

service, could be simply too high for non-affiliates to risk. In addition to requiring Bell Atlantic to offer discounts for terms shorter than five years, therefore, the Commission should prescribe termination provisions that reduce the penalties for early termination.

**C. THERE IS NO JUSTIFICATION FOR THE DIFFERENCE IN INTEREST RATES FOR LATE PAYMENTS AMONG VDT AND ACCESS CHARGE CUSTOMERS.**

In the Designation Order, the Commission expressed concern that Bell Atlantic charges access tariff customers a 9% interest rate for late charges and VDT customers an 11.25% interest rate for late charges.<sup>60</sup> Bell Atlantic states in its Dover Direct Case that the 11.25% interest rate is necessary to recover the cost of capital.<sup>61</sup> It implies that the 9% interest rate for access customers should be the same.<sup>62</sup> There does not appear to be any justification for this discrepancy. NCTA urges the FCC to adopt an interest rate equal to the capital costs Bell Atlantic incurs.

**D. BELL ATLANTIC SHOULD PAY INTEREST ON DEPOSITS IT HOLDS UNDER THE CHANNEL RESERVATION DEPOSIT.**

The Commission also raised the question as to whether it was reasonable for Bell Atlantic not to pay interest on deposits it holds under the Channel Reservation Deposit.<sup>63</sup> The Commission in

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<sup>60</sup> See Designation Order at ¶ 53.

<sup>61</sup> See Dover Direct Case at 103.

<sup>62</sup> See id.

<sup>63</sup> See Designation Order at ¶ 54.

particular noted that this approach represented a stark departure from the interest rates levied on late payments.<sup>64</sup>

Bell Atlantic responds that this approach is reasonable and that the Commission may not subject the Channel Reservation Deposit terms to review because it has already approved that portion of the tariff.<sup>65</sup> In fact, however, Bell Atlantic offers no reason why the Commission should permit the company to keep interest that accrues on deposit money in its possession. Bell Atlantic should therefore be required to pay interest to depositors at the level of the company's cost of capital.

**E. BELL ATLANTIC'S THREE MONTH MINIMUM SERVICE REQUIREMENT IS UNREASONABLE.**

In the Designation Order, the Commission observed that Bell Atlantic's three month minimum service requirement, like Ameritech's one year minimum requirement rejected earlier by the Commission, will harm part-time or one-time users of VDT.<sup>66</sup> The Commission essentially observed that a de facto entry barrier for programmers such as the three month requirement undermines the Commission's VDT policy of encouraging increased diversity in the video programming available to the public.<sup>67</sup> The Commission therefore asked Bell Atlantic to justify its minimum service requirement.

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<sup>64</sup> See id.

<sup>65</sup> See Dover Direct Case at 104.

<sup>66</sup> See Designation Order at ¶ 56.

<sup>67</sup> See id. at ¶ 55.

In response, Bell Atlantic asserts in its Direct Case that the three month requirement is reasonable because it avoids the "constant churn of programmer-customers that could cause customer confusion, create administrative burdens for Bell Atlantic and otherwise undermine the viability of the video dialtone platform."<sup>68</sup>

These assertions are singularly unconvincing. VDT was intended to expand the outlets through which programmers could gain access to viewers. Yet, under Bell Atlantic's approach, small programmers can take advantage of neither the PEG and leased access procedures to which cable operators are subject, nor the nondiscriminatory access requirements of the tariff process. It is hard to understand what video dialtone is all about if this scheme is allowed.

Bell Atlantic's claim that the accommodation of part-time use could cause customer confusion is also difficult to comprehend. When TV Guide and other program guides (both hard copy and electronic) are available to advise customers of viewing options, and consumers are as accustomed to using TV Guide as they are to using, for example, the telephone, Bell Atlantic's concern with respect to customer confusion is clearly misplaced.

Moreover, as a common carrier, Bell Atlantic should be indifferent to prospects of part-time users. If part-time demand is high, Bell Atlantic should be required to accommodate it on a common carrier basis. If part-time demand does not materialize,

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<sup>68</sup> Dover Direct Case at 109.

