

1 **4. GTE's Cost Models and Studies**

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3 *GTE's Model Assumptions and Approach*

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5 **Q. Would you now discuss the third flaw in the Company's modeling assumptions--**
6 **inappropriately short economic lives for certain plant accounts?**

7 A. Although many of the Company's assumed economic lives seem reasonable, several
8 are unreasonably short. The Company has assumed an economic life of 20 years for
9 Aerial Fiber, Underground Fiber and Buried Fiber. In my opinion, a 20 year life for
10 newly installed fiber-optic cable is too short for buried or underground installations.

11 It would not surprise me if fiber buried today would continue to retain economic
12 value, and to be used and maintained for communication purposes, for another 40 or
13 50 years. Granted, improvements continue to be made in the design and manufacturing
14 of fiber, making it easier to move larger and larger amounts of bandwidth through a
15 single pair of fibers. However, much the same benefits of enhanced bandwidth are also
16 being achieved through improvements in the electronics and software that drive the fiber
17 system. In future years, when carriers seek to increase the bandwidth or capacity of
18 their networks, they are much more likely to replace the electronics than the fiber itself.
19 Hence, it may be a very long time indeed before today's fiber, particularly fiber placed
20 underground, will be so outdated as to be no longer used or economically valuable.

21 In my opinion, it isn't reasonable to assume that fiber buried today will be
22 economically worthless in 20 years, or to allocate the entire cost of this investment over
23 the first 20 years of its entire life span. While it is not inconceivable that technological
24 advancements or other phenomena will cause today's fiber to be totally obsolete in 20
25 years, such a scenario surely lies towards the lower limits of plausibility--particularly for
26 application to an entire network (as opposed to a particular route or segment). In my
27 opinion, a life span of 25 years is more realistic for buried and underground fiber.

1 **Q. Is it reasonable to assume a shorter economic for aerial fiber than for buried**
2 **and underground fiber?**

3 A. Yes. A fraction of all aerial cable will be prematurely retired due to storms, accidents,
4 and other physical causes, thereby shortening the average life of the entire class of
5 assets. Also, physical deterioration will adversely impact aerial cable more quickly than
6 buried or underground installations. Finally, aerial cable is somewhat more costly to
7 maintain; this may result in somewhat earlier retirement of these facilities on the basis of
8 anticipated cost savings from replacement technology. While none of these factors may
9 be sufficient, of themselves, to justify a significantly shorter economic life for aerial
10 cable, when all of these factors are considered together, it is reasonable to use a shorter
11 life for aerial cable than for below-ground installation of fiber.

12
13 **Q. Could you now discuss the circuit electronics categories?**

14 A. Yes. The Company has used 8 years for these plant categories, which is too short. Of
15 course, the cost of this type of equipment can be anticipated to decline in future years,
16 along with other electronic components; thus it is reasonable to assume that economic
17 obsolescence will largely drive future retirements in this category. However, this
18 category is not limited to line cards and other electronic components. It also includes
19 site preparation, equipment cabinets, power supply facilities, and other items which are
20 unlikely to experience a rapid decline in cost or economic value.

21 Furthermore, installation labor is a major component of these costs. Even if
22 the electronic components installed today could be replaced with new components at
23 zero cost in a few years, the labor required to install the replacements would be
24 substantial; and thus it is not self-evident that replacement would actually occur, or be
25 cost effective, as quickly as the Company has assumed. More realistically, a large
26 fraction of these components will continue to have economic value and be adequate to
27 meet the Company's needs for many years. While replacements will undoubtedly be

1 available at lower cost than the price today, the price will not drop to zero. Hence, I
2 believe a 12-to-15-year range is reasonable for this category.

3
4 **Q. Would you now please discuss Poles and Conduit?**

5 A. Yes. The Company has used a 25 year life for Poles. For Conduit, the Company
6 assumed a life of 40 years. I disagree with both of these assumptions. In my opinion,
7 lives of 30 years for poles and 50 years for conduit would be more reasonable.

8
9 **Q. Would you please discuss the appropriate life to use for central office switching
10 equipment?**

11 A. Yes. The Company has used a life of 10 years for newly installed switching facilities.
12 While there has been a downward trend in the life of this equipment, this figure is
13 shorter than can be justified based upon a review of the actual experience of the
14 industry, or a reasonable forecast of the factors which will influence the retirement of
15 new switches being installed at this time. Although switching investments have
16 historically lasted for 20 or more years, it is reasonable to assume that equipment
17 installed currently will not remain in service as long as equipment installed in the past,
18 due to the rapid pace of technological change and the rapid decline in the cost of
19 electronic components.

20 I would recommend using a life of 12 years for this category. At 12 years, I am
21 recognizing the possibility that the current generation of digital switches may be
22 replaced by new technology (e.g., broadband switches) within a decade or so, while
23 also recognizing that with software upgrades the existing switches may meet the needs
24 of most customers for 15 or more years.