A. The term "continuous fiber optic strand" refers to a fiber optic strand that does not require any additional splicing and construction work in order to build and rearrange the fibers to provide continuity between the CLEC's A and Z locations for the dark fiber circuit.

Q. What kinds of dark fiber may a CLEC order?

A. A CLEC can order two types of dark fiber: Interoffice (IOF) Dark Fiber and Loop Dark Fiber. Unbundled IOF Dark Fiber originates between either (a) accessible terminals in two Verizon VA central offices that can be cross-connected to a CLEC's collocation arrangement located in one of those same Verizon VA central offices, or (b) an accessible terminal in a Verizon VA central office and a CLEC central office (Channel Termination). These unbundled dark fiber arrangements are offered on a route-direct basis. For dark fiber terminating at the CLEC's CO/POP, a dispatch out is required to install the jumper to the demarcation point and to perform a continuity test.

Unbundled Loop Dark Fiber originates at a Verizon VA accessible terminal (such as a fiber distribution frame or its functional equivalent) located within a Verizon VA wire center. The loop dark fiber can be cross-connected to a CLEC's collocation arrangement located in that same Verizon VA central office, and it terminates at Verizon VA's hard termination point in the main telco room at an end-user premises within that serving wire center (SWC). A dispatch out will be required in order to place the fiber

jumpers to the CLEC's demarcation point located in the main telco room or Verizon VA designated location and to perform a continuity test. (With each of the arrangements described above, once Verizon VA installs the jumpers at both ends of the fiber, each fiber strand is tested to ensure continuity.)

For IOF Dark Fiber (Verizon CO to Verizon CO), the cost elements consist of a monthly variable fiber and related structure cost per mile and a monthly fixed cost per serving wire center. For Dark Fiber Loop as well as IOF Dark Fiber (Verizon CO to CLEC CO), the cost elements consist of a monthly *fixed* charge for the fiber cable and related structure costs and a monthly fixed cost per serving wire center.[38]

Q. Please explain the dark fiber recurring rate elements.

A. Recurring Dark Fiber Loop charge: For dark fiber loops terminating at an end user premises, this fixed monthly charge recovers the capital cost of the equipment and associated maintenance, administration, and support expenses associated with the loop fiber and with Verizon VA's equipment at the end user premises, *i.e.*, the panel and jumpers. This charge has been developed for all three density zones.

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[38] Non-recurring costs are also developed for each of the dark fiber elements and are included in the non-recurring cost model.

1 SWC Charge: Verizon VA will apply a fixed SWC charge per
2 Verizon VA SWC in connection with dark fiber. This charge recovers the
3 capital cost for the equipment and the maintenance and administrative
4 expenses associated with the fiber distribution frame and the jumpers at a
5 Verizon VA SWC.
6 Dark Fiber IOF Mileage per Fiber Pair per Mile: This recurring
7 variable charge recovers the cost per mile of IOF fiber between Verizon VA
8 offices, and it applies when the Dark Fiber IOF is ordered between Verizon
9 VA SWCs. The total mileage is determined by calculating the mileage
10 between the local serving office of circuit 1 and the local serving office of
11 circuit 2 using vertical and horizontal coordinates. Mileage will be billed in
12 whole mile increments, rounded up to the next mile. Where the calculation
13 results in less than one mile, a one-mile minimum will be assessed.
14 Dark Fiber Channel Termination Charge: This recurring charge
15 recovers the capital cost and maintenance and administration expenses
16 associated with Verizon VA equipment located at the CLEC CO/POP and the
17 fiber facility between the Verizon VA SWC and the CLEC CO/POP.
18
19 **Q. Please explain how the dark fiber costs were developed.**
20 A. Verizon VA developed Dark Fiber Loop costs for the three density cells.
21 These costs are the sum of average loop fiber costs and fixed customer
22 premise costs.

Verizon VA developed the average loop fiber costs by multiplying the average number of feet per loop for each density cell by (1) the percentage of aerial, underground and buried cable, (2) the installed fiber cable investment per foot per strand for each type of cable, and (3) the two fiber strands, and then divided the product by the fiber strand utilization factor to arrive at the weighted installed fiber investment per loop by cable type. The associated pole and conduit costs were developed in a similar manner. Verizon VA applied ACFs to each investment category, divided by 12 and then summed to arrive at the total monthly cost.

To derive the fixed customer premises costs, Verizon VA divided the manufacturer's material price for three types of fiber distribution by the number of FDF terminations to arrive at a price per FDF termination. The price was then weighted to yield an average price per FDF termination, and the fiber strand utilization factor was applied and multiplied by the two terminations to yield the total FDF investment for two fiber strands. To this, Verizon VA added the jumper cable investment to yield a total material investment. Investments were converted to monthly costs as described above.