Bell Atlantic will have no problem at all. Just as Congress enacted the commercial and PEG access provisions of the Communications Act for policy reasons, so, for policy reasons, the Commission should not permit Bell Atlantic to foreclose part-time use by permitting this unlawfully discriminatory tariff arrangement.

**CONCLUSION**

NCTA respectfully requests the Commission to modify Bell Atlantic's Dover VDT tariff in a manner consistent with this Opposition.

Respectfully submitted,  
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ITS ATTORNEYS

November 30, 1995

## CERTIFICATE OF SERVICE

I, Thomas Jones, do hereby certify that on this 30th day of November, 1995, I have caused a copy of the foregoing "Opposition to Direct Case" to be served by hand delivery unless otherwise indicated, upon the persons listed on the attached service list.

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## **APPENDIX A**

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of	)	
	)	
The Bell Atlantic Telephone	)	Transmittal Nos. 741, 786
Companies	)	Amended
Tariff FCC No. 10	)	
	)	
Video Dialtone Services	)	CC Docket No. 95-145

**DECLARATION OF LELAND L. JOHNSON, Ph.D.**

I, Leland L. Johnson, declare the following:

I am a consultant in telecommunications economics residing in Woodland Hills, California. I retired in March 1993 from the RAND Corporation, Santa Monica, California, where I had been employed, with two interruptions for government service, since 1957. I received my Ph.D. in Economics from Yale University in 1957. During 1978-1979, I was Associate Administrator for Policy Analysis and Development in the National Telecommunications and Information Administration in Washington D.C. During 1967-1968, I was Research Director of the President's Task Force on Communications Policy in Washington. In these capacities, I have written widely on issues of monopoly and competition, government regulation, and appropriate public policy. In recent years, I have focused on telephone company entry into video, including effects of advances in fiber optics and other technologies. I have presented numerous seminars and briefings, and have testified before Congressional subcommittees and government administrative agencies. I am author

of the book *Toward Competition in Cable Television* published in 1994. An attached resume describes my background in further detail.

I have been asked by the National Cable Television Association, Adelphia Communications Corporation, and the New Jersey Cable Television Association, to evaluate Bell Atlantic's video dialtone tariff filed for Dover Township, New Jersey. This assignment follows my earlier evaluation of New Jersey Bell's Section 214 application for video dialtone service in Dover Township.<sup>1</sup>

### Overall Evaluation

Observers may be startled to learn that Bell Atlantic plans to replace existing phone lines in Dover Township with a new fiber network to carry both telephone and video dialtone signals, while charging off two-thirds of the whole investment to telephony. These observers might conclude that Bell Atlantic is seeking to subsidize its entry into video, in competition with cable operators and other suppliers, with revenues from its monopoly local telephone ratepayers. They are right. Even if total investment and recurring expenses are accurately depicted in Bell Atlantic's dozens of worksheets in support of its video dialtone tariff, and even if video dialtone revenues are sufficient to cover costs now assigned to video dialtone, a massive threat of cross-subsidy remains.

Of overarching importance are four considerations: first, Bell Atlantic has assigned to the narrowband or "voice" portion of the new network an investment far above that of a stand-alone network with the same narrowband capability, while video dialtone is assigned far less than its true cost. Telephone users, paying higher prices to cover the greater cost assigned to them, will be forced to subsidize video dialtone.

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<sup>1</sup>Affidavit, W-P-C 6840, February 12, 1993; Declaration W-P-C 6838, 6840, September 29, 1993 (both on behalf of New Jersey Cable Television Association).

This point, previously voiced in this proceeding, has met with astonishingly weak response from Bell Atlantic. In vague and evasive language, it maintains that the narrowband portion of the integrated network has greater capability than a telephone stand-alone network and that, therefore, the greater cost assignment to telephony on the integrated network is warranted. I conclude that costs should be reassigned, with at least twice as much investment assigned to video dialtone as the amount now reflected in Bell Atlantic's video dialtone tariff.

