jon M. Riddle, and Daniel J. Ryan, "The Bell System Divestiture/Deregulation and the Efficiency of the Operating Companies," *J. Law & Econ.*, **42**:1, Part 1, April, 1999.

become a central element of US economic and cultural life, something that has taken place with minimal direct involvement by BOCs, and involves literally thousands of individual service providers at all levels. Competition and, more to the point, *innovation* in the customer premises equipment market mushroomed beginning almost immediately after the January 1, 1984 break-up. And intense competition has developed in the telecommunications equipment market, producing unprecedented innovation and price decreases over the period since the break-up took place. In short, the break-up of the former Bell System, despite its short-run costs and disruptions, was perhaps the single most successful antitrust initiative in US history.

We are long since past debating the efficacy of promoting competition in local telecommunications services. Accepting the fundamental merit of this national policy, the modest costs and inefficiencies that may be engendered in the short-run to accommodate the requirement for absolute parity will be just as valuable in the current context as the corresponding initiatives were two decades ago when a structural separation solution was applied to the former Bell System.

Q. In its petition, AT&T is recommending formal structural separation of VNJ's wholesale and retail operations. Do you support that recommendation?

A. At the outset, I would note that the kind of formal structural separation that is envisioned in the AT&T Petition is still far short of the kind of structural remedy adopted for the former Bell System. Full structural separation can only be achieved through outright divestiture — the actual separation of these two segments of VNJ's integrated operation into distinct *and nonaffiliated* corporate entities. AT&T is proposing the creation of separate wholesale and retail corporate entities that would both remain squarely under the same Verizon corporate umbrella. AT&T's recommendation thus falls far short of the approach adopted when the former Bell System was broken up in 1984.

As I understand it, the goal of the corporate reorganization that AT&T's petition envisions is to create an operating scenario in which VNJ-retail interacts with VNJ-wholesale in exactly the same manner as would any nonaffiliated CLEC. In this context, VNJ-wholesale would provide to VNJ-retail and to nonaffiliated CLECs all of the services and functions that I identified earlier under strict parity conditions, using the same — not "separate but equal" — interfaces in both situations. If CLECs are to be required to submit LSRs, then VNJ-retail would also be required to submit LSRs and have them processed in exactly the same "carrier-blind" manner by VNJ-wholesale. Alternatively, if VNJ-retail continues to enjoy the same type of direct access to VNJ-wholesale's underlying systems and databases as it does today, then these same capabilities would have to be extended to nonaffiliated CLECs. The choice of which of these two methods would be used would be left to VNJ-wholesale, but in either case strict and absolute parity and nondiscriminatory treatment would have to be maintained.

I believe that the approach being recommended by AT&T in this proceeding would achieve this outcome. At the same time, it may be possible that something short of the formation of two separate corporate units within the Verizon structure might accomplish essentially the same outcome, albeit perhaps requiring greater direct involvement and monitoring by the Board than under the separate corporate unit approach. Whether the increased regulatory demands that would be placed upon the Board under a less-than-fully-separate wholesale/retail restructuring would justify this solution over formal stuctural separation is, of course, something that has yet to be determined.

Any structural remedy must also limit VNJ's opportunity to exploit its position as the dominant incumbent local exchange carrier to limit competition and potentially to monopolize adjacent, otherwise competitive telecommunications markets.

Q. Are there other aspects of the "parity" requirement that need to be recognized and captured under any structural reorganization scenario?

A. Yes. Even if each and all of the wholesale/retail interactions are brought into strict and absolute parity as between VNJ's retail operations and those of its nonaffiliated rivals, VNJ's retail operations would still enjoy formidable incumbency advantages that new entrants would have a great deal of difficulty in overcoming.

Q. To what specific "incumbency advantages" are you referring?

A. VNJ is today the retail service provider for virtually all residential customers and all but a small fraction of business customers within its service territory.[9] If all that is done is to separate the VNJ "wholesale" from the VNJ "retail" operations, VNJ-retail would "inherit" this massive embedded customer base, an extraordinarily valuable business asset whose acquisition arose during a time when VNJ and its predecessor companies (Bell Atlantic and New Jersey Bell) operated under a government-protected monopoly

9. See footnote 5, *supra.*

franchise. Nonaffiliated CLECs would have to expend enormous sums of money and effort to acquire a comparable customer base or even one that is a small fraction of the customer population that is currently being served by VNJ. This massive customer base is VNJ's to lose and CLECs' to gain, but VNJ's cost of *retaining* existing customers - particularly where, as here, the incumbent LEC can trade on its goodwill and longevity built up over more than a century of protected monopoly operations - is far less than the cost that a CLEC would have to incur, on a per-customer basis, to *acquire* new customers. If VNJ's retail is to be afforded the status of a CLEC, it cannot be permitted to enjoy and exploit its incumbency in ways that are not available to its newer local service competitors.

Q. Is there a solution that would limit VNJ's incumbency advantages in a competitive retail local telecommunications market?

A. Yes. Once again we can look to history for guidance. When the Bell System was broken up, the post-divestiture AT&T was awarded the interLATA long distance business and was by default the incumbent dominant long distance carrier with a customer base that consisted of, at the outset, close to 100% of all BOC customers. In order to limit this incumbency advantage, the concept of "balloting" was introduced and applied whenever a particular BOC central office was converted for "equal access" or "1-plus" interLATA dialing. BOC subscribers in the affected area were asked to select an interexchange carrier from a list of available IXCs that was mailed to each customer. The form looked something like a voting ballot, although the choices were not really "votes" *per se*, but were instead affirmative selections by the responding customer of the interexchange carrier from which the customer would receive long distance service. Non-responding customers were "allocated" to IXCs randomly in the same proportion as the affirmative selections made by responding customers. When balloting took place, each IXC was able to affirmatively market its service, encouraging customers to select it as the customer's long distance carrier. This same "balloting" can - and I believe should - be adopted with respect to the assignment of retail local service customers to individual retail service providers.

Q. Will balloting overcome all of VNJ's incumbency advantages?

A. No, but it will be a major step in that direction. It will take some time for customers to get used to the idea that "the phone company" is not necessarily synonymous with Verizon. Ultimately, Verizon should be expected to sustain a market share decrease at the retail level that is comparable to that confronting AT&T with respect to its long distance business.

Q. What status should be afforded the VNJ-retail entity with respect to regulation and other related issues?

A. The ultimate goal is for VNJ-retail to be afforded the same regulatory status and treatment as would be afforded any nonaffiliated CLEC providing retail local telephone service in New Jersey. However, that status cannot be conferred upon VNJ-retail immediately upon its separation from the wholesale network services entity. At the outset, VNJ-retail should be subject to the same general form of alternative price-cap type regulation to which VNJ is presently subject. As VNJ-retail's market share decreases, increased regulatory flexibility and ultimately full deregulation would be appropriate.

Additionally, as long as VNJ-retail continues to dominate the retail local service market, certain other restrictions on its activities should also be imposed. Specifically, VNJ-retail should be prohibited from exploiting its preexisting customer relationships for the purpose of marketing certain competitive services that may be offered by other Verizon affiliates, particularly in the areas of Internet access, advanced data services and, following VNJ's receipt of Section 271 interLATA authority, interLATA long distance services as well. These restrictions can be relaxed and ultimately removed when VNJ-retail's market share decreases to a point that it would no longer be considered the "dominant" local service provider.

Q. At what point could the various regulatory and marketing restrictions on VNJ-retail be eliminated?

A. In my direct testimony in this proceeding, I suggested a phase-down of price regulation as VNJ's market share decreased to 60%, at which point it would be entirely deregulated with respect to rates. This same phase-down approach can be adopted for VNJ-retail with respect to both its regulation and its competitive service marketing opportunities.

Q. How would VNJ-wholesale be regulated under the scenario you are suggesting?

A. VNJ's wholesale services would be subject to strict price cap type regulation with periodic readjustments and reinitialization of rates so as to maintain prices of wholesale services and functions at "just and reasonable" levels. "Just and reasonable" rates, for this purpose, are those that would produce roughly the level of earnings that would traditionally apply for regulated utilities. I am recommending that price cap rather than traditional rate-of-return type regulation be utilized so as to provide the VNJ-wholesale operations with efficiency incentives that would permit the Company to benefit from operational efficiencies for a limited period of time, until the next scheduled periodic review and adjustment of the price cap parameters and rate levels.

It may be possible to achieve the goal of full parity without requiring the creation of separate wholesale and retail VNJ entities, but only where a strict and effective code of conduct is in place and is subject to effective and rigorous monitoring by the Board.

Q. Dr. Selwyn, earlier you suggested that all of this might be accomplished through something short of formal structural separation of the VNJ wholesale and retail operations. What approach do you have in mind?

A. Before I respond specifically to that question, I must emphasize that the competitive benefits of formal structural separation cannot be understated. The most effective approach would clearly be outright divestiture and full separation of the monopoly and competitive business units — the method that was adopted and successfully applied when the former Bell System was split into separate local and long distance corporations. The formation of separate operating companies within the Verizon corporate structure — the approach being recommended by AT&T in this proceeding — offers the benefit of relatively simple and straightforward monitoring, but in the end is still subject to capital, personnel and other resource allocation decisions that will be made at the parent company level, presumably with the goal of maximizing joint profits rather than specifically aimed at achieving true parity.

A third approach was adopted recently by the Pennsylvania Public Utility Commission ("PA PUC")[10] as a modification to a previous ruling that had called for the formation of separate Verizon wholesale and retail corporate entities.[11] Described as "functional/structural separation," the PA PUC's approach does not require that separate corporate units be formed, but instead imposes strict accounting safeguards and a strict "code of conduct" that would govern the interactions between Verizon-Pennsylvania's wholesale network operations and its retail operations. The code of conduct that would apply for the functional/structural separation regime is in the process of being formulated.[12]

Q. Please describe the specifics of the PA PUC's plan.

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10. *Re: Structural Separation of Bell Atlantic–Pennsylvania, Inc. Retail and Wholesale Operation*, M-00001353 (April 11, 2001).

11. *Joint Petition of Nextlink Pennsylvania, Inc. et. al., P-00991648, Joint Petition of Bell Atlantic-Pennsylvania, Inc.*, P-00991649 (September 30, 1999) ("*Global Order*").

12. "The Code of Conduct rulemaking record shall be re-opened for the purpose of receiving comments and reply comments on the appropriate Code of Conduct to be applied *in light of this Commission's determination in the instant proceeding*. This shall be done on an expedited basis. Until completion of the final rulemaking in the Competitive Safeguards Proceeding, we expect Verizon to fully comply with the interim Code of Conduct set forth in the *Global Order*." April 11, 2001 *Opinion and Order*, at 35, emphasis supplied.

A. Because functional/structural separation does not involve the creation of separate wholesale and retail corporate entities, the explicit *inter-company* transactions that would have been recorded on each corporation's books of accounts under formal structural separation would be replaced by *intra-company* transactions that would ordinarily be far more difficult for the Commission to monitor and audit. The PA PUC expressly recognized that "the concept of virtual structural separation involves implementing rules in accounting and operations, as well as regulations that effect a substantial separation, albeit virtual, of Verizon's wholesale and retail local exchange businesses."[13]

Q. What would such accounting and operations requirements entail?

A. At the present time, there is no existing accounting treatment to recognize and record intracompany transfers between "Verizon's wholesale and retail local exchange businesses." Under formal structural separation, VNJ-retail as well as all nonaffiliated CLECs would be required to make *cash payments* to VNJ-wholesale for all services furnished by the wholesale entity. Under the type of functional/structural separation envisioned by the Pennsylvania PUC, currently unrecorded transfers of services and resources from VNJ's network business units to its retail organization would need to be recognized and offsetting "payment" entries would need to be made. Separate cash books would need to be maintained so as to prevent the VNJ retail operations from trading on the wholesale organization's cash position and working capital. Allocations of all jointly-used resources between the two organizational units would also need to be made, and

13. *Id.*, at 30.

nonaffiliated CLECs would need to be afforded access to those same resources at the same prices that are recorded for intra-VNJ transfers. Moreover, in order to assure that VNJ does not deliberately *overcharge* its retail business units for such transfers and allocations, a process would need to be established to assure that all such accounting entries reflect actual costs. There are also no specific existing rules requiring accounting entries be made to reflect the value of any preferential treatment, such as the direct on-line access to electronic customer account and billing data and the "warm transfer" of an inbound call from a VNJ exchange service customer to Verizon Online or (after Section 271 authority is received) to Verizon Long Distance.[14] Indeed, due to the utter lack of any financial tracking of the costs of the "wholesale" services that Verizon's retail operation provides to its retail end user customers, new accounting devices will need to be created so that the Board can determine that the competitive VNJ retail activity is profitable and is not being cross-subsidized by the monopoly wholesale organization. CLECs are forced by the discipline of cold, hard cash to operate within the margin between their own retail price (which is necessarily dictated by VNJ's retail price) and the prices they pay to VNJ for the "wholesale" services the CLECs then furnish to their retail customers. Absent the type of accounting safeguards envisioned by the Pennsylvania PUC, Verizon's retail operations confront no comparable disciplines or constraints.

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14. I believe and recommend that such "warm transfers" to nonregulated Verizon affiliates of inbound calls placed to VNJ be strictly prohibited, together with all other aspects of such "joint marketing" of monopoly and competitive services. Nevertheless, if VNJ is allowed to engage in these kinds of activities, VNJ should be compensated by the affiliates for the full market value of such referrals, with such compensation being flowed through to VNJ monopoly service ratepayers (including IXC and CLEC customers of access services and UNEs) as exogenous cost changes in accordance with the price cap rate adjustment mechanism, or through some other means.

Q. Dr. Selwyn, earlier you suggested that a solution that is short of formal structural separation may require greater direct involvement and monitoring by the Board. Why might this occur?

A. Quite frankly, we really don't have any experience with the type of "functional" or "virtual" structural separation that the Pennsylvania PUC has adopted. Existing accounting rules, structures and practices in use by VNJ are simply not designed to capture the kinds of intra-company transactions that would produce a parity condition relative to the *cash transactions* that surround *all* transactions between VNJ and nonaffiliated CLECs. Some of these problems might be addressed through a code of conduct (for example, by preventing a retail customer service representative from calling her friend in the Outside Plant department to clear up a problem, requiring instead that the same formal processes to which CLECs are subjected be utilized), but many transfers of value will likely go unrecorded and unrecognized. The effect of such unrecorded transfers is, of course, a *de facto* cross-subsidy for the benefit of VNJ's retail operations, a benefit that would be unavailable to nonaffiliated CLECs. Even with respect to recorded transactions, the Board will need assurance that these are fair and cost-based, and are not being "rigged" so as to create an excessive "price" for sales of services to nonaffiliated CLECs.

Moreover, if a less-than-formal structural separation approach is adopted by the Board, it is nevertheless critical that CLECs be afforded equal and nondiscriminatory access to the same resources, in the same manner, and in the same time frame as VNJ provides to its own retail operation. It is unreasonable to expect competition to succeed if VNJ persists in treating its competitors as mere retail customers who happen to be purchasing relatively large quantities of services and/or certain services (UNEs) that *end user* retail customers normally don't. Functional/structural separation must financially track all transactions between VNJ's retail and wholesale divisions just as would be the case for transactions between VNJ and nonaffiliated competitors. And VNJ's retail division must not be afforded "back door" access to the Company's network systems and functions while nonaffiliated competitors are forced to "wait in line" at the "customer service counter." If the Board can accomplish these goals through functional/structural separation, the goal of achieving a competitive local telecommunications market in New Jersey may yet materialize. But, as the Pennsylvania Commission has itself recognized,[15] functional/structural separation under which Verizon is permitted to operate its network (wholesale) and retail activities under the same corporate umbrella will necessarily require far more regulatory oversight than would be necessary under formal structural separation. Strengthening the Code of Conduct to capture these additional requirements and safeguards thus becomes a critically important step. Scott Hempling addresses these issues in his testimony on behalf of the Ratepayer Advocate.

Q. Do you recommend that the Board adopt the functional/structural separation approach along the lines that is being pursued by the Pennsylvania PUC?

A. As I indicated at the outset of this testimony, I recommend that the Board focus upon *objectives* rather than on *process*, that it pursue a solution that will best achieve the

15. *Global Order*, at 231.

overarching goal of establishing an effectively competitive local telecommunications market in New Jersey. If the Board determines that it can realize this goal through something short of formal structural separation of VNJ's wholesale and retail business units *and is prepared to accept the additional regulatory burdens and responsibilities that this approach will necessarily entail*, the Board could certainly attempt to proceed in this manner. However, in so doing the Board should put VNJ on notice that it will expect nothing less than the same market outcome that would arise under formal structural separation, and that if this does not materialize within a set time frame (certainly not longer than twelve months from the date of the Board's Order), formal structural separation will follow.

Structural separation of presently integrated public utilities is gaining widespread interest both within the United States and internationally as well.

Q. Dr. Selwyn, in this and in several other states, the principal proponent of structural separation has been AT&T. Is AT&T the only organization actively supporting this policy?

A. Hardly. Interest in and discussion of structural separation of the monopoly and competitive elements of integrated public utilities has been growing, and has in fact been adopted and implemented for a number of electric and gas utilities. Significantly, this issue was the subject of a general session at the NARUC Summer Meetings in Seattle last month.[16]

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16. CompTel, *Structural Incentives: The Simpler, More Efficient Path to Local Competition*, presented at NARUC Summer Meetings, Seattle, Washington, July 2001.

Of particular note is a recent report and draft recommendation issued by the Secretariat of the Organization for Economic Cooperation and Development (OECD) that was prepared by OECD's Directorate for Financial, Fiscal and Enterprise Affairs, Committee on Competition Law and Policy, issued April 10, 2001.[17] I am providing a copy of the OECD report and draft recommendation as Attachment 1 to this testimony.

The report groups regulatory approaches as either "structural" or "behavioral." In structural approaches, regulatory action primarily addresses the *incentives* on the incumbent to restrict competition. Structural approaches most often entail vertical separation of the competitive and noncompetitive aspects of a utility. By separating the financial interests of the competitive and noncompetitive components, structural approaches remove a noncompetitive component's financial incentives to stifle competitive development and growth.

In contrast, telecommunications regulation in the United States often focuses on behavioral approaches. These primarily control the *ability* of the incumbent to restrict competition, usually by dictating the terms and conditions of competitor access to non-competitive components. Sections 251/252 and 271/272 of the *Telecommunications Act of 1996* are examples of behavior-oriented access regulation. The OECD report finds that behavioral and structural approaches are not equally effective. Access regulation is easiest and most efficient when capacity and costs of the non-regulated industry are easy

17. *Structural Separation in Regulated Industries: Report by the Secretariat*, Organization for Economic Cooperation and Development, Committee on Competition Law and Policy, April 10, 2001, OECD Document DAFFE/CLP(2001)11.

to observe. However, the OECD report cites problems with even the best-case scenario form of access regulation:

> The primary problem with behavioral approaches is that the regulator must struggle against the incentives of the incumbent firm to find ways to restrict competition. The incumbent firm can use all the tools at its disposal, whether legal, technical or economic to delay, to lower the quality or raise the price of access. A well-resourced regulator, through persistence and vigilance, could hope to limit the anti-competitive activity of the incumbent, but the outcome is unlikely to be as much competition as would arise in the absence of the incentive to restrict competition. Potential entrants, fearing the effects of discrimination, despite the best efforts of the regulator, may hesitate to invest in the new capacity.[18]

Even when access regulation is enacted in conjunction with certain policy approaches, such as account separation, management separation or corporate separation (i.e., creating a separate affiliate), the approach still ignores the incentive of the incumbent to restrict competition. Without perfect information and an ideal regulatory environment, this incentive still translates into the will and ability of the incumbent to restrict competition.[19] Specifically, OECD notes that "in the US telecommunications industry, empirical research has found that access agreements were reached more quickly, access negotiations more likely to be successful and the level of entry higher in regions served by vertically-separated companies."[20] And the Bell System break-up is not the only example of the kind of structural remedy at issue here; indeed, the OECD report notes a precedent that is directly on point to the present discussion:

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18. *Id.*, at 48.

19. *Id.*, at 49.

20. *Id.*, at 48.

> In November 2000, British Telecom announced a restructuring plan under which it would voluntarily separate its network operations and maintenance from the other parts of its business — retail telephone, broadband, mobile and Internet services. It is planned that 25% of the network company ("NetCo") would be separately listed and traded on stock exchanges. The CEO of BT, Sir Peter Bonfield, made it clear in announcing this move that it was, in part, a response to regulation: "In my view, the creation of NetCo (a fully separate company) should reduce the need for those aspects of regulations where derive from out current vertically-integrated structure."[21]

Conclusion

Q. What is your overall conclusion and recommendation to the Board with respect to structural separation of Verizon-New Jersey's wholesale and retail operations?

A. Structural separation of the monopoly and competitive activities of regulated public utilities such as Verizon-New Jersey is a policy concept whose time has come. In considering this proposal here, the Board should recognize that the failure of meaningful and effective competition to develop in the New Jersey local services market despite years of regulatory attention and billions of dollars of investment may well be due largely to the insurmountable barriers that perpetuation of the existing integrated ILEC have created. Whatever solution the Board ultimately adopts, it should keep the overarching goal of a competitive local telecommunications market squarely at the center of its policy focus.

21. *Id.*, at 44.

Q. Does this conclude your direct testimony on the subject of structural separation at this time?

A. Yes, it does.

Attachment 1

Structural Separation in Regulated Industries: Report by the Secretariat

Organization for Economic Cooperation and Development
Committee on Competition Law and Policy

OECD Document DAFFE/CLP(2001)11

April 10, 2001

For Official Use **C(2001)78**

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development **05-Apr-2001**

English - Or. English

COUNCIL

C(2001)78
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Council

DRAFT COUNCIL RECOMMENDATION CONCERNING STRUCTURAL SEPARATION IN REGULATED INDUSTRIES

(Note by the Secretary-General)

English - Or. English

JT00105611

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Introduction and Summary

1. On 23 March 2001, the Committee on Competition Law and Policy ("CLP") approved the attached draft Recommendation of the Council concerning Structural Separation of Regulated Industries and decided to transmit the draft Recommendation to the OECD Council for adoption. This note describes the Recommendation and invites the Council to adopt it.

2. This Recommendation is targeted at regulated industries, especially public utility and network industries which are in the process of liberalisation. The potential benefits of liberalisation are well-known and include improved cost efficiency, better service, greater product variety, enhanced innovation and lower prices for users and consumers. The problem is that the full potential benefits of liberalisation may not be achieved if an incumbent firm both controls a bottleneck or essential facility and, at the same time, competes in the competitive parts of the industry against new firms which are seeking to enter. Despite the efforts of regulators, the owner of the bottleneck can often use that position to restrict or slow the development of competition. Separating the bottleneck from the other parts of the industry ensures that all firms compete on an equal footing, allowing competition to develop to the maximum extent possible. The primary effect of this Recommendation is to encourage Member Countries to take serious consideration of such separation at the time of liberalisation and privatisation decisions, carefully balancing the pros and cons of separation against potential benefits of integration. The CLP Committee sees this Recommendation as an important step towards ensuring the full potential benefits of liberalisation are realised and passed on to users and consumers.

The Draft Recommendation

3. The core of the draft recommendation is brief and benefits from an explanatory preamble. In what follows paragraph numbers in the Recommendation are referred to in brackets.

4. The preamble begins by drawing attention to two important related documents – the reference to structural separation in the Communiqué of the 1997 meeting of the Council at Ministerial Level (sub-paragraph 2) and the background report on structural separation prepared by the Secretariat and approved by the CLP Committee [DAFFE/CLP(20001)11] (sub-paragraph 3).

5. The preamble then goes on to establish the framework within which the concerns addressed by the recommendation arise. Specifically, problems arise when a regulated firm which controls a bottleneck or essential facility (referred to in the Recommendation as a "non-competitive activity") also competes in a competitive activity. Other firms seeking to operate in that competitive activity need access to the bottleneck facility to provide services to final users and consumers (sub-paragraph 4). This might arise, for example, if the owner of the track infrastructure in the rail industry also competed in the business of running trains; or if the owner of the electricity transmission grid owned generation facilities; or if the owner of an airport, also owned an airline company, and so on.

6. The introduction of competition in the competitive parts of these industries is often a key aspect of the "liberalisation" of these industries and a key driver of the resulting economic benefits (sub-paragraph 6). The problem is that when the owner of the bottleneck facility also competes in the competitive activity it often has a strong incentive to restrict competition in that activity (sub-paragraph 8) and can do so by raising the price or restricting the quality or timeliness of the access that it grants to rivals to the bottleneck facility, relative to its own subsidiary (sub-paragraph 7).

7. The regulator could try to act against these incentives to restrict access through tight controls on the regulated firm. These sort of controls are referred to in the Recommendation as “behavioural measures” (sub-paragraph 10). Unfortunately, despite the best efforts of regulators, controls of this kind are seldom fully effective. Although the outcomes vary from industry to industry, experience shows that the level of competition is likely to be lower than when the owner of the bottleneck does not itself compete in the competitive activity (sub-paragraph 12). Separation by removing the incentive on the owner of the bottleneck facility to discriminate, allows competition to develop to a greater extent (sub-paragraph 13). Separation is an example of what is referred to in the Recommendation as “structural measures”,

8. In some instances, policy-makers seek to impose various forms of separation which fall short of full ownership separation, such as “accounting separation” or “corporate separation”. The Recommendation recognises that these have some merit but, because they do not address the underlying incentive to deny access, are not likely to be as successful as true structural measures (sub-paragraph 15).

9. The last few paragraphs of the preamble recognise that structural separation has certain costs which need to be borne in mind. In particular, allowing the bottleneck firm to remain integrated may allow it to capture certain efficiencies. These efficiencies, in certain cases will outweigh the potential benefit to competition from separation (sub-paragraphs 16 & 18).

10. The core paragraph of the recommendation (sub-paragraph 19.I.1) advises Member countries, when faced with a situation in which the owner of a bottleneck facility may also compete in a competitive activity to carefully balance the pros and cons of requiring structural measures against the possible efficiencies and the greater regulatory problems of behavioural measures. The Recommendation lists specific benefits and costs which should be taken into account in the balancing process and notes that, in any case, the benefits and costs to be balanced should be those recognised by the relevant regulatory or governmental agencies and the competition authorities.

11. The Recommendation also instructs the CLP to act as a forum for consultation on the Recommendation, to review experience with the implementation of the Recommendation and to assess the need for further changes (sub-paragraph 19.II). Non-member countries are invited to associate themselves with the Recommendation (sub-paragraph 19.III).

Conclusion

12. The Secretary General considers that the draft Recommendation, by encouraging due consideration of structural separation in the course of liberalisation and privatisation decisions, will make a useful contribution towards ensuring that the full benefits of liberalisation of public utility industries are realised and passed on to users and consumers.

13. The Secretary General therefore invites the Council to adopt the following draft conclusions:

THE COUNCIL

a) noted document C(2001)78;

b) adopted the draft Council Recommendation concerning Structural Separation in Regulated Industries annexed to C(2001)78 and agreed to its declassification.

