

2. Discussion

503. *Dedicated Transport.* We adopt the Verizon dedicated transport cost study to establish dedicated transport rates. Because both Verizon and AT&T/WorldCom support use of the Verizon model to generate rates for dedicated transport, no controversy exists regarding the choice of cost model for this element.¹²⁹³ We analyze the appropriate forward-looking inputs that should be used in the Verizon model below.¹²⁹⁴ Verizon's dedicated transport study, moreover, complies with core TELRIC principles. Most notably, it assumes the deployment of the most efficient technology currently available for interoffice transport – fiber optic rings based on SONET technology.¹²⁹⁵

504. *Common Transport.* We adopt the Verizon cost study to generate rates for common transport.¹²⁹⁶ We find the Verizon common transport cost study preferable to the MSM transport module because the Verizon study is the same basic study that we adopt for dedicated transport rates, and because it models a lower-cost, efficient network design based on available technology than does the MSM.

505. The key principle underlying TELRIC is that UNE prices should reflect the cost of the network that would exist in a competitive market (*i.e.*, the most efficient network using currently available technology).¹²⁹⁷ Both the MSM and the Verizon cost study are consistent with this core TELRIC principle. Specifically, both models assume that the transport network consists of fiber optic rings connecting circuit equipment based on SONET technology.¹²⁹⁸ In addition, both models are suitably transparent, with the user able to adjust the inputs. Both sides also agree that an optimal transport study would consider the actual traffic flows among the various nodes. Neither side, however, presents such a study because, they agree, such a study is not feasible.¹²⁹⁹ Consequently, we are presented with two admittedly imperfect, but TELRIC-

¹²⁹³ See *Local Competition First Report and Order*, 11 FCC Rcd at 15812, para. 618.

¹²⁹⁴ See *infra* sections VI(B)-(D).

¹²⁹⁵ See Verizon Ex. 107, at 214-18.

¹²⁹⁶ Common transport appears to be the one element for which Verizon proposes a lower rate than do AT&T/WorldCom. Despite this, the parties were unable to reach agreement on the rates for common transport. Tr. at 5551-53.

¹²⁹⁷ See *Local Competition First Report and Order*, 11 FCC Rcd at 15846, para. 679.

¹²⁹⁸ Verizon Ex. 107, at 214-18; AT&T/WorldCom Ex. 23, Switching/Transport module at 59.

¹²⁹⁹ Verizon Ex. 163, at 9 (“The data needed to design a whole SONET network at one time, accounting for the node-to-node circuit demand, is extraordinarily large and essentially unreliable for purposes of a model, because the demand constantly varies. Moreover, even if the data could be created, the required computations would be unmanageably large.”); AT&T/WorldCom Initial Cost Brief at 194 (“A principal complaint by Verizon of the [MSM] is that it does not take into account the point-to-point traffic in developing facilities. But this criticism applies equally to Verizon’s cost model.”); see also Tr. at 5548, 5585-93.

compliant, common transport cost studies from which to choose.¹³⁰⁰

506. As a practical matter, the network deployed to provide common transport is the same as the network deployed to provide dedicated transport. The difference lies not in the network configuration so much as in the particular UNE leased by, and the rate paid by, the competitive carrier. Dedicated transport is charged on a flat-rate basis, whereas common transport rates are usage-based.¹³⁰¹ Consequently, consistency suggests use of the same model to calculate both dedicated and common transport rates, absent evidence that a model complies with the Commission's rules for one transport element, but not the other. No party has offered the MSM for both dedicated and common transport. Rather, both sides agree – and we have found – that the Verizon cost study should be used to establish dedicated transport rates. Verizon's common transport study is based on its dedicated transport study. Indeed, the Verizon common transport study imports many of its costs from the Verizon dedicated transport study.¹³⁰² The primary difference between the two studies is the process by which the common transport study converts transport costs to per MOU rates. Accordingly, because (1) we find (and AT&T/WorldCom agree) that the Verizon study should be used to set TELRIC-compliant dedicated transport rates, (2) the Verizon common transport study is based on the Verizon dedicated transport study, and (3) AT&T/WorldCom do not challenge the process that Verizon uses to convert transport costs to common transport per MOU rates,¹³⁰³ we adopt the Verizon common transport cost study.¹³⁰⁴

507. AT&T/WorldCom's critique of the Verizon common transport study fails to show that the Verizon study does not comply with the Commission's rules. AT&T/WorldCom's primary criticism of the Verizon study is that it uses Verizon's existing network as a starting point for calculating costs, rather than following a reconstructed network approach.¹³⁰⁵ Given the similarities between the Verizon and the AT&T/WorldCom models, the argument essentially is that the existing network design used by Verizon is less efficient than the reconstructed network design modeled by the MSM.

508. We find AT&T/WorldCom's argument unconvincing. First, although a reconstructed network design may be more efficient than the existing incumbent LEC network

¹³⁰⁰ See AT&T/WorldCom Initial Cost Brief at 195 (“The interoffice module of the [MSM] is by no means perfect, but it provides an appropriate, if conservative, estimate of transport costs.”).

¹³⁰¹ See 47 C.F.R. § 51.509(c), (d).

¹³⁰² See Verizon Ex. 100P, Vol. VI, Part C-9 (Common Transport), sections 1.2 (Cost Study Methodology) and 3 (Inputs) (confidential version).

¹³⁰³ AT&T/WorldCom Initial Cost Brief at 195.