Second, company overhead, which runs to about 65 percent of direct costs, is, incredibly, treated by Bell Atlantic as a fixed cost. Thus, any contribution to overhead made by video dialtone is depicted as reducing the overhead on other services. In fact, overhead is a variable cost, a portion of which must be assigned to video dialtone as an incremental cost -- no different in terms of cost causation from the estimation of other video dialtone incremental costs in Bell Atlantic's worksheets. Consequently, video dialtone should take approximately a 65 percent overhead loading, rather than the 20 percent reflected in Bell Atlantic's tariff. Bell Atlantic resists charging the full 65 percent loading because "market conditions" might not permit the recovery of such a large mark-up. But this is only a way of saying that by pricing below incremental cost, which properly includes a 65 percent overhead component, the company, indeed, intends to subsidize video dialtone.

Third, as a consequence of the preceding two factors, I conclude that Bell Atlantic's tariff rates for Broadcast Channel Service, both month-to-month and five-year contract, would have to be more than doubled to cover actual incremental cost plus the share of fixed common cost computed on the basis of Bell Atlantic's methodology. Moreover, the rate required to cover incremental cost alone for month-to-month and five-year service is at least 75 percent and 83 percent above the respective tariff rates set by Bell Atlantic for the two

services. Thus, the Company's rates fall far below the level required to cover the incremental cost of video dialtone -- let alone any "reasonable" allocation of fixed common costs.

Fourth, in response to all such objections, Bell Atlantic flatly claims that the presence of price caps for telephony, by decoupling prices from costs, will render impossible the raising of telephone prices to provide any subsidy for video dialtone. Again, Bell Atlantic is wrong. By no stretch of the imagination can the New Jersey price cap regime (or, for that matter, the Commission's) be regarded as decoupling prices from costs:

- The New Jersey plan stipulates that the company will not be required to reduce real rates during any year in which the average intrastate rate of return on equity for its rate regulated services for the applicable twelve-month period falls below 11.7 percent. Consequently, if shifting video dialtone costs onto local telephony reduces the return to below 11.7 percent, the company can pass these costs onto local subscribers by denying a rate decrease to which they otherwise would have been entitled.
- If the company's intrastate return on equity exceeds 13.7 percent, the excess earnings are to be shared equally between the company and its customers (most likely by appropriate price reductions or monetary refunds). Consequently, by shifting video costs onto telephony, the company may avoid triggering this sharing provision, again denying customers benefits to which they otherwise would be entitled.
- The price cap plan expires at the end of 1999. Consequently, excessive video costs shifted to telephony during the next few years will provide the basis for a subsequent lower productivity factor than would exist in the absence of

video dialtone. In this event, telephone customers will enjoy smaller real rate decreases after 1999 than otherwise.

To support these conclusions, I focus on four topics:

- Stand-alone telephony, as a baseline for cost reassignment.
- The appropriate treatment of overhead costs.
- The failure of tariff rates to cover cost.
- The inadequacy of price caps as a safeguard against cross-subsidization.

I conclude with a brief discussion of the appropriate course for Commission action.

#### Stand-Alone Telephony as a Baseline for Cost Reassignment

Bell Atlantic estimates a total construction cost of the integrated network of \$68.4 million,<sup>2</sup> or \$1,785 for each of the 38,319 potential subscribers. The amount of \$594, or 33 percent of the \$1,785 total, is to be charged to video, and \$1,191, or 67 percent, to telephony (excluding switching).<sup>3</sup> In light of these numbers, let us consider four illustrative alternative scenarios.

Scenario 1. Suppose that the existing telephone network would be retained if the new network were not built, with the existing network having the same economic lifespan and annual recurring costs as the new one. Suppose, further, that the new network has no additional narrowband capability beyond the existing one. Thus, for narrowband purposes, the new network is purely duplicative of the existing one, whose investment costs are sunk. In this case, the entire amount of \$1,785 per potential subscriber is the true incremental cost

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<sup>2</sup>Bell Atlantic Direct Case, Amendment to the Bell Atlantic Telephone Companies Tariff No. 10, Video Dialtone Service, Attach. A(2) at 1.

<sup>3</sup>Id.; Bell Atlantic Tariff F.C.C. No. 10, Transmittal No. 741, January 27, 1995, Workpaper 5-3, 5-4.

of video, because the addition of video "causes" the whole investment. Thus, the appropriate charge to video is three times the amount (\$594) reflected in Bell Atlantic's tariff.