ANNEX

DRAFT RECOMMENDATION OF THE COUNCIL CONCERNING STRUCTURAL SEPARATION IN REGULATED INDUSTRIES

THE COUNCIL,

Having regard to Article 5 b) of the Convention on the Organisation for Economic Co-operation and Development of 14th December 1960;

Having regard to the agreement reached at the 1997 Meeting of the Council at Ministerial level to reform economic regulations in all sectors to stimulate competition [C/MIN(97)10], and in particular to:

“(i) separate potentially competitive activities from regulated utility networks, and otherwise restructure as needed to reduce the market power of incumbents;

(ii) guarantee access to essential network facilities to all market entrants on a transparent and non-discriminatory basis”;

Having regard to the report “Structural Separation in Regulated Industries” [DAFFE/CLP(2001)11].

Recognising that there are differences in the characteristics of industries and countries, differences in the processes of regulatory reform and differences in the recognition of the effectiveness of structural measures, behavioural measures and so on, and that such differences should be taken into account when considering structural issues;

Recognising that regulated firms, especially in network industries, often operate in both non-competitive and in competitive complementary activities;

Recognising that the degree of competition which can be sustained in the competitive complementary activities varies, but that when these activities can sustain effective competition it is desirable to facilitate such competition as a tool for controlling costs, promoting innovation, and enhancing the quality of the regulation overall, ultimately to the benefit of final users and consumers;

Recognising that, in this context, the regulated firm has the ability, in the absence of antitrust or regulatory controls, to restrict competition by restricting the quality or other terms at which rival upstream or downstream firms are granted access to the services of the non-competitive activity, restricting the capacity of the non-competitive activity so as to limit the scope for new entry in the complementary activity, or using regulatory and legal processes to delay the provision of access;

Recognising that, depending upon the structure of the industry, a regulated firm which operates in both a non-competitive activity and a competitive complementary activity may also have an incentive to restrict competition in the complementary activity;

Recognising that such restrictions of competition generally harm efficiency and consumers;

Recognising that there are a variety of policies that can be pursued which seek to enhance competition and the quality of regulation by addressing the incentives and/or the ability of the regulated firm to control access. These policies can be broadly divided into those which primarily address the incentives of the regulated firm (such as vertical ownership separation or club or joint ownership), which may be called structural policies, and those which primarily address the ability of the regulated firm to deny access (such as access regulation), which may be called behavioural policies;

Considering that behavioural policies, unlike structural policies, do not eliminate the incentive of the regulated firm to restrict competition;

Considering that despite the best efforts of regulators, regulatory controls of a behavioural nature which are intended to control the ability of an integrated regulated firm to restrict competition may result in less competition than would be the case if the regulated firm did not have the incentive to restrict competition;

Considering that, as a result, the efficiency and effectiveness of regulation of the non-competitive activity, the available capacity for providing access, the number of access agreements and the ease with which they are reached and the overall level of competition in the competitive activity may be higher under structural policies;

Considering that, under such circumstances, it is all the more necessary that, to prevent and tackle restrictions of competition, competition authorities have appropriate tools, in particular the capacity to take adequate interim measures;

Considering that certain forms of partial separation of a regulated firm (such as accounting separation or functional separation) may not eliminate the incentive of the regulated firm to restrict competition and therefore may be less effective in general at facilitating competition than structural policies, although they may play a useful and important role in supporting certain policies such as access regulation;

Recognising that, in some circumstances, allowing a regulated firm operating in a non-competitive activity to compete in a complementary competitive activity allows the regulated firm to attain significant economic efficiencies or to provide a given level of universal services or service reliability;

Recognising that structural decisions in regulated industries often require sensitive, complex, and high-profile trade-offs, requiring independence from the regulated industry and requiring expertise, experience, and transparency in assessing competitive effects and comparing these with any economic efficiencies of integration; and

Recognising that the boundaries between activities which are potentially competitive and activities which may be non-competitive are subject to change and that it would be costly and inefficient to continuously adjust the degree of vertical separation;

I. RECOMMENDS as follows to Governments of Member countries:

1. When faced with a situation in which a regulated firm is or may in the future be operating simultaneously in a non-competitive activity and a potentially competitive complementary activity, Member countries should carefully balance the benefits and costs of structural measures against the benefits and costs of behavioural measures.

   The benefits and costs to be balanced include the effects on competition, effects on the quality and cost of regulation, the transition costs of structural modifications and the economic and public benefits of vertical integration, based on the economic characteristics of the industry in the country under review.

The benefits and costs to be balanced should be those recognised by the relevant agency(ies) including the competition authority, based on principles defined by the member country. This balancing should occur especially in the context of privatisation, liberalisation or regulatory reform.

2. For the purposes of this Recommendation:

(a) a "firm" includes a legal entity or a group of legal entities where the degree of inter-linkages (such as shareholding) among the entities in the group is sufficient for these entities to be considered as a single entity for the purposes of national laws controlling economic concentrations;

(b) a "regulated firm" is a firm, whether privately or publicly owned, which is subject to economic regulation intended to constrain the exercise of market power by that firm;

(c) a "non-competitive activity" is an economic market, defined according to generally accepted competition principles, in which, as a result of regulation or underlying properties of demand and supply in the market, one firm in the market has substantial and enduring market power;

(d) a "competitive activity" is an economic market, defined according to generally accepted competition principles, in which the interaction among actual and potential suppliers would act to effectively limit the market power of any one supplier;

(e) "complementary" is used in the broad sense to include products (and services) that enhance each other. Products that are complementary to the regulated firm's non-competitive activity therefore include (1) products bought by the firm from (upstream) suppliers, (2) products sold by the firm to (downstream) customers, and (3) other products used in conjunction with the firm's non-competitive product, and where competitors' success in providing such products depends on their or their customers' ability to obtain access to the non-competitive product;

II. INSTRUCTS the Competition Law and Policy Committee:

1. to serve, at the request of the Member countries involved, as a forum for consultations on the application of the Recommendation; and

2. to review Member countries' experience in implementing this Recommendation and to report to the Council within three years as to the application of this Recommendation and any further need to improve or revise the Recommendation.

III. INVITES non-Member countries to associate themselves with this Recommendation and to implement it.

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Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development **10-Apr-2001**

English - Or. English

DIRECTORATE FOR FINANCIAL, FISCAL AND ENTERPRISE AFFAIRS
COMMITTEE ON COMPETITION LAW AND POLICY

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STRUCTURAL SEPARATION IN REGULATED INDUSTRIES

Report by the Secretariat

The attached document is the final version of the report adopted by the CLP on 23rd March 2001. It was previously circulated for approval under the code DAFFE/CLP/WP2(2000)8/REV2.

English - Or. English

JT00105872

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STRUCTURAL SEPARATION IN REGULATED INDUSTRIES

Report by the Secretariat

I. Introduction

1. Many industries, especially traditional utility industries, have a structure in which a non-competitive component of the industry is vertically integrated with a potentially competitive component or activity. Examples of this structure arise in railways, postal services, telecommunications, electricity, natural gas and many other regulated industries.

2. The basic problem that arises in this context is that the owner of the non-competitive component may have both the incentive and the ability to restrict competition in the competitive component. It can do this by controlling the terms and conditions at which rival firms in the competitive component have access to the non-competitive component.

3. Yet, facilitating competition in the competitive component is frequently beneficial. Introducing competition enhances efficiency and innovation in the competitive activities; enhances the range and variety of products available to consumers; and focuses the regulatory interventions on the "core" or the "kernel" of the underlying market failure.

4. The question for competition policy makers is how best to preserve and promote competition in the competitive component. There are a variety of tools or policy approaches that can be used for this purpose. These include:

(a) The regulation of access to the non-competitive component of an integrated firm;

(b) Ownership separation of the competitive and non-competitive components;

(c) Club or joint ownership of the non-competitive component by competing firms in the competitive component;

(d) Placing the non-competitive component under the control of an independent entity ("operational" separation);

(e) Separation of the integrated firm into smaller reciprocal parts; and/or

(f) Limitations on the ability of the integrated firm to compete in the competitive component.

5. The paper explores the use of these tools to protect and promote competition in regulated industries. Examples of all of these approaches can be found in practice in OECD countries in the industries mentioned above.

6. This paper proceeds by examining the underlying incentives to restrict competition and the tools that can be used to address those incentives. Two of these tools – access regulation and vertical separation – are then examined in more detail to assess their relative merits. The paper then looks at several industries to assess the application and effectiveness of these tools in different sectors. The paper concludes with a summary and recommendations of the Committee.

II. The Basic Problem and the Tools for Addressing It

Vertical Integration Between Non-Competitive and Competitive Activities and the Incentive and Ability to Restrict Competition

7. A “sector” of the economy is not a single homogeneous economic activity, but is made up of a number of separate activities or “components”, many of which produce intermediate goods or services for use in other activities. Where two intermediate goods or services are complements in the production of the final good or service, these two intermediate goods are in a *vertical* relationship. Where the two intermediate goods are substitutes in the production of the final goods, the activities are in a *horizontal* relationship. For example, the services of train and track are complements in the delivery of rail transportation services and therefore are in a vertical relationship. The services of two ports which both may be used as a transfer point en route to a final destination are substitutes and therefore are in a horizontal relationship.[1]

8. It is usually the case in regulated industries that there is at least one sector or component in which it is not possible to rely on traditional competition to produce efficient outcomes. There are several reasons why a sector may not be able to sustain competition. Among the traditional public utilities, the most common reason is the presence of traditional economies of scale – when a single firm can meet market demand more efficiently than any combination of two or more firms.

9. A sector may also not be able to sustain competition due to the presence of “network effects” or “demand side economies of scale” – i.e., when the demand for a firm’s services increases with the consumption of its services. Network externalities often arise in information technology and communications industries. There are often benefits to being on a larger network, or on a more widely adopted standard, as it increases the number of people with which one can interact or conduct economic transactions. Provided there are costs of being connected to (or compatible with) two or more networks (or standards), consumers will pay more for the benefit of being on a larger network.[2] Markets which exhibit sizeable network externalities may only be able to sustain a single firm.

10. In addition to these cost and demand reasons, an activity may also be non-competitive where there are regulatory restraints on competition in that activity. Restraints on competition are imposed for various reasons including, most commonly, to permit the incumbent firm a source of revenue to fund mandated non-commercial services. One example is the protection from competition that postal operators enjoy in standard letter mail, which is justified as necessary to protect the cross-subsidisation of letter delivery in high cost or rural areas. In some instances an activity is regulated simply because a competing activity is regulated. For the purposes of this paper, we will include within the set of non-competitive activities those activities which are non-competitive as a result of regulatory restraints.[3]

11. Although all regulated industries include at least one sector which cannot sustain competition, this does not imply that every related sector in the same industry cannot sustain competition. For example, although it is not typically possible to have competition in rail infrastructure, it is, at least in principle, possible to have a degree of competition in train operations.[4]

12. Exactly which activities are non-competitive and which are competitive will differ from country to country according to characteristics specific to each country, such as the geography, level of demand and level of income of the each country.[5] Table 1 identifies, for a number of regulated industries, activities which are often non-competitive and activities which may be competitive (although whether competition is currently permitted in these activities, in practice, will depend on the regulatory regime in each case). The distinction between activities which are competitive and activities which are not is not as clear cut as the

table suggests. Certain activities may only be able to sustain relatively few competitors and an intermediate level of competition. In practice the level of competition that can be sustained in a market is a continuum.

Table 1: Industries Featuring Both Competitive and Non-competitive Components

Sector	Activities which are usually Non-competitive	Activities which are potentially competitive
Railways	Track and signalling infrastructure†	Operation of trains Maintenance facilities
Electricity	High-voltage transmission of electricity† Local electricity distribution‡	Electricity generation Electricity "retailing" or "marketing" activities Electricity market trading activities
Postal Services	Door-to-door delivery of non-urgent mail in residential areas‡	Transportation of mail Delivery of urgent mail or packages Delivery of mail to high-volume business customers, especially in high-density areas
Telecommunications	The provision of a ubiquitous network Local residential telephony in rural areas‡	Long-distance services Mobile services Value-added services Local loop services to high-volume business customers, especially in high-density areas Local loop services in areas served by broadband (e.g., cable TV) networks
Gas	High-pressure transmission of gas† Local gas distribution‡	Gas production Gas storage (in some countries) Gas "retailing" and "marketing" activities
Air services	Airport services such as take-off and landing slots	Aircraft operations Maintenance facilities Catering services
Maritime transport	Port facilities (in certain cities)	Pilot services, port services

Notes:
†Scope for competition varies depending on geography and nature of demand, amongst other things.
‡Services in lower-density, lower volume residential areas are less likely to be competitive than services to high-density, higher volume commercial areas.

13. Introducing competition in the competitive components of an industry offers important benefits. Promoting competition:

(a) Stimulates innovation and efficiency in the competitive activities;

(b) Provides the consumer with a wider set of alternatives, enhances product differentiation and better satisfaction of consumer demand; and

(c) Limits the scope for regulation, allowing more efficient, targeted regulation.

14. For the purposes of this paper, we will assume that policy makers have made a decision to allow competition in the competitive components of an industry wherever possible.

15. When competitive and non-competitive activities are complementary and the owner of the non-competitive activity also competes in the competitive activity, it may have incentives to use its control over access to the non-competitive component to restrict competition. An integrated regulated or state-owned firm usually has a strong incentive to restrict competition in a related complementary activity, for the following reasons:

(a) First, in many cases the regulation of the bundled (competitive plus non-competitive) service will be lighter than the regulation of the non-competitive service alone. In this case, the regulated firm can recapture some or all of the monopoly rents by entering and restricting competition in the competitive activity. For example, suppose that the prices for (competitive) long-distance telecommunications service are not regulated. The regulated provider of (non-competitive) local services then has a strong incentive to enter the long-distance market and, by restricting access to the local service, eliminate rivals and raise long-distance prices, to recapture some of the monopoly profits in the non-competitive local market that would otherwise be lost to regulation.

This argument depends critically on the nature of the regulation of the bundled (competitive plus non-competitive) service relative to the regulation of the non-competitive service alone. If the price regulation on the bundled service is strict relative to that on the non-competitive service, the regulated firm has no incentive to restrict access (and may, in fact, have an incentive to withdraw from the competitive activity).

(b) Second, and more generally, if a regulator has difficulty assessing the value of the assets to be included in the "rate base" of the regulated firm, the regulated firm may seek to enter other markets (vertically related or not) in order to enlarge the size of the "rate base" so as to increase its monopoly profit. For example, if the regulator has difficulty distinguishing which assets are used in the provision of which services, a telecommunications company may have an incentive to enter the market for telecommunications equipment, so as to enhance the size of the rate-base and to increase its monopoly rents.

(c) Third, other arguments have been suggested. For example, a firm in a non-competitive activity may face a threat of new entry or the growth of technological innovations which compete with its monopoly. Rival firms in the competitive activity may be the most likely source of such new entry or new innovations. By restricting competition in the competitive activity, the incumbent firm may be able to make new entry or new innovation unlikely: new entry or new innovations must substitute for the larger, bundled, non-competitive and competitive service combined, raising the entry barriers and reducing the likely flow of new innovations. For example, a telecommunications company, fearing the growth of competition in local loop services, and considering that long-distance companies are the most likely candidates to enter the local market or to develop new technologies which bypass the local loop, has a clear incentive to restrict the development of rivals in long-distance services.

16. In the case of the electricity industry the FTC explains these incentives as follows:

> "A monopolist whose rate of return is regulated has an incentive to evade the regulatory constraint in order to earn a higher profit. Its participation in an unregulated market may give it the means to do so, either by discriminating against its competitors in the unregulated market or by shifting costs between the regulated and unregulated markets. The discrimination strategy involves complementary products. The monopolist controls others' access to its regulated product in ways that permit it to earn supra competitive returns in its own operations involving the unregulated complement. Discrimination could appear as a subtle reduction in quality of service, whose effects would be more difficult to identify and measure than outright denial of access. An integrated transmission monopolist might afford other generation sources access to its transmission services only on terms that raise others' costs and permit the monopolist to make supra competitive profits in the generation market.
>
> The cross subsidization or cost shifting strategy involves inputs used for both regulated and unregulated products. Costs of the shared inputs, which in the electric power industry might include scheduling and general overhead, are assigned to the regulated business to justify higher cost-based rates there. This shifting distorts competition and produces inefficiencies in the unregulated business as well." [6]

17. In this paper "regulation" will be used to refer to economic regulation of market power. A firm will be considered to be regulated if it is subject to implicit or explicit regulation intended to constrain the exercise of any market power that it otherwise would have. The form of the regulation will often be important. Rate-of-return regulation may yield a different outcome to price-cap regulation. By "state-owned" we will refer to a firm which does not maximise profits alone either due to implicit or explicit constraints or because it pursues other objectives (such as employment maximisation). This could include local-authority owned firms, or even co-operatives or non-profit firms. State-owned firms which face strong incentives for profit-maximisation, are not constrained by their government owners and which face a hard-budget constraint would be indistinguishable from private sector profit-maximising firms and would normally be excluded from this definition. [7]

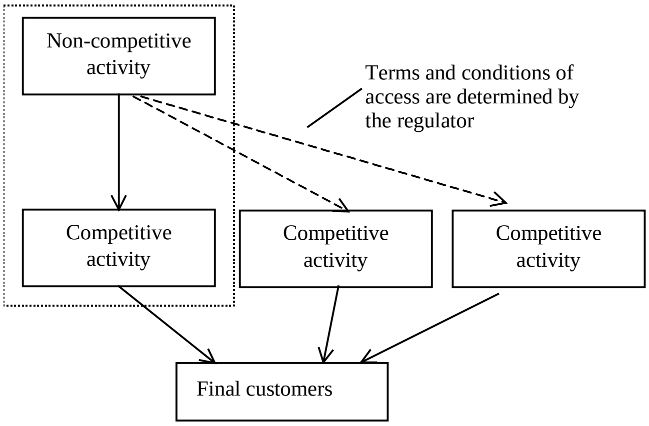
Tools For Protecting and Promoting Competition

18. There are a number of policy approaches or "tools" that policy-makers can use to protect and promote competition in the competitive component of an industry with complementary competitive and non-competitive segments. These are examined in turn.

Access Regulation

19. The first approach that we will consider is *the regulation of access to the non-competitive component of an integrated incumbent firm*. Under this approach the regulator intervenes to fix the terms and conditions at which rival firms in the competitive component acquire access to the non-competitive services. The regulator sets these terms and conditions to facilitate competition downstream between the rival firm and the competitive component of the integrated firm. It does not matter for our purposes whether the parties have some flexibility to negotiate their own access terms and conditions as long as the regulator can intervene on request when necessary. The regulator must also assess the available capacity of the non-competitive component to make sure that capacity is available to fill access requests and ensure that none of the available capacity is being withheld. This can be illustrated as follows:

Figure 1: Access Regulation



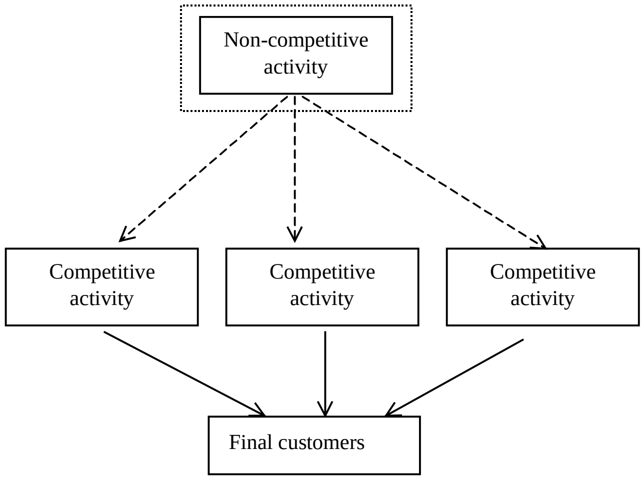
20. The pros and cons of access regulation are assessed more fully in the next section of this paper. Briefly, access regulation has the advantage that certain economies of scope from integration can be preserved, but the regulator must constantly struggle against the incentives of the integrated firm to deny access. The success of the regulator will depend on its resourcing, information and instruments of control. The next section of the paper sets out some evidence that, despite the best efforts of the regulator, the resulting level of competition under this approach will be less than if the integrated firm did not actively seek to prevent the growth of rivals.

21. Access regulation is easiest and most efficient when the capacity and the quality of the non-competitive service is easy to observe. In this case, the regulator merely must ensure that all requested capacity is made available at non-discriminatory terms and conditions, perhaps through a market, such as a market for slots at an airport or for released capacity in a gas transmission pipeline. Since access regulation focuses primarily on controlling behaviour, it can be labelled a behavioural approach.

Ownership Separation

22. The second approach considered here is *vertical separation of the non-competitive activity and the competitive activity,* protected by line-of-business restraints or other controls on integration. Under this approach the owner of the non-competitive part has no incentive to discriminate or distinguish artificially between competing firms in the competitive activity. It can be illustrated as follows:

Figure 2: Ownership Separation

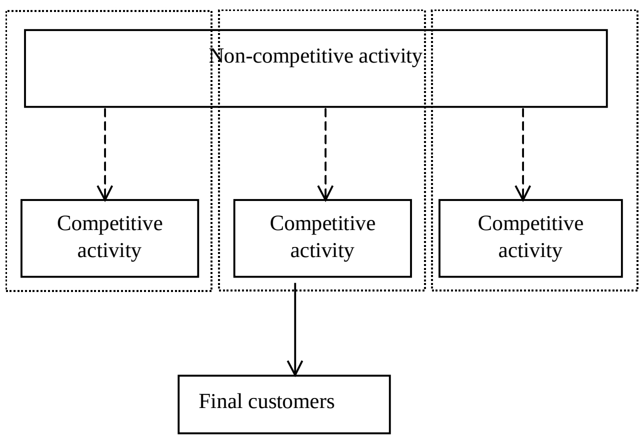


23. The pros and cons of ownership separation are discussed more fully in the next section. The primary advantage of full ownership separation is that it eliminates the incentive for discrimination between downstream firms. This alleviates the need for regulation and typically enhances the level of downstream competition. The primary disadvantage is the potential loss of economies of scope from integration. Since this approach primarily addresses the incentives of the incumbent firm, it is best labelled a structural approach. In most cases, separation of this kind will need to be enforced through line-of-business restraints, which prevent the non-competitive activity from entering the competitive activity. [8]

Club Ownership

24. A third possible approach is *club or joint ownership of the non-competitive activity by firms in the competitive component*. Under this approach each of the downstream competitive firms owns a share in the non-competitive activity, as illustrated below.

Figure 3: Club Ownership



25. This approach has many of the advantages of separation – it eliminates the incentive to discriminate among rivals and thereby reduces the need for active regulatory oversight and intervention. By maintaining a close link between the non-competitive activity and its downstream users, the non-competitive activity is kept responsive to the needs of its customers. On the other hand, this approach also has certain important drawbacks. First, the downstream rivals collectively have an incentive to deter new

entrants. Therefore, some form of intervention is still necessary if there is the possibility that new entrants will wish to join the “club”. Second, the downstream firms may be able to use their control over the non-competitive component to facilitate collusion among themselves (for example, by refusing to sell on equal terms to a downstream firm that was not complying with the collusive agreement). Third, where the number of downstream firms is large the joint ownership may be too diffuse, leading to governance problems.

26. Nevertheless, joint or club ownership can be valuable, especially where the number of potential members of the club is strictly limited, such as the allocation of take-off and landing slots at an airport. Most EU countries have chosen joint ownership between the major airlines and the slot allocation function at major airports.

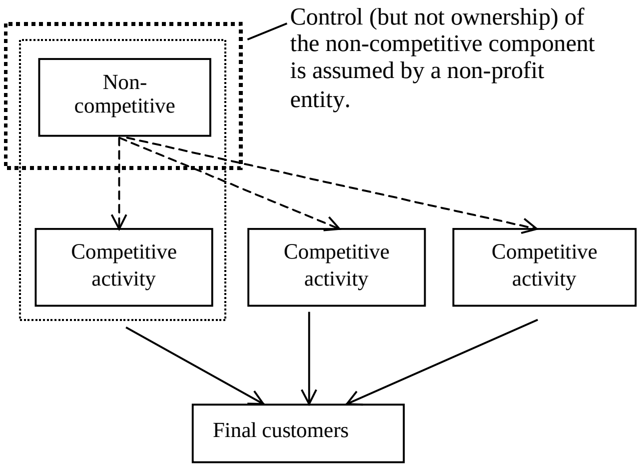
Operational Separation

27. A fourth approach involves *placing the non-competitive component under the control of an independent entity (separation of ownership and control)*. This approach can be viewed as a hybrid of the other approaches above. The precise nature of this approach depends upon the governance structure of the entity which assumes control of the non-competitive component. If that entity is dominated by the regulator, this approach is somewhat analogous to access regulation (although the regulator, by effectively sitting on the board of the non-competitive firm may have access to more information and instruments of control). If the governing entity contains representatives of the downstream firms, the approach is somewhat analogous to joint or club ownership. If the governing entity is independent of all the other players, the approach is somewhat analogous to ownership separation.

28. An important question is whether the independent entity should be permitted to receive a share of the profits of the non-competitive activity. If the governing entity has no interest in the profitability of the non-competitive component it may have little incentive for efficient and innovative operation or investment in the non-competitive activity. It might be possible, however, to receive a share of the profit of the non-competitive activity provided it has full control (i.e., any shares held by related companies are non-voting) and provided the governing entity itself has no interests in related companies.

29. This approach can be illustrated as follows:

Figure 4: Operational Separation



30. This approach, which is also known as "operational separation" or "operational unbundling" has been adopted in the US electricity industry. The FTC states that operational unbundling in the electricity industry:

> "has taken the form of an entity independent of the [electric] utility operating the transmission and distribution grids to ensure open access and transparent pricing, although the monopolist retains ownership of the physical assets. The operational unbundling plan may work to preserve economies of vertical integration, internalize loop flow externalities (caused by the fact that electricity does not follow a contract path, but rather the path of least resistance), and assure transparent investment signals for potential investors while eliminating the strategic opportunities of the monopolist to subtly favour its own generating capacity".[9]

31. The primary advantage of operational separation is that it largely eliminates the ability of the non-competitive firm to act anti-competitively. Provided the governing entity has full control over the non-competitive component, the opportunities for anti-competitive behaviour are effectively eliminated. The primary disadvantage of operational unbundling is that because control of the non-competitive component is in the hands of an entity which might not have a profit motive, incentives for efficient and responsive operation, maintenance and investment are weak. Interestingly, in a recent development in the US, a proportion of electricity marketing companies (which arrange contracts between generators, transmission companies and electricity consumers) have reversed their initial position in favour of operational unbundling, to favour structural separation instead. It appears that these marketing companies have found that transmission companies, operating under operational unbundling, are insufficiently responsive in customers demands, especially for new or innovative contracts.[10]

32. Operational separation is most useful in situations where the operation of the non-competitive component is straightforward, with little scope for innovation, investment or development. In these circumstances the lack of economic incentives on the governing entity is less of a concern.

Separation Into Reciprocal Parts

33. The fifth possible approach to protecting competition involves the *separation of the non-competitive component into smaller reciprocal parts*. This approach relies on network effects to offset the incentive to deny interconnection.

34. This can be most easily illustrated in the telecommunications sector. In telecommunications the market power of the incumbent arises in part from traditional economies of scale but also, importantly, from demand-side economies of scale – consumers are prepared to pay more to be connected to a network on which they can contact more people. Thus, when one network interconnects with another, both networks stand to gain.

