

1 **Alternative Modes of Competitive Entry**

2
3 **Q. Let's turn to the third section of your testimony. Can you begin by elaborating upon**
4 **the benefits of multiple modes of competitive entry?**

5 A. As I mentioned earlier, competition in local telephone markets will work best if CLECs
6 have multiple options for how they structure their operations. This will reduce barriers to
7 entry and help ensure that CLECs can offer consumers a diverse array of products and
8 services. Smaller CLECs may initially choose those options that require the least amount
9 of capital investment and are the least complicated to implement, but over time they
10 should have the opportunity to migrate some or all of their operations to more capital-
11 intensive and/or more complex forms of competition.

12 Competitive pressures will be more intense and the degree of competitive
13 innovation will be greater if CLECs are encouraged to invest capital in their own
14 facilities and equipment as their revenues grow and they expand their operations.
15 However, if CLECs are forced to make large capital expenditures before they can start
16 operating profitably, potential entrants may be discouraged from entering the market.
17 Similarly, if CLECs are forced to make large capital expenditures in order to expand,
18 capital constraints will limit the number of competitors and inhibit their growth.

19 To bring the benefits of effective competition to Pennsylvanians as quickly as
20 possible, the Commission should adopt policies which make it easy for CLECs to enter
21 the market, while also providing multiple options for expanding their operations and
22 incentives to gradually shift toward greater reliance upon their own facilities as their
23 share of the market grows.

24 Achieving the benefits of effective competition depends heavily on the
25 Commission's regulatory decisions in proceedings like this. If competition and its
26 attendant benefits are to survive and flourish, the Commission should pursue policies that
27 reduce barriers to entry and make it economically feasible for carriers to invest in more
28 and more of their own facilities as they increase their market penetration.

29
30 **Q. What is the least complicated and least capital intensive method of entering the local**
31 **exchange market?**

1 A. The easiest from of competition, at least in the short term, is to purchase the ILEC's
2 services at wholesale rates. This option does not require the CLEC to install any of its
3 own cable, switching, or other network facilities. The 1996 Telecom Act requires all
4 incumbent LECs to offer for resale any telecommunications service that the carrier
5 provides at retail to subscribers who are not telecommunications carriers. Compared with
6 facilities-based operations, entry into the resale end of the telecommunications market is
7 relatively easy, enabling resellers to operate on a very small scale, even in towns and
8 neighborhoods with densities and volumes too low to support the efficient operation of
9 more than one or two facilities-based carriers.

10
11 **Q. Are there disadvantages to pure resale?**

12 A. Yes. Simply purchasing services at a wholesale discount and reselling them to the end
13 user provides little or no opportunity to differentiate service offerings, or to cut prices.
14 While this Commission has established a wholesale discount which is slightly higher than
15 what has been adopted in some other jurisdictions, it still leaves very little room for new
16 entrants to cover their marketing, billing and collection, customer service, administrative
17 and other costs, much less offer substantial discounts. It is my impression that CLECs in
18 Pennsylvania (and other parts of the country) are finding that the profit margins are very
19 thin, or even negative, if a carrier relies entirely upon pure resale. Nevertheless, resale
20 can form an important part of a CLEC's overall business plan. For example, resale allows
21 quick entry into markets, and it allows carriers to provide complete market coverage,
22 enabling them to easily offer services in areas not covered by their own facilities.

23
24 **Q. Do competitors have another option which also avoids large capital outlays?**

25 A. Yes. Another option is the use of the UNE-P, which the Commission required Verizon to
26 make available to CLECs. [Global Order, p. 90]. The Commission has defined the UNE-
27 P as "a combination of all network elements required to provide local service to an end
28 user" [Id., p. 85]. It contains, at a minimum, the loop, switch port, switch usage, and
29 transport elements". [Id.].

30 From a functional perspective, UNE-P is virtually the same as pure resale; the
31 CLEC relies almost entirely on the incumbent's network, allowing it to avoid the
32 significant capital investments associated with collocation, switching and loop facilities.

1 Like pure resale, the UNE-P allows quick entry into markets, and it allows carriers to
2 provide complete market coverage. However, this form of competition is somewhat more
3 complicated, and may be more capital intensive than pure resale. For example, a CLEC
4 may need better internal operational support systems (OSS), billing systems, and other
5 computer hardware and software, and may need additional personnel to handle the more
6 sophisticated aspects of this type of service.