Scenario 2. The existing telephone network is retained in the absence of the new integrated network, but upgrades are needed for expanded capabilities. The cost of such upgrades vary, of course, depending on the characteristics of existing facilities and the nature of expanded capabilities. As one piece of evidence, a recent New England Telephone cost study reports the incremental cost for upgrading the existing telephone network at about \$308 per access line (excluding local switching).<sup>4</sup> Let us assume that an upgraded stand-alone system for Dover has the same narrowband capability as the video dialtone network, involves \$308 investment per potential subscriber, and has the same recurring expenses as those of the telephone portion of the proposed integrated network. In this case, the minimum amount that should be charged to video dialtone to reflect its incremental cost on the broadband network is the remaining \$1,477, or 83 percent of total investment.<sup>5</sup>

Scenario 3. In the absence of video dialtone, the existing network is nevertheless scrapped, as Bell Atlantic plans, with a stand-alone narrowband digital loop carrier system substituted. This architecture consists of a fiber (or coaxial) link from the central office to a neighborhood node connected by conventional copper loops to subscriber premises. In a "model" community, with household densities reflecting nationwide averages, David Reed estimated in 1992 the "future" cost of digital loop carriers at \$696 (excluding switching) per

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<sup>4</sup>New England Telephone, 1993 New Hampshire Incremental Cost Study (April 30, 1993) at 30.

<sup>5</sup>In this case, as illustrated below in Table 2, separate telephone and video networks would be more economic, with the video network costing \$1,439 per potential subscriber compared to the above \$1477.

home passed.<sup>6</sup> Another study by Hatfield Associates places network cost (including switching) at \$764 per line for household densities similar to those in Dover.<sup>7</sup> If we take \$700 as a reasonable round number for Dover (without switching), with the same narrowband services and operating costs as the narrowband portion of the integrated network, the minimum investment properly attributable to video is \$1,085 (\$1,785 - \$700) per potential subscriber -- 83 percent more than the \$594 that Bell Atlantic proposes to charge video.

Scenario 4. As in Scenario 3, the digital loop carrier would be the most efficient alternative to the narrowband portion of the integrated network. However, in Scenario 4, the integrated network does provide additional useful narrowband services outside the bounds of the digital loop carrier, and the additional revenues (net of other incremental costs) are sufficient to cover the difference between the amount charged to telephony (\$1,191) and the cost of the digital loop carrier (\$700). In this case, the charge of \$1,191 to telephony is economically justified and, correspondingly, the amount assigned to video dialtone (\$594) is appropriate.

Scenarios 3 and 4 together raise the key question: what useful narrowband services would the integrated network provide that a digital loop carrier can't provide? Despite the thousands of pages Bell Atlantic has filed in the Commission's tariff investigation, it devotes almost no attention to this issue, which is of fundamental importance to any evaluation of the potential for cross-subsidy.

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<sup>6</sup>David P. Reed, Residential Fiber Optic Networks. An Engineering and Economic Analysis, Artech House, 1992, at 288-289. The "current cost" (in 1992) was estimated at \$920, with the lower \$696 "future" estimate reflecting the expected effects of technological advance. Household density is taken as 88 homes per linear mile (p. 109, n.2).

<sup>7</sup>Hatfield Associates, Inc., The Cost of Basic Universal Service (July 1994).

NCTA previously raised the same point as above about using the cost of the upgraded plant or a digital loop carrier as the baseline for determining the amounts that should be assigned to telephony and video in the integrated network.<sup>8</sup> Replying to NCTA, Bell Atlantic asserts that "[i]f that rationale withstood scrutiny, telephone companies would still be providing telephone service using black rotary phones and electromechanical switches."<sup>9</sup> Such cavalier response must be an embarrassment to Bell Atlantic. Obviously, no one is arguing that telephone networks should never be upgraded or replaced. The key question relates to (a) the most efficient way to obtain the capability to provide a given set of services, and (b) whether revenues will at least cover the incremental costs of those services. Bell Atlantic goes on to observe that:

[T]he simple fact is that the telephone network has evolved over time in response to the development of new technologies, such as digital switching, new signaling technologies such as common channel signaling, and new transmission media such as digital loops and fiber optics. The result has been an improvement in the quality and reliability of existing services, as well as introduction of a steady stream of new services.<sup>10</sup>

No one will contest the validity of this observation. To be sure, the telecommunications field has been blessed over the decades with technological advances to the great benefit of society. This situation leaves totally open, however, questions about the most efficient way to provide new services and the amounts Bell Atlantic should be permitted to charge off to telephony.