35. The relative bargaining position of each network in interconnection negotiations depends, amongst other things, on the consequences of failure to interconnect. If one of the networks expects that, in the event of a failure to interconnect, it will gain all the customers of the other network, it has no incentive to interconnect – it can gain the benefits of the additional subscribers without sharing some of those benefits with a rival. On the other hand, if legal or economic constraints prevent one network quickly or easily taking over the customers of the other, each network gains from interconnection, because the subscribers to each network can now reach more customers than they could if the two networks remained distinct – in this case, it is in the mutual interests of the firms to interconnect. The result is that interconnection is more likely to be agreed, even in the absence of external regulation.

36. For example, in the case of a new entrant telecommunications company with a small network negotiating with a large incumbent, if the incumbent expects that the customers of the entrant will return to the incumbent's network in the event that the two companies fail to reach an interconnection agreement, the entrant will have relatively little ability to affect the terms demanded by the incumbent. On the other hand, in the case of two large established networks competing for the same group of customers for which each could not be sure to expand (or even survive) in the event of failure to reach an interconnection agreement, each firm can use the threat to call off negotiations as a real discipline on the terms and conditions that are offered.

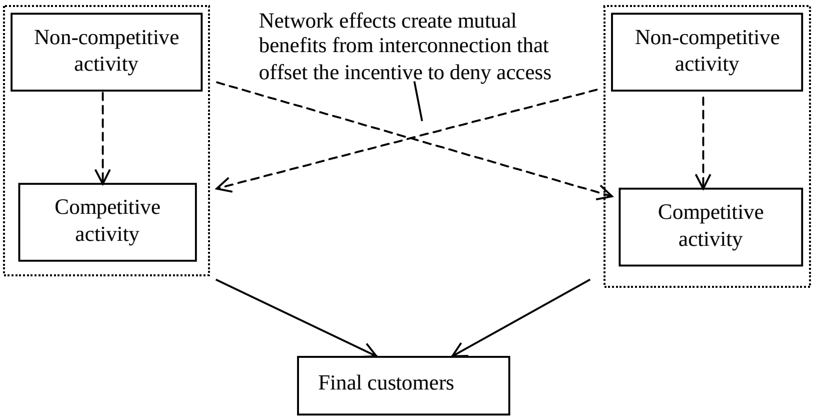
37. Put into the framework set out above, whenever customers of the downstream competitive activity value being connected to more than one non-competitive activity and when competitive and non-competitive activities are integrated into a series of vertical firms (see the illustration), each firm can be made better off by negotiating reciprocal access to the non-competitive activities of another firm. In this context, the threat to call off negotiations acts as a restraint on attempts by one firm to insist on significantly one-sided terms and conditions, enhancing the likelihood that reciprocal access will be agreed, even without regulatory intervention.

38. This situation also arises in the rail and air transport sectors. In rail, downstream customers benefit from being able to take a single train from their origin to their destination. In a market with a series of neighbouring integrated track and train-operating firms, each company benefits from access to its neighbours track as it expands the range of services that each company can offer. The desire to gain access to a rival's track restrains the incentive of the first firm to deny or resist access to its own track. In the air transport industry, at the international level, there is often a form of integration between airports and airlines, since national slot co-ordinators often act on behalf of their flag carrier airline at international slot allocation meetings. However the effect of this integration between airlines and airports on competition is offset by reciprocity – each airline benefits from being able to expand the services it offers. The desire to expand services in this way offsets the incentive to deny access by a foreigners airline to a domestic airport.

39. Other examples of this form of exchange arise in the postal and telecommunications sectors at the international level. At the international level foreign ownership constraints have long prevented firms from encroaching on each other's territories. Interconnection was thus the only option for providing the ubiquitous service desired by customers. Interconnection arrangements were agreed between independent firms largely without the need for higher regulatory authorities or oversight.[11]

40. Although the incentive to interconnect in this context reduces the need for regulatory oversight, it does not eliminate it entirely. In particular, depending on the circumstances, the negotiating networks may find it in their interests to set a high interconnection price as a tool for restraining competition in the downstream competitive market.

Figure 5: Separation into Reciprocal Parts



41. This form of separation has certain important advantages. By separating the non-competitive component into smaller parts at least some degree of competition within the non-competitive component may be stimulated. Two regional rail companies compete at least on those routes which begin and end in the overlap of their regions, whereas one rail company over the same territory would not. In other words, separation into reciprocal parts stimulates competition both horizontally and vertically. In addition, by allowing vertical integration, economies of scope are preserved. Although temporary line-of-business restraints on dominant incumbents may be necessary to foster the growth of rival networks, in the long-run line-of-business restraints may be able to be removed, further fostering competition between the networks.

42. On the other hand, this approach also has certain disadvantages. Principally, its usage is limited to certain industries (particularly those industries with two-way networks – rail and air transport, telecommunications and, to an extent, post). In addition, competition is limited to those firms which provide at least some part of the non-competitive activity – firms cannot enter in the competitive activity alone. This means, for example, that without additional regulation, specialised long-distance carriers in telecommunications would not exist. Firms could only provide long-distance services in conjunction with local telecommunications services.

Separation of the Non-Competitive Component into Smaller Parts

43. A question that is often asked is: when does it make sense to separate the non-competitive activity into smaller parts (putting to one side the approach of separation into reciprocal parts just discussed). For example, in the electricity and gas industries, when might it make sense to separate transmission from distribution and to separate distribution into a number of smaller companies?

44. The following arguments can be made in favour of separation of a monolithic distribution company into smaller parts. First, the establishment of a number of similar (even if not competing) distribution companies facilities the regulation of those companies by allowing comparisons to be made across companies (so-called “yardstick” regulation).

45. Second, such separation will facilitate competition between distribution companies at least at the boundaries of the regions. If the boundaries are chosen so that the largest customers can be easily served by two or more distribution companies a non-negligible amount of competition in distribution may result. In addition, the transmission of electricity or gas to some of the largest customers may, in fact, be competitive over short distances. Distribution companies may compete with each other to carry electricity to large companies, not just on the boundaries of their regions but also in the interior. This form of competition would be eliminated if there were a single monolithic distribution company.

46. Third, in some cases separation of distribution companies can facilitate competition in upstream competitive markets. In a market in which there is third-party access to transmission but not distribution, distribution companies act as buyers of electricity or gas on behalf of non-eligible consumers (i.e., those consumers who do not have the right to choose their supplier). In this context distribution companies compete with each other for the purchase of electricity or gas from producers. The number of distribution companies may have a material impact on the level of competition in the market for the purchase of electricity or gas. A single monolithic distribution company would have monopsony power over upstream producers. Separation of the monolithic distribution company, by eliminating the monopsony power would improve competition in the upstream market. (An alternative solution is to introduce third-party access at the distribution level – i.e., to allow all downstream customers to become "eligible" customers).

Accounting, Functional and Corporate Separation

47. In addition to the approaches set out above, many countries have also imposed various other forms of separation or unbundling, including:

(a) Accounting separation or accounting unbundling – the preparation of separate accounts, on some pre-defined basis, for some specific functions or services;

(b) Functional separation – the separation of different services into different divisions of the same firm, possibly under different management;

(c) Corporate separation – the separation of different services into different corporate entities, although owned by the same company.

48. These approaches do not, in their own right, protect or promote competition. Hardt comments:

> "Theory predicts that … accounting separation has no effect on the dominating firm's behaviour, accounting separation does not effectively prevent discrimination of a competing network user, and accounting separation cannot effectively be used to promote entry, either. … [A]ccounting separation is not equivalent to structural separation. Although they look equivalent at first sight, their ways of functioning economically and their implications (in terms of access prices, output levels and prices, and entry possibilities for potential competitors) differ considerably. … It is important for regulators to be fully aware of the economic implications of the measures adopted in a policy aimed at nondiscriminatory access pricing. An incorrect assessment of the effect of accounting separation will lead to higher consumer prices and lower welfare".[12]

49. Similarly, Hilmer notes:

> "It is important to stress that mere 'accounting separation' will not be sufficient to remove the incentives for misuse of control over access to an essential facility. Full separation of ownership and control is required.".[13]

50. Although these approaches do not promote or protect competition when used on their own, they are often, however, an important supplement to other forms of separation, particularly as a supplement to access regulation. The information made available through accounting separation, for example, is typically used as a basis for determining access prices and for detecting cross-subsidies. These other forms of separation have their primary value as an adjunct to the other approaches above.

51. In concluding this section of the paper it is worth noting that long-term contracting can have an effect very similar to vertical integration. Thus, the approaches that have been discussed above involving vertical integration apply equally to situations of long-term vertical contracting.

Conclusion

52. Policy makers have a variety of tools for promoting and protecting competition in utility industries. It is possible to broadly rank these approaches in order of preference. As just mentioned, the last approaches discussed (accounting separation or corporate separation) affect neither the incentives nor the ability of the regulated firm to act in an anti-competitive manner. Although these forms of separation have merit in supporting other approaches, they cannot be used as stand-alone techniques in their own right.

53. Of the remaining approaches, separation into reciprocal parts stands out as offering the greatest promise for simultaneously enhancing competition in the competitive component and reducing the market power of the non-competitive component without unduly sacrificing economies of scope. It has the drawback that it can only be used in certain industries (such as rail, telecommunications and postal services) and even in those industries, the extent of the competition that may result may be limited.

54. The remaining approaches can be broadly grouped into two categories. Vertical separation and joint or club ownership have their primary effect on the incentives of the incumbent and therefore are best grouped as structural approaches. Access regulation, on the other hand is a behavioural approach. The separation of ownership and control could be closer to one approach or the other, depending on the nature of the controlling entity.

55. The most appropriate form of separation in any given industry will depend on a variety of factors which must be balanced. These factors include the magnitude of economies of scale from integration, the one-time costs of separation, the benefits of and scope for competition and the public policy objectives for the industry in question. This is summarised in the French submission to this study:

> "In this context, structural measures, which are likely to involve the dismantlement of sizeable economic enterprises, demand delicate and complex trade-offs. While vertical integration must not harm competition, it is also necessary to take into account the efficiency gains and the benefits from universal service [that might arise from integration]. Conversely, disintegration may increase the transactions costs borne by the consumer. For this reason it is not appropriate to adopt a dogmatic position but, rather, to consider the benefits and costs of separation on a case-by-case basis".[14]

56. The relative merits of the various approaches are summarised in Table 2.

Table 2: Summary Assessment of the Pros and Cons of the Policies For Promoting Competition

Policy	Advantages	Disadvantages	Behavioural/ Structural Approach?
Access Regulation	Certain economies of scope are preserved; costly separation is avoided.	Requires active regulatory intervention; Regulator may not have sufficient information or instruments to overcome all forms of anticompetitive behaviour. Need to monitor and control capacity.	Behavioural
Ownership Separation	Eliminates incentives for discrimination; Allows for lighter handed regulation	Potential loss of economies of scope; May require costly and arbitrary separation.	Structural
Club Ownership	Eliminates incentives for discrimination	Club may seek to exclude outsiders; may facilitate collusion; only effective in certain circumstances.	Structural
Operational Separation	May facilitate control of discrimination and anti-competitive behaviour	Possible lack of profit motive reduces incentive to provide innovative and dynamic services	Not clear?
Separation into Reciprocal Parts	Anti-competitive behaviour is offset by incentives to interconnect; Facilitates horizontal competition within the non-competitive component; Economies of scope are preserved; No need for line-of-business restraints.	Only applies in certain circumstances	Structural

III. Vertical Separation versus Access Regulation

57. In this section we will take vertical ownership separation, on the one hand, and vertical integration with access regulation, on the other, as representing the two broad approaches of behavioural regulation and structural regulation. Given a choice between these two approaches, which is preferable?

58. The answer to this question involves balancing several factors. Vertical separation is a structural approach whose primary advantage is that it reduces the incentive of the owner of the non-competitive component to restrict competition in the competitive component. On the other hand, vertical separation requires that the economy forego any benefits that arise when these two services are provided together. Vertical integration, in contrast, requires a more restrictive form of behavioural regulation to offset the incentive of the owner of the non-competitive component to restrict competition in the competitive component.

Separation Limits the Need for Regulation that is Difficult, Costly and only Partially Effective

59. The primary advantage of vertical separation is that it reduces the incentive of the provider of the non-competitive activity to restrict competition in the competitive activity. This is an important advantage because it lessens the regulatory burden, enhancing the quality of the regulation and the level of competition.

60. Vertical separation (supported by line-of-business restraints) reduces the incentive to restrict competition for the following reason. As long as the prices of the non-competitive component are regulated and above cost, the non-competitive firm has an incentive to sell as much of its product as it can at those prices.[15] Rather than refuse access[16], the owner of the non-competitive component has an incentive to welcome access as each new entrant in the competitive market will enhance competition, innovation and product differentiation in the competitive market, enhancing demand for the non-competitive service.

61. This difference in incentives under separation and integration has important implications for the ease of regulation. The regulation of an integrated firm must overcome the incentive of the incumbent to deny access. This form of regulation is therefore an on-going battle against the actions and information advantage of the incumbent as it seeks to use whatever means it has available to it to restrict access to its rivals. In contrast, by eliminating the incentive to deny access, vertical separation permits a lighter-handed form of regulation (such as price cap regulation, or regulation of baskets of prices), which allows greater discretion to the regulated firm, allowing it to use the information that it has more efficiently.

62. For example, efficient pricing of access to the non-competitive activity may involve quite complex schemes, involving multi-part pricing, peak-load pricing, and discrimination between different classes of customers and demands. Yet, in most cases the regulated firm will have better information than the regulator about the nature of the underlying costs and demand. Under vertical separation, in the absence of the incentive to discriminate between downstream firms, the regulator can allow a degree of discretion to the regulated firm to use the information that it has to set its prices efficiently, perhaps through a cap on a basket of prices.[17] In contrast, under integration, the regulated firm may use its discretion to discriminate against its downstream rivals, limiting the scope for more sophisticated regulation schemes. The same is true for the regulation of quality. If the regulator cannot perfectly observe the quality of the service delivered, under integration the regulated firm has an incentive to discriminate by offering lower levels of quality to rival firms. In contrast, a separated firm has less incentive to discriminate between the downstream firms on quality (although it still may have an incentive to lower quality overall, in an attempt to evade regulation).

63. To make matters worse, in certain cases situations can arise where the establishment of competition in the competitive component requires that the incumbent firm not just refrain from certain anti-competitive actions, but that the incumbent firm undertake certain pro-competitive actions. For example, the development of competition may require that the incumbent firm undertake investments to enhance the capacity of the non-competitive component or to upgrade its metering and billing capabilities. A problem arises because the regulator may not have the power to force the firm to undertake investments against its will. In these cases the incentives on the regulated firm are crucial. While an integrated firm has an incentive to refrain from investing in new capacity in the non-competitive service, a separated firm has an incentive to invest in such capacity when, in doing so, it can enhance demand for the non-competitive service.

64. As an example, an integrated electricity generation/transmission utility, facing the threat of competition from lower-priced generators in a neighbouring region has an incentive to limit the capacity of interconnections with the neighbouring networks, as the larger the capacity of the interconnection, the greater the competition from "foreign" generators. In most cases the regulator would not be able to force the regulated firm to make such an investment. A separated electricity transmission utility, on the other hand, which is regulated so as to not be able to earn monopoly rents is more likely to have an incentive to enhance the capacity of the interconnection as doing so will enhance competition, enhancing the demand for electricity and therefore demand for transmission services. [18]

65. As another example, it might arise that the telecommunications incumbent has to make investments to upgrade the network, for example, to allow customers to choose a "default" long-distance carrier (doing away with the need to dial extra digits each long-distance call). An integrated carrier has an incentive to defer such investments as they would enhance the level of competition in the long-distance market. The telecommunications regulator may not be able to force the incumbent carrier to make this investment. A separated local carrier, on the other hand, has an incentive to undertake such investments whenever they increase demand for local services.

66. The differences in incentives can also affect the quality of the regulatory processes themselves. An integrated firm, in contrast to a separated firm, benefits from any action which delays the provision of, raises the price or lowers the quality of access. An integrated firm will therefore use whatever regulatory, legal, political or economic mechanisms are in its power to delay, restrict the quality or raise the price of access. Furthermore, the integrated firm has strong incentives to innovate in this area, constantly developing new techniques for delaying access. Although the regulator can address these techniques as they arise, it is likely to always be "catching up" with the incumbent firm. Regulation, despite its best efforts, is unlikely to be able to completely offset the advantage of the incumbent.

67. In most countries the competition authority will also have a role to play in controlling the ability of the incumbent to restrict competition in the non-competitive activity. But, for the same reasons (the information advantage of the incumbent, the slowness and imperfection of competition law enforcement processes, the incentives on the incumbent to innovate in anticompetitive behaviour, the incentives of an incumbent to use legal processes to delay enforcement decisions and the competitive disadvantage of the new entrants in the face of delay and imperfect enforcement), antitrust enforcement is also unlikely to be able to completely offset the advantage of the incumbent relative to the new entrants.

68. The difficulty of effective behavioural regulation has been emphasised by the FTC in the context of the electricity industry:

> "[Vertical integration], by retaining integrated ownership and control of transmission and generation services, would leave the integrated utilities with the incentive and opportunity to find ways to evade regulatory constraints. One way could be to manipulate the sensitivity of short-run

transmission services to the risk of delay and uncertainty, which is inherent for this non-storable product. A transmission owner may be able to favor its own generating plants materially with subtle delays or complications in the transmission approval process.

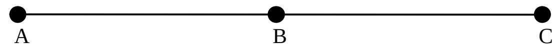
Rules mandating open access and comparable treatment would be particularly difficult to monitor and enforce in this industry, because, to succeed, the rules must constrain transmission owners to ignore their economic interests. Ensuring that the services and prices the integrated utility provides to and charges its competitors are equivalent to what it provides to and charges itself could require virtually transaction-by-transaction regulatory oversight. Monitoring and enforcing compliance with regulations against discrimination may be particularly difficult when quality of service is time sensitive, as it is in electric power. Because power is sold on an hourly basis, market dynamics — and thus the incentive and ability to exploit market power — can shift over the course of each day, making it virtually impossible to intervene before conditions have changed. Hemming in transmission owners' behavior, although perhaps possible in theory, will be difficult to maintain in practice. Successfully containing their behavior at one time and place may provide little assurance of containing it later or elsewhere."[19]

69. The effects of integration on access regulation were explored in a recent study comparing access arrangements with the US Bell telecommunications companies (which are vertically separated) and GTE (a vertically integrated, rival telecommunications company). This studies showed that access negotiations with integrated GTE took longer and were less likely to be successful. GTE's negotiating stance was systematically more aggressive than the Bells, and despite the access regulatory regime, entry was systematically lower in regions serviced by GTE. These results are discussed in the section on telecommunications.

70. In summary, effective regulation of an integrated firm increases the demands on the regulator and the regulatory regime, requires a tighter control on the behaviour of the integrated firm and is unlikely to be fully successful at offsetting the incentives of the incumbent to act anti-competitively. Vertical separation lightens the demands of the regulator, allows a lighter, more efficient control of the behaviour of the incumbent and is more successful at promoting competition overall.

71. Note that separation does not entirely eliminate the incentive to restrict access. We argued above that under separation the non-competitive component has an incentive to meet all access requests (at least at the regulated price) as doing so would enhance competition in the competitive service and therefore demand for the non-competitive service. However, this is not always true. A new access request may, if granted, actually reduce demand for the non-competitive service.

72. For example, suppose that a separated gas transmission company carries gas from A, where gas is produced to C, where gas is consumed. Suppose there is now a gas discovery at B, between A and C. In this case, granting access at B reduce the services of the transmission company to merely providing transmission from B to C. By granting access at B, the transmission company is reducing demand for its services.



73. The problem arises in this example because the new gas discovery has changed the scope for competition in the industry. The gas at B competes not just with the gas at A, but also with the transmission of gas from A to B. With this new gas discovery, part of the gas transmission system comes under competition. The incentive to grant access can be restored through separation of the transmission

pipeline at B. The non-competitive component is now the pipeline from B to C, and the competitive component is the market for gas delivered at B.

74. Separation of this kind, which is unlikely in the gas industry, is even less likely in the electricity industry where small generators located at or near large electricity consumers (known as “embedded” or “distributed” generation) are an important substitute for transmission services, especially near bottlenecks on the transmission network. The FTC notes:

> “A regulated, for-profit [separated transmission company] may refrain from taking actions that would increase competition between transmission and generation alternatives (for example, in addressing load pockets). To a considerable degree, expansions of transmission capacity and new or expanded generation within a load pocket are substitutes for each other in relieving such load situations. … The competitive danger is that the [separated transmission company] may have incentives to favour its own transmission assets relative to any generation source, thereby discouraging new generation sources in the load pocket. For example, the transmission company could delay connecting a new generator to the grid within the load pocket. By taking such an action, the transmission company could collect the maximum transmission rates for more hours per day and for a longer period than it would otherwise because of the increased use of its transmission capacity from outside the load pocket”.[20]

75. To address these incentives the FTC has advocated a policy known as “operational unbundling” which, by placing the non-competitive activity under the control of a non-profit entity eliminates the incentive to obstruct access. Operational unbundling is discussed further below.

Separation Improves Information and Eliminates Cross-Subsidisation

76. In addition to the effect of separation on the incentives of the separated firm, it is important to add that there are certain arguments for separating regulated and unregulated firms that apply more generally and not just to the vertical industry structure which we are considering here.

77. First, in any regulatory process, obtaining reliable cost information about the regulated entity is difficult. It is likely to be easier to obtain reliable cost information about the non-competitive activity when it is separated into its own distinct firm under distinct ownership as this reduces the opportunities for (and makes more transparent the practice of) using internal transfer prices to shift costs and profits around within the firm. It is likely therefore to be easier to regulate the non-competitive activity efficiently when it is vertically separated, than when it forms part of an integrated entity.[21]

78. Second, a regulated or state-owned firm, because it does not necessarily operate under a strict profit-maximising objective, may be able to engage in anti-competitive cross-subsidisation even when it would not be strictly profitable in the long-run to do so. Whenever a regulated firm is integrated with a firm that operates in a competitive market, there is a danger that the firm will use some of the profits from the non-competitive segment to subsidise its own competitive segment, thereby restricting competition. Vertical separation, by separating the competitive from the non-competitive activities, prevents cross-subsidisation from occurring.[22]

79. Such considerations explain why it is common for regulated firms to be subject to line-of-business constraints which prevent them from entering unrelated markets.[23]

Separation Forces Loss of Economies Of Scope

80. The primary disadvantage of vertical separation is that ownership separation may involve the loss of cost economies from integration. Economists point to various potential sources of these economies of

scope. Vertical integration may enhance the availability of information (allowing more efficient incentive contracts); may reduce transactions costs and improve investment in relationship-specific assets by overcoming hold-up problems; and may reduce the distortions associated with market power at one or both of the two levels.

81. Many of these potential sources of cost efficiencies can be at least partially exploited through contractual arrangements between separate firms. An understanding of the costs of separation therefore requires a comparison between the cost efficiencies achievable under integration and the cost efficiencies achievable through contractual arrangements. Where there are vertical contractual arrangements which can achieve the same efficiency benefits as integration, the economies of scope are negligible.

82. One particular source of cost efficiencies deserves to be highlighted - the enhanced transactions costs arising from technological innovation. Important innovations in the services offered to final consumers may require investments in both the services provided by the competitive and non-competitive activities. For example, where a rail spur serves a coal-mine, innovations in coal transportation might involve changes to the rail infrastructure which could be more easily achieved when the two activities - infrastructure and train operations - are integrated. Although, in principle, contractual arrangements could specify the procedures to be followed in the event of certain innovations, in practice the uncertainty in the nature, timing and scope of innovation make such arrangements impractical.

83. In the case where the price of the non-competitive component is greater than marginal cost (despite regulation), there arise certain efficiency reasons for integration, explained more fully in Box 2. Briefly, raising the marginal price for access to the non-competitive activity above its marginal cost induces distortions which the upstream firm would like to avoid. For example, when the competitive activity can substitute for other inputs, in a circumstance known as “variable proportions”, pricing the non-competitive service above marginal cost induces the downstream firm to inefficiently substitute away from the use of this input. When the downstream market is imperfectly competitive the downstream firms add an additional mark-up (a “double marginalisation”) to the final product reducing output and increasing the total welfare loss. A regulator might try to overcome these efficiency losses using two-part tariffs or price discrimination – a form of vertical contractual arrangements. Either approach ensures that the marginal price does not exceed marginal cost. However, these arrangements are only feasible when it is possible to prevent resale among downstream customers.[24] When resale cannot be prevented (by the firm or by the regulator[25]), vertical integration allows the firm to capture the efficiency benefits by selling to its downstream subsidiary at marginal cost, without fear of resale.

84. On the other hand, when the upstream firm or the regulator can prevent resale among downstream customers, the efficient outcome can be achieved through vertical arrangements - in this case integration yields no additional cost benefits. For example, the problem of double-marginalisation can be overcome through a contractual arrangement which requires the downstream competitive firm to purchase a minimum quantity (or equivalently, imposes a price ceiling on the final good – equivalent here to final price regulation). As another example, a “tie-in” or “bundling” strategy can solve the distortion highlighted in the “variable proportions” problem. By requiring the downstream firm to also purchase other inputs from the upstream firm, the upstream firm can ensure that these inputs are priced in such a way as to prevent distortion in their relative consumption downstream.

85. In addition to the loss of any economies of scope, vertical separation may involve a substantial one-time cost associated with the break-up of the integrated firm. This cost is an important part of the cost-benefit trade-off associated with separation.

86. Unfortunately, recognising the theoretical possibility of vertical economies of scope and assessing their magnitude in practice are two quite different things. The regulatory authority may not have

the information it needs to accurately assess the economies of scope. However, by the establishment of a burden of proof in favour of separation creates incentives for the proponents of integration to produce evidence as to the magnitude of economies of scope.

87. Vertical separation may, in some cases, *enhance* the value of the separated firms. In other words, there may be vertical *dis*-economies of scope. A regulated firm which sees benefits from restricting competition in the related market may choose to integrate even when there is a small, but significant loss of efficiency in doing so. One possible source of such a loss in efficiency that has been alleged is a loss of "management focus", as the skills required to operate the two components may be distinctly different. In the UK, following the separation of British Gas, the combined value of the separate businesses increased to more than double the value of the integrated business.[26]

Box 1: Why Integrate? – Economic Efficiency Benefits From Vertical Integration

This box highlights some of the economic efficiency benefits that arise from vertical integration. Economists point to three types of incentives for vertical integration: first, as an attempt to reduce the transactions costs that arise when there is relationship-specific investment, second, as an attempt to improve the information and therefore the efficiency of arms-length incentive contracts between the two firms and, third, as an attempt to reduce the distortions arising from the exercise of market power at one or both levels.

A classic example of relationship-specific investment is a coal-fired power station located at the mouth of a coal mine. In such cases economists find that the transactions costs lead, in practice, to either long-term vertical contracts or vertical integration. An example of vertical integration to improve incentive contracts arises when the downstream firm must put in effort to promote the upstream firm's products. In this case vertical integration eliminates the need for an incentive contracting arrangement between the upstream and the downstream firm.