¹³⁰⁴ Because we determine not to use the MSM to set common transport rates, we need not (and therefore do not) address Verizon's criticisms, or AT&T/WorldCom's responses thereto, of the MSM transport module.

¹³⁰⁵ *Id.* at 193.

because the embedded network may not deploy the most efficient current technology, in this specific instance the existing network modeled by Verizon deploys SONET transport technology, which both sides argue is efficient and currently available. Indeed, this is the same technology modeled by AT&T/WorldCom in the MSM. Because the existing network modeled by Verizon uses the technology that would be deployed in a competitive market, we cannot conclude that the network modeled by Verizon reflects a less efficient design than would exist in a competitive market. Second, the additional concerns raised by AT&T/WorldCom are largely input issues (*e.g.*, the number of nodes per ring, the EF&I factor), rather than modeling issues. AT&T/WorldCom implicitly concede that, with appropriate inputs (which we address below), the Verizon common transport cost study is capable of modeling a forward-looking transport network.¹³⁰⁶ Finally, a simple comparison of the costs and rates produced by the two models supports the finding that the Verizon study results in the “lowest cost network configuration,” as required by the Commission’s rules.¹³⁰⁷ Because Verizon has incentives to overstate rather than understate the cost of providing network elements, and because Verizon’s common transport cost study satisfies the Commission’s other criteria (*e.g.*, transparency; use of efficient, currently available technology), the fact that Verizon’s cost study produces a lower cost estimate¹³⁰⁸ indicates that its study better reflects a lower cost network configuration for common transport than does the MSM. Accordingly, we conclude that the Verizon cost study is the better choice for calculating common transport costs and rates.

B. Dedicated Transport Rate Structure – Digital Cross-Connect Systems and Multiplexing Equipment

1. Positions of the Parties

509. The parties disagree whether DCS or multiplexing equipment should be included in the costs, and hence the rates, for dedicated transport. Verizon proposes including the costs for DCS and multiplexing in the calculation of dedicated transport costs.¹³⁰⁹ It claims that DCS and multiplexing are integral parts of dedicated transport.¹³¹⁰ Verizon also claims that it is under no obligation to offer either DCS or transport multiplexing as a stand-alone UNE, and therefore it need not price either on a stand-alone basis.¹³¹¹ AT&T/WorldCom claim that they should be able to order dedicated transport with or without DCS or multiplexing, and that we should establish different rates for multiplexing, for DCS, and for dedicated transport inclusive and exclusive of multiplexing and/or

¹³⁰⁶ See *id.* at 195.

¹³⁰⁷ See 47 C.F.R. § 51.505(b)(1).

¹³⁰⁸ See AT&T/WorldCom Initial Cost Brief at 188, Attach. at 3.

¹³⁰⁹ Verizon Ex. 122, at 159-61.

¹³¹⁰ *Id.* at 159-60; see also Tr. at 5617-19.

¹³¹¹ Verizon Ex. 122, at 159-60.

DCS.¹³¹²

2. Discussion

510. We find that dedicated transport rates should be established separately for dedicated transport that includes both DCS and multiplexing, that includes each individually, and that includes neither. We decline to establish separate stand-alone rates for DCS or multiplexing.

511. We base these findings on our determinations in the *Non-Cost Arbitration Order*. There, we found that Verizon is not required to make available DCS or transport multiplexing as stand-alone UNEs, but that Verizon must make available dedicated transport both with and without DCS and/or multiplexing.¹³¹³ Consistent with this determination, we require that Verizon, in its compliance filing, establish rates for dedicated transport (at each capacity level (e.g., DS-1, DS-3, STS-1, OCn)) in the following manner: (1) including DCS and multiplexing; (2) including DCS only; (3) including multiplexing only; and (4) including neither DCS nor multiplexing.

C. Number of Nodes per SONET Ring and Number of Ports per Node

1. Positions of the Parties

512. Verizon assumes the use of OC-48 SONET rings, which have a capacity of 48 DS-3s, as the basis for its dedicated transport cost study.¹³¹⁴ Because each DS-3 requires two ports, each ring has 96 ports.¹³¹⁵ Although Verizon's current network in Virginia averages 3.79 nodes per OC-48 ring, Verizon estimates that on a forward-looking basis it will average six nodes per OC-48 ring.¹³¹⁶ This assumption results in 16 ports per node ($96 / 6 = 16$).¹³¹⁷ Verizon uses its forward-looking estimate of six nodes per ring to determine the flat-rate monthly recurring dedicated transport rates.¹³¹⁸ Verizon uses the existing 3.79 figure to establish the per mile dedicated transport rate.¹³¹⁹

513. AT&T/WorldCom agree that Verizon's assumption of OC-48 SONET rings, with 48

¹³¹² AT&T/WorldCom Ex. 12, at 125, 132-40; Tr. at 5612-19; AT&T/WorldCom Initial Cost Brief at 190-91.

¹³¹³ See *Non-Cost Arbitration Order*, 17 FCC Rcd at 27279-86, paras. 492-506; see also *id.* at 27142-46, paras. 210-17.

¹³¹⁴ Verizon Ex. 122, at 149-50; see Verizon Initial Cost Brief at 118.

¹³¹⁵ Verizon Ex. 122, at 149.

¹³¹⁶ *Id.* at 149-52; Verizon Initial Cost Brief at 118-20.