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<sup>8</sup>NCTA, Petition to Reject, or in the Alternative, to Suspend and Investigate Bell Atlantic's Video Dialtone Tariff for the Dover System, February 21, 1995 at 17-19.

<sup>9</sup>Reply of Bell Atlantic, The Bell Atlantic Telephone Companies, Tariff FCC No. 10, Video Dialtone Service, March 6, 1995 at 9.

<sup>10</sup>Id. at 9-10.

Bell Atlantic seeks further to defend its video dialtone tariff by claiming that "[t]he upgrade to broadband capabilities is just the latest step in this continuing evolution and, like the prior steps in the process, will have the same impact on both existing and new services."<sup>11</sup> This is a bald assertion. It is far from obvious that Bell Atlantic's approach to "broadband capabilities" will have the "same impact." Recall that Bell Atlantic stands alone among the telephone companies filing Section 214 applications, by utilizing the fiber-to-the-curb architecture in Dover Township (and Florham Park), in contrast to the hybrid broadband design (or fiber to the neighborhood) proposed by other companies. Recall, too, that two of these companies -- Ameritech and GTE -- have decided against adding local exchange service to their broadband facilities within the foreseeable future, but rather are pursuing video on a stand-alone basis. This situation highlights again questions of how Bell Atlantic can justify charging two-thirds of its network investment to telephony. What are the new and useful narrowband capabilities afforded by the integrated network that cannot be provided by a stand-alone digital loop carrier network or, for that matter, by simply upgrading the existing network?

The fact that Bell Atlantic has no good answer is most apparent in Dr. Charles L. Jackson's distinction between "voice" and "video" to denote "the two disparate signal streams that flow over the VDT system and that will be used, in the short run, for providing telephone and video transport service respectively."<sup>12</sup> As he elaborates:

My shorthand terminology of voice and video could potentially mask an important reality. The "voice" service is a two-way, ISDN-like, digital service all the way to the Optical Network Unit near the home and could be extended to the home. The "video" service is best thought of as a very high-speed

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<sup>11</sup>Id. at 10.

<sup>12</sup>Jackson Affidavit, at 3, in Reply of Bell Atlantic, supra, March 6, 1995.

asymmetric data service with 18 megabits per second outbound to the consumer and low-speed data on the return channel. Thus, the video service [my emphasis] could be used for high-speed access to the Internet, at rates ten to a hundred times faster than possible on an ISDN line and a thousand times faster than most households use today.<sup>13</sup>

This quotation raises two points: first, it is unclear how his description of voice service as a "two-way ISDN-like digital service" is different in any essential respect from how one would describe a narrowband digital local loop. Presumably, with appropriate interfaces either could carry ISDN or other digital services. The key question is: how does extension of fiber all the way to the curb, instead of to a neighborhood node (the digital loop carrier architecture), sufficiently enhance the capability of the network for narrowband applications to justify a cost assignment to telephony far in excess of the cost of building an entirely separate narrowband system? Failing to compare explicitly Bell Atlantic's proposed network to alternatives for "voice," Dr. Jackson does nothing to answer this question.

Second, Dr. Jackson correctly recognizes that "video service" encompasses more than just video transmission taken literally, but can also include high speed data such as "high speed access to the Internet." A broadband channel is merely a conduit for passing millions of bits per second. Whether the bits are converted to data or to video is only a matter of the particular application at hand. Accordingly, Bell Atlantic's costing methodology assigns all such broadband channels to the video side and narrowband channels to the telephony or voice side. In some of its worksheets, Bell Atlantic uses the caption "voice;" in other worksheets "telephony/other." It is unclear what "other" includes in addition to "telephony," or what "voice" encompasses other than just telephony. In any event, if "voice" is taken as synonymous with "telephony/other," consistent both with Bell Atlantic's worksheets and

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<sup>13</sup>Id. at 4.

Dr. Jackson's statement, then the cost assignments shown for "voice" encompass only narrowband ("ISDN-like") channels.