7 Although it is more complicated and requires more capital, the UNE-P offers
8 numerous benefits to CLECs and to customers, when compared to pure resale. For
9 example, a CLEC providing service over a UNE-P is not limited to the ILEC's retail
10 service offerings. The CLEC can develop a wider variety of services, features and
11 functions, and offer different packages and bundles of services. The CLEC also can
12 profitably experiment with different pricing strategies, such as giving away Caller ID for
13 "free". Thus, a CLEC which relies upon UNE-P will be in a better position to innovate,
14 and it can often provide more intense price competition than one which is limited to
15 resale of the incumbent's retail offerings.

16
17 **Q. Please continue this progression toward full facilities-based competition. Are there
18 other combinations of UNEs which a CLEC can rely upon, in addition to UNE-P?**

19 **A.** Yes. The Commission has mandated that Verizon-PA provide certain combinations of
20 elements which are known as the Enhanced Extended Loop (EEL). [Id., p. 90]. The
21 Commission has defined the EEL as "a combination of the loop and transport". [Id., p.
22 85]. Similarly, the FCC defines the EEL as "a combination of an unbundled loop,
23 multiplexing/concentrating equipment, and dedicated transport". [UNE Remand Order,
24 September 15, 1999, ¶505, f.n.1018]. As the FCC explains:

25
26 EEL allows requesting carriers to serve a customer by extending a
27 customer's loop from the end office serving that customer to a different
28 end office in which the competitor is already collocated. The EEL
29 therefore allows requesting carriers to aggregate loops at fewer collocation
30 locations and increase their efficiencies by transporting aggregated loops
31 over efficient-high capacity facilities to their central switching location.
32 [Id, ¶ 288]

1 Using EELs as a competitive strategy tends to be more capital intensive than UNE-Ps
2 because EELs are typically connected to the CLEC's own switch, which requires a
3 significant investment. Nonetheless, EELs offer a favorable alternative to UNE-P in
4 many cases, particularly outside suburban areas and in less dense areas of the state.
5

6 **Q. Do EELs offer advantages over UNE-P?**

7 A. Yes. EELs can offer significant additional benefits to CLECs and their customers,
8 relative to UNE-P. Most obviously, when using EELs, a CLEC is not limited to the
9 ILEC's switching technology and software implementation. The CLEC may purchase a
10 different type of switch, and/or software offering features and functions which are not
11 available on the ILEC's switches. Further, a CLEC may gain economies of scale by
12 combining all of its switching functions in a single location. This is particularly relevant
13 for carriers that have already invested in a switch for certain purposes (e.g., providing
14 Centrex services, or handling their long distance traffic). It may be more cost-effective to
15 expand the switch to handle their local traffic, rather than relying upon the switching
16 component of the incumbent's UNE-P offering. A CLEC may prefer using EELs in
17 conjunction with its own switch, even if the cost is roughly the same as UNE-P, because
18 this configuration will give it greater control over the quality of the service it provides,
19 and provide it with more flexibility to expand its offerings and/or reduce its costs as it
20 grows. In addition, utilizing EELs may enable a CLEC to expand the reach of its
21 services, and thus the area in which it can compete, without having to collocate in every
22 incumbent central office. An EEL strategy can be particularly effective in promoting
23 local competition in rural, dense areas of the state and to residential customers who might
24 not otherwise have a choice of local service providers.
25

26 **Q. Some carriers have already installed their own switches, relying upon unbundled
27 loops. How does this configuration compare to the use of EELs?**

28 A. In general, EELs offer a less complicated, and potentially less capital intensive, way of
29 configuring a CLEC's network. A CLEC renting loops will probably have to pay for
30 collocation within multiple ILEC central offices. It will also need to install a switch (or
31 remote switching module) near each of these locations, or it will have to rent transport
32 circuits and/or invest in its own transport facilities to connect the loops terminating in

1 these locations to its own switching facilities. Whether the CLEC installs a remote
2 switching module or stand alone switch near each of the ILEC wire centers, or builds or
3 rents transport facilities back to a single switching location, this option obviously requires
4 substantial capital investment, and it is more difficult to maintain and operate. For
5 example, the CLEC will periodically need to dispatch a technician to each of its
6 collocated cages to ensure that it is successfully combining its transport facilities with its
7 loops, in order to connect these to its switch. Similarly, if it has more than one switching
8 location, it will need to periodically dispatch technicians to each of these locations. A
9 CLEC utilizing EELs may not incur these additional costs.