This box focuses on the last case, of vertical integration as an attempt to eliminate the distortion that arises from the exercise of market power or, more generally whenever the price for the non-competitive component is above marginal cost, even when the firm is regulated. A regulated price might be above marginal cost, for example, when there are increasing returns to scale in the non-competitive sector and the regulator is prevented from directly subsidising the fixed cost of the regulated firm, so that the efficient regulated price is equal to average cost. Whenever a price differs from its underlying marginal cost there is an economic distortion which can lead to a loss in overall welfare.

When the downstream customers are firms (rather than final consumers) who are buying the input for use in their own production process, charging above marginal cost induces distortions that don't arise when selling directly to final consumers. Firstly, when the downstream production process is not perfectly competitive, the downstream production process adds its own additional mark-up, leading to a situation of "double marginalisation" with a final price even higher than would be set by an integrated firm (and possibly higher than the monopoly price). Second, when the downstream production process can substitute other inputs it will be induced to do so by an input price above marginal cost, even though such substitution is inefficient. Finally, when the downstream firm needs to exert effort which increases the quality or the demand for the final product it will have a smaller incentive to do so when its margins and sales are lower as a result of the higher cost of the input.

A firm with market power will seek to eliminate these distortions when it can capture some of the resulting gains in welfare. One way to eliminate the distortion is to use two-part tariffs. Provided the marginal part of the tariff is equal to marginal cost, the distortion from the exercise of market power is eliminated. The firm can then use the fixed part of the tariff to extract some of the resulting welfare gains. The problem is that two-part tariffs are not always feasible. If the downstream customers can trade amongst themselves, it will be cheaper to buy from an existing customer of the monopoly firm rather than buying directly from the monopolist. Where two-part tariffs are not feasible, the incumbent firm is forced to use simple linear prices, which inevitably result in a marginal price above marginal cost.

Even if the firm were forced to use linear prices, it might still be able to reduce or eliminate the distortion arising from pricing above marginal cost if it could perfectly discriminate between classes of downstream customers so that marginal customers were charged no more than marginal cost. Again, however, if the downstream customers can trade amongst themselves, a price discrimination strategy is not feasible.

Vertical integration, by granting the firm greater control over resale, can assist the monopoly firm to reduce the distortion brought about by its exercise of market power. By vertically integrating the firm can "sell" to its downstream subsidiary at a price equal to marginal cost, ensuring that the monopoly service is used efficiently in its downstream applications. Partial vertical integration can also assist a price discrimination strategy. By integrating with the downstream firms which have elastic demand the monopoly firm can "sell" the monopoly service at a lower internal transfer price, while simultaneously selling the monopoly service at a high price to downstream firms with inelastic demand. Vertical integration can also improve the information that the firm has about demand elasticities by giving it direct access to the final consumers.

Conclusion

88. An integrated firm has a strong incentive to discriminate against its downstream rivals. Behavioural regulation to overcome this incentive faces an uphill task and is unlikely to be fully effective. Experience shows that the level and quality of competition may be higher under a policy of vertical separation or operational unbundling. The benefits and costs to be balanced include the effects on competition, effects on the quality and cost of regulation, the transition costs of structural modifications and the economic and public benefits that arise from vertical integration, based on the economic characteristics of the industry in the country under review. The Director of the Competition Bureau of the U.S. FTC has summarised the trade-off as follows:

> "A behavioural approach has several drawbacks. First, it does not eliminate the incentive and opportunity to engage in exclusionary behaviour. Rules can try to limit the opportunity, but few rules are invulnerable to evasion. Second, detection of violations can be difficult. For example, discrimination in access could take the form of a subtle reduction in quality of service, whose effects could be difficult to identify and measure. Third, behavioural rules can require long-term monitoring of compliance, which can be a costly process. A structural approach minimizes the cost of monitoring compliance with the order. With a divestiture order, for example, that usually is a short-term requirement because the principal monitoring function is to make sure that the divestiture takes place in the manner required by the order. … We also recognise, however, that a purely structural approach to certain problems, requiring a complete separation of business functions, may be costly or difficult to implement, and it may require a sacrifice of integrative efficiencies."[27]

89. Given the benefits of separation in promoting competition and enhancing the quality of the regulation, there are grounds for a presumption in favour of separation. The FTC states:

> "Our experience in enforcing the antitrust laws and in monitoring deregulation and restructuring in regulated industries strongly supports a preference for operational separation or divestiture in unbundling services".[28]

90. Such a presumption minimises the risk of inefficiently restricting competition in the competitive activity and enhances the incentives on advocates of integration to produce evidence of the economic efficiency benefits of integration.

91. On the other hand, the French submission notes that the EC (in the electricity directive 96/92/CE and the gas directive 98/30/CE and elsewhere) have not required structural separation but have relied on access regulation supported by accounting separation. It is the opinion of the French authorities that "accounting separation, combined with Chinese walls around the monopoly at the heart of the vertically integrated enterprise offers good assurance" of protection against anticompetitive behaviour.[29]

IV. Experiences With Different Approaches To Separation In Different Industries

92. In what industries has vertical separation been adopted in practice? What forms of vertical separation have been chosen? What has been the effect of separation on anti-competitive behaviour and the development of competition? These questions are explored in this section.

Introduction

93. The sections below compare the separation approaches that have been chosen in a number of countries and industries. In some cases it is difficult to categorise a country's approach. Ownership separation is not always black and white – one company can hold a varying share of the ownership of another. Even where integration is allowed, regulatory or physical constraints on the competitive part of the integrated firm may limit its ability to compete. Furthermore, a country will often not follow one policy consistently. Although some competitive activities are separated, others will not be, and so on.

94. Ideally, in a study on the effects of separation, country choices regarding separation would be correlated with market outcomes such as the level of competition. However, there are several obstacles to such comparisons. Even where it is possible to classify countries into different approaches, cross-country comparisons and assessment of approaches to separation are made more difficult by the following facts:

(a) *The appropriate form of separation depends on country-specific and context-specific factors.*

A facility which is clearly a natural monopoly in one country may be able to support a degree of competition in another. Differences in the degree of separation chosen may therefore reflect legitimate differences in policies and not scope for further regulatory reform. For example, those countries which have a high level of competition between gas pipelines may not need to separate gas production from transmission. Cities with a high level of competition between airports may not need to separate airline operations from airport ownership.

(b) *The legal requirements governing separation may not accurately reflect the competitive reality.*

The absence of rules governing separation does not necessarily imply that integration is allowed. Legal requirements governing separation may not be required, if say, competition law controls prevent integration. Even if integration is allowed it may not lead to anti-competitive behaviour, if, for example, the integrated firm were constrained in its ability to expand output in the competitive segment. On the other hand, the presence of legal separation requirements where they exist may not be actively enforced. Alternatively long-term contractual arrangements between firms may align the interests of the firms in the same way as would common ownership, even though the ownership of the firms technically remains distinct.

(c) *Regulatory effort can be a partial substitute for a lack of separation, but the objective measurement of regulatory effort and expertise is close to impossible.*

To an extent a country can make-up for a lack of separation by greater, more frequent and more extensive regulatory intervention. Differences in outcomes may simply reflect differences in unobservable regulatory effort.

(d) *State-owned enterprises often still play a key role in many of the industries considered here, but the objectives and competitive impact of state-owned enterprises are often unclear.*

The presence of state-owned enterprises may lead either to more competition (e.g., if they are less inclined to restrict access to the non-competitive component) or less competition (e.g., if the state-owned enterprises has a soft-budget constraint that can be used against rivals). If the state is the owner of two vertically-related enterprises (such as gas production and transmission), will the state use its position as owner to cause these enterprises to act in a co-ordinated manner? Or will it operate the enterprises as though they are completely independent?

(e) *Because the geographic scope of a monopoly is often much smaller than a country, a country is not always the appropriate unit of comparison.*

In many federal countries, a variety of systems can exist simultaneously, some of which require vertical separation, while others allow integration. The appropriate unit for comparison in this case is not the country but the state, region or city. On the other hand, intra-country variations provide a unique opportunity for natural experiments in the effects of separation. The Australian rail industry and the UK and US electricity industries all exhibit a variety of structures simultaneously.

(f) *All of these industries are in a state of flux.*

In some cases separation has occurred too recently for its effects to be measured. In other cases decisions taken by the government may not yet be reflected into legislation or regulation.

95. For these reasons we will not attempt to find systematic linkages between the level of competition and the separation approach chosen. Instead, for each industry we will seek to identify the components which are non-competitive and those components which are potentially competitive, the range of possible approaches to promoting competition and we will compare the policy choices made in each country with the range of possible approaches. Where relevant we will mention the experiences of countries with different approaches to separation and the experiences with defending current levels of separation.

96. As an aside, note that we are primarily interested here in separation which is intended to promote competition in the upstream or downstream competitive activity. There are other forms of separation which are entirely valid which promote other aims. In particular, separation of a natural monopoly into regional components can enhance the quality of regulation by allowing a form of yardstick regulation. Regulated firms are often prevented from undertaking unrelated competitive activities in order to prevent the firm from concealing its costs from the regulator and/or distorting competition in the competitive activity. These other motives for separation will not be discussed further here.

Airports, Ports, Roads

97. There several regulated industries in which vertical separation plays a largely unquestioned role. This group includes airports, ports and roads.

98. In each of these industries, the primary natural monopoly concerns arise in the provision of infrastructure. Although some airports can compete with other airports, some ports with other ports and some roads with other roads (as well as with each other), it is also clear that individual airports, ports and roads can exhibit substantial market power. Yet, integration between airports and airlines, between ports and shipping companies and between roads and road users is uncommon.

99. Focussing more specifically on airports, the scope for competition in airport services depends, to an extent, on the level of competition faced by the airport itself and how the airport is organised. Where there is effective competition between airports, it would not be inconceivable to allow integration between airports and airlines.

100. Even where the runways are operated as a single unit, at some airports there is scope for competition between terminals, with each terminal operated by a different airline or airlines. This is more common in the USA than in Europe. Finally, where the terminals are operated as a single unit, there can still be scope for competition in many services that are provided at the terminals, such as ground handling or catering.

101. Structural separation to promote competition in these competitive services therefore generally involves one or more of the following types of separation:

(a) Separation of the operation of airlines from the provision of airport services (such as the provision of take-off and landing slots);

(b) Separation of terminal facilities from other airport services, with each terminal facility operated by a different (group of) airline(s); or

(c) Separation of the operation of ground handling services from other aspects of terminal services.

Separation of Airports and Airlines

102. With recent moves towards liberalisation of air services, almost every OECD country now permits competition in air transport services (although competition at the international level is still typically limited by restrictive bilateral arrangements). Vertical separation between aircraft operations and infrastructure services is common. In virtually all cases the operation of air transport services is separated from the provision of airport infrastructure services. Australia, for example, reported that airports are restricted to hold no more than 5% of the shares of an airline.

103. Since, at slot controlled airports, access to slots is essential for the provision of transport services, the slot controller is in a position to control access to the airport. This raises the issue of separation between the role of slot controller and the incumbent airline(s). Within the EU, Council Regulation No. 95/93 sets out certain rules regarding the separation of the role of slot co-ordinator from incumbent airlines. Under this regulation the slot co-ordinator is required to carry out his responsibilities in a neutral, non-discriminatory and transparent way. Member States are required to ensure that the co-ordinator acts in an 'independent' manner.[30]

104. Tables A-1 and A-2 set out the status of slot co-ordination bodies in a variety of European countries. Almost every European country with a fully co-ordinated airport has chosen a form of club ownership for the slot co-ordination body – the slot co-ordination body is usually owned by a group of airlines (France, Netherlands and the UK) or a group of airlines and airports (Denmark, Italy) or a group of airlines and government (Sweden and Norway). Only in Germany is the slot co-ordinator's role not partially financed by the industry. In every case the owner airlines (the members of the "club") are only domestic airlines – raising questions of access by foreign airlines to domestic airports. In Finland and Greece the slot co-ordinator is owned and staffed by the incumbent airline. Those European countries which do not have fully co-ordinated airports have generally not chosen to separate slot control from the incumbent airline (Table A-2).

105. There are real dangers in allowing integration between the incumbent airline and the slot co-ordination role. In Italy prior to 1996 the slot co-ordination role was carried out by Alitalia. Alitalia used this position to restrict competition. An intervention by the Italian Antitrust Authority was required to move to a more neutral co-ordinator. Writing in 1997, the Italian Antitrust Authority notes:

> "Until recently, the Ministry of Transportation assigned to the flag carrier (Alitalia) the duty to perform clearance activities. Alitalia in turn designated as coordinator one of its employees. In assigning slots, the coordinator appeared to deal first with exact historic rights (i.e. requests by incumbents of slots already used in the previous season), then with other requests, treating likewise retimed historic rights (i.e. slot exchanges among incumbents) and requests for new slots on a first come-first serve basis, with priority given to scheduled over charter operations. Only very limited slot monitoring was made, partly due to inadequate data collection and computerized systems, and no slot pool has been established.
>
> In 1996 a decision by the Antitrust Authority found the flag carrier responsible for abusing its dominant position in the clearance process by discriminating against potential competitors. Partly as a result of the Authority's intervention, Alitalia gave up its mandate as clearance coordinator. The Ministry is currently envisaging the creation of an independent agency responsible for clearance at fully-coordinated airports."[31]

Separation of Terminal Services and Ground Handling Services

106. In those airports which do not attempt to promote competition between terminals, competition in ground handling services requires some form of separation between ground handling and other terminal services. In 1995, by John Temple Lang of the European Commission's Competition Directorate argued for full separation of ground-handling from other airport services:

> "Large airports should allow two ground handling companies, *which are independent of both the airport itself and the national airline*, to avoid conflicts of interest. The two companies can be either at the airport as a whole or at each terminal, as the airport prefers. The airport would have the responsibility of appointing these companies, after consultation with airlines and after an open invitation to tender. The airport or airline could of course spin off existing handling operations. The airport would be free also to allow as much self-handling as it wished".[32]

107. The Commission, however, did not decide to require full separation of ground handling and terminal services. Instead, Directive 96/67/EC merely requires that airports must (subject to certain exceptions) have at least two ground handling operators, at least one of which is independent of the airport, with strict separation of accounts between the provision of ground handling services and other services.

108. A study conducted by the Association of European Airlines finds that ground handling charges are a significant component of total airport charges and that airports with less competition in ground handling have higher charges. This study calculated the charges for aircraft turn-around at 36 airports, mostly in Europe. Although the study did not fully control for all the factors influencing airport charges, the results are suggestive. When the airports were ranked according to their charges it was found that the nine most expensive airports all have ramp handling monopolies. The next fourteen in descending order of price all offered competition in handling.[33]

109. Table A-3 summarises the situation with regard to structural separation in airport services in a number of OECD countries.

Electricity

110. In the electricity industry, it is generally acknowledged that the competitive segments of the industry are the generation of electricity, the function variously known as “retailing”, “marketing”, or “supply”, which involves acting as a broker between final consumers and electricity generation, transmission and distribution companies, and the trading of electricity in an electricity market.

111. On the other hand, there are significant economies of density in distribution, especially to smaller customers. There are economies of scale in electricity transmission, but there may be some scope for competition depending on the magnitude of demand and the geographic location of generators and consumers.

112. Structural separation to promote competition in the competitive services in electricity therefore involves some combination of the following approaches:

(a) Separation of generation from transmission/distribution (perhaps involving a form of club ownership or operational unbundling);

(b) Separation of retailing/marketing/supply from transmission/distribution (also perhaps involving a form of club ownership or operational unbundling);

(c) Separation of distribution from transmission.

113. Following recent reforms in the electricity sector, almost all OECD countries allow some form of competition. This usually involves allowing some group of consumers to contract directly with generators, for the provision of electricity which is carried over the transmission and distribution network at a regulated fee. The size of the group of consumers which can choose their supplier is typically increasing over time. Some countries also explicitly encourage competition in the “retailing” or “supply” function.

Separation of Generation From Transmission/Distribution

114. The European Commission requires a degree of separation between transmission and other activities. Directive 96/92/EC requires that unless the transmission system is already independent from generation and distribution activities, the system operator has to be independent at least in management terms from other activities not relating to the transmission system. If the company is vertically integrated, Member States must ensure that the transmission network managers do not transmit confidential information to the other sectors of the company (i.e., they must create so-called Chinese walls or “firewalls”). Finally, in their internal accounting, integrated electricity undertakings have to keep separate accounts for their generation, transmission and distribution activities. They also have to prepare accounts for their non-electricity activities as though these activities were carried out by separate undertakings.

115. Many countries have gone further than required by the Commission’s directive, imposing either operational separation (Belgium, and shortly Ireland and Italy) or full structural separation (Netherlands, New Zealand, Norway, Portugal, Spain, Finland, England and Wales, some Australian states and shortly Brazil)

116. A recent OECD Working Paper contains an empirical cross-country study of regulatory reform in the electricity industry, including an examination of the effects of separation of generation and transmission on prices, efficiency and quality. As set out in Box 2, the study finds that countries which have carried out full ownership separation of generation and transmission have, on average, higher

efficiency and higher quality and have lower industrial prices (which benefit more from competition) relative to residential prices.

Box 2: Electricity: The Impact of Structural Separation on Prices, Efficiency and Quality

In a recent OECD Working Paper[34], Faye Steiner carried out an assessment of the impact of liberalisation and privatisation on performance in the generation segment of the electricity industry. Regulatory indicators for a panel of 19 OECD countries over a 10-year time period were constructed to examine the influence of regulatory reform on efficiency, price, and quality, and to assess the relative efficacy of different reform strategies. The presence of data with both cross-country and time-series dimensions allows separate identification of country specific and regulatory effects.

Steiner finds that industrial prices are lower relative to residential prices in those countries which have carried out greater separation of generation and transmission, which have implemented third party access regimes and which have established a wholesale spot market.

To estimate impact of regulation on efficiency, Steiner uses the utilisation rate as a proxy for efficiency. Steiner finds that both separation of generation and transmission and increased private ownership increase the utilisation rate (other potential influences, such as the presence of third-party access, were not statistically significant).

Quality is proxied by the gap between the actual reserve margin and the optimal reserve margin "as this is the aspect of generation most closely linked to quality of supply". Steiner finds that separation of generation and transmission does improve quality by this measure. The presence of third-party access did not have a statistically significant impact.

117. Several countries reported that the competition authority has argued for a stricter form of separation in electricity than was eventually adopted. The Irish competition authority has criticised the proposals regarding ESB's continued ownership of the transmission infrastructure as detrimental to the development of competition.[35] The Czech Office For The Protection of Economic Competition has stressed that the ownership of the transmission grid needs to be separated from power generation.[36] The Hungarian competition authority expressed its views on separation in electricity very clearly:

> "In its competition advocacy activity the Competition Office has for several years supported the separation of competing and non-competing activities. In this regard the Competition Office issued a booklet containing its competition policy principles in 1999. With respect to the electric power sector the Competition Office considers as most important the system control and the separation of the high-voltage network from other activities. In the longer term the Competition Office considers as preferable the separation of regional / local distribution from other activities. The Competition Office usually prefers total separation (ownership separation), and the occasional support/acceptance of more lenient or transitional forms is usually the result of compromises and tactical considerations. This is caused by the fact that the Competition Office considers this to be the most satisfying and clearest solution, moreover efficiency advantages deriving from partial or full integration which would go against this solution were not raised by the parties concerned at co-ordination sessions."[37]

118. In a couple of cases the existing level of separation has been found to be inadequate. In Finland, a working group examining the unbundling of electricity business operations found accounting separation inadequate and recommended much clearer structural separation:

> "According to the June 2000 report of the working group examining the unbundling of electricity business operations and its development set up by the Ministry of Trade and Industry, the present

accounting separation of business activities has proved defective and there is a need for a more transparent separation. According to the report, problems in separation have been caused by the ambiguity of the provisions on the unbundling of the electricity operations and the cost and profit allocation of the various operations. In the legislation, no detailed stand has been taken as to how companies should organise the business operations to be separated. No binding formula or model has been defined for the separated accounting. Additionally, there have been some problems in separating the common costs between the various business operations and in the division of the balance, for the current provisions do not provide precise instructions on which amounts of capital belong to which business operations. The defectiveness of the provisions on the unbundling of electricity business operations is problematic, particularly for the functioning of the monitoring of the ban on cross-subsidisation in the Electricity Market Act and the reasonable pricing of the electricity network operations.

The working group proposed that the provisions on unbundling of the present business operations in bookkeeping should be made stricter and the separation be made more transparent, particularly with respect to the allocation of common costs. The working group also proposed that network operations should be incorporated or differentiated into a separate state-owned enterprise, co-operative or federation of municipalities in such a way that the network licence holder could not engage in electricity trade in the same company nor produce energy notwithstanding certain exceptions."[38]

119. In the US, the electricity regulator initially imposed only a form of functional separation on generation and transmission. The competition authorities in the US have been vigorous advocates for stronger forms of separation. Eventually, in the face of mounting evidence of the failure of the functional separation approach, the electricity regulator required more extensive separation, as explained in Box 3.

120. Club or joint ownership of the infrastructure is relatively rare in the electricity sector, but is not entirely unknown. The National Grid Company in England and Wales was, at the outset, jointly owned by the 12 regional distribution companies.

Separation of Retailing/Marketing/Supply From Transmission/Distribution

121. Relatively few countries explicitly singled out separation of retailing/ marketing/ supply activities. One exception is New Zealand. This experience also highlights the limits of accounting separation at promoting competition. As part of its electricity reforms New Zealand separated generation from transmission grid and placed each in separate companies. Distribution had, for historical reasons, long been separate from transmission. Entry into electricity generation and electricity retailing was permitted. Distribution companies quickly entered the business of electricity generation with "embedded" generation and marketed the electricity through their own electricity retailing companies. Distribution companies active in the competitive activities of generation and retailing had to produce separate accounts for their competitive activities and for their non-competitive "lines" business.

122. Despite highly prescriptive accounting disclosure requirements, the regime did not prove sufficient to prevent anticompetitive behaviour. On 7 April 1998 the New Zealand government decided to impose full stronger separation requirements. It gave distribution companies the choice of placing their distribution business into a trust (a form of separation of ownership and control) or divesting their generation and retailing businesses (by 31 December 2003). Specifically the government required:

- no person with an electricity distribution business may own more than 10 percent of a business that is involved in electricity retailing or generation in any part of the market, or vice versa;

- two or more persons with an electricity distribution business may not own more than 20 percent in aggregate of a business that is involved in electricity retailing or generation in any part of the market or vice versa; and

- similar rules will prohibit the exercise of material influence by a person involved in electricity distribution over a person involved in electricity retailing or generation and vice versa, whether by contract, arrangement or understanding.

123. In practice, distribution companies complied with the separation requirements much more quickly than anticipated. By 1 April 1999 all distribution companies had divested themselves of their generation and retailing subsidiaries.

124. The situation with separation in the electricity industry in OECD countries is summarised in Table A-4.

Box 3: Structural Separation in the US Electricity Industry

The US electricity industry is regulated both at the state and federal levels. The primary regulatory authority is the Federal Energy Regulatory Commission ("FERC"). Prior to the wave of reforms over the last decade the industry consisted primarily of hundreds of vertically-integrated privately-owned utilities, known as investor-owned utilities ("IOU"s), together with a number of federally-owned utilities (some of which are very large) and municipal utilities.

The ubiquitous vertically integrated utilities are increasingly required to vertically separate, in one form or another, generation from transmission and distribution.[39] In Order 888, adopted in 1996, FERC required functional separation, maintaining as safeguards procedures whereby any person can file a complaint at FERC about misbehaviour and FERC monitoring of markets.[40] The competition authorities had recommended operational separation over functional separation, and had noted the advantage of completely separating ownership and control.[41] The FTC argued that functional separation would leave in place both the incentive and the opportunity for utilities to discriminate against competitors, and that regulatory oversight to detect, e.g., subtle reduction in quality of service to competitors, such as delays, would be very difficult, as would provision of timely remedies.

More recently, FERC has proposed requiring either operational separation or divestiture of generation assets from transmission companies. In the light of the experience since 1995, FERC has tentatively concluded that "continued discrimination in the provision of transmission services by vertically integrated utilities may [. . .] be impeding fully competitive electricity markets." [42]. In its comments on the recent FERC proposals, the FTC observes:

> "Several years of industry experience now appear to confirm this concern that discrimination remains in the provision of transmission services by utilities that continue to own both generation and transmission.[43] Complaints about – and actions by FERC to remedy -- discriminatory treatment favoring the generation assets of transmission owners are widespread. [44] These complaints allege subtle forms of discrimination, including, for example, biases in posted assessments of transmission capacity available to serve independent merchant transactions. Accordingly, we support FERC's assessment that behavioral rules have not provided the degree of competitive benefits that FERC sought to engender when it introduced competition in wholesale electric power markets."[45]

> "The Notice provides a broad overview of FERC's efforts to increase competition in wholesale electric power markets. Important milestones along this path include early efforts to require open access to transmission services as a condition for mergers of vertically integrated electric utilities; FERC's Open Access Order Nos. 888 and 889, which sought to provide open access to transmission services of all utilities regulated by FERC; the ISO orders with operational unbundling of transmission from generation; consideration of individual Transco proposals; and the present Notice contemplating operational unbundling or divestiture of generation assets from transmission assets nationwide. The extended review in the Notice concludes that the existing open access

behavioral rules and the scattered ISOs do not constitute a sufficient foundation for the continued growth of competition in electric power markets. [46] This is consistent with our own perceptions of generation and transmission suppliers' incentives and of events transpiring in emerging electric power markets that we expressed in 1995 during consideration of Order Nos. 888 and 889. At that time, we indicated that "[o]perational unbundling would likely be more effective than functional unbundling; ... [c]ompetition problems in concentrated generation markets must still be addressed under open access; [and] ...[e]fficient transmission pricing must accompany open access." [47]

"The basic issue underlying why transmission should be independent of generation in a qualified RTO is the threat of vertical discrimination in access to transmission services. Vertical discrimination in transmission is a serious concern because transmission technology continues to exhibit major economies of scale that often preclude effective competition in providing alternative transmission services between generation sources and loads. [48] The perceived threat of vertical discrimination in transmission raises the risks associated with investments in both generation and obtaining electricity trading skills (training and experience) in order to compete with generation assets owned by the operators of transmission assets. This perceived risk discourages entry by generating firms and traders, making effective competition in generation less likely. Reduced supply (less generation entry) and thinner markets (less trading) are likely to result in higher prices for consumers than would exist absent such potential transmission discrimination.

Concerns about vertical discrimination in transmission access are not limited to existing transmission and generation assets, but rather apply to expansions of generation and transmission as well. Transmission owners could discriminate in providing grid connections to new generators and in selecting transmission expansion projects. Discrimination or uncertainty about the terms and conditions for obtaining connections to the grid will raise the risk of new generation investments with respect to their commercial viability and timing. Discrimination in the selection of future grid expansion projects may disrupt such projects by similarly increasing uncertainty about future revenues of entrants (for example, discriminatory positioning of a new transmission line may disproportionately reduce demand for power from the entrant). By eliminating or delaying generation entry, or deflecting it to a different site, a transmission owner may reduce the competitive pressure on its own generation assets, particularly if the prospective entrant's assets are likely to be more efficient. As a result of such discrimination, consumers are likely to face higher electricity prices because more efficient generators fail to enter to displace less efficient generators.