This is an important inference because it leads to the conclusion that the portion of the network used for "voice" (or "telephony/other") is confined to narrowband transmission -- the same kind of transmission on today's telephone network. Thus, the key question I have posed throughout can be rephrased: What useful "voice" services can the integrated network provide that cannot be provided on either the existing telephone network, or on a digital loop carrier network, given that both Bell Atlantic's voice portion of the broadband network, and alternatives to it, would be confined to narrowband service?

In his affidavit, Dr. William E. Taylor throws an interesting (and as it turns out highly significant) contradictory twist to the above discussion. He observes that "[l]ike the narrowband network before it, the integrated broadband network is a platform that supports a variety of services including broadband [my emphasis] telephony as well as video services."<sup>14</sup> What is "broadband" telephony? One possibility is high speed data. But, in accordance with Dr. Jackson's description, such applications would be considered on the video side of the ledger. The second is the videophone or picturephone. To my knowledge, Bell Atlantic mentions this specific application no where else in its filing, and in light of the picturephone's checkered history, perhaps that is just as well.<sup>15</sup>

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<sup>14</sup>Id. at 12.

<sup>15</sup>For a devastating critique of the history of the picturephone, see A. Michael Noll, "Anatomy of a Failure: Picturephone Revisited," Telecommunications Policy, May/June 1992. In his words, "most business customers and residential consumers simply had little need for two-way, face-to-face visual telecommunication. The reasons for the picturephone's market failure had little to do with either technology or cost. Picturephone service simply had little incremental value compared to a telephone call -- and perhaps even negative value for some users." Id. at 367.

Nonetheless, to illustrate the potential hurdles for Bell Atlantic in its imaginings of new services, let us assume that "broadband" telephony -- an enhanced version of today's picturephone -- does become a serious candidate for residential and business use. The two-way broadband capacity required for this service would go far beyond the capabilities of Bell Atlantic's proposed one-way video network. Recall Dr. Jackson's description of "video" involving "18 megabits per second outbound to the consumer and low-speed data on the return channel [my emphasis]."<sup>16</sup>

To upgrade to a broadband return channel from each subscriber required for broadband telephony (as well as additional capacity required for outbound traffic), would surely involve an enormous increase in cost beyond Bell Atlantic's estimate of \$68.4 million (or \$1785 per potential subscriber) for a network consisting only of narrowband telephony plus one-way video.

This additional cost is of basic significance in shedding additional light on the threat of cross-subsidy. Recall the argument that even though Bell Atlantic assigns much more investment to narrowband in the integrated network than is involved in a stand-alone telephone network, this practice is allegedly justified if new telephone services -- not possible on the stand-alone network, emerge to cover this cost differential, thus leaving basic telephone users with a net cost no greater than (or possibly lower than) their stand-alone cost. The critical point to recognize, however, is that revenue from these new services -- broadband telephony in the above example -- must cover not only the cost differential between the assigned cost and the smaller stand-alone cost, but also the additional or incremental investment (and expenses) required to support these new services.

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<sup>16</sup>Jackson, supra, at 4.

To drive home this point, let us extend the broadband videophone illustration. Suppose that \$1000 per potential subscriber is required for videophone in addition to the \$1785 investment quoted by Bell Atlantic. Thus, even more than two-thirds of the expanded network would be assigned to telephony than is now proposed. In addition to Bell Atlantic's charge of \$1191 to telephony, an additional \$1000 would be added for broadband videophone for a total of \$2191. In this case, to avoid cross subsidy, videophone revenues would have to cover not only the difference of \$491 between the \$1191 charge to telephony and the stand-alone (digital loop) telephony cost of \$700, but also the \$1000 in additional cost required for two-way broadband capacity.

Thus, it is not enough for Bell Atlantic to conjure up the possibilities of additional revenues from new telephone services going beyond the capability of stand-alone narrowband networks. It must also consider the additional costs of such imagined services. To my knowledge, nowhere in its filings does Bell Atlantic say a word about the costs of such services, as additional amounts beyond the figures shown in its worksheets.