¹³¹⁷ Verizon Ex. 122, at 150.

¹³¹⁸ *Id.* at 149; Verizon Initial Cost Brief at 118.

¹³¹⁹ See Verizon Ex. 122, at 154-55; Tr. at 5622.

DS-3s per ring and 96 ports per ring, is reasonable,¹³²⁰ but they do not agree with Verizon's assumption of six nodes per ring. Rather, AT&T/WorldCom argue that the number of nodes per ring will decrease in a forward-looking environment from the number of nodes per ring today.¹³²¹ They do not, however, propose a reduced number. Instead, they propose using the number of nodes in Verizon's network today, 3.79.¹³²² This figure is consistent with number of nodes per SONET ring that Verizon has on its actual networks in New York and Massachusetts.¹³²³ Using 3.79 as the number of nodes, AT&T/WorldCom calculate the number of ports per node to be approximately 26.¹³²⁴ AT&T/WorldCom also claim that Verizon made equivalent errors in calculating the number of ports per node for STS-1 and OC-3 dedicated transport. AT&T/WorldCom propose that the number of ports per node for these transport facilities should be 26 and 9, respectively.¹³²⁵

2. Discussion

514. We adopt AT&T/WorldCom's position. In re-running its transport cost studies, we require Verizon to assume 3.79 nodes per OC-48 SONET ring. We also require Verizon to assume 26 ports per node for OC-48 SONET rings and STS-1 capacity dedicated transport, and 9 ports per node for OC-3 dedicated transport.

515. These are the only conclusions supported by the record. Both sides agree that 3.79 nodes represent the average number of nodes per OC-48 SONET ring in Verizon's network in Virginia today.¹³²⁶ Although data from Verizon's existing network may not be the best source of data to use in determining TELRIC rates, it is the only objective data before us on this issue.¹³²⁷ When asked directly by Commission staff to identify the objective support for assuming six nodes instead of 3.79, Verizon merely responded that six was the forward-looking estimate provided by its

¹³²⁰ AT&T/WorldCom Ex. 12, at 126.

¹³²¹ *Id.* at 129-30 n.122; Tr. at 5630-32.

¹³²² AT&T/WorldCom Ex. 12, at 127; AT&T/WorldCom Initial Cost Brief at 189-90.

¹³²³ Tr. at 5630-31; AT&T/WorldCom Initial Cost Brief at 189-90.

¹³²⁴ AT&T/WorldCom Ex. 12, at 127, 129 n.121 (explaining their calculations).

¹³²⁵ *Id.* at 131.

¹³²⁶ Tr. at 5628-29; Verizon Reply Cost Brief at 94-95; AT&T/WorldCom Initial Cost Brief at 189; AT&T/WorldCom Reply Cost Brief at 95. Verizon claims in its surrebuttal testimony that the 3.79 figure is too low because it does not include nodes located outside Virginia that are on rings that are located in both Virginia and other states (*e.g.*, a ring that traverses both Virginia and Maryland). Verizon Ex. 122, at 151, *as modified by*, Verizon Ex. 179 (Errata to Recurring Cost Panel Surrebuttal), at 1. Verizon, however, provides no detailed explanation of how such rings and their associated nodes factor into its cost model. Moreover, Verizon fails to provide a recalculation of the 3.79 figure that would have corrected for this issue, and, as discussed in more detail below, Verizon uses the 3.79 node input in determining the per mile dedicated transport rates.

¹³²⁷ *See* Verizon Ex. 122, at 155.

experts.¹³²⁸ Verizon fails to provide any additional support for its supposition.¹³²⁹ In addition, AT&T/WorldCom claim that a forward-looking network would utilize fewer nodes per ring than are used today, not more as Verizon claims.¹³³⁰ Verizon's unsupported statements fail to demonstrate that the number of nodes per ring would increase in a forward-looking network. Because neither side provides us with valid support for a number of nodes other than the 3.79 existing in Verizon's network today, and because AT&T/WorldCom propose to use the 3.79 figure, we have no basis to use any figure other than 3.79. This is particularly true in light of our previous conclusion that the Verizon cost study and the actual Verizon transport network reflect forward-looking transport technology (*i.e.*, SONET).

516. Verizon's use of six nodes to calculate the monthly recurring dedicated transport rates, moreover, is inconsistent with its use of 3.79 nodes to calculate the dedicated transport mileage rate. Verizon attempts to explain this discrepancy by claiming (1) that it needs to use the existing node locations for mileage calculations in order to take into account the physical attributes of the existing network (such as geography), but (2) that these considerations are immaterial to determining the proper forward-looking electronic configuration.¹³³¹ We find Verizon's argument unpersuasive. If actual, current local conditions require Verizon to calculate its forward-looking mileage costs using the current number and location of nodes, then Verizon must also take these same factors into account in calculating the forward looking electronic configuration of its rings. This Verizon fails to do. Conversely, if Verizon's forward-looking network would have, on average, six nodes per ring, then this same assumption must apply when calculating mileage rates. Thus, we conclude that Verizon inappropriately models two different dedicated transport networks, one to determine the monthly recurring rates and one to determine the distance (*i.e.*, per mile) rates.