In addition, we concur with the assessment in the Notice that

> Affiliated transmission companies . . . may not be trusted by market participants even with elaborate protections. . . . We believe that market participants are likely to suspect that the safeguards will be gamed. This, in turn, could affect investment behavior. In particular, market participants may be reluctant to make needed investments in generation or marketing of electricity if they believe that the RTO is likely to give favored treatment to its affiliates. [49]

We also agree that behavioral codes of conduct are unlikely to solve this problem because of enforcement costs and uncertainties. [50]

As described in our Open Access Comment, the alternatives to functional unbundling with behavioral rules are operational unbundling (ISOs) and divestiture. Divestiture presents the cleanest type of structural remedy for transmission discrimination by severing the ties that create the incentive to discriminate."[51]

Natural Gas

125. In the natural gas industry, as in the electricity industry, gas production and “retailing” are broadly competitive activities. In contrast, there are significant economies of scale and density in gas distribution. Although there are significant economies of scale in gas transmission, the geographic location of gas producers and consumers allows for some competition in this segment in some countries. In some countries, gas storage facilities are scarce, and access to storage can also be important for sustaining competition. In addition, natural gas is an important input into electricity generation. A company with a dominant position in the gas market which vertically integrates with electricity generation may be able to increase the price or restrict the availability of gas to rival generators. Some countries have addressed this with restrictions on integration between gas transmission/distribution and electricity generation.

126. Structural separation to promote competition in the gas industry therefore generally involves one or more of the following types of separation:

(a) Separation of gas production from transmission/distribution;

(b) Separation of retailing from transmission/distribution;

(c) Separation of gas storage from transmission/distribution;

(d) Separation of distribution from transmission;

(e) Separation of gas transmission/distribution from electricity generation.

127. As in other sectors, relatively recent reforms in the gas sector have greatly enhanced the scope for competition. Most countries allow at least some classes of customers to choose their source of gas, with the gas carried over the transmission / distribution network at a regulated price.

Separation of Gas Production From Transmission/Distribution

128. Many OECD countries do not have significant domestic supplies of natural gas. In these countries the tradition of enforcing domestic ownership of the transmission and distribution assets has historically lead to a degree of separation between production assets (which are owned by foreign firms) and transmission and distribution (owned by domestic firms). This separation, however, does not necessarily reflect the potential for effective competition.

129. The European Commission Gas Directive (98/30/EC) requires that gas companies keep separate accounts for their natural gas transmission, distribution and storage activities, as they would be required to do if the activities in question were carried out by separate undertakings. The Commission observes:

> “Several Member States (Austria, Spain, Italy, Ireland, Netherlands and the UK) are either pursuing or considering a separation of transportation and commercial trading activities of integrated companies which goes beyond the requirements of the Gas Directive. However, other Member States (Belgium, Denmark, Germany, Finland and France) do not seem to intend to go beyond these minimum requirements.
>
> Lack of full legal unbundling between transportation (including system operation) and supply is often quoted as a main potential obstacle to non-discriminatory access to the network and as a

source for abuse of dominant positions. In the absence of full unbundling and structural changes within the gas industry, the regulatory regime will need to provide strong conduct regulation in order to ensure non-discrimination."[52]

130. The International Energy Agency also recognises the limits of conduct regulation and advocates stronger forms of separation:

"An integrated monopolist gas company that determines …transport conditions [for] competitors … has an incentive to hinder or exclude potential competitors from using its infrastructure. And it has privileged access to commercially sensitive information, which it can and will exploit. … Regulation cannot resolve all of this. Information problems are likely to remain. False information provided by the utility can often not be verified (or recognised as such) by the regulator. This will make it very hard if not impossible to guarantee non-discriminatory treatment of competitors/customers. Unbundling the transport and gas trade activities is, therefore a necessity.

In this respect, separate *internal* accounts for each activity, as required by the [EC] Gas Directive, do not constitute sufficient unbundling. It does not solve the privileged-access-to-sensitive-information problem. And companies may be tempted to produce two sets of accounts: a "fudged" set for the regulator, and reserve the true accounts for own use. Effective unbundling requires at least splitting the companies' activities of transport and trade into two subsidiaries. This shouldn't be too demanding on the concerned gas companies, and would be politically relatively easy to introduce.

… From a purely competition policy perspective, ... unbundling would have to go further. The transport subsidiary would have to be surrounded by Chinese walls and be made independent from decision making at the holding level that would effect on commercial gas issues. This will be very hard to do. Therefore, *should divestment/sell-off of the transportation part from all other energy-related activities be legally possible and practical, this would be the preferred option*. Also, competition [policy] may require [the] unbundling also [of] storage, swing and back-up services from transport and gas trading so as to put e.g. access to storage on a non-discriminatory basis. … From a competition logic, we recommend divestment/sell-off of storage from transport as well as from gas trading."[53]

131. Other countries have also complained about the weakness of separation: In Ireland, "The competition authority has called for BGE's transmission and distribution business to be established as a wholly independent state-owned company. It believes that the keeping of separate accounts is not sufficient to eliminate the potential for anti-competitive behaviour."

132. The experience of the UK in choosing to separate gas production from transmission is interesting and is set out in Box 4.

Box 4: Vertical Separation in Natural Gas: The Case of British Gas[54]

In 1988, following disappointment with the absence of competition in the UK gas industry, the UK Monopolies and Mergers Commission (MMC) recommended that British Gas publish information about access terms and conditions and that "Chinese Walls" be set up between the part of BG involved in access negotiations and those involved in gas purchasing and supply. Three years later, in 1991, the Office of Fair Trading concluded that this conduct regulation had not been sufficient to stimulate competition and that additional structural remedies were necessary. Although it argued that full divestment was the best option, it was willing to accept the creation of a separate transportation and storage subsidiary as a compromise.

In 1993, following a further review of the gas industry, the MMC went further in its recommendations. It recommended that BG be required to divest its trading (i.e., supply) business by 31 March 1997. The MMC argued that competition could only be sustained in the longer term if competitors had non-discriminatory access to the transportation network and storage facilities. The MMC noted that 'the integrated nature of BG's business … is unable to provide the necessary conditions for self-sustaining competition'. Even if BG had separate subsidiaries for transportation and trading, as agreed in the undertakings to the OFT, the problems of conflict of interest would not be resolved. There had been delays in offering quotations and in reading meters, and both the structure and the level of transportation charges and BG's operational requirements for competitors affected their ability to compete. Ofgas had argued that without full separation there might be problems over access to the network for competitors in the event of capacity shortages, transportation pricing that disadvantage competitors, asset and cost allocation that favour the transportation side of BG, and the confidentiality of information. Regulation of such behaviour would be costly and difficult given the asymmetries of information. Since the MMC believed that competition would not be self-sustaining without vertical separation and that competition in supply was desirable, it concluded that the situation acted against the public interest, and recommended divestment of BG's trading business.

The MMC noted that the cost of vertical restructuring, estimated at 130 million pounds per year over ten years, had to be paid for, and it suggested that Ofgas should pass on 'an appropriate proportion of the costs of such restructuring to tariff users' and that Ofgas should take account of such costs in setting transportation and storage charges.

In the view of the MMC the *sine qua non* for future effective competition was full vertical separation. Although this entailed costs – since a demand- and supply-balancing regime would have to be established, any scope economies between trading and transportation would be lost, and transactions costs would be incurred – the MMC argued that these did not offset the expected benefits of competition. The MMC quoted the BG's estimate … but stressed that these estimates were uncertain and probably too high and that in any case they were small in relation to the size of BG's supply business. …

Other options for separation were also considered and rejected by the MMC. The option of splitting BG Trading into separate regional companies, which was mentioned in Ofgas (1993) was not taken up because of the extra costs involved and because the number of competitors was not a problem. The suggestion that BG be split along the lines of the electricity supply industry into the national (and possibly) regional transmission system, with integration regional distribution and supply companies, was rejected because of cost and the difficulty of ensuring non-discriminatory access to the regional distribution networks. Similarly, the MMC did not believe that the storage system should be split from transportation because BG's storage facilities are used to provide security of supply as well as to service seasonal peaks. It did argue that accounting separation of storage facilities might be desirable since competitors might want to set up their own storage facilities. …

One lesson to be learned is that it is far easier to achieve structural reforms to promote competition before an integrated monopolist is privatised. The very different approach that the [UK] government adopted when privatising the electricity supply industry suggests that it did not take long to recognise the mistakes made in the case of British Gas.

Separation of Storage and Transmission / Distribution

133. Different countries have chosen quite different approaches to separation of storage. "In the UK, for example, access capacity for storage is sold under regular auctions while "virtual" storage i.e. other flexibility facilities and instruments are available at the spot market. In Italy, there will be regulated access to storage. Most other Member States also envisage some form of access to storage (albeit in some cases, such as Germany and Denmark, limited not only to when capacity is available but potentially also to when such access is "technically necessary for an efficient access to the system"). In France, access to storage will be subject to competition law and certain priorities (storage needs of PSO/non-eligible market and storage needs for system operation)."[55]

134. Table A-5 summarises the forms of separation chosen by OECD countries in the gas industry.

Rail services

135. In most countries the provision of train services is a potentially competitive activity while the provision of track, signalling and associated infrastructure is largely non-competitive. However, in some countries there is scope for competition between tracks which take different routes to the same destination, especially over longer distances. In addition, the rail transport mode faces relatively strong competition from other transport modes.

136. Structural separation to promote competition within the rail sector therefore generally involves one or more of the following types of separation:

(a) Separation into regional integrated networks; and

(b) Separation of train operations from the provision of track infrastructure.

Separation Into Regional Networks

137. Separation of a rail network into smaller regional parts has two advantages. First, regional networks compete with each other on the routes which can be served by two or more networks. Second, since each network benefits from being able to run trains to destinations on another network each network has a degree of countervailing power in the process of negotiating access or trackage rights.

138. A few countries have chosen the approach of creating regional train networks. The best examples are the rail industries of Mexico and the US. Mexico's experience is interesting because, in addition to several regional route-based companies, the main terminal at Mexico City is under joint ownership. Each of the three main routes serving Mexico City owns 25% of the terminal, with 25% remaining with the State.

139. The ECMT's assessment of the US highlights the strengths and weaknesses of this approach:

> "North American railways do provide trackage rights (access) for competitors, often on a reciprocal basis and usually by mutual agreement. Where negotiations fail, regulatory authorities can intervene on appeal to set conditions and prices for track access. Trackage rights can also be made a condition for the approval of mergers as one way to control the erosion of competition. The system seems to have worked well in preserving competition overall in the USA and Canada although cases of dispute have revealed the many more or less subtle ways in which the owner of the tracks can create barriers to entry when open access in theory exists."[56]

140. One important US case highlights clearly both the important effect that such separation can have on competition (by showing the extent to which competition was lost when re-integration was allowed) and how much less effective behavioural approaches are in promoting competition in this sector. The US Department of Justice writes that these effects:

> "… can be seen most clearly in the case of the 1996 Union Pacific/Southern Pacific merger, which involved the combination of two of only three major railroads in the Western United States. The DOJ concluded that the transaction would significantly reduce competition in numerous markets where the number of carriers dropped from two to one or from three to two, and that the remedy proposed by the carriers (granting trackage rights to the third western railroad) was unworkable and, in any case, insufficient to remedy the harm. The DOJ also found that the efficiencies claimed did not outweigh the competitive harms. DOJ therefore recommended that the Surface Transportation Board ("STB") deny the merger application. The STB did not accept DOJ's recommendation, instead giving great weight to the benefits claimed by the carriers. The Board also found that trackage rights were sufficient to replace direct competition where the number of carriers fell from two to one, and that a reduction from three competitors to two was not of concern. Following implementation of the merger, there has been a massive service breakdown in the West, resulting in billions of dollars in losses to shippers. In addition, there have been numerous complaints that the trackage rights have been ineffective in replacing competition lost because of the merger."[57]

141. The OECD Regulatory Reform review of the United States clearly links the poor outcome to an over optimistic view of the strengths of a behavioural approach relative to a structural approach to promoting competition:

> "One reason STB approved the merger was evidently its faith that its own regulatory interventions would be sufficient to remedy market power problems that might result. But STB's actions to date seem to hope that the problem will solve itself. It has called for railroads and shippers to develop a dialogue about service problems, to discuss possible standards for sharing track and facilities, and to nominate experts to recommend ways to identify market power problems that STB ought to correct. That is, STB does not appear capable of solving the problems it helped create by approving a merger that led to substantial market power".[58]

Separation of Tracks and Train Operations

142. Many countries have undertaken separation of train operations from track infrastructure, if only in the form of accounting separation. The ECMT observes that more than just accounting separation will be necessary to obtain the full benefits of competition in the rail sector:

> "The separation of infrastructure from operations has been completed in many countries, at least for accounting purposes. This is a necessary, although not sufficient, condition for providing access to infrastructure for new rail operators, licensed within the meaning of directive 95/18/EC, and lays the foundation for competition in the sector on a non-discriminatory basis. In regard to existing regulations simple accounting separation, for which several countries have opted, can only be seen as a minimal answer. Several countries have opted for more complete separation and have overhauled national rail companies' internal organisation. Institutional separation is not yet widespread, though a handful of examples already exist and a number of other countries, especially in central and eastern Europe, have announced plans to create legally independent entities for infrastructure and operations.

On-going liberalisation of the rail sector will imply an even more marked separation of infrastructure and operations than is the case at present. Such a step is a precondition for greater access to and transit across infrastructure, which in turn is the foundation for the further development and more efficient utilisation of Europe's rail network."[59]

143. Table 3 summarises the approaches to industry structure and third-party access in OECD rail industries:

Table 3: Ownership, Separation of Infrastructure and Track Access for Selected Countries

Ownership and separation of infrastructure	**Open access**	**Limited open access[60]**	**No open access**
Separate private companies	Britain Victoria (Australia)[61]	-	Japan[62]
Separate public sector entities	Sweden Romania New South Wales and interstate (Australia)	-	France
Subsidiaries of common holding company owned by public sector	Germany Netherlands Poland	-	-
Vertically integrated public sector company	Italy Czech Republic Queensland (Australia)	-	-
Vertically integrated private companies	Southern Australia	US Canada Western Australia[63]	New Zealand

Source: ECMT (2000), Table 1, page 12.

144. Full ownership separation of rail infrastructure from train operations has been carried out in Australia (at the federal level), the United Kingdom and Sweden (and in Denmark, although competition in trains has not yet been introduced) and will be carried out in the Netherlands in 2001. Ireland has plans to conduct such a separation. Many countries rely primarily on accounting separation or corporate separation (Austria, Belgium, Czech Republic, France, Germany, Italy, Poland, Portugal, Spain, Switzerland, Turkey).

145. Australia reports its assessment in detail in Box 5.

Box 5: Vertical Separation in Rail: The Experience of Australia

The Federal government has vertically separated the ownership, accounting and operation activities of Australia's interstate rail industry by establishing a separate track infrastructure provider, the Australian Rail Track Corporation, to own and manage key elements of the interstate network. A separate entity, the National Rail Corporation provides interstate and intrastate freight services. However, the majority of Australia's rail industry is regulated by State governments, not the Federal government. The extent of separation differs between States. New South Wales has separated ownership of track, maintenance, freight and passenger operations. Western Australia, Queensland and Tasmania have not separated their above track and below track operations.

In New South Wales, where rail operations have been structurally separated, the Commission has not received significant complaints of anti-competitive behaviour against the rail services operator. On the other hand, in Queensland, which still maintains an integrated operation (albeit with accounting separation), there have been some complaints about the conduct of the operator. The Commission is investigating one of these complaints under those provisions of Australia's competition laws dealing with misuse of market power. The allegation is that the operator provides track access to its own downstream operator at lower prices than to third party operators. There have been no substantial complaints against the operator that operates rail services in Western Australia in a totally integrated fashion within a non-corporatised entity.

In the interstate rail industry, the access regime under the Trade Practices Act and separation has had a significant effect on the level and quality of competition. Before the introduction of the access provisions in the Trade Practices Act, there was a single operator, National Rail, on the interstate track network. However, there are now five above rail operators providing freight services and one above rail operator providing passenger services. This indicates that separation, corporatisation and access provisions have stimulated competition to new levels in the interstate rail freight industry. It is estimated by the rail industry that freight rates on the Melbourne-Perth interstate corridor have dropped by twenty-five per cent since separation and the introduction of the access provisions in the Trade Practices Act. Similarly, since vertically separating the New South Wales network, freight rates are estimated to have fallen by twenty per cent. The Australian Rail Track Corporation claims the quality of service provided by the interstate freight operators has increased in terms of efficiency and reliability.

The transitional costs for the rail industry have been substantial. Vertically separating the interstate rail operations required the Federal government to create the Australian Rail Track Corporation to own and manage access to the interstate track. Therefore, separation imposed the costs of establishing the infrastructure company as well as the costs involved of establishing a separate above rail operator. The costs associated with the introduction of access regulation were also relevant in the transitional period.

146. The UK conducted both separation of infrastructure from operations, together with separation of operations into regional operators. However, for largely unrelated reasons the outcome has been less than fully successful.

> "In the early stages of privatisation in the United Kingdom great emphasis was placed on creating competition in all parts of the rail market except infrastructure management. Passenger operations were split into 25 companies, rolling stock ownership split between three companies and core freight business split into three with containers, coal, nuclear fuel / waste, parcels etc. in further separate businesses. When it came to selling the companies, the main 3 freight companies could only be sold together to a single buyer that has since bought all the other freight services except containers and nuclear waste. On the passenger side the government had to introduce a "limitation of competition" regulation to attract sufficient bids so that apart from a few sections of line on the boundaries between franchises, competition was ruled out until 2000. The experience suggests that fragmentation went too far, and the number of competing rail companies the market can support is small."[64]

147. The nature and extent of separation in rail in a number of OECD countries is set out in the Table A-6.

Telecommunications

148. In telecommunications, the ability of an incumbent operator to restrict competition by restricting interconnection arises from the presence of economies of scale in the provision of local networks and from the fact that most consumers are only connected to a few telecommunications networks and consumers strongly prefer to be able to communicate with all other consumers. As a result, any telecommunications network which currently is connected to the vast majority of consumers will be in a position to restrict the

growth of rivals by denying interconnection. The power of an incumbent telecommunications network to control the terms of interconnection depends both on the size of its own network relative to the rival and whether or not the incumbent could expect to gain the customers of the rival in the event of failure to interconnect.

149. Structural separation to promote competition in telecommunications therefore generally involves one or more of the following approaches:

(a) Separation of network operators into smaller networks, each connected to a group of consumers (such as the splitting up of an incumbent company into several regional companies, each providing local services to a group of consumers);

(b) Separation of the non-competitive parts of network operators (particularly, the "last mile" of the connection to the customer) from the competitive parts (such as long-distance services);

(c) Separation of network operators on the basis of technology used to connect to consumers (such as the separation of local telecommunications companies based on copper-wire from companies using cable TV networks or those using cellular services).

150. Virtually all OECD countries allow competition in the competitive segments of the telecommunications industry, on the basis of some form of third-party access regime which mandates interconnection. Table A-7 summarises the extent of competition in each major telecommunications market.

151. The nature of separation in the telecommunications and broadcasting industries was studied in the OECD paper on cross-ownership and convergence.[65] Several of the tables in that paper are reproduced here. Table A-9 sets out the various forms of separation requirements that are commonly imposed in the telecommunications and broadcasting industries. As this table makes clear, separation requirements of all kinds are very common in the telecommunications industry.

Separation Into Regional Operators And Separation of Long-Distance from Local Companies

152. The separation of an incumbent into regional operators is one technique for promoting competition between rival vertically-integrated networks. Relatively few countries have chosen to separate their telecommunications incumbent into regional operators. The most prominent example, of course is the US. In 1984 the US divided the incumbent telephone company into several regional monopolies (providing local and intra-region services) and one inter-region long-distance company (at the time mobile services had not yet been developed).[66] The US telecommunications regime is currently one of the most competitive in the world.

153. The US regime also provides a rare natural experiment, allowing us to compare the behaviour of separated companies and integrated companies in the same market. Although the regional Bell telecommunications companies were not allowed to enter long-distance services, at the same time the regime allowed a private company, GTE which provided telecommunications services in competition with the Bell companies in many regions, to remain vertically integrated, operating in both local and long-distance services. Following the 1996 Telecommunications Act, long-distance companies were allowed to enter local services in competition with the regional Bell companies. A study comparing the behaviour of the Bell companies and GTE showed that access negotiations with integrated GTE took longer and were less likely to be successful. GTE's negotiating stance was systematically more aggressive than the Bells, and despite the access regulatory regime, entry was systematically lower in regions serviced by GTE. These results are presented more fully in Box 6.

Box 6: Vertical Separation in Telecommunications: Comparing GTE and Bell Conduct

In the US, the 1983 antitrust decision which vertically separated AT&T did not apply to its smaller rival in local telephony services, GTE. As a result, unlike the "baby Bells", GTE provides both local and long-distance telephony services. A recent study by Mini[67] compares AT&T's negotiations to enter local markets served by GTE and by the local Bell company in the 22 states in which both GTE and a Bell company offer service. The results show a clear difference in behaviour of the Bell companies and GTE in regard to access negotiations. This difference in behaviour presumably arises from a difference in incentives. There are two potential sources of these differences in incentives which are discussed below. The key differences in outcomes found by Mini are as follows:

First, Mini's results suggest that access agreements are more likely to be reached and to be reached more quickly under vertical separation. As of March 1999, AT&T had failed to obtain approved interconnection agreements with the Bells in only 2 of the 22 sample states, but failed with GTE in 10 of these states. In the 12 states where agreement was reached with both GTE and the local Bell it was reached first with the Bell 11 times, and only once with GTE. In addition the average delay in reaching agreement is 70% longer with GTE - 457 days with the Bells and 781 days with GTE.

Second, the incumbent is systematically more aggressive in negotiating under vertical integration. Mini compares the prices demanded by the incumbent for resale of local service. Mini finds that when going into arbitration, GTE offers a higher price for residential service in 15 out of 18 states and a higher price for business service in 13 of 18 states. On average, GTE offers a discount off the retail price of residential service of $1.20, whereas the Bells offer, on average, $1.98. This represents 8% of the average monthly bill for GTE and 13% for the Bells.

Finally, despite the access regulation entry is systematically lower in regions served by the integrated incumbent. In the states in which both Bell and GTE data were reported, the Bell had a higher percent of resold lines 12 times out of 15 in the case of residential lines and 14 out of 14 for business lines. The proportion of resold residential lines was, on average 3 times higher with the Bells (0.53% against 0.15% for GTE). The Bell's average proportion of resold business lines (1.32%) was 18 times larger than GTE's.

There are two possible reasons for the apparent greater resistance of GTE to new local entry. The first arises from the 1996 Telecommunications Act itself. This Act uses the possibility of entry into long-distance services as a "carrot" to encourage the regional Bell companies to open their local market to competition. It is possible that the results above reflect the fact that this possibility provides a strong incentive for the Bell companies to allow new entry into local services. Another possibility is that, due to imperfect competition in long-distance services, there remain rents to be earned in this market. If the loss of a local customer results also in the loss of that customer's long-distance business (as seems likely) then integrated GTE would have a greater incentive to resist new entry than the separated Bell companies. Thus these results are also consistent with the view that vertical separation facilitates new entry into local telecommunications services.

154. Brazil has also separated its telecommunication company into several regional companies and one long-distance company. In Brazil, as in the US, there are plans to allow re-integration between these local companies and long-distance companies.

155. When the European Union is viewed as a whole, the traditional telecommunications incumbents each are dominant in their own geographic market, similar to the RBOCs in the US. In this context, the promotion of separation between these regional operators is primarily a matter of preventing re-integration. In fact the EC has acted to prevent integration between regional incumbent telecommunications operators in the EU. The clearest example is the proposed Telia/Telenor merger. Telia is the dominant incumbent in Sweden while Telenor holds a dominant position in Norway. The Commission carried out an in-depth investigation into this merger and imposed far-reaching conditions including requirements to open up access to the local access networks for telephony as well as the divestment of Telia and Telenor's respective cable-TV businesses and other overlapping business. The merger proposal was subsequently

withdrawn. The Commission's comments highlights its concern with more than horizontal competition between these two parties:

> "In telecommunications services and television distribution, the competitive analysis has to go beyond issues of direct overlaps, and the significance of possible network effects and foreclosure must be analysed. … The merged entity would have become, to a higher degree than Telia or Telenor alone, a necessary contracting party for its competitors. This would have enabled them to foreclose access to those competitors, thereby reducing the choice available to final users. In any future notifications of operations involving incumbent operators, the Commission will look very closely at access to local telecommunications and cable-TV networks and may require cable-TV network divestitures and/or local-loop unbundling".[68]

156. Other countries have considered separation. Norway notes that in 1999 the Norwegian Parliament voted against a proposal for separation of Telenor's infrastructure into a separate corporate entity. In 1992 the Canadian telecommunications regulator also rejected a proposal to split up the Canadian telecommunications company.

157. Japan has also carried out a form of separation of its telecommunications incumbent, by forming separate regional companies, operating under a single holding company. This separation has been widely debated in Japan and was also taken up in the OECD regulatory reform review of Japan.[69]

Separation of Local and Mobile Services

158. Since mobile services are an important alternative vertically-integrated network, the separation of local and mobile services can also promote competition between integrated networks. To the extent that each network has a group of subscribers which are not connected to any other network, each network will have some "countervailing power" which will moderate interconnection demands, as discussed in the section on "Separation into Reciprocal Parts".

159. Relatively few countries have chosen to impose separation between local telecommunications services and mobile services and, when such separation has been imposed it has tended to be weak. As reported in Table A-8, in 11 OECD countries the incumbent directly provides mobile services (i.e., without even corporate separation). In 7 more countries the incumbent provides mobile services through a 100% owned subsidiary. In the remaining cases mobile services are provided through a subsidiary which is less-than-fully owned (ranging from 51% ownership of the mobile subsidiary in Czech Republic, to 75% in the case of Belgacom Mobile).

160. Spain reports that an undertaking owning more than 3% of the stock in more than one major operator in fixed or mobile telephony will have restrictions on its voting rights in the governing bodies of these enterprises. In effect, this imposes a form of separation of ownership and control on a firm owning, say, both fixed and mobile enterprises. There are also examples in other countries. OECD (1998a) notes:

> "In Japan, in 1990, with the aim to ensure fair competition between new entrants in the mobile communications market, the regulatory authority required NTT to establish a legal separation for its mobile operation. Consequently, NTT DoCoMo was created as a legally separate corporation in 1992. Similarly, when mobile communication licenses were first granted in 1983 in the United Kingdom, the regulatory authority required British Telecom (BT) to legally separate its mobile operations. Furthermore, BT was also limited in its share of Cellnet - the separated mobile company - to 60 per cent. Also in Italy, in 1994, a government directive requested Telecom Italia to provide for a legal and structural separation between the fixed and mobile communication operations. Following this directive, a separate mobile company, Telecom Italia Mobile (TIM),

> was established. On the other hand, some incumbents have voluntarily separated their mobile communication operation. The aim of such action was either to increase operating efficiency and strengthen market competitiveness, which was the case of Deutsche Telekom, or to enter into strategic alliances with foreign companies as in the case of Belgacom and OTE."[70]

Separation of Local and Broadband Services

161. Since broadband and cable infrastructures are one of the primary potential alternative infrastructures for telecommunications services, the promotion of the development of competing infrastructure-based networks may require structural separation between traditional local telecommunications services and broadband/cable services. This separation has both a "horizontal" and a "vertical" aspect. It has a horizontal aspect because cable television providers and telecommunications companies are probably the most likely entrants into each others markets. Separation can thus enhance competition in local services in the region in which both companies operate. It also has a "vertical" aspect because the establishment of separate networks based on cable television infrastructure reduces the dominance of the incumbent copper-wire based network. Once these networks have acquired a sizeable number of subscribers not connected to other networks, they will have a degree of "countervailing power" which will moderate interconnection demands, as discussed in the section on "Separation into Reciprocal Parts".