This omission is brought home all the more graphically in Dr. Taylor's further testimony. He goes on to say that "the proposed network architecture supports many additional services other than traditional voice telephony ...", at which point he adds in a footnote "[i]ncluding services such as packet switching, ISDN services, private line and high-speed data services, infrastructure for cellular, PCS and other wireless services, interactive information services, and video dialtone services."<sup>17</sup> In listing "infrastructure for cellular, PCS and other wireless services" Dr. Taylor fails to tell the Commission that such services would entail substantial costs in addition to those listed in Bell Atlantic's worksheets. The

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<sup>17</sup>Taylor, supra at 3, n. 6.

additional wiring to link radio transmitter sites with the network routings shown in the volumes of street maps in Bell Atlantic's filing, plus any additional trunk capacity requirements on the integrated network itself for wireless services are just two examples. Moreover, the existing network also can be upgraded, if necessary, to provide the infrastructure for wireless services. It is not at all obvious that the cost of this upgrade would be any greater than that required for Bell Atlantic's new network.

To demonstrate further how Bell Atlantic has stunningly failed to show that the telephone portion of its network can carry new narrowband services that are infeasible to provide on a stand-alone telephone network, it is instructive to consider separately each of the services Dr. Taylor lists, in addition to infrastructure for wireless:

- Packet switching. Dr. Taylor tells us nothing about why the new network is any better able to take advantage of packet switching than today's networks.
- ISDN services. These services are designed to be carried on today's networks. The overarching problem with ISDN has been weak market demand.
- Private line. These services are easily carried today.
- High-speed data. Already discussed in connection with Dr. Jackson's affidavit.
- Interactive information services. Not clear how these differ from the video dialtone (rather than narrowband) services Bell Atlantic listed originally in its Dover Section 214 application, such as "interactive data base," "how-to instructional," and "financial services."<sup>18</sup> Also not clear how these differ from those widely available today with automated voice instructions and keypad

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<sup>18</sup>For a discussion, see Johnson Affidavit, supra at 15.

response. Adding question-and-answer text on the screen is easily accommodated today.

- Video dialtone services. A redundant listing.

In short, the threat of subsidization of Bell Atlantic's video services by its monopoly telephone ratepayers is abundantly clear. Bell Atlantic proposes to charge to telephony \$1191 per potential subscriber, compared to a stand-alone cost for a new narrowband (digital loop carrier) network that might cost in the neighborhood of \$700. The difference of \$491, covered by telephone users, would represent a subsidy to video users who would be called upon to cover only Bell Atlantic's assigned \$594 charge per potential video subscriber, instead of the higher \$1085 (\$1785 network cost minus \$700) as the cost "caused" by the provision of video dialtone. Although Bell Atlantic argues that its integrated network will offer narrowband services in addition to those on a stand-alone telephone network, thus contributing additional revenues to offset the potential subsidy of \$491 above, the company has been evasive and vague about the nature of such services, and why they cannot be adequately provided on a new telephone stand-alone network or, indeed, why they cannot be provided even on the existing telephone network. Moreover, these new services would themselves involve additional costs, as well as hoped-for revenues -- a subject about which Bell Atlantic is totally silent.

As a more general response to objections raised previously in this proceeding, Dr. Taylor takes two other tacks in an unsuccessful attempt to deflect criticism of Bell Atlantic's decision to allocate far more investment to telephony than required for a stand-alone system. First, he claims that "[n]o stand alone cost test is required to detect the presence of a subsidy ... indeed ... every other service could be priced above its stand-alone cost, and if VDT were priced above average incremental cost, it would still not receive a

subsidy."<sup>19</sup> This statement is true -- and most revealing. If every other service is priced above stand-alone cost, and VDT priced is priced above average incremental cost, the firm must be collecting excess profits.

To illustrate, the total cost of an integrated system supplying two services, A and B, is necessarily equal to the stand-alone cost of A (or B) minus the incremental cost of B (or A), since the very definition of incremental cost of a service is the additional cost of adding that service to another that otherwise would operate on a stand-alone basis. This situation can be shown straightforwardly in Table 1. If two services, A and B, are to share the same network, the incremental cost of adding A to B is equal to total cost minus the stand-alone cost of B. If revenues of the illustrative integrated system just cover the total cost of \$1,000 (so that the firm just breaks even, including a "normal" profit to cover the appropriate cost of capital) any reduction in revenue for one service necessarily must be offset by an increase in revenue from the other.