Verizon VA developed the fixed SWC by dividing the manufacturer's FDF material price by FDF capacity to arrive at the investment per FDF termination. Verizon VA then multiplied the investment per FDF termination by two FDF terminations and divided by the fiber strand

utilization factor to arrive at the total material investment. Loading factors were applied to include the associated power, installation and engineering costs to yield a total installed investment for two fiber strand terminations. Verizon VA applied L&B investment factors to the total installed FDF investment to determine land and building investments. Investments were converted to monthly costs as described above.

Verizon VA developed the IOF per mile cost by taking the average number of route miles per air mile, and followed the same steps for the fiber cable, poles and conduit as described above for the Dark Fiber Loop. Investments were converted to monthly costs as described above.

The Dark Fiber IOF to CLEC CO channel termination cost is the sum of the average channel termination fiber cost and the fixed CLEC CO FDF cost. Verizon VA developed the first element by taking the statewide average loop length in feet and followed the same steps described above for the Dark Fiber Loop and Dark Fiber IOF per mile cost. Investments were converted to monthly costs as described above.

The fixed CLEC CO FDF cost was developed in the same manner as the customer premises cost discussed above.

7. Network Interface Devices

Q. What is the NID network element?

A. The NID is the connection point between the network-side outside plant loop facilities and the inside wiring at the customer premises. The device consists of a modular connector, equipped with three line terminations, but expandable to a total of six lines, for terminating the twisted pair telephony drop wire. This interface also serves as the rate demarcation point at the customer premises.

FCC Rule 47 C.F.R. § 51.319(b) describes an incumbent LEC's NID unbundling obligations as follows:

> (b) Network interface device. An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and § 251(c)(3) of the Act, to the network interface device on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service. The network interface device network element is defined as any means of interconnection of end-user customer premises wiring to the incumbent LEC's distribution plant, such as a cross connect device used for that purpose. An incumbent LEC shall permit a requesting telecommunications carrier to connect its own loop facilities to on-premises wiring through the incumbent LEC's network interface device, or at any other technically feasible point.

Q. What NID UNEs are contained in Verizon VA's filing?

A. The NID UNEs include the NID to NID Connection (recurring per NID, two- and four-wire), Stand-alone NID (per NID, two- and four-wire, DS1), UNE Shared NID (per line recurring), and non-recurring costs for service order and field dispatch.

Q. What is a two-wire and four-wire NID?

A. The two- and four-wire NID represents the connection point between the network-side outside plant loop and the customer premises inside wiring. This interface also serves as the rate demarcation point at the customer premises. Investments consist of a modular connector equipped with three line terminations, but expandable to a total of six lines, for terminating the twisted pair telephony drop wire.

A stand-alone NID is used where the CLEC takes over the end user customer's service and connects its loop to the Verizon VA NID. Verizon VA therefore imposes a NID charge to recover the cost of a single NID. With a NID-to-NID scenario, Verizon VA installs a second NID for the CLEC, and imposes a NID charge to recover the cost of the second NID. In both cases, Verizon VA is recovering the investment and cost of a single NID, which is the same for each case. A "shared NID" occurs when a CLEC utilizes one or more line terminations (of the six) of the NID where Verizon VA has existing service and spare capacity.

Q. What costs are provided for the NID?

A. Two categories of costs are involved: the recurring cost of the investment in the NID itself, and a non-recurring NID connection charge.

Q. Please describe the cost methodology used in developing the recurring costs of two-wire and four-wire NIDs.

A. The material and installation labor costs for the NID are added together to develop the installed NID investment. This total is then multiplied by the ACFs to develop an annual cost, and this result is then divided by 12 to convert to a monthly cost. For the shared NID, the material costs and related installation costs associated with the three additional modules, to fully equip the NID (*i.e.*, utilize all six modules of the NID), were added to the stand-alone NID cost developed above, divided by six, multiplied by the ACF, and divided by 12 to arrive at a monthly cost for one module.

Q. Please describe the stand-alone DS1 NID rate element.

A. The DS1 NID is a "Smart Jack" that serves as the connection point between the network side outside plant DS1 loop and the customer premises inside wiring. This interface also serves as the rate demarcation point at the customer premises.

Q. Please describe how these costs were developed.

A. Verizon VA added the material costs for the DS1 NID and the associated installation labor costs to arrive at the total installed investment, which it multiplied by the appropriate ACFs to develop an annual cost. This result was divided by 12 to yield a monthly cost.