162. The benefits of such separation was strongly argued by the OECD in 1996:

> "One of the main 'alternative infrastructures' identified by new market entrants, PTOs and policy makers to provide competitive telecommunication services are cable television networks. Yet, due to current regulatory policies in the OECD area, PTOs are twice as likely to be able to offer cable television services than cable television companies are of providing switched public telecommunication services. Where restrictions have been lifted on the ability of new service suppliers to provide infrastructure for local telecommunication services, competition has either commenced or infrastructure is being developed to provide competitive local access. Aware of the competitive threat posed by cable communication in some countries a number of PTOs have been expanding their own services in this area. From 1990 through to 1995, an increasing share of the cable television market was gained by PTOs in the OECD area. It should be a major concern, in terms of competition policy, that PTOs have more than 61 per cent of the cable television market, as measured by subscribers, in areas where they have PSTN monopolies.
>
> PTOs in monopoly telecommunication markets are over three times more likely to own cable infrastructure than PTOs in competitive telecommunication markets and this could constitute a formidable barrier to the early roll out of competition at the local level. This suggests that policy makers in a number of countries with telecommunication monopolies should give urgent consideration to a number of actions, or an opportunity for faster and more efficient roll out of local competition may be lost. … Some positive steps that could be taken to boost the chances of an earlier roll out of communication (telecommunication and cable television) local competition include:
>
> - accelerate liberalisation by allowing cable communication operators, and other alternative infrastructure providers, the opportunity to offer public switched telephony services;
>
> - for those Member countries considering privatising an incumbent PTO *to sell their cable subsidiaries as separate entities;*

- to *prevent further acquisitions or mergers by PTOs [with cable operators] in their 'home markets'* where this will lead to an increase of dominance;
- where they have not done so, introduce safeguards to ensure PTOs are not cross subsidising the expansion of cable television networks from monopoly PSTN services in advance of competition;"[71]

163. Only a few OECD countries impose separation between local and broadband services. One exception is the USA. Prior to 1996, Local Exchange Companies were precluded from entering *de novo* into cable service within their telephone market. The Telecommunication Act of 1996 places limits on a local telephone company (LEC) and a cable television operator serving the same market to enter into joint ventures and acquire ownership or management interests in each other. Specifically, LECs and cable operators providing service in the same area may not mutually purchase or acquire directly or indirectly more than 10 per cent of financial interest or any management interest in each other; nor may they enter into any joint venture or partnership to provide telecommunications or video programming services within that same area.

164. The Dutch regulator required KPN (the holding company of the incumbent PTT Telecom) to implement a legal separation between its joint provision of telecommunication infrastructure and cable television infrastructure. Furthermore, KPN was required to reduce its shareholding of the subsidiary company's Dutch cable network to 20 per cent to ensure that control over the legally separated cable network operator was limited to a certain extent. As a result KPN decided to divest all of its cable holdings, selling them to France Telecom.

165. In Germany, Deutsche Telekom, Germany's incumbent PTO and dominant cable network operator placed its cable television network into a legally separate corporation (Kabel Deutschland GmbH) in January 1999. Tenders were invited for six regional cable companies in August 1999 and majority stakes in these companies have been sold throughout 2000. In Ireland, the incumbent Eircom (formerly Telecom Eirann) disposed of its 75 per cent share in the country's largest cable operator Cablelink in the first quarter of 2000. In the United Kingdom, British Telecom agreed to divest itself of its broadband cable TV interests in Westminster and Milton Keynes in May 1998 in order to address concerns raised by the EC while reviewing the proposed joint venture which created BiB ("British Interactive Broadcasting Limited"). In August 2000, France Telecom divested its 50 per cent stake in Noos, the cable TV operation of Suez Lyonnaise des Eaux.

166. In June 1999, the European Commission adopted a Cable Directive (1999/64/EC) which imposes the requirement of legal separation between telecommunications services and cable television network. Previously, the Commission's Cable Directive 95/51/EC had required a clear accounting separation between the two operations as a minimum requirement to ensure accounting transparency and prevent cross-subsidisation between the two operations (although legal separation was considered to be preferable already at that point). However the Commission subsequently concluded that accounting separation was not sufficient to stimulate infrastructure competition. In the preamble to the cable directive the European Commission recognises the anti-competitive problems that arise from integration of cable and telecommunications services and also recognises that accounting separation alone is inadequate:

> "Where Member States have granted a special or exclusive right to build and operate cable TV networks to a telecommunications organisation in the same geographic area where it is dominant on the market for services using telecommunications infrastructure, that telecommunications organisation has no incentive to upgrade both its public narrowband telecommunications network and its broadband cable TV network to an integrated broadband communications network ('full service network') capable of delivering voice, data and images at high bandwidth. In other words,

> such as organisation is placed in a situation whereby it has a conflict of interests, because any substantial improvement in either its telecommunications network to its cable TV network may lead to a loss of business for the other network. *It would be desirable in those circumstances to separate the ownership of the two networks into two distinct companies* since the joint ownership of the networks will delay the emergence of new advanced communications services and will thus restrict technical progress at the expense of users … As a minimum, all Member States should, however, ensure that telecommunications organisations which are dominant in the provision of public telecommunications networks and public voice telephone services and which have established their cable TV networks under special or exclusive rights operate cable TV networks in a separate legal entity.
>
> Moreover, … Notwithstanding the requirements of Community Law with regard to accounting separation … in situations where serious conflicts of interest exist as a result of joint ownership, such [accounting] separation has not provided the necessary safeguards against all forms of anti-competitive behaviour. In addition, the separation of accounts will only render financial flows more transparent, whereas a requirement for separate legal entities will lead to more transparency of assets and costs, and will facilitate the monitoring of the profitability and the management of the cable network operations."[72]

167. The Commission indicates that it will examine on a case-by-case basis whether it would be appropriate to require EU member states to take further measures, such as the opening of the cable television operator to participation by third parties, or the requirement to fully divest the separate entity. Some new entrants into the cable television market believe that cross-ownership of the incumbents should be limited, allowing them only a minority stake in the separated cable network operator, and view the provisions of the draft directive as weak in this sense. The possibility for the Commission to undertake reviews on a case-by-case basis is crucial in this context.

Other Forms of Separation

168. In November 2000, British Telecom announced a restructuring plan under which it would voluntarily separate its network operations and maintenance from the other parts of its business – retail telephone, broadband, mobile and Internet services. It is planned that 25% of the network company ("NetCo") would be separately listed and traded on stock exchanges. The CEO of BT, Sir Peter Bonfield, made it clear in announcing this move that it was, in part, a response to regulation: "In my view, the creation of NetCo (a fully separate company) should reduce the need for those aspects of regulation which derive from our current vertically-integrated structure". [73]

169. Many countries[74] have adopted policies intended to promote unbundling of the local loop. These policies also have a horizontal and a vertical aspect. Local loop unbundling may enhance competition in high-bandwidth local loop services (especially in those countries where the incumbent telecommunications carrier also operates cable television infrastructure and so has little incentive to upgrade the copper-wire local loops to provide high-bandwidth services). Local loop unbundling, by creating rival networks with direct links to customers, also reduces the dominance of the incumbent telecommunications operator.

170. Local loop unbundling, as it is usually carried out, is a form of access regulation – the incumbent retains ownership and responsibility for maintenance of the lines which are then leased to the rival operator.

171. Similar sorts of separation are also relevant in the Internet market. The Internet sector is presently best characterised as a "network of networks". No one company holds a dominant position in the provision of infrastructure for the Internet. There is therefore a degree of countervailing power among Internet

infrastructure providers. These companies are able to agree interconnection arrangements with one another without significant difficulty or without the need for regulatory oversight.

172. Nevertheless, the possibility remains that one company might seek to acquire a dominant position in the provision of Internet infrastructure, thereby disrupting the "balance of power". This was one of the major concerns in the proposed merger between MCI and WorldCom which was blocked by US and EU competition authorities. By insisting on structural separation between these two companies, the competition authorities were maintaining the current structure of separation into reciprocal parts.

173. A summary of the separation obligations in telecommunications is attached as table A-10.

Broadcasting and Broadband Interactive Services

174. The broadcasting sector is slightly more complicated in that (at least in principle), there is the potential for a dominant position to arise at both the upstream and downstream levels.

175. Consider first the case of dominance in the infrastructure markets. To an extent the different modes for the delivery of video programming (terrestrial, cable and satellite) compete with each other. In the particular case of cable television infrastructure services to the home, economies of density give rise to a regional natural monopoly (although some particularly dense and high volume areas may be able to sustain two overlapping cable networks). If a broadcasting company were able to obtain a dominant position in the market for infrastructure (either through the ownership of cable facilities or through the joint ownership of cable, terrestrial and/or satellite facilities), that broadcasting company might be in a position to restrict competition in the content market.

176. Competition in the content market could be protected through the following forms of separation:

(a) Separation of broadcasters into smaller regional parts (to prevent any firm gaining a dominant position). This could be carried out by limits on the share of any one broadcasting mode as well as limits on cross-ownership shares. For example, the US FCC requires that no multiple system operator (MSO) may have an attributable interest in more than 30% of nation-wide subscribers, including both cable and direct broadcast satellite television subscribers.

(b) separation of content providers from dominant cable infrastructure providers. For example, it seems clear that concerns regarding effects in the content market have led to questions regarding the AOL-Time Warner merger.[75]

177. It is also theoretically possible that a content provider could acquire a dominant position (perhaps through acquiring long-term contracts to key sports rights). In this case, integration between a content provider and a broadcaster could limit competition between forms of broadcasting (e.g., between cable and satellite broadcasts). In the US, the FCC is empowered to make rules which "ensure that cable operators affiliated with video programmers do not … unreasonably restrict the flow of the video programming of such programmers to other video distributors" (47 U.S.C. 533)

178. As tables A-11 and A-12 make clear, separation requirements are rife in the broadcasting industry, limiting the extent to which any broadcaster can obtain a dominant position. While these rules are often motivated by broader concerns (such as the objective of ensuring that no one company has an undue share of the opinion-forming process), nevertheless they also have the effect of promoting competition.

Postal Services

179. In postal services, the natural monopoly, if it exists at all, arises in the regular local delivery of letter mail to households.[76] The remaining segments of this market (collection, outward sorting, transportation, express mail and parcels) are all potentially competitive. In addition, even where local delivery is not a natural monopoly, since business and residential customers prefer to have a only a limited number of mailing addresses (i.e., to be connected to just one or a few "networks"), rival postal services companies must have access to the existing mailboxes of consumers.

180. Structural separation to promote competition in the postal sector therefore might involve the following types of separation:

(a) separation of the postal incumbent into regional companies engaged in collection, sorting, transportation and final delivery (and exchanging mail with each other); and/or

(b) separation of the postal incumbent into a collection, transportation and sorting company and one or more local delivery service companies, which accept mail for final delivery to local addresses.

181. Under approach (b) both the incumbent operator and rival companies would establish their own delivery centre for collection and sorting. Rival companies might also establish their own local delivery network without depending on incumbent operators. Postal incumbent operators are usually required to provide their letter mail services at a single uniform tariff in the territory of their country. If incumbent operators were separated into regional operators (as under approach (a)), they may not retain the single uniform tariff because of differences in economic and social conditions in each region.

182. Many countries have reserved the delivery of letter mail to incumbent operators for various reasons including, most importantly, to ensure universal postal service at a fixed, uniform price. On the other hand, services such express mail and parcels (above a certain weight) are typically open to competition. These services do not require access to the incumbent operator's services.

183. Even though most OECD countries do not allow competition in local delivery of letter mail (exceptions include Sweden and New Zealand), nevertheless, it is very common for postal incumbents to allow competition in the sorting and transportation of mail. Once the mail has been sorted and transported it is then handed off to the postal incumbent for final delivery. Almost all postal incumbents in OECD countries offer discounts for mail that has been pre-sorted and transported part of the distance to the final destination. This can be viewed as a form of "access regulation" under which competition is permitted in the competitive components of collection, sorting and transportation, with access to the incumbent's services for the non-competitive local delivery component.

184. In addition, postal operators regular agree to exchange mail with each other at the international level. Following the decision of the EC to exempt the Reims II agreement, 16 European postal operators have to offer each other access to the "generally available domestic rates" (such as bulk rates for direct mail, printed matter or periodicals) in the country of delivery. This can be viewed as a form of competition between reciprocal networks.

185. Although no OECD country has yet chosen to separate its postal incumbent to facilitate competition, either by separation into regional vertically-integrated enterprises or by separation of final delivery from other services, separation of a kind is prevalent at the international level. Taken as a whole, the EU postal sector features a number of regionally dominant integrated firms. Whether or not the EC will seek to preserve this separation by preventing integration of two postal incumbents has yet to be tested.

186. Separation has been an important issue in the postal sector – but the emphasis has been on horizontal, rather than vertical separation. Most postal incumbents also compete in areas which are potentially competitive, such as express mail or parcel delivery. Whenever a regulated firm is active in a competitive sector there is a concern that the regulated firm may be able to manipulate its accounts so as either to increase its profit in the regulated component, or undercut or distort competition in the competitive component.

187. It is for this reason that several countries impose various forms of separation on postal incumbents, separating their monopoly services from competitive services. An example is the accounting separation, that is required by the EC Directive. The forms of separation in the Postal Sector are set out in Table A-13. In those instances where letter mail (which is often non-competitive) and parcels are transported and delivered together there may arise economies of scope in combining these two activities.

V. Summary and Recommendations

188. The last two decades of regulatory reform in OECD countries have brought about fundamental changes in the scope for competition in regulated network industries. Industries previously served through vertically-integrated regulated monopolies have, through a combination of structural reforms and regulatory controls, been opened to competition. In telecommunications, electricity, natural gas, railways and, increasingly, in postal services, new entrant firms are competing in sections of the industries that were previously closed to competition. The benefits, in the form of innovation, customer responsiveness, productivity and lower prices have, in most cases, been clear.

189. In certain cases the competitive segments are not directly linked to the other segments of the relevant industries. In these cases, the introduction of competition in competitive segments is primarily a matter of removing regulatory restraints on competition, often supplemented by separation of the regulated and competitive activities of an incumbent firm, to prevent the regulated firm from cross-subsidising the competitive activities.

190. In other cases, the competitive segment produces services complementary to the non-competitive regulated services. In these cases, the structure of the industry is critical. Depending on the structure of the industry, an incumbent may have both the incentive and the ability to restrict competition. In such cases introduction of competition requires pursuing policies that address either the incentive or the ability of the incumbent to restrict competition. These policies are the focus of this paper. The key conclusions of the paper are:

(1) *When promoting competition in an industry with complementary competitive and non-competitive regulated activities there are a variety of possible tools for promoting competition that address the incentives and ability of the incumbent firm to restrict competition. These tools differ in their strengths and weaknesses.*

These tools include the policies referred to here as access regulation, vertical ownership separation, operational separation, club ownership and separation into reciprocal parts. Each of these approaches has its strengths and weaknesses. The approach that is most appropriate will depend on the circumstances in question and will differ from industry to industry and country to country.

Each of these approaches can be found in practice in some countries and industries. Operational separation is most common in the electricity industry. Club ownership is most common in the airport sector (it is common for airlines to jointly own the slot co-ordination function). Vertical ownership separation is more common in electricity and gas than in other sectors. Access regulation is found in all of these industries and is especially common in telecommunications and post. Separation into reciprocal parts is rarer, but is found in railways and telecommunications.

(2) *These tools or policy approaches can be broadly grouped into two categories – those that primarily address the incentives on the incumbent to restrict competition ("structural") approaches, and those that primarily control the ability of the incumbent to restrict competition ("behavioural" approaches). Under behavioural approaches, the regulator must struggle against the incentives of the incumbent to deny, delay or restrict access. Compared to the incumbent firm the regulator is usually at a disadvantage with respect to information and to the possible instruments of control. As a result, the level of competition under behavioural approaches is less than if the incumbent did not have the incentive to restrict competition. Certain tools, such as accounting separation, management separation or corporate separation, are not effective on their own, but may support other approaches, such as access regulation.*

Access regulation is a behavioural approach while vertical ownership separation, club ownership and separation into reciprocal parts are structural approaches. Operational separation, being somewhat of a hybrid, falls somewhere between these two categories.

The primary problem with behavioural approaches is that the regulator must struggle against the incentives of the incumbent firm to find ways to restrict competition. The incumbent firm can use all the tools at its disposal, whether legal, technical or economic to delay, to lower the quality or raise the price of access. A well-resourced regulator, through persistence and vigilance, could hope to limit the anti-competitive activity of the incumbent, but the outcome is unlikely to be as much competition as would arise in the absence of the incentive to restrict competition. Potential entrants, fearing the effects of discrimination, despite the best efforts of the regulator, may hesitate to invest in new capacity.

This result is supported by empirical studies and a body of anecdotal evidence. For example, in the US telecommunications industry, empirical research has found that access agreements were reached more quickly, access negotiations more likely to be successful and the level of entry higher in regions served by vertically-separated companies. A study of the electricity industry in OECD countries found that enhanced separation lowers industrial prices relative to residential prices (a sign of enhanced competition) and also enhances efficiency and quality of service.

The clear trend in these industries is towards "stronger" forms of separation. As weaker forms are tried and found wanting, stronger forms are adopted. This has occurred, for example, in the UK gas industry, the US electricity industry and the New Zealand electricity industry.

Throughout the OECD, competition authorities have argued for stronger forms of separation (i.e., for structural approaches over behavioural approaches). Stronger separation has been advocated for airports (ground handling) by the EC, in the electricity industry by the competition authorities of Ireland, the Czech Republic, Hungary, Finland and the US.

The OECD itself has, on numerous instances, argued for stronger separation. The IEA has argued for stronger separation of transportation from other activities in the gas sector; the ECMT supports further separation of infrastructure and train operations in the rail sector; DSTI has argued for separation of local telecommunications operators and cable-TV providers. Specific instances of stronger separation have been recommended in the regulatory reform reviews of a number of countries. OECD Ministers agreed to recommend separation as part of the package of recommendations on regulatory reform agreed in May 1997. Those recommendations urged Member countries to “separate potentially competitive activities from regulated utility networks and otherwise restructure as needed to reduce the market power of incumbents” and to “enforce competition law vigorously where … anticompetitive mergers risk frustrating reform”.[77]

Certain policy approaches, namely accounting separation, management separation and corporate separation do not address either the incentive or the ability of the incumbent to restrict competition. These approaches are therefore not effective in promoting competition in themselves. This point has been made many times in many different industries. The primary value of these policies is as a support to other approaches, primarily access regulation.

(3) *In industries with two-way networks (such as telecommunications, railways and postal services), separation into smaller vertically-integrated companies (i.e., separation into reciprocal parts) enhances the potential for competition without sacrificing economies of scope. More generally choosing the most appropriate approach requires balancing the benefits from competition and reduced regulation against separation costs and the loss of economies of scope. In most countries the competition authority should have a role in such structural decisions.*

In the telecommunications, rail and (to a lesser extent) the postal industries, incentives to interconnect can be enhanced, without loss of economies of scope, by separation into regional vertically-integrated monopolies.

In other sectors, the appropriate approach requires a balancing of factors. Structural approaches (such as ownership separation and club ownership) reduce the regulatory burden and strengthen the potential for the growth of competition, but may involve incurring the one-time costs of separation and the on-going loss of some economies of scope. As in merger control, a presumption in favour of separation has the advantage that it induces the regulated firm to produce evidence concerning the magnitude of economies of scope and the economic costs of separation.

In any case, decisions over separation (and re-integration) of two parts of these sectors often involves careful balancing of the effect on competition against potential efficiency gains. In most countries the competition authority has the skills and experience to make these decisions. For this reason the competition authority should be involved in structural decisions.

(4) *The extent to which OECD countries have pursued structural approaches differs from country to country and industry to industry. In many countries and industries there is substantial scope for further structural separation.*

In the electricity and natural gas industries, many countries have pursued full ownership separation, especially in the separation of electricity generation from transmission and natural gas production from transmission. Although country differences are important, there remains scope for further separation of transmission from distribution (in some countries), separation of distribution into regional parts (in some countries) and separation of retailing from distribution and transmission (in many countries).

In the rail sector, most OECD countries pursue weaker forms of separation. There remains substantial opportunity for clearer separation of infrastructure from operations and/or separation of incumbent operators into regionally-based companies.

In the telecommunications industry, also, there is substantial scope for further separation. Very few countries have chosen to divide up their incumbent operator into regional units. Although countries differ in the extent to which they permit the incumbent to provide mobile services, most allow some form of integration. There is substantial scope for separation of traditional copper-wire services from cable and fibre-optic broadband services and for unbundling of the local loop to allow separate copper-based networks to develop.

In the postal sector, structural separation is virtually unknown. There is scope for dividing the postal incumbent into regional operators, or separating competitive (parcel and express) services from competitive services.

In other sectors, such as airports, ports and roads, structural separation is extremely common. However, some countries can do more to separate the allocation of slots from the control of the incumbent airline. Few countries have required airport operators to divest their ground handling activities.

The serious consideration of separation questions, especially at the time of privatisation and liberalisation offers the potential to enhance the long-term success of these reforms, to the ultimate benefit of users and consumers in OECD societies.

NOTES

1 As an aside, in the context of a network, it may not always be possible to label a specific separation as vertical or horizontal as the various parts of the network may be combined by consumers in ways which are sometimes complementary and sometimes competing. As an example, suppose a rail network involves links from two coastal towns A and C to an inland town, B. In this case, the routes A-B and B-C may be combined to obtain rail transport from A to C. Alternatively, the routes A-B and C-B may compete in the transport of goods from the coast to the inland town.

2 In some industries, firms can influence these costs of being “connected to” or “compatible with” more than one network. In these industries, the size of these switching costs becomes a strategic decision on the firm. If the firm believes it can become large enough to benefit from the network effects, it may seek to raise the switching costs as a way to gain a competitive advantage over its rivals. Examples of this arise in the airline industry. Airlines use loyalty programs such as frequent-flyer plans to discourage switching between airlines.

3 Assuming that the regulatory restraints limit competition to the smallest extent possible consistent with the achievement of the objectives of the regulation.

4 Note that the presence of competition in a component does not automatically imply that the component is able to sustain competition. Where there are non-commercial service obligations, for example, the incumbent may both be pricing above stand-alone cost for some services and also unable to lower prices in response to new entry in those services. This form of competition may represent inefficient entry and does not necessarily indicate that competition could be sustained in the absence of regulation.

5 For example, it is possible to imagine a country in which rail primarily provides freight services between two port cities and an inland city. If shippers are indifferent as to which port city to use as a transit point en route to the inland capital, there is scope for infrastructure competition among the rail routes to and from the ports.

6 FTC (1995).

7 This focus on regulated and non-profit-maximising firms is also found in the Australian Hilmer report:

“While it is difficult to define precisely the nature of the facilities and industries [for which access regulation would apply], a frequent feature is the traditional involvement of the government in these industries, either as owner or extensive regulator”. Hilmer (1993), p251.

8 Even though competition law would prevent entry into the competitive activity through merger, the non-competitive activity may, through de novo entry into the competitive activity, reintroduce incentives for discrimination against third-party rivals.

9 FTC (1999a).

10 The relative merits of these advantages and disadvantages may differ between countries. Countries with a strong need to develop bottleneck infrastructure might prefer a for-profit non-

competitive service, while countries with a highly developed infrastructure might view costs of non-profit operation as less significant.

11 Interestingly, this “balance” is upset by unilateral liberalisation. The liberalisation of the long-distance market in the US meant that foreign companies had several routes to terminate calls into the US while US carriers mostly dealt only with foreign monopolies. This could lead to a significant imbalance in bargaining power, with foreign companies able to exploit their full monopoly power without any offsetting countervailing power. In this context the US FCC has restored this countervailing power by negotiating termination charges with foreign monopolies on behalf of US carriers collectively.

12 Hardt (1995).

13 Hilmer (1993), p241.

14 French country submission. Original French is as follows: “Les mesures structurelles dans ce domaine, susceptibles de démanteler des entreprises importantes, exigent des argibtrages délicats et complexes. Si l’intégration verticale ne doit pas nuire à la concurrence, il convient de prendre en compte les gains d’efficience sur un plan économique et en termes de services universels à la collectivité. Inversement, la désintégration peut accroître les coûts de transaction supportés par le consommateur. A ce titre, il convient d’écarter toute approache dogmatique et de privilégier l’examen, au cas par cas, des avantages et inconvénients de la séparation verticale”.

15 To be precise, the incentive on the regulated firm to expand output will also depend on other regulatory factors, such as the regulatory treatment of new investment and the prices allowed on new services.

16 In this paper the term “access” will be used to refer not just to any physical interconnection required in order to deliver services to the competitive component, but also to the nature and quality of those services delivered over the physical interconnection.

17 In a recent paper Armstrong and Vickers (2000) show, more specifically, that allowing the regulated firm a degree of discretion is valuable when there is uncertainty over the cost of the firm. When there is uncertainty over demand, the value of discretion depends on how demand elasticities vary with the scale of demand. If a positive demand shock is associated with a reduction in the market elasticity, discretion is good for overall welfare; otherwise it is not.

18 The incentive on a separated transmission utility will depend amongst other things on the nature of its regulation. If it is not regulated it may have an incentive to restrict new investment in order to restrict supply and raise prices.

19 FTC (1995).

20 FTC (1998a).

21 There is a related argument against “bigness” per se – that large firms may be able to exercise an inappropriate level of political influence and that separation can reduce the size of the firm to a level whose political influence is more reasonable.

22 Brennan focuses on the effects on cross-subsidisation as one of his two key reasons for the vertical separation of AT&T (the other being the effect on the LECs incentives to restrict access to the long-distance market). Brennan (1995), p463.

23 The FTC notes: "Controlling the discrimination and cost-shifting strategies with monitoring and regulation is difficult. They can be defeated most effectively by preventing the regulated monopolist from entering the unregulated business, thus eliminating its ability to distort competition in the unregulated market.". FTC (1995).

24 Or, more strictly, it must be possible to prevent resale to downstream firms which have not paid the "fixed" part of a two-part tariff.

25 In general the instruments available to the regulator are even more limited than those available to the firm. If the firm is unable to use two-part tariffs, the regulator will not be able to do so. The only exception to this rule arises in the case when the regulator is able to subsidise the incumbent firm. In this case the regulator can set the marginal price equal to marginal cost and use subsidies to cover the incumbent firm's losses.

26 There is scope here for future research – what effect did the vertical separation of AT&T or the electricity industry in New Zealand have on the market value of the firms involved?

27 FTC (1997). See also FTC (1995).

28 FTC (1998a).

29 French country submission. Original French: "La séparation comptable … combiné avec la "muraille de Chine" érigée autour de l'activité en monopole figurant au sein de l'entreprise verticalement intégrée, assures de bonnes garanties".