TABLE 1  
ILLUSTRATIVE STAND-ALONE AND INCREMENTAL COSTS  
(per potential subscriber)

1	Total Integrated System -- Services A and B	\$1000
2	Stand-Alone Service A	650
3	Stand-Alone Service B	750
4	Incremental Cost--A (row 1 minus row 3)	250
5	Incremental Cost--B (row 1 minus row 2)	350
6	Fixed Common Cost (rows 2 plus 3 minus row 1; or row 1 minus rows 4 plus 5)	400

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<sup>19</sup>Taylor, supra at 11.

In contrast, if prices exceed the stand-alone cost -- analogous to the situation hypothesized by Dr. Taylor -- of service A, while B simultaneously covers more than its incremental cost, the firm must necessarily reap excess profits. Thus, if stand-alone A is priced to recover \$800 instead of the stand-alone cost of \$650 (row 2 of Table 1) and B simultaneously is priced to recover \$450, instead of its \$350 incremental cost (row 5), the firm has a total revenue of \$1,250 which, against a total cost of \$1,000, yields an excess profit of \$250. If, however, the firm is constrained to earn normal profits, a price above the stand-alone cost of A would necessarily be accompanied by a price below the incremental cost of B; that is, revenues from A would subsidize B. The basis for concern about cross-subsidization rests on the notion that regulation constrains the firm, roughly at least, to earn normal profits needed to cover its cost of capital.<sup>20</sup> In short, Dr. Taylor seems to be telling the Commission:

Don't worry about costs being assigned to telephony in excess of telephony stand-alone cost; this situation means only that Bell Atlantic will earn excess profits, not that it will necessarily subsidize video.

Second, Dr. Taylor claims that "once in place, Bell Atlantic's broadband network will have lower maintenance costs than traditional copper distribution plant."<sup>21</sup> The key comparison, however, involves not just Bell Atlantic's network against a "traditional copper distribution plant," but also against an upgraded distribution plant, and a new digital loop carrier network. Dr. Taylor goes on to claim that:

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<sup>20</sup>Baumol and Sidak define cross-subsidization within the context of the regulated firm as follows: "A cross-subsidy is present when the average-incremental revenue contributed by a product of a firm is insufficient to cover its average incremental cost, but the firm nevertheless earns sufficient revenue from all its products to cover its cost of capital [my emphasis] together with other outlays." William J. Baumol and J. Gregory Sidak, Toward Competition in Local Telephony (MIT Press and AEI Press, 1994) at 62.

<sup>21</sup>Taylor, supra at 3.

In the current network, changing a customer's service or eliminating a faulty loop often requires a physical reconnection of wires in the central office or in the field. With a broadband network, subscriber moves and service changes, as well as network operations and maintenance, are accomplished mainly by using software either by the company from a central office or by a customer.<sup>22</sup>

Of critical importance is how the ease of performing these functions compare with that of a digital loop carrier or a simple upgrade of the existing network. If fiber is extended into the neighborhood, with copper to the subscriber's premises, is "changing a customer's service" not possible by "using software ... from a central office?" Although a faulty loop today would require physical reconnection, would not a faulty fiber also require physical reconnection? What about evidence that the cost of fiber reconnection exceeds that of copper?<sup>23</sup> Bell Atlantic fails to answer these and other relevant questions.

More generally, the company provides the Commission with nothing about expenses to be charged specifically to telephony. Its estimate of incremental cost of telephony from shared facilities of \$346 (or more precisely, \$345.73) covers only investment. It is silent about expenses to be charged to telephony, presumably because its tariff relates only to video dialtone, not to telephony. Thus, the Commission has no basis whatsoever for confirming the validity of any claim that telephone users will benefit from reduced maintenance and operations expenses.

This omission of supporting evidence is all the more worrisome in light of experience with broadband network initiatives outside Dover (and the Florham Park area). For the "hybrid" networks described in its Section 214 Applications, GTE is not planning the inclusion of telephony within the foreseeable future, because, among other things, of

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<sup>22</sup>Id.

<sup>23</sup>Reed, supra at 134.