10 In general, EELs can be thought of as a simplified, and potentially more cost-
11 effective, way of connecting unbundled loops to a CLEC's own switching facilities and
12 reducing the number of a CLEC's costly collocation arrangements. These considerations
13 are particularly important in promoting the Commission's goal of jumpstarting local
14 competition to residential customers in rural, less densely-populated areas of the state,
15 where CLECs may not initially be able to establish collocation facilities. For many new
16 market entrants, EELs will offer significant advantages for the CLEC and its customers,
17 relative to the other options.

1 **Q. Verizon has submitted cost studies and filed proposed rates for dark fiber. Can you**
2 **explain this network element and how it fits into the overall array of options that**
3 **should be available to CLECs?**

4 A. The FCC defines dark fiber as “fiber that has not been activated through connection to
5 the electronics that ‘light’ it, and thereby render it capable of carrying communications
6 services”. [Id., ¶ 174] The FCC has held that ILECs must make their dark fiber available
7 on an unbundled basis to CLECs. [Id., ¶¶ 326, 174] CLECs can combine dark fiber rented
8 from the incumbent with their own electronics to expand their network. In some
9 instances, dark fiber will serve as an alternative to installing fiber; in other instances it
10 will be connected with other fiber that the CLEC installs itself, in order to accomplish the
11 desired end-to-end routing. Needless to say, while dark fiber can be useful to CLECs, this
12 tends to be a relatively complicated, and capital intensive, option. CLECs using dark fiber
13 rented from the ILEC will typically have to pay for collocation space, add-drop
14 multiplexers, and other facilities which are needed to “light” the fiber and make it fully
15 useful. The CLEC will also need to manage and maintain these facilities, and coordinate
16 the use of these facilities with other facilities, such as unbundled loops and switching
17 equipment.

18
19 **Q. What are the benefits of dark fiber?**

20 A. By combining dark fiber with its own electronic lightwave equipment and other facilities,
21 a CLEC gains additional flexibility and becomes less dependent upon the technical
22 characteristics of the ILEC’s network. A CLEC may be able to generate additional
23 revenue by expanding its offerings, it may be able to increase the reliability of its
24 services, or it may be able to reduce costs by relying upon dark fiber in combination with
25 its own lightwave equipment and/or its own fiber.

26
27 **Q. Finally, could you discuss subloops?**

28 A. The FCC has defined subloops as:

29
30 portions of the loop that can be accessed at terminals in the incumbent’s
31 outside plant. An accessible terminal is a point on the loop where
32 technicians can access the wire or fiber within the cable without removing
33 a splice case to reach the wire or fiber within. These would include a
34 technically feasible point near the customer premises, such as the pole or

1 pedestal, the NID (which we discuss below), or the minimum point of
2 entry to the customer premises (MPOE). Another point of access would
3 be the feeder distribution interface (FDI), which is where the trunk line, or
4 “feeder,” leading back to the central office, and the “distribution” plant,
5 branching out to the subscribers, meet, and “interface.” [Id., ¶ 206]

6
7 The FCC concluded that ILECs must provide access to subloops wherever it is
8 “technically feasible”. [Id., ¶ 205]

9 When compared to a strategy of renting entire loops, subloops tend to offer a
10 more complicated, and more capital intensive, option. For instance, CLECs will typically
11 have to pay for a structure or collocation area in the field (e.g., at the FDI), as well as
12 feeder cable (plus multiplexers and other electronic equipment if they are using fiber
13 feeder cable) to connect the subloop to its own facilities.

14
15 **Q. What are the benefits of subloops?**

16 A. Subloops may offer some additional benefits to CLECs and their customers in certain
17 situations. For instance, the CLEC will not be limited to the technical characteristics of
18 the ILEC’s loops; the CLEC offering broadband digital services may find it useful to rent
19 a short portion of the ILEC’s cable to connect its customer to the CLEC’s own fiber
20 facilities (or those rented from the ILEC), thereby shortening the amount of metallic
21 cable in the circuit and enabling the CLEC to offer better quality services to its
22 customers. There may also be situations where the CLEC has fiber facilities relatively
23 close to its customer, and thus it would be inefficient to use an entire loop to haul the
24 customer’s traffic all the way back to the ILEC’s central office. A much more efficient
25 configuration would be to rent a short segment of cable to connect the customer to the
26 CLEC’s fiber terminal, than haul the traffic directly to the CLEC’s central office over its
27 fiber system. Again, this option may not be cost-effective for all carriers, but it is a
28 potentially useful option for carriers which may be of increasing importance as a carrier
29 grows in size.