30 Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for allocation of slots at Community airports. See Article 4.2.

31 OECD (1998b), page 62.

32 Lang, John Temple, 1995, "Ground Handling: Legal Aspects – A competition perspective from the European Commission", speech to ACI Europe Conference, 3 April 1995. Emphasis added.

33 Association of European Airlines, "Benchmarking of Airport Charges", Information Package, February 1998

34 Steiner (2000).

35 Irish country submission.

36 Czech country submission.

37 Hungarian country submission.

38 Finland country submission.

39 This paragraph is drawn from OECD, “Regulatory Reform in the Electricity Industry: The United States”, October 1998.

40 Federal Energy Regulatory Commission. Order No. 888 Final Rule (issued 24 April 1996). 75 FERC 61,080. Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities, Docket No. RM95-8-000; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Docket No. RM94-7-001, pp. 57-59.

41 FTC (1995).

42 Notice at 6.

43 *Id*. at 66-77.

44 *Id*. at 66-77.

45 FTC (1999b), page 4-5.

46 Notice at Sections II.B. and III.A.

47 Open Access Comment, *supra* n. 3, at 2-3.

48 Illustrative figures developed by Oak Ridge National Laboratory show that a 765 kV transmission line costs at least 30 percent less than a 500 kV line and at least 85 percent less than a 138 kV line, on a cost per MW-mile basis. FERC Transmission Task Force, Staff Report, at 215-16 (1989).

49 Notice at 124-25. Concerns about the effectiveness of safeguards against discrimination in access to transmission may be particularly acute where transmission owners have great discretion in reducing ATC (available transmission capacity) to independent generation entities by claiming that transmission capacity is necessary to meet native load obligations.

50 Notice at 125-26.

51 FTC (1999b), page 15-18.

52 EC, (2000), page 4.

53 IEA (1999), page 23. Emphasis added.

54 The material in this section is taken from Armstrong et al (1994).

55 EC, (2000), page 6.

56 ECMT (1999), page 24.

57 OECD (1999a), page 262.

58 OECD (1999c), page 203.

59 ECMT (1998), page 6.

60 Limited means access is open only in certain circumstances such as where required by a regulator (US) or for customers within x km of another railway (Canada).

61 Track still publicly owned

62 Only JR Freight has access to network of passenger companies. It also uses its own network

63 Interstate traffic only

64 ECMT (1999), page 25.

65 OECD (1998a).

66 When Telecom New Zealand was first privatised (in 1990) it was divided into a similar structure, with only corporate separation between the regional companies and the long-distance company. However this structure was not mandated by the regulatory regime and within a few years Telecom New Zealand had restructured along more "commercial" lines.

67 Mini (1999).

68 European Commission, Directorate-General for Competition, *European Community Competition Policy*, 29th report on competition policy, 1999, page 57.

69 The OECD Regulatory reform report on Japan states: "[T]he holding company structure means that the NTT companies do not have strong incentives to compete against each other and have no incentive to enter into infrastructure competition. Thus the benefits of divestiture may not be fully realised. The Japanese government should review the current holding company structure, making the NTT regional companies fully independent of each other, in order to realise the benefits of divestiture". OECD, (1999), page 353.

70 OECD (1998a), page 8.

71 OECD (1996b). Emphasis in the original taken out and emphasis added.

72 Commission Directive 1999/64/EC of 23 June 1999 amending Directive 90/388/EEC in order to ensure that telecommunications networks and cable TV networks owned by a single operator are separate legal entities *Official Journal L 175 , 10/07/1999 p. 0039 - 0042*

73 BT, "Statement of Sir Peter Bonfield, CEO of BT", News Release 0087, 9 November 2000.

74 As of February 2000, the EC reports that 5 EU countries already have local loop unbundling and another 6 have either decided to introduce it or are considering to do so. DG Information Society Working Document, *Unbundled Access to the Local Loop*, 9 February 2000.

75 The Netherlands, on the other hand, noted that the previous vertical separation requirement between content providers and cable infrastructure providers was relaxed in 1996.

76 In addition, postal services are increasingly facing competition from electronic messaging services, particularly the Internet.

77 OECD (1997)

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Table A- 1: Status of co-ordination body and head of co-ordination for countries with at least one Category 1, fully co-ordinated airport

Member State	No. of 'co-ordinated' airports[78]	Status of co-ordination body	Co- ordination body owned by?	Financing of co-ordination body	Head of co-ordination appointed or elected?	Comments on issues of independence
Denmark	FC= 1, C= 0	Independent company (ACD)	Airport authority and Danish airlines	The owner organisations	Appointed by Ministry of Traffic for an unspecified time period	
Finland	FC= 1, C= 0	Sub-division of Finnair	Finnair	The owner airline	Appointed by Finnish Civil Aviation Authority	All staff are employees of Finnair
France	FC= 2, C= 0	Independent company (COHOR)	10 French airlines	The owner airlines	Elected by COHOR board for 4 years	Co-ordinator re-elected by airlines
Germany	FC= 8 , C= 9	Head of Co-ordination is a 'natural' person	Not applicable	The owner airlines, Ministry of Transport	Named in legislation by Federal Ministry of Transport	Co-ordinator's salary paid by government
Greece	FC= 33 , C= 0	Sub-division of Olympic Airways	Olympic Airways	The owner airline	Appointed by Olympic Airways for an unspecified time period	All staff are employees of Olympic
Italy	FC= 10 , C= 3	Independent company (Assoclearance)	Airlines and airport concession companies	The owner organisations	Elected by Assoclearance board for 3 years	Co-ordinator re-elected by airlines and airports
Netherlands	FC= 1, C= 0	Independent company (SACN)	4 Dutch airlines	The owner airlines	Appointed by Ministry of Transport for an unspecified time period	SACN appointed until 1 November 2001
Sweden	FC= 1 , C= 0	Independent company (ACS)	CAA and Swedish airlines	The owner organisations	Appointed by CAA for an unspecified time period	
UK	FC= 4 , C= 2	Independent company (ACL)	11 UK airlines	Airport operators, UK airlines and data sales.	Appointed by ACL board for an unspecified time period	Majority of costs financed by airports

Source: PricewaterhouseCoopers (2000), Table 5.1.

Table A- 2: Status of co-ordination body and head of co-ordination for countries with at least one non-designated, Category 1 airport(s)

Member State	Number of airports under co-ordination[79]	Status of co-ordination body	Co-ordination body owned and financed by?	Head of co-ordination appointed or elected?	Comments on issues of independence
Austria	SCR= 1, SMA= 5	Sub- division of Austrian Airlines	Austrian Airlines	Next co-ordinator will be appointed by Austrian CAA (also for an unspecified period)	Terms of reference for Head of co- ordination state 'dispensed from obligation to serve Austrian Airlines'. Vienna airport flight information systems connected only to the co-ordinator's systems
Belgium	SCR= 1, SMA= 0	Sub- division of Sabena	Sabena	Internally appointed by Sabena for an unspecified time period	Looking to change the current co-ordination set-up
Ireland	SCR= 0, SMA= 1	Sub-division of Aer Lingus	Aer Lingus	Internally appointed by Aer Lingus for an unspecified time period	Airport is only SMA and therefore co- ordinator has no power to enforce the slot preferences of his employer
Portugal	SCR= 4, SMA= 1	Sub-division of Air Portugal	Air Portugal	Appointed by Portuguese CAA for unspecified period	Co-ordinator reports to INAC on neutrality of slot allocation decisions
Spain	SCR= 16, SMA= 4	Sub-division of Aena	Aena	Internally appointed by Aena for an unspecified period	Not financed by and not reporting to, user airlines. Unsure how Aena recovers costs of co-ordination

Table A- 3: Structural Separation in Airports

	Between Airlines and Airports	Between Terminals at the same airport	Between Ground Handling Services and Terminals
Australia	There are limits on ownership of airports by airlines. Airlines cannot own more than 5% of an airport company.	In Australia the main separation between owners of airport infrastructure and the actual airport operators relates to domestic terminal at major airports. The two major domestic airlines own and operate domestic terminals under long term leases with the airport operator, the FAC. These arrangements will continue in the newly privatised airports. The trend with new airport facilities is the development of common user facilities rather than dedicated airline terminals. This is the case at Brisbane and Alice Springs airports.	Airports are vertically-integrated entities, combined regulated and unregulated components. Airport operators are required to provide regulators with separate accounts for aeronautical and aeronautically related services and for the enterprises as a whole.
Denmark	Airports and aircraft operations have never been integrated. Airports are state-owned companies and airline companies are privately owned. Take-off and landing slots are regulated.		Ground handling is regulated by EU’ law and the airports compete with private ground handling companies.
France	Airlines and airports are not integrated in France because airports are managed by either Chambers of Commerce and Industry or independent entities like Aéroports de Paris.		
Hungary	As of yet there is no competition with respect to the equal right of access to airport installations, the ground services provided to aircraft and passengers and the foreign aviation companies have no choice in this regard. The technical conditions are also missing for allowing the foreign air traffic companies to provide their own ground service to the aircraft belonging to them by using the equipment of the airport.		
Mexico	Separation of airport services from air transport services was implemented by limiting direct or indirect ownership of airlines in airports to 5%. In addition, airport operators are not allowed to own more than 5% of the shares in an airline.		Airport operators may designate third-parties to provide complementary services but may also provide these services themselves. Airport operators are provided to keep separate accounts for airport, complementary and commercial services.

Table A-3: Structural Separation in Airports (cont.)

	Between Airlines and Airports	Between Terminals at the same airport	Between Ground Handling Services and Terminals
Netherlands			
New Zealand			
Norway	According to an Act of 1993, anyone (including airlines) who wants to build or make fundamental changes or expansions to an airport can apply for a licence from the Ministry of Transport and Communications. One of the licence conditions is that the airport must be open to all public flights. The slot coordinator at these airports is the company Airport Coordination AS which is owned by SAS (20%), Braathens (20%), Wideroes (10%), CAA (30%), Oslo Airport Gardermoen (20%). The chairman of the board is appointed by the CAA.		Airlines are allowed to self-provide ground-handling services.

Source: Country Submissions

Table A-4: Structural Separation in the Electricity Industry

	Between Transmission and Distribution	Between Generation and Transmission and/or Distribution	Between Transmission and/or Distribution and Retailing
Australia		Most Australian States have structurally separated their electricity industry. This has involved clearly separating the generation and retail segments from the transmission and distribution segments. Transmission and distribution companies must comply with ring-fencing guidelines which ensure accounting and functional separation of non-contestable services from other services.	
Belgium		The network operator is appointed for 20 years and is responsible for network operation, maintenance and development. It must take the form of a commercial enterprise and may not undertake any other commercial activities or services other than those needed to perform its functions. It may not have any direct or indirect interest in electricity producers, distributors or intermediaries.	
Brazil	60% of distribution assets have been privatised.	The transmission grid is state-owned. There are plans to separate it from generation, privatise it and regulate it. There are 11 new lines being added to the grid, the rights to which are being auctioned by ANEEL. The three largest hydro companies, which account for more than 50% of the energy generated in Brazil will be privatised in 2001.	
Canada		Owners of transmission and distribution facilities must set up separate affiliate companies for their competitive business to ensure they do not use their monopolies to gain an unfair competitive advantage in other markets.	
Czech Republic	Currently the dominant generator (CEZ, a.s.) owns the transmission grid and 8 regional distribution companies. The transmission grid is operated as a separate accounting unit. Under the currently approved policy of the state power generation will be separated from transmission. There is accounting separation between generation and transmission.		
Denmark		There has been separation of non-competitive companies and competitive companies into separate corporate entities	

Table A-4: Structural Separation in the Electricity Industry (cont.)

	Between Transmission and Distribution	Between Generation and Transmission and/or Distribution	Between Transmission and/or Distribution and Retailing
Finland		Fingrid plc. is organised as a separate legal entity, which is not involved in production or distribution activities.	Companies must adopt accounting separation of activities of network operations, electricity sales, electricity generation and other trade operations. A municipal establishment engaged in electricity trade must prepare its own accounting statements comparable to private companies. Some distribution companies have gone further and have separated their activities into separate companies.
France		Within EDF, the department managing the transmission network is to be independent of the management of EDF's other activities. Its director is appointed for six years by the Minister of Energy, at the proposal of EDF's Chairman after consulting the Regulation Commission. An accounting separation regime has been put in place, under the control of the regulator (la Commission de régulation de l'électricité). Chinese walls have been established around the Transport Network Manager (GRT: Gestionnaire du Réseau de Transport) within EDF.	
Germany		In Germany there are after the recent mergers six integrated energy suppliers, which operate the transmission grid. These companies account for about 80 % of the power generation in the area of public supply. Due to the energy law (Energiewirtschaftsgesetz) the companies are obliged to run the transmission grid as a seperate operating unit. The largest suppliers have in the meantime founded subsidiaries for operating the grid.	

Table A-4: Structural Separation in the Electricity Industry (cont.)

	Between Transmission and Distribution	**Between Generation and Transmission and/or Distribution**	**Between Transmission and/or Distribution and Retailing**
Greece		PPS will remain a vertically-integrated undertaking and it will continue to own the transmission system. The transmission system operator will be a separate company which will be responsible for the management of the system. The system operator has the obligation to preserve the confidentiality of commercially sensitive information obtained in the course of carrying-out its business.	
Hungary	No such provisions	No such provisions	No such provisions
Ireland	Work is underway to separate ownership of the transmission asset base from the operation of the transmission system, which will be the responsibility of an independent agency. There will be a separate Board for the transmission system operator which will be a State Body. The TSO will be responsible for planning future developments and investments. The state electricity company ESB will continue to maintain the grid and will be responsible for construction work. ESB will continue to own and operate the distribution system. A subsidiary of ESB has been granted a license to compete in the supply market. "In order to achieve openness and transparency, to protect a level playing field for all and to avoid issue of cross-subsidisation, ring-fencing arrangements of the competitive and non-competitive aspects of ESB's business are required and are being developed.		
Italy	ENEL is responsible for production, importing, transmission and distribution	Legislative decree of 1999 establishes that a new utility company (TSO) is to be created and owned by the Ministry of the Treasury, carrying out the activities of the transmission, dispatching and management of the national transmission network, without discrimination between users. The ownership of the network will remain with ENEL. The different activities of ENEL (production, distribution, supply, ownership and maintenance of the network) will be re-allocated to separate companies, under the control of ENEL S.p.A.	
Japan	There are ten private vertically-integrated electricity companies active in generation, transmission and distribution. Entry into new power generation has been allowed since 1995. In order to prevent discrimination power companies are required to have a "consignment agreement" (standard access terms and conditions), approved by MITI.		

Table A-4: Structural Separation in the Electricity Industry (cont.)

	Between Transmission and Distribution	**Between Generation and Transmission and/or Distribution**	**Between Transmission and/or Distribution and Retailing**
Netherlands	The national electricity transmission network is owned by the production companies, but is legally separated from their commercial activities. A legally separate network operator carries out the management of this network. The regional supply and distribution companies own the lower voltage networks for electricity. The management of these networks are also carried out by a legally separate network operator. All companies and network operators have to meet legal requirements on independence set out in the Electricity Act. The network management of the regional distribution networks for electricity and gas must be legally separated from other commercial activities, such as production and supply. The energy companies have to form and formally appoint one or more public or private limited liability companies who will manage these networks. The Minister has to approve the appoint of independent network operators by the energy companies. Almost all the electricity network managers have already been appointed.		
New Zealand	Ownership Separation	ECNZ (generation company) was split from Transpower (transmission company) in 1989. Ownership separation between generation, retailing and distribution is required by the package of reforms introduced in April 1998.	
Norway	The greater part of the high-voltage transmission grid is state-owned through Statnett. At the distribution level there are local monopolies usually owned by municipalities.	The national government's interests in generation is held in the company Statkraft which was vertically separated from Statnett. The NVE has tried to encourage vertical separation of generation at the local distribution level, with little success. These integrated companies are required to keep separate accounts for their non-competitive activities.	
Poland	The privatisation process has placed many generators, distribution companies and energy traders in private hands. This privatisation process is expected to be completed in 2002. The transmission grid is operated by the Polish Power Grid Company.		
Portugal		The TSO, REN is a separate undertaking, structurally separated from generation and distribution/supply and non-electricity activities.	

Table A-4: Structural Separation in the Electricity Industry (cont.)

	Between Transmission and Distribution	Between Generation and Transmission and/or Distribution	Between Transmission and/or Distribution and Retailing
Spain	Effective December 2000 there is an ownership separation between regulated and non-regulated activities. Generation and retailing companies may be share-holders in transmission, but the total share-holding is limited to 40%. Generation and retailing companies may not own shares in distribution. The national transmission company is 25% state-owned. The largest utility, Endesa, is 100% privately owned.		
Sweden		The Electricity Act stipulates that transmission and distribution network operators are not allowed to be involved in generation or trade of electricity. The transmission system operator, Svenska Kraftnät is a state agency and organised as a separate legal entity with its own management.	
Switzerland	Currently none; Large number of companies are vertically integrated from generation to distribution. Draft law proposes that a national high-tension network company be created, that is prevented from integrating into generation or distribution; Draft law requires accounting separation of activities linked to production, transport, distribution and other activities;		
Turkey			
United Kingdom (England and Wales)	The transmission system operator (NGC) was originally owned by the 12 regional electricity companies and is now quoted on the stock market.	NGC is an entirely separate and privately owned legal entity, which operates exclusively in the area of transmission and dispatching.	
United Kingdom (Scotland)	Two vertically integrated companies, combining generation, transmission, distribution and supply	Management unbundling of generation, transmission and distribution	
United States			

Source: Country submissions, EU-Japan Centre (2000) and ECO/WKP(2000)24

Table A-5: Separation Requirements in Natural Gas

<table>
<tr><th></th><th>Between Transmission and Distribution</th><th>Between Production and Transmission/ Distribution</th><th>Between Transmission/ Distribution and Retailing/ Supply</th><th>Between Transmission/ Distribution and Storage</th><th>Between Transmission / Distribution and Electricity Generation</th></tr>
<tr><td>Australia*</td><td>Separated</td><td>Structural separation of production from pipelines has long been the practice.</td><td colspan="2">Separation of gas distribution from gas retailing is not required by law. Under the “Gas Code” contestable businesses (retailing and production) are to be separately owned or ring fenced from the monopoly pipeline transmission and distribution businesses. Contracts between related business are subject to regulatory approval.</td><td></td></tr>
<tr><td>Austria</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Belgium</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Brazil</td><td>Separated</td><td colspan="2">Petrobras controls most of the transmission pipelines. The 1997 law requires that production and transmission facilities be separated into different legal entities, but does not forbid cross-ownership of these entities. “Thus, Petrobras continues to control both markets”. ANP has promulgated rules relating to cross-ownership and self-dealing, but currently they do not extend much beyond the obligation to report such relationships or transactions. The distribution level is evolving differently in each of the 27 states.</td><td></td><td></td></tr>
<tr><td>Canada*</td><td></td><td colspan="2">Owners of transmission and distribution facilities must set up separate affiliate companies for their competitive business to ensure they do not use their monopolies to gain an unfair competitive advantage in other markets. The OEB governs the relations between regulated natural gas distribution companies and their competitive market affiliates.</td><td></td><td></td></tr>
<tr><td>Czech Republic</td><td>Transportation is separated from distribution.</td><td></td><td></td><td>The Office strives to prevent integration of transportation and storage</td><td></td></tr>
<tr><td>Denmark</td><td>Transmission and distribution subject only to accounting separation.</td><td></td><td></td><td></td><td></td></tr>
</table>

Table A-5: Separation Requirements in Natural Gas (cont.)

<table>
<tr><th></th><th>Between Transmission and Distribution</th><th>Between Production and Transmission/ Distribution</th><th>Between Transmission/ Distribution and Retailing/ Supply</th><th>Between Transmission/ Distribution and Storage</th><th>Between Transmission / Distribution and Electricity Generation</th></tr>
<tr><td>Finland</td><td></td><td colspan="3">Effective 1 August 2000, the Natural Gas Market Act contains provisions corresponding to the Electricity Market Act on the separation of natural gas operations (requiring accounting separation of contestable businesses)</td><td></td></tr>
<tr><td>France</td><td>Besides Gaz de France, there are 17 local enterprises providing distribution services</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Germany</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Hungary</td><td colspan="4">No competition (yet) and no separation provisions.</td><td></td></tr>
<tr><td>Ireland</td><td colspan="4">It is intended that BGE will remain vertically integrated for the foreseeable future. However, the management of its transmission activities must now be operated separately from its other activities. This includes keeping separate sets of accounts for transmission activities, applying the same charges to its own activities and maintaining any commercially sensitive information gathered in the course of the transmission business within that division”.</td><td></td></tr>
<tr><td>Italy</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Japan</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Korea</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Table A-5: Separation Requirements in Natural Gas (cont.)

	Between Transmission and Distribution	**Between Production and Transmission/ Distribution**	**Between Transmission/ Distribution and Retailing/ Supply**	**Between Transmission/ Distribution and Storage**	**Between Transmission / Distribution and Electricity Generation**
Mexico	One economic agent cannot hold permits for both transportation and distribution in the same economic zone. Permit holders must keep separate accounts for transport services and distribution services, to verify that there are no cross-subsidies among different business lines, services or regions.	Pemex owns the main pipeline system in the country. The second largest transmission pipeline is controlled by Transcanada. Pemex has withdrawn from distribution.			

Table A-5: Separation Requirements in Natural Gas (cont.)

	Between Transmission and Distribution	Between Production and Transmission/ Distribution	Between Transmission/ Distribution and Retailing/ Supply	Between Transmission/ Distribution and Storage	Between Transmission / Distribution and Electricity Generation
Netherlands*	Gasunie owns the high pressure pipelines and must provide separate accounts for transport and other activities. The regional supply and distribution companies own the lower pressure pipelines. The network management of these regional distribution pipelines for gas must be legally separated from other commercial activities, such as production and supply. The energy companies have to form and formally appoint one or more public or private limited liability companies who will manage these networks. The Minister has to approve the appoint of independent network operators by the energy companies. This process has still to begin in the gas sector. All companies have to meet legal requirements on independence set out in the Gas Act. Policy rules will be drafted setting out detailed regulation for gas network managers.				
New Zealand*					
Norway*					
Poland	A programme for restructuring POGC was approved in 2000 which would separate POGC by the creation of 5 subsidiaries - a prospecting and manufacturing company and 4 distribution companies. These companies are planned to be privatised, while the transmission company will remain state-owned.				
Portugal					
Spain	Currently Gaz Naturel owns 84% of the transmission system (through its subsidiary Enagas) and 90% of all gas distribution systems. Following the Royal Decree 6/2000 on Urgent Measures to Enhance Competition, no shareholder will be allowed to hold more than 35% of Enagas. In the future Gaz Naturel will hold 20%, Repsol 10%, La Caixa 5% the remaining 65% will be publicly traded. (Repsol owns 45% of Gaz Naturel and La Caixa 25%).				
Sweden					
Switzerland	Currently no competition and full vertical integration				
Turkey					
United Kingdom*					
United States*					

Source: Country Submissions
Notes:
* = countries with substantial domestic gas reserves

Table A-6: Separation Requirements in the Rail Industry

	Between Regional Networks	**Between Infrastructure and Train Operations**
Australia		The Federal government has vertically separated the ownership, accounting and operation activities of Australia's interstate rail industry by establishing a separate track infrastructure provider, the Australian Rail Track Corporation, to own and manage key elements of the interstate network. A separate entity, the National Rail Corporation provides interstate and intrastate freight services. However, the majority of Australia's rail industry is regulated by State governments, not the Federal government. Extent of separation differs between States. New South Wales has separated ownership of track, maintenance, freight and passenger operations. Western Australia, Queensland and Tasmania have not separated their above track and below track operations.
Austria		Accounts for business relating to the provision of transport services and those for business relating to the management of the railway infrastructure are kept separately (in line with article 6 paragraph 1 of Council Directive 91/440/EEC).
Belgium		From an accounting standpoint, the SNCB is subject to the same legislation as private sector companies. However, it is required to set up separate accounting system for its public service activities, on the one hand, and its other activities on the other. Separate accounts are kept for operations and infrastructure management. There is no separation at an institutional level, and the SNCB has no plans for such a separation in the future.
Brazil		
Canada		Integrated
Czech Republic		Both the infrastructure and the trains are provided by a vertically-integrated state-owned company. There is accounting separation of the infrastructure from rolling stock.
Denmark		Railways are vertically separated but still non-competitive and regulated. Before the 1st of January 1997 the state-owned company DSB owned the infrastructure (tracks and signalling) and operated the trains. A governmental authority (Banestyrelsen) now owns the infrastructure and DSB is only operating the trains. Maintenance facilities like cleaning and catering has been contracted to private companies.
Finland		The legal independence of the Finnish State Railways (VR) was established by separating the operational activities into a group of joint stock companies formed according to the rules of Finnish company law. The parent company is called "VR-Group Ltd" (Finnish Railways). The state holds 100% of its shares. The Finnish Rail Administration, a separate authority, was founded in accordance with Act 21/1995. Administratively it is subordinated to the Ministry of Transport and Communications. The Rail Administration is responsible for the maintenance and development of the state owned network.

Table A-6: Separation Requirements in the Rail Industry (cont.)

	Between Regional Networks	Between Infrastructure and Train Operations
France		Separation of accounts has existed since the establishment of SNCF. The creation of RFF has resulted in organisational separation. SNCF has established subsidiaries responsible for carrying passengers and freight.
Germany		The legal basis is the Deutsche Bahn Gründungsgesetz (DBGrG - Act to Establish the German Rail Joint-stock Corporation) of 1993. The Act provides at first for the creation of DB AG by the extraction of commercial activities from the Bundeseisenbahnvermögen (BEV - Special Asset Federal Railways) and the separation of the business into divisions for long distance passenger traffic, short distance passenger transport, freight and infrastructure, separate both for accounting purposes and organisationally. Not earlier than 3 years and not later than 5 years after the registration of DB AG in the register of commerce (5 January 1994) these businesses shall be transformed into at least four separate joint-stock companies. In December 1997 the supervisory board of DB AG decided to transform the railways into the following 5 companies: - DB Reise und Touristik AG (long distance passenger transport); - DB Regio AG (short distance passenger transport); - DB Cargo AG (freight transport); - DB Netz AG (infrastructure); - DB Station and Service AG (passenger stations). The companies will be grouped under a holding company, DB AG. Dissolution of the resulting DB AG Holding will require an Act of Parliament.
Hungary		The company prepares a separate balance-sheet for the line-railways and the entrepreneurial railways. To ensure a state of competition free from discrimination another organisation has to be created, which would be independent from railway companies and which would plan and distribute railway line capacity (perform schedule harmonisation), control traffic and quality of service, analyse disturbances and investigate accidents.
Ireland		There is at present no separation of infrastructure and operations. “The Department of Public Enterprise has proposed that Iarnród Éirann should be vertically separated into two independent companies – one responsible for infrastructure, the other for the operation of rail services.
Italy		Separate accounting and substantive separation of infrastructure (ASA Rete) and operations have been effected. There is no institutional separation as yet, although a decision by the Interministerial Committee for Economic Planning (CIPE) does make provision for it.
Japan		Integrated
Korea		Integrated

Table A-6: Separation Requirements in the Rail Industry (cont.)