517. In addition, Verizon claims that many of the inputs and assumptions in its model are interrelated and that one input or assumption cannot be changed without altering numerous others. Specifically, Verizon claims that all of the following inputs and assumptions are interrelated: the number of nodes, the average load on the ring, and the amount of interconnection between rings.¹³³² Verizon fails, however, to provide any alternative inputs in the event that we determine, as we do here, that AT&T/WorldCom propose a more appropriate input for the number of nodes per ring. Therefore, because no record exists on which to change any of these related inputs, we do not alter them.

518. Finally, we note that, although the parties discuss this issue in their testimony only with respect to dedicated transport, the issue is also relevant to the rates generated by

¹³²⁸ Tr. at 5626-28; *see also* Verizon Ex. 107, at 155.

¹³²⁹ AT&T/WorldCom Reply Cost Brief at 95.

¹³³⁰ Tr. at 5631-32.

¹³³¹ Verizon Ex. 122, at 154-55; Tr. at 5628-29; *see* Verizon Initial Cost Brief at 119.

¹³³² Verizon Ex. 122, at 152-54; Tr. at 5633.

Verizon's common transport study. Indeed, as stated above, the Verizon common transport study itself is based on the Verizon dedicated transport study. Therefore, we require that the AT&T/WorldCom proposal of 3.79 nodes per ring be used in the Verizon dedicated transport cost study, and in the relevant inputs imported into the Verizon common transport study from the dedicated transport study.¹³³³

D. EF&I Factor

1. Positions of the Parties

519. Verizon proposes an EF&I factor for transport of 53.2 percent.¹³³⁴ The EF&I factor is one method Verizon uses to arrive at the "total cost installed" of facilities and equipment when the contract price for facilities or equipment purchased by Verizon from third party suppliers does not include the engineering, furnishing and installation costs.¹³³⁵ Among the facilities to which the Verizon cost studies apply an EF&I factor is interoffice transport.¹³³⁶ Verizon applies an EF&I factor only to those investments for which the data in the VRUC database do not include engineering, furnishing and installation costs with the investment amounts.¹³³⁷ Verizon relies on data contained in its Detailed Continuing Property Record (DCPR) database to calculate the EF&I factor.¹³³⁸ The DCPR database contains material costs and in-place costs for each piece of equipment.¹³³⁹ To calculate the EF&I factor, Verizon divides the sum of the total material-only investments in a plant account (*e.g.*, SONET equipment) by the sum of the total installed investment in that account.¹³⁴⁰ Verizon adjusts the EF&I factor upward to ensure that the costs for engineering, furnishing and installation remain constant when material prices decline as a result of forward-looking assumptions (*i.e.*, Verizon assumes that labor costs remain constant even if material costs decline, thus increasing the EF&I factor).¹³⁴¹ Verizon develops its EF&I factors on a region-wide basis for the entire Verizon East footprint, based on the classes of equipment being placed rather

¹³³³ See AT&T/WorldCom Initial Cost Brief at 195 ("If the Commission decides to use Verizon's common transport costs, however, those costs were developed using the same underlying cost elements set forth in Verizon's dedicated transport cost study, and accordingly the same adjustments proposed by AT&T and WorldCom should therefore be made to the common transport costs.").

¹³³⁴ Verizon Initial Cost Brief at 122.

¹³³⁵ Verizon Ex. 107, at 40.

¹³³⁶ *Id.* at 41, 217.

¹³³⁷ *Id.* at 41. Verizon claims to develop EF&I factors for digital circuit equipment, the digital switch, and SONET circuit and other terminal equipment. Verizon Initial Cost Brief at 56 n.54.

¹³³⁸ Verizon Ex. 107, at 42.

¹³³⁹ Tr. at 4632-33; see Verizon Ex. 107, at 42.

¹³⁴⁰ Verizon Ex. 107, at 42; Tr. at 5080-83.

¹³⁴¹ Verizon Ex. 107, at 42-43.

than the specific equipment installed, and based on actual 1998 accounting data.¹³⁴² The EF&I factor applied to a particular piece of equipment is thus the average factor for the entire plant account, assigned on a *pro rata* basis to the individual piece of equipment.¹³⁴³ Verizon uses its VCost system to apply the transport EF&I factor.¹³⁴⁴

520. AT&T/WorldCom claim that the 53.2 percent transport EF&I factor proposed by Verizon is unreasonable when compared to those adopted in other states, including New York.¹³⁴⁵ They contend that Verizon fails to identify separately the installation and miscellaneous costs that it uses to calculate the transport EF&I factor.¹³⁴⁶ AT&T/WorldCom instead propose using the transport EF&I factor that Verizon proposed in New York and that was adopted by the New York Commission – 36.4 percent.¹³⁴⁷

521. Verizon objects to what it perceives as AT&T/WorldCom's unsupported attack on the credibility of its presentation.¹³⁴⁸ Verizon admits that the DCPR database is not accurate for individual pieces of equipment, but it claims that the database is accurate in the aggregate.¹³⁴⁹ Verizon also claims that the New York EF&I figure is inapposite because the that figure is based on 1997 data and the Virginia figure is based on 1998 data.¹³⁵⁰ Moreover, Verizon maintains that, because equipment costs will decrease over time, but installation costs will not, the EF&I factor will increase over time.¹³⁵¹

2. Discussion

522. We find that, although we have some concerns about both Verizon's and AT&T/WorldCom's proposals, the Verizon proposal is the better of the two proposals because it relies on more recent vintage data. Therefore, under the baseball arbitration rules,¹³⁵² we adopt

¹³⁴² *Id.* at 44; Verizon Initial Cost Brief at 122-23; Verizon Reply Cost Brief at 96.

¹³⁴³ Verizon Ex. 107, at 44; Tr. at 5080-83; *see* Verizon Initial Cost Brief at 57.

¹³⁴⁴ Verizon Ex. 100, Vol. VII, Part D-2, section 1 (Study Overview), subsection 1.3 (Cost Study Methodology) at 1.

¹³⁴⁵ AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 191-92.

¹³⁴⁶ AT&T/WorldCom Ex. 12, at 137-38.

¹³⁴⁷ *Id.* at 138; AT&T/WorldCom Initial Cost Brief at 192.

¹³⁴⁸ Verizon Initial Cost Brief at 96-97.

¹³⁴⁹ Verizon Ex. 107, at 44; Tr. at 5080-83.

¹³⁵⁰ Verizon Ex. 122, at 158-59; Verizon Initial Cost Brief at 96-97.

¹³⁵¹ Verizon Ex. 122, at 158-59; Verizon Initial Cost Brief at 96-97.

¹³⁵² *See supra* section II(C).

Verizon's proposed transport EF&I factor.

523. There is some doubt about the reliability of both Verizon's and AT&T/WorldCom's proposed EF&I factors. Our concerns stem from the fact that the EF&I factor for a specific piece of equipment is derived by applying to the equipment an unsupported *pro rata* share of the cost of installing all equipment associated with that account.¹³⁵³ As a result, the relationship between the actual installation costs associated with particular pieces of equipment and the installation estimates used to determine the EF&I factor is unclear. The actual costs may be less than or greater than the *pro rata* allocation. Verizon's claim that the lack of accuracy of the individual in-place costs is not relevant because the factor is calculated on an aggregate basis¹³⁵⁴ may not resolve this issue because the *pro rata* allocation appears to bear no relationship to the EF&I costs associated with any particular type of equipment within an account.¹³⁵⁵ In addition, we were unable to identify individual SONET equipment for which the in-place costs in the DCPR database were actually 1.532 times the material costs or how the VCost system applies the transport EF&I factor. Because both Verizon's and AT&T/WorldCom's proposals rely on Verizon's EF&I methodology, our methodological concerns apply equally to both proposals.

524. Although both sides use the same general approach, the Verizon proposal is superior because it uses more recent vintage data. Specifically, Verizon relies on 1998 vendor contracts,¹³⁵⁶ whereas the Verizon New York factor proposed by AT&T/WorldCom uses 1997 data.¹³⁵⁷ We reject AT&T/WorldCom's assertion that the 1997 data is somehow superior to the 1998 data used by Verizon here. First, their claim that the New York Commission endorsed the use of the 1997 data¹³⁵⁸ is misleading. Our review of the relevant New York orders indicates that the transport EF&I factor was not contested in that proceeding, and, therefore, that the New York Commission did not directly address this issue.¹³⁵⁹ AT&T/WorldCom thus offer no valid reason for us to reject Verizon's 1998 data in favor of older 1997 data.¹³⁶⁰

¹³⁵³ Verizon Ex. 107, at 42, 44; Tr. at 5080-81.

¹³⁵⁴ Verizon Ex. 107, at 44; Tr. at 5080-83; *see* Verizon Initial Cost Brief at 57.

¹³⁵⁵ Verizon Ex. 107, at 42, 44; Tr. at 5080-83.

¹³⁵⁶ Verizon Ex. 107, at 44; Verizon Initial Cost Brief at 122-23; Verizon Reply Cost Brief at 96.

¹³⁵⁷ AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 192.

¹³⁵⁸ AT&T/WorldCom Ex. 12, at 138; AT&T/WorldCom Initial Cost Brief at 192.

¹³⁵⁹ *See Proceeding on Motion of the Commission to Examine New York Telephone Company's Rates for Unbundled Network Elements*, Case 98-C-1357, Recommended Decision of Administrative Law Judge Joel A. Linsider on Module 3 Issues (New York Commission May 16, 2001), *modified in part, New York Commission Pricing Decision*.

¹³⁶⁰ *Cf. Investigation by the Department of Telecommunications and Energy on its Own Motion into the Appropriate Pricing, based upon Total Element Long-Run Incremental Costs, for Unbundled Network Elements and Combinations of Unbundled Network Elements, and the Appropriate Avoided-Cost Discount for Verizon New* (continued....)

525. Second, Verizon is correct that, as material costs decline, the EF&I factor should increase.¹³⁶¹ We agree with Verizon that, while transport material costs have been declining in recent years, transport EF&I costs, which are largely driven by labor costs, have not.¹³⁶² If EF&I costs remain fairly constant while material costs decline, then the EF&I factor will, as a mathematical matter, increase. Although we note that Verizon's proposed EF&I factor increased considerably from the 36.4 percent proposed in New York to the 53.2 percent proposed here,¹³⁶³ we find reasonable Verizon's explanation that its transport EF&I factor should have increased when more recent, lower, 1998 cost data are used, particularly when presented with no countervailing data by AT&T/WorldCom.