	Between Regional Networks	Between Infrastructure and Train Operations
Mexico	The existing route-based companies are vertically integrated. The main terminal in Mexico City is held 25% by each of the main routes serving Mexico City. Each concessionaire must keep separate accounts for cargo and passenger transportation, each compulsory trackage section and integration operations with every other The reforms, which split the incumbent into route-based companies have had positive results. There was a 23% increase in cargo in 1998 and 6% in 1999. Service quality, transit times and average speeds have improved. There has been a 283% productivity increase, 60% reduction in train delays and $US680 million in new investment.	
Netherlands		The ownership and management of the network and the provision of train services are separate and distinct subsidiaries of NS. On 1 January 2001, the ownership of these organisations will be legally separated from NS
New Zealand		New Zealand Rail is fully integrated and does not face on-rail competition.
Norway		In 1996 most tracks were transferred from NSB to a public body (Jernbaneverket). Other facilities such as stations and terminals are still owned by NSB but are rented to Jernbaneverket on a cost basis. NSB and Jernbaneverket shared administration and board of directors until 1999.
Poland		A draft Act, approved 7 October 1999 corporatises PKP and separates the infrastructure and transport services into independent business entities. The number of passenger and goods companies has yet to be determined.
Portugal		Accounting separation began in 1996 and organisational separation was implemented by Decree No 104/97 which created REFER EP, a public enterprise for the management of rail infrastructure.
Spain		The state owns all the infrastructure – the conventional network belongs to RENFE and the high-speed lines to GIF. Accounting separation has been imposed on RENFE since 1994, separating infrastructure management and commercial business units (suburban, intercity, high-speed, freight).
Sweden		Since 1988; the responsibility for infrastructure accounting has been held by Banverket. Since the Government assumed the responsibility for providing rail infrastructure in 1988, infrastructure management has been totally separate from traffic operations.
Switzerland		For railway undertakings, the restructuring programme provides for separate accounting and sometimes total separation of infrastructure and operations, which were previously integrated. This will end cross-subsidisation and ensure the necessary transparency. Only separate accounting is planned for small and medium FSPs and narrow-gauge railways. The larger FSPs will be required to introduce separate accounting in the same way as the restructured CFF.

Table A-6: Separation Requirements in the Rail Industry (cont.)

	Between Regional Networks	Between Infrastructure and Train Operations
Turkey		Studies are underway regarding the separation of infrastructure and operations and their re-organisation as independent business units. The intention is to finance the infrastructure unit through government funds. Separation of accounts in accordance with Directive 91/440/EEC is underway.
United Kingdom		Railway undertakings in Great Britain are legally separate from Government and have autonomy in managing their own affairs. Almost all of the rail industry has been transferred to the private sector, including 100% of passenger services. Under the new industry structure British Rail's track and infrastructure has moved to the private sector and is the responsibility of Railtrack; passenger services are managed and operated by the private sector through a franchising system; and a Rail Regulator has been set up to oversee the industry and ensure no party abuses any access rights to the infrastructure.
United States		Integrated

Source: Country submissions, OECD (2000)

Table A-7: Status of telecommunication facilities competition in the OECD, September 1998

	PSTN competition				Mobile Communication		
	Local	**Trunk**	**Intl.**	**Year for Market Competition**	**Anal.**	**Digl.**	**Other mobile**
Australia	C (3)	C (2)	C (3)		C (1)	C (3)	C (0)
Austria	C (2)	C (11)	C (13)		M	C (3)	
Belgium	C (11)	C (11)	C (11)		M	C	
Canada	C (61)	C (22)	C		C (10)	C (10)	C (12)
Czech Republic	M/D	M	M	2nd operators in 7 special areas. Open competition 2000.	M	D	M/D
Denmark	C	C	C		M	C (4)	M/D
Finland	C (64)	C (20)	C (16)		M	C(2)	C (28)
France	C (23)	C (13)	C (14)	National long distance include 7 national operators and 6 multi-regional.	C (2)	C (3)	C (3)
Germany	C	C	C		M	C (4)	C (31)
Greece	M	M	M	2001; Consideration being given to 2000 for competition.	-	C (3)	
Hungary	M 2002	M 2002	M 2002	2002	M	D	
Iceland	C (1)	C (1)	C (1)		M	C (2)	C (2)
Ireland	M	M	M	1.12.1998	M	C(3)	
Italy	C (5)	C (4)	C (4)		M	D	C (4)
Japan	C (5)	C (15)	C (21)		C (18)	C (30)	C (32)
Korea	M	C (3)	C (3)	Local open in 1999	M	C (3)	M/C
Luxembourg	C	C	C	Open from July 1998	-	D	
Mexico	C (10)	C (14)	C (7)		D		C (8)
Netherlands	C (160)	C (3)	C (3)		C (1)	C (6)	C (2)
New Zealand	C (3)	C (7)	C (15)		C (1)	C (2)	C (0)
Norway	C	C	C		M	C (5)	
Poland	D	M	M	2003 for long distance and international	M	C (3)	
Portugal	M	M	M	2000	M	C	-
Spain	C (3)	C (3)	C (3)		M	D	C (3)
Sweden	C (15)	C (15)	C (15)		C (1)	C (4)	
Switzerland	C (12)	C (12)	C (12)		M	C (3)	
Turkey	M	M	M	2006	C	C (2)	C
UK	C (134)	C (20+)	C (7)		C (2)	C (4)	C (20+)
US	C	C	C		RD	C (up to 6)	C (up to 6)

Key: C: Competition; D: Duopoly; M: Monopoly; Numbers in brackets indicate number of licensed operators. In a number of cases all licensed operators are not yet active. For a number of countries licences do not differentiate between local, national and international PSTN. Some licences may be regional. Resellers are not included.
Source: *Communications Outlook 1999, Table 1.1*

Table A-8. Cellular mobile communications provided by incumbent PTOs

Country	Mobile Operator Related to Incumbent	Relation to Incumbent
Australia	Telstra	direct operation
Austria	Mobilkom Austria	Post und Telekom Austria (PTA): 75 per cent ownership
Belgium	Belgacom Mobile	Belgacom: 75 per cent ownership
Canada	Mobility Canada	direct operation by Stentor
Czech Republic	EuroTel Praha	SPT Telecom: 51 per cent
Denmark	Tele Danmark Mobile	direct operation
Finland	Sonera Ltd. (Telecom Finland)	direct operation
France	France Télécom	direct operation
Germany	Deutsche Telekom MobilNet GmbH	Deutsche Telekom: 100 per cent ownership
Greece	Cosmote	OTE: 70 per cent ownership
Hungary	Westel 900	Matav: 46.6 per cent ownership
Iceland	Iceland Telecom	direct operation
Ireland	Telecom Eireann	direct operation
Italy	Telecom Italia Mobile (TIM)	Telecom Italia: 63 per cent(1)
Japan	NTT DoCoMo	NTT: 94.7 per cent ownership(2)
Korea	SK Telecom	Korea Telecom: 20 per cent ownership
Luxembourg	P&T Luxembourg	direct operation
Mexico	Radio Móvil DISPA	Telmex: 100 per cent ownership
Netherlands	KPN Telecom	direct operation
New Zealand	Telecom Mobile	Telecom NZ: 100 per cent ownership
Norway	Telenor Mobile	Telenor AS: 100 per cent ownership
Poland	Polska Telefonia Komórkowa (PTK)	TPSA: 66 per cent ownership
Portugal	Telecommunicações Móveis Nacionais S.A. (TMN)	Portugal Telecom: 100 per cent ownership
Spain	Telefónica Moviles	Telefonica: 100 per cent ownership
Sweden	Telia Mobitel	Telia AB: 100 per cent ownership
Switzerland	Swiss PTT	direct operation
Turkey	Türk Telecom	direct operation
United Kingdom	Cellnet	BT: 60 per cent ownership
United States	--(3)	

Notes:
1. Previously, Telecom Italia Mobile was 63 per cent owned by the STET Group, which also owned 63 per cent of Telecom Italia, the incumbent PTO. However, in March 1997, STET and Telecom Italia announced their merger with the new company to be called 'Telecom Italia'.
2. NTT is expected to reduce its shares in NTT DoCoMo to 67.1 per cent in October 1998 when DoCoMo's stocks are planned to be listed on the stock exchange.
3. LECs provide service through subsidiaries (no incumbents).
Source: OECD (1998a), Table 2, page 9

Table A-9: Types of cross-ownership and joint provision regulations in the communication sector

	Between PSTN and mobile Communications[80]	Between Telecommunications and cable television sector	Between telecommunications and broadcasting sector[81]	Between cable television and broadcasting sector	Within the television service sector[82]
Cross-ownership regulations	- Restrictions on PSTN operators (especially incumbents) from operating a legally separate enterprise in the mobile market. - Share limitations on PSTN operators (especially incumbents) in mobile operators.	- Restrictions on telecom operators (especially incumbents) from operating a legally separate enterprise in the cable television market. - Share limitations on telecom operators (especially incumbents) in cable television operators.	- Restrictions on telecom operators from operating a legally separate enterprise in the broadcasting market. - Share limitations on telecom operators in broadcasting companies. - Restrictions on broadcasting companies from operating a legally separate enterprise in the telecommunications market. - Share limitations on broadcasting companies in telecom operators.	- Restrictions on cable television operators from operating a legally separate enterprise in the broadcasting market. - Share limitations on cable television operators in broadcasting companies. - Restrictions on broadcasting companies from operating a legally separate enterprise in the cable television market. - Share limitations on broadcasting companies in cable television operators.	- Restrictions on the number of television licenses allowed to be owned by a single entity. - Share limitations of a single entity in television enterprises.
Joint provision regulations Infrastructure provision	- Restrictions on PSTN operators (especially incumbents) from providing mobile networks with no legal separation.	- Restrictions on telecom operators (especially incumbents) from providing cable television networks with no legal separation. - Restrictions on cable television operators from providing telecom infrastructures with no legal separation.	- Restrictions on telecom operators from obtaining a broadcasting license. - Restrictions on broadcasting companies from providing telecom infrastructures.	- Restrictions on cable television operators from obtaining a broadcasting license. - Restrictions on broadcasting companies from providing cable television networks.	
Service Provision	- Restrictions on PSTN operators (especially incumbents) from providing mobile services with no legal separation.	- Restrictions on PSTN operators (especially incumbents) from providing cable television services with no legal separation. - Restrictions on cable television operators from providing telecom services with no legal separation.	- Restrictions on telecom operators from obtaining a broadcasting license. - Restrictions on broadcasting companies from providing telecom services.	- Restrictions on cable television operators from obtaining broadcasting license. - Restrictions on broadcasting companies from providing cable television service.	

Source: OECD (1998a), Table 1.

Table A- 10: Separation Requirements in Telecommunications

	Between regional local fixed wire services	Between local and long-distance services	Between local and mobile services	Between local and broadband services
Australia	Telstra has not been structurally separated. Government policy has been to apply special misuse of market power rules and to enforce special record-keeping rules applicable to the telecommunications industry under the Trade Practices Act. The Commission intends to issue a formal instrument mandating accounting separation in the near future.			
Austria				- PTA does not provide television infrastructure
Belgium				- Belgacom does not provide television infrastructure
Brazil	When Telebras, the former state-owned telecommunications monopoly was privatised, several regional companies were created with franchises to provide local and intra-regional fixed wireline service.	A separate company, Embratel, was given the long-distance and international franchises. Starting in 2003 Embratel will be allowed to provide local services and the incumbent regional companies will be allowed to provide long-distance service.		
Canada	Regulatory safeguards restrict the bundling of competitive and monopoly services and require that mobile services be provided through a separate subsidiary.			1
Czech Republic	Separate accounting needs to be maintained for the operation of public telecommunications services.			
Denmark	There is accounting separation between the competitive and the non-competitive part of TeleDanmark, and the company has to pay the same price for operation on the network as the rival companies.			
Finland	Accounting separation requirement on companies. Decision of 1997 requires separation of local, long-distance, international, NMT, GSM, DCS and fixed data telecom operations.			
France				
Germany				

Table A- 10: Separation Requirements in Telecommunications (cont.)

	Between regional local fixed wire services	Between local and long-distance services	Between local and mobile services	Between local and broadband services
Hungary	The Concession Agreement concluded with the individual companies contains rules for the separation for accounting purposes of activities requiring a concession and those which do not, however the duties deriving from these clauses of the agreement are not always entirely fulfilled by the companies. The enforcement of contractual duties has proven to be a very difficult procedure in the past years.		In 1999 MATÁV acquired an exclusive controlling position in Westel, its subsidiary company operating on the mobile cellular telephone market after the previous co-owner MediaOne left the Hungarian market and sold its stake to Deutsche Telekom AG, the mother company of MATÁV.	
Ireland				
Italy				
Japan	In July 1999, NTT was split into 4 companies including NTT East and NTT West which are local regional operators, limited to providing intra-prefecture communications. NTT East, NTT West and NTT Communications are all subsidiaries of a single holding company.	NTT East and West were split from NTT Communications which provides long-distance and international services. NTT East, NTT West and NTT Communications are all subsidiaries of a single holding company.		
Korea				
Mexico	Telmex is allowed to participate in competitive activities by means of subsidiaries and subject to accounting separation. Cofetel has ruled that Telmex is required to provide accounting information on ten services (Fixed local, mobile local, long distance, public telephony, rural telephony, dedicated service provision, trunking, paging, cable and technical equipment maintenance and commercialisation, pay TV and other services) but this regulation has not yet been applied.			Telmex is not allowed to exploit open TV services and person's involved in broadcasting activities are precluded from holding Telmex's common stock.

Table A- 10: Separation Requirements in Telecommunications (cont.)

	Between regional local fixed wire services	Between local and long-distance services	Between local and mobile services	Between local and broadband services
Netherlands	Providers of fixed public telephone networks, fixed public telephone services and rental lines offering interconnections to other providers must apply accounting separation between activities relating to interconnection and other activities. There is a high level of vertical integration of infrastructure and service supply.			
New Zealand				
Norway	Telenor is a vertically-integrated company. Telenor is required to comply with certain principles for accounting and reporting to the regulator. An improved accounting system will be imposed on Telenor from 2000. This system is intended to better enforce the rules on non-discrimination, transparency and cost-orientation. In 1999 the Parliament voted against a proposal to separate Telenor's infrastructure into a different corporate entity. Telenor will be partially privatised in 2001.			
Poland	In accordance with EU guidelines the new telecommunications law establishes a requirement of cost accounting by individual types of services.			
Portugal				
Spain	Operators are vertically-integrated. Telefonica must submit information about its network costs to the regulator.		A regulation of June 2000 provides that an undertaking owning more than 3% of the stock in more than one major operator in fixed or mobile telephony will have restrictions on its voting rights in the governing bodies of these enterprises.	
Sweden				

Table A- 10: Separation Requirements in Telecommunications (cont.)

	Between regional local fixed wire services	Between local and long-distance services	Between local and mobile services	Between local and broadband services
Switzerland	No structural separation requirements. All operators may be active in any part of the market. Accounting separation of interconnection services must allow the Communications Commission to enforce the rules regarding price regulation of interconnection services and must prevent cross-subsidies between regulated and non-regulated services.			
Turkey				
United Kingdom			(BT share of Cellnet limited to 60%)	
United States				

Table A- 11: Specific cross sector ownership restrictions in OECD countries

Country	Restricted	Detail of restriction
Australia	No	
Austria	Yes	ORF[83] is not allowed to invest in cable television operators
Belgium	no[84]	- Cable operators are not allowed to provide terrestrial television services. Cable operators are not allowed to own more than 24 per cent of the shares of a private television station or of a local or community television station. Nor may they manage or have more than a one-third share in the management body of such television stations. - Terrestrial television companies are not allowed to provide cable television infrastructure and services.
Canada	no[85]	
Czech Republic	No	
Denmark	No	
Finland	No	
France	Yes	- Terrestrial television companies licensed to provide services to an area having a population of 4 million or more are not allowed to provide cable television infrastructures. - Cable television operators licensed to provide cable television infrastructures covering an area having a population of 6 million or more are not allowed to provide terrestrial television services.
Germany	No	
Greece	n.a.	
Hungary	Yes	- Cable television operators are not allowed to own or invest in terrestrial Television companies.
Iceland		
Ireland	No	
Italy	Yes	- Terrestrial television companies and cable television operators are not allowed to own more than 30 per cent of the integrated market.
Japan	Yes	- Terrestrial television companies may be permitted to establish cable television Infrastructures in special cases.
Korea	Yes[86]	- Terrestrial television companies are not allowed to invest in or provide cable Television infrastructures and services. - Cable television operators are not allowed to invest in or provide terrestrial broadcasting services.
Luxembourg	No	
Mexico	No	- A favourable opinion from the Federal Competition Commission is required to award a single person a concession to operate two or more networks rendering pay TV (restricted) services within the same coverage area. - The authorization of transmission of concession rights or the sale of stock which results in a single person acquiring control of concessionaire firms rendering two or more pay TV (restricted) services within a coverage area requires a favourable opinion from the Federal Competition Commission.
Netherlands	No	
New Zealand	No	
Norway	Yes	- Cable television operators in a licence area are not allowed to possess their own licence to operate local television services or possess more than 49 per cent holding in a local television company, or possess a holding that represents more than 49 per cent of the votes in a local television company.[87]
Poland		
Portugal	No	
Spain	Yes	- Private terrestrial television companies are not allowed to provide cable television infrastructure. - Private terrestrial television companies also providing cable television services are not allowed to hold more than one licence. - Private terrestrial television companies also providing telecommunications services are not allowed to hold more than one licence.
Sweden	No	

Table A- 11: Specific cross sector ownership restrictions in OECD countries (cont.)

Country	Restricted	Detail of restriction
Switzerland	No	
Turkey	n.a.	
United Kingdom	Yes	- BBC is specifically prevented from holding a licence to provide cable television services. - The broadcasting regulator is required to fully ensure that commercial television licensees do not obtain licences for cable television services. - Telecommunications operators having a turnover exceeding 2 billion per annum are prevented from holding or controlling licences to operate national and regional comical television services, domestic satellite services and cable television services. Additionally, holders of such licences may not control a telecommunications operator with a turnover exceeding 2 billion per annum.
United States	no[88]	

Source: Communications Outlook 1999, Table 6.21

Table A- 12: Ownership restrictions on television services in OECD countries[89]

Country	Terrestrial television	Cable television	Direct broadcast satellite
Australia	- A single entity is not allowed to exercise control of commercial terrestrial television broadcasting licences whose combined licence area population exceeds 75 per cent of the whole population of Australia.	none	none
Austria	none[90]	none	none
Belgium[91]	- A single entity holding more than 24 per cent of the shares in a private television station either directly or indirectly, is not allowed to own more than 24 per cent of the shares in another private television station of the French Community either directly or indirectly.		
	- Pay television stations of the French Community must reserve at least 26 per cent of their share capital for the RTBF, either alone or in combination with one of its majority-owned subsidiaries, or their statutes must guarantee RTBF veto power.		
Canada	- A single entity is not allowed to own more than one television station offering service with the same official language in the same market.	none	none
Czech Republic	None	none	None
Denmark	- For local television, the same individual may not be a member of the board of more than one local station.	none	none
Finland	None	none	none
France	- A single entity is not allowed to own more than 49 per cent of the shares in a national broadcasting company. - A broadcasting company already licensed to provide television services to an area having a population of four million or more, is not allowed to own an additional license.	- a cable television operator already licensed to cover an area with a population of 6 million or more, is not allowed to own an additional license.	
Germany	- A single entity is not allowed to control more than 30 per cent of the total audience time share of the total television market including terrestrial, cable and satellite television.		
Greece	- A single entity is not allowed to own shares or voting rights in more than one broadcasting company. - A single entity is not allowed to own more than 25 per cent of the shares of a broadcasting company.	n.a.	n.a.
Hungary	- A single entity holding a licence for national television broadcasting or holding a controlling share in such an entity is not allowed to acquire a controlling share in another television company.	none	none
Iceland			
Ireland	None	none	
Italy	- A single entity is not allowed to control more than 20 per cent of national television programs.	- A single entity is not allowed to control more than 30 per cent of sector resources.	- A single entity is not allowed to control more than 30 per cent of sector resources.

Table A- 12: Ownership restrictions on television services in OECD countries (cont.)

Country	Terrestrial television	Cable television	Direct broadcast satellite
Japan	- A single entity is not allowed to own or control more than one broadcasting station.	none	- A single entity is not allowed to own or control more than one broadcasting station.
Korea	- A single entity is not allowed to own more than 30 per cent of the shares in a broadcasting company. - Major industrial groups are not allowed to acquire shares of a broadcasting company.	- Cable operators, program providers and network operators are not allowed to own each other. - MSO is not allowed. - A single entity is not allowed to own more than 30 per cent of a news channel.[92]	none
Luxembourg	- A single entity is not allowed to own shares in more than one broadcasting company. - A single entity is not allowed to own more than 25 per cent of the shares or votes of a broadcasting company.		
Mexico	Reserved to Mexican agents.	No foreign investment restriction.	Reserved to Mexican agents.
Netherlands	None	none	None
New Zealand	None	none	None
Norway	- A single entity is not allowed to hold more than one third of the total local broadcasting market. - A single entity is not allowed to own a share in more than one licence in one and the same licence area for local television.	none	none
Poland			
Portugal	Subject to the Broadcasting Act, the practices of ownership concentration conditioned to a previous notification to the Competition Council e.g. making or strengthening of a market share superior to 30 per cent of the national television market, or when the concentration of ownership implies a global annual turnover superior to 30 billion PTE, shall be reported to the High Authority for the Mass Media which makes a previous and binding judgment. However, this judgment can be negative only in case the freedom of expression and confrontation of different opinions are at stake.		
Spain	- A single entity is not allowed to hold more than one licence. - A single entity is not allowed hold direct or indirect control of more than 25 per cent on capital. - A single entity is not allowed to hold shares in more than one licence.	- Maximum number of subscribers to a single entity is limited to 1.5 million.	- A single entity is not allowed hold direct or indirect control of more than 25 per cent on capital.
Sweden	None	none	none
Switzerland	- Applicants are required to declare names of major shareholders to the licensing authority. The authority checks the application to see whether it poses a threat to the diversity of opinion or supply.		
Turkey	n.a.	n.a.	n.a.

Table A- 12: Ownership restrictions on television services in OECD countries (cont.)

<table>
<tr><th>Country</th><th>Terrestrial television</th><th>Cable television</th><th>Direct broadcast satellite</th></tr>
<tr><td>United Kingdom</td><td colspan="3">- For analogue television:
A single entity is not allowed to hold or control licences for more than 15 per cent of the total television audience.
- For digital television:
1. Utilizing the point scheme and depending on the total number of points allocated, the maximum permitted number of points that a single entity is allowed to hold varies between 20 per cent to 25 per cent of the total digital program services.
2. Holding of multiplex licences is restricted. No more than 3 licences may be held by any one person or corporate body.</td></tr>
<tr><td>United States</td><td>- No single broadcasting company is allowed to cover more than 35% of the national audience reach.
- A single entity is not allowed to own more than one television station in the same market.</td><td>None</td><td>none</td></tr>
</table>

Source: Communications Outlook 1999, Table 6.22

Table A- 13: Separation Requirements in Postal Services

	Between regional collection and delivery operators	Between delivery and collection/ sorting/ transportation	Between delivery and express mail / parcel delivery (horizontal separation)
Australia			Legislation before the Federal Parliament will require Australia Post to maintain separate records for its monopoly services, to ensure that Australia Post is not cross-subsidising from its monopoly services to competitive services.
Austria			
Belgium			
Brazil			
Canada			
Czech Republic			
Denmark			Rules for balance of accounts for Post Danmark insure, that the necessary data are stated, such that it can be estimated whether the competition rules are met (for example, that no cross subsidisation between the competitive and non-competitive areas take place).
Finland			"The provider of a general service shall use calculation methods which show the reasonableness and cost accountability of the prices of the various services. In its internal accounting the provision of a general service shall separate from each other the general and basic services and other services."
France			Directive 97/67/CE requires that La Poste prepares separate accounts for each of the monopoly services, on one side and competitive services, on the other. In addition accounts for monopoly services must make a clear distinction between services which form part of the universal service obligation and those which do not.
Germany			
Hungary			The provisions of the uniform telecommunications act, which is presently being prepared, have to be composed with a language to allow the direct access to the postal network both for large consumers and other service providers in return for a fair price. A precondition of this is the transparent demonstration of costs pertaining to services, which also must be dealt with in the act.
Ireland			"In response to an EU Directive on postal services its accounts will be separated into reserved and competitive operations and into letters and parcels from 2000 in order to increase the transparency of its work, particularly in relation to cross-subsidation of its competitive activities".
Italy			
Japan			
Korea			
Mexico			
Netherlands			The Dutch Postal Act introduced at the beginning of 2000 a system of accounting separation.
New Zealand			

Table A- 13: Separation Requirements in Postal Services (cont.)

	Between regional collection and delivery operators	Between delivery and collection/ sorting/ transportation	Between delivery and express mail / parcel delivery (horizontal separation)
Norway			Posten is a vertically integrated company but it is required to hold separate accounts for its competitive and non-competitive activities. The primary objective is to ease the regulation of tariffs for the universal services and to reduce the scope for cross-subsidisation. Accounting separation may also improve the regulation of prices for access to essential facilities.
Poland			
Portugal			
Spain			
Sweden			
Switzerland			
Turkey			
United Kingdom			
United States			

NOTES FOR TABLES

78 ‘FC’ refers to the number of ‘fully co- ordinated’ airports and ‘C’ refers to the number of ‘co-ordinated’ airports.

79 SCR indicates ‘schedule co-ordination request’ status where a co-ordinator is appointed to allocate slots (on a voluntary basis) and SMA indicates ‘schedule movement advice’ requiring only advance notification of intended operations, according to IATA’s definitions of schedule co-ordination. Number of airports under co- ordination refers to all SCR/ SMA airports, i. e. not just Category 1.

80 Since the telecommunications sector is generally regarded as a single segment of the communications sector, the terms “cross- ownership” or “joint provision” would not be used on this issue.

81 The term “broadcasting television” refers to the traditional over- the- air television broadcasting using terrestrial transmitters.

82 Since the television service sector is generally regarded as a single segment of the communications sector, the terms “cross- ownership” or “joint provision” would not be used on this issue.

83 ORF is a public organization providing national terrestrial television broadcasting. There is no private company.

84 Response from Belgium reflects the position in the French community.

85 CRTC exams the issue on a case-by-case basis. Additionally, a telecommunication carrier wishing to provide cable television service must hold a structurally separate entity.

86 The draft legislation proposes that terrestrial broadcasters, cable television operators and satellite broadcasters are not allowed to own each other.

87 These restrictions are scheduled to be reviewed.

88 The 1996 Act eliminates the broadcast network-cable cross ownership rule and the statutory broadcast station-cable system cross ownership restriction (FCC rules restricting cross ownership of broadcast station-cable system have been retained).

89 In general, this table refers to commercial television services. Public television service is not included.

90 No private company providing terrestrial television broadcasting.

91 Response from Belgium reflects the position in the French community.

92 The draft legislation proposes that a single entity is not allowed to own more than 30 per cent of a general or news channels. Additionally, it proposes that industry groups are not allowed to own general or news channels.