526. Accordingly, we adopt the 53.2 percent transport EF&I factor that Verizon proposes. Further, we note, just as we noted in the nodes per ring section,¹³⁶⁴ that although the parties discuss the transport EF&I factor in their testimony only with respect to dedicated transport, the issue is also relevant to the rates generated by Verizon's common transport study. Indeed, as stated above, the Verizon common transport study itself is based on the Verizon dedicated transport study. Therefore, we adopt the Verizon transport EF&I factor for use in both the Verizon dedicated and common transport studies.¹³⁶⁵

(Continued from previous page)

England, Inc. d/b/a Verizon Massachusetts' Resale Services in the Commonwealth of Massachusetts, Docket No. 01-20, Order at 342 (Massachusetts Commission Jul. 11, 2002) (Massachusetts Department rejecting the AT&T proposal to determine the transport EF&I factor based on 1997 data rather than 1998 data) (*Massachusetts Commission Pricing Decision*).

¹³⁶¹ Verizon Ex. 122, at 158-159; Verizon Initial Cost Brief at 96-97.

¹³⁶² Verizon Ex. 122, at 158-159; Verizon Initial Cost Brief at 96-97.

¹³⁶³ We find the amount of the increase particularly troubling because Verizon calculates its EF&I factor on a region-wide basis for the entire Verizon East footprint, including both Virginia and New York. See Verizon Ex. 107, at 44.

¹³⁶⁴ See *supra* section VI(C).

¹³⁶⁵ See AT&T/WorldCom Initial Cost Brief at 195 ("If the Commission decides to use Verizon's common transport costs, however, those costs were developed using the same underlying cost elements set forth in Verizon's dedicated transport cost study, and accordingly the same adjustments proposed by AT&T and WorldCom should therefore be made to the common transport costs.").

VII. ACCESS TO OSS

A. Background

527. In the *Local Competition First Report and Order*, the Commission required incumbent LECs to provide access to their OSS on an unbundled basis pursuant to section 251(c)(3).¹³⁶⁶ Specifically, the Commission required incumbent LECs to provide nondiscriminatory access to the systems used for pre-ordering, ordering, provisioning, maintenance and repair, and billing.¹³⁶⁷

B. Positions of the Parties

528. Verizon proposes a recurring charge for Access to OSS of \$.84 per month per competitive LEC line. Verizon seeks to recover two types of costs through this charge: (1) initial development costs to make access to Verizon's OSS possible; and (2) the associated recurring capital costs and ongoing maintenance expenses associated with provisioning OSS access on an ongoing basis.¹³⁶⁸ The development costs identified by Verizon are costs to modify Verizon's pre-existing "core" systems and to develop new "middleware" systems and interfaces necessary to provide competitors with access to the core systems.¹³⁶⁹ The ongoing recurring costs identified by Verizon are costs incurred to maintain and update the software and hardware used to provide competitive LECs with access to Verizon's OSS.¹³⁷⁰ In support of its proposal, Verizon provides extensive testimony regarding the changes it made to its existing OSS and the new systems it developed in order to provide access to competitive LECs.¹³⁷¹

529. Verizon's cost study identifies development costs attributable to Virginia operations based on its claimed actual region-wide costs that Verizon incurred from 1996 through 1999, which it projects forward using productivity and inflation adjustments.¹³⁷² Verizon allocates region-wide costs to Virginia based on the percentage of access lines located in Virginia.¹³⁷³ Verizon identifies \$227 million in region-wide development costs, of which \$22.7

¹³⁶⁶ *Local Competition First Report and Order*, 11 FCC Rcd at 15763, para. 516.

¹³⁶⁷ *Id.* at 15766-67, para. 523.

¹³⁶⁸ Verizon Ex. 107, at 242-43. After 10 years, the development costs would be fully recovered and the recurring charge would fall to \$.47 per line per month. *Id.* at 295-96.

¹³⁶⁹ *Id.* at 273.

¹³⁷⁰ *Id.* at 284.

¹³⁷¹ *Id.* at 254-72.

¹³⁷² *Id.* at 275-76.

¹³⁷³ *Id.* at 245-46.

million is allocated to Virginia.¹³⁷⁴ Although the core systems are used by both Verizon and the competitive LECs, Verizon asserts that none of the development costs identified in its cost study resulted in improvements to the basic functioning of the core systems for Verizon's own use.¹³⁷⁵

530. Verizon also identifies ongoing recurring costs attributable to Virginia.¹³⁷⁶ As with the development costs, these costs were incurred on a region-wide basis and allocated to Virginia operations.¹³⁷⁷ Verizon identifies \$50 million in region-wide ongoing costs, of which \$4.9 million is allocated to Virginia.¹³⁷⁸ The ongoing costs reflect the annual carrying cost of capital investment needed for the general purpose computer equipment used to provide competitive LECs with access to OSS. The ongoing costs also reflect maintenance expenses for work done to improve software performance and correct operational faults. Verizon assumes that the annual maintenance cost for a system is 15 percent of the initial development cost.¹³⁷⁹ As with development costs, Verizon asserts that these ongoing costs are completely separate from the costs it incurs to maintain the core OSS for its own retail use.¹³⁸⁰ To avoid double recovery, Verizon removed \$48 million in ongoing expenses from its calculation of ACFs.¹³⁸¹

531. Although Verizon presents separate estimates of its development costs and ongoing costs, it does not actually distinguish between these two categories in its internal accounting systems.¹³⁸² Instead, Verizon assumes that all OSS expenses for 1996 and 1997 were related to development work. For 1998, Verizon assumes that an amount equal to 15 percent of 1996 and 1997 investments represents maintenance of the systems installed in 1996 and 1997, and that the remaining expense is attributable to development work.¹³⁸³ Similarly, an amount equal to 15 percent of development work for 1996, 1997, and 1998 is assumed to represent maintenance of the systems installed in those years. Verizon states that the 15 percent factor is

¹³⁷⁴ *Id.* at 245.

¹³⁷⁵ *Id.* at 244; Tr. at 3972-73.

¹³⁷⁶ Verizon Ex. 107, at 245.

¹³⁷⁷ *Id.* at 245-46.

¹³⁷⁸ *Id.* at 245.

¹³⁷⁹ *Id.* at 288-89.

¹³⁸⁰ *Id.* at 244.

¹³⁸¹ *Id.* at 66; Verizon Ex. 122, at 245. We discuss this adjustment in greater detail in our discussion of ACFs. See *supra* section III(E)(3)(c).

¹³⁸² Verizon Ex. 107, at 276.

¹³⁸³ *Id.* at 277; Tr. at 3927-28.

supported by independent industry sources.¹³⁸⁴

532. Verizon asserts that its actual OSS costs for 1996-1999 represent the forward-looking costs of providing access to OSS because they were incurred fairly recently and have been adjusted forward to reflect productivity and inflation. Verizon also states that the systems at issue were developed with input from AT&T/WorldCom and other competitive LECs and that most of these systems are still in use today.¹³⁸⁵ Verizon proposes to recover both the development costs and the ongoing recurring costs through a single monthly recurring charge to competitive LECs. Verizon calculates the proposed charge by spreading the total cost over the number of UNE loops, platform/combinations, and resold lines that are forecasted to be in service in Virginia over a 10-year period.¹³⁸⁶

533. AT&T/WorldCom propose a fundamentally different approach to recovery of OSS-related costs. They characterize Verizon's initial development costs as "competition onset" costs that are attributable to the transition from a monopoly to a competitive environment.¹³⁸⁷ AT&T/WorldCom argue that these costs are not caused by competitive LECs and therefore should not be recovered through UNE charges. They further suggest that imposing these costs on competitive LECs would not be competitively neutral because competitive LECs also incur their own costs in order to use Verizon's systems.¹³⁸⁸ To reflect the unique nature of these development costs, AT&T/WorldCom's primary proposal is that all companies bear their own costs for access to OSS and that Verizon not be permitted to impose an OSS charge on competitive LECs.¹³⁸⁹

534. As an alternative to their preferred approach, AT&T/WorldCom propose that Verizon recover any one-time development costs in connection with providing access to OSS through a competitively neutral surcharge on all Virginia telecommunications users.¹³⁹⁰ AT&T/WorldCom suggest that the Commission's treatment of LNP costs provides precedent for this approach, as do recent decisions of the California Commission approving similar surcharges.¹³⁹¹ If we were to accept Verizon's estimates of development costs,

¹³⁸⁴ Verizon Ex. 107, at 289-93.

¹³⁸⁵ *Id.* at 249-50. Moreover, even if some systems are not in use today, Verizon states that the current systems build on the earlier systems, and therefore competitive LECs still benefit from this development work. Verizon Ex. 122, at 235-36.

¹³⁸⁶ Verizon Ex. 107, at 251-54.

¹³⁸⁷ AT&T/WorldCom Ex. 12, at 145.

¹³⁸⁸ *Id.* at 146.

¹³⁸⁹ *Id.* at 147; Tr. at 3959.

¹³⁹⁰ AT&T/WorldCom Ex. 12, at 146.

¹³⁹¹ *Id.* at 150-52; Tr. at 3952-54.

AT&T/WorldCom's proposed monthly surcharge would equal \$.08 per line for a period of ten years.¹³⁹²

535. If Verizon is authorized to recover its OSS development costs from competitive LECs, AT&T/WorldCom challenge the amount Verizon proposes to recover. First, AT&T/WorldCom argue that the costs calculated by Verizon are not forward-looking because they are based on Verizon's actual costs for systems that are no longer state-of-the-art.¹³⁹³ In a forward-looking network, AT&T/WorldCom assert, Verizon would design its OSS to accommodate multiple providers from the start, rather than incurring costs to modify existing retail systems. AT&T/WorldCom also argue that Verizon has not provided sufficient documentation to justify the costs upon which its charges are based and it has not demonstrated that it excluded costs of developing uniform systems following the Bell Atlantic/NYNEX merger.¹³⁹⁴

536. AT&T/WorldCom also argue that Verizon's ongoing OSS costs, such as software maintenance, are a normal cost of business that should be recovered in the same way as other recurring expenses, through its ACFs.¹³⁹⁵ AT&T/WorldCom point out that maintenance costs are not separately tracked by Verizon, and therefore there is no way to determine if the charge is appropriate.¹³⁹⁶ As to ongoing capital costs, AT&T/WorldCom suggest that Verizon has significantly overstated these costs by relying on 1998 figures, rather than forward-looking numbers that reflect the substantial price decreases for computer equipment since then.¹³⁹⁷

C. Discussion

537. In this arbitration, we must resolve three questions with respect to Verizon's OSS costs: (1) whether Verizon should be able to recover OSS costs through a monthly recurring charge, through its ACFs, or through an end-user surcharge; (2) whether recovery should be based on the actual costs Verizon incurred in modifying its OSS or the forward-looking cost of providing competitive LECs with access to the OSS functionality; and (3) whether Verizon should be able to recover all of its OSS costs from competitive LECs, or only a portion of those costs.

538. On the first question, Verizon is correct that access to OSS is a separate UNE and therefore may have a price that is charged to competitive LECs for each customer they serve,

¹³⁹² AT&T/WorldCom Ex. 12, at 149-50.

¹³⁹³ *Id.* at 153-54.

¹³⁹⁴ *Id.* at 154-58.

¹³⁹⁵ *Id.* at 160-61, 163; Tr. at 3959-60.

¹³⁹⁶ AT&T/WorldCom Ex. 12, at 161.

¹³⁹⁷ *Id.* at 162.

whether through UNEs or resale. In the *Local Competition First Report and Order*, the Commission clearly established that access to OSS is a separate UNE, a result strongly advocated by competitive LECs.¹³⁹⁸ Because access to OSS is a separate network element, it is subject to the pricing standards in section 252(d)(2) and the Commission's TELRIC pricing rules. For the same reason, we reject AT&T/WorldCom's argument that these costs should be recovered solely through ACFs, or solely through an end-user surcharge. Incumbent LECs recover the costs of every other UNE that the Commission has identified through a distinct charge for that UNE, and there is no Commission precedent that supports AT&T/WorldCom's proposal to deny Verizon that same opportunity with respect to this particular UNE.

539. As to the second question, to be consistent with TELRIC, the OSS charge must be based on the forward-looking cost of deploying efficient systems. We agree with AT&T/WorldCom that one way to develop a TELRIC-based OSS rate is to calculate the cost of systems that accommodate multiple providers from the start, rather than the cost of modifying legacy systems.¹³⁹⁹ Under that approach, AT&T/WorldCom are correct that neither the capital cost nor the maintenance expense would be attributable solely to competitive LECs.¹⁴⁰⁰ AT&T/WorldCom do not, however, provide any information whatsoever on the cost of this type of forward-looking OSS.

540. Verizon offers two rationales for its proposal to recover the costs it actually incurred modifying its legacy OSS during 1996-1999. One rationale is that it is entitled to recover from competitive LECs all the costs it actually incurred because these costs were forward-looking at the time and would not have been incurred but for the entry of competitive LECs.¹⁴⁰¹ We disagree with Verizon's suggestion that it is entitled to a dollar-for-dollar recovery of costs incurred in upgrading its OSS if those costs were forward-looking *at the time they were incurred*. Such an approach is at odds with the purpose of a TELRIC proceeding. Nothing in the Commission's UNE pricing rules entitles any incumbent LEC to recover the actual costs incurred for any part of its network, including the OSS. Rather, an incumbent LEC is entitled to charge a rate that reflects the forward-looking economic cost of providing a UNE.¹⁴⁰²

541. The second rationale offered by Verizon is that the recent costs it incurred

¹³⁹⁸ *Local Competition First Report and Order*, 11 FCC Rcd at 15763, para. 516.

¹³⁹⁹ AT&T/WorldCom Ex. 12, at 154.

¹⁴⁰⁰ *Id.*

¹⁴⁰¹ Verizon Ex. 122, at 226 ("This proceeding is about determining whether the costs Verizon VA incurred to provide CLECs with Access to OSS as required by the Act were forward-looking at the time they were incurred."); *id.* at 215 ("Verizon VA would not have modified its OSS to provide access if it had not been required to do so for the CLECs' benefit, and if the CLECs left the market, Verizon would not continue to carry these costs.").

¹⁴⁰² See 47 C.F.R. § 51.505.

represent the best estimate of the current forward-looking cost of deploying new OSS.¹⁴⁰³ This rationale is consistent with TELRIC principles, although it may not generally be the case that past expenses, without adjustment, are a valid proxy for forward-looking costs. In this case, however, we will adopt Verizon's cost estimates.¹⁴⁰⁴ Verizon's approach recognizes that OSS is different from other UNEs. The data regarding customers and facilities that are the core of Verizon's OSS have been developed over a period of decades. To determine the cost of providing access to OSS and the underlying data regarding Verizon customers and facilities, we must make some assumption about the state of the existing OSS. It is not possible to assume a "blank slate" as we do in developing the forward-looking cost of the physical plant,¹⁴⁰⁵ and Verizon's choice of 1996 as the starting point is not unreasonable.

542. AT&T/WorldCom criticize Verizon's estimates of OSS development costs, but they present no alternative figures and provide no basis on which we can determine independently the appropriate amount of OSS development costs. For example, AT&T/WorldCom have not specified the costs associated with systems that they claim are no longer in use, they have not specified how to reflect price decreases since 1999, and they have not identified the costs associated with newer systems that perform the necessary OSS functions. For similar reasons, we will accept Verizon's estimates of the ongoing expenses for OSS. Verizon's estimate that expenses will be 15 percent of development costs is essentially an ACF that is supported by anecdotal evidence, rather than actual expense-to-investment ratios. Although the 15 percent ratio would be more convincing if Verizon actually tracked these costs separately, AT&T/WorldCom provide no evidence to demonstrate that a 15 percent figure is inappropriate.

543. As to the final question, we agree with Verizon that incumbent LECs should be permitted to recover the forward-looking costs of providing access to OSS solely from competitive LECs.¹⁴⁰⁶ Although AT&T/WorldCom are correct that these costs are similar to LNP costs, the fact that Congress did not establish specific cost recovery requirements for OSS as it did for LNP is a key distinction that makes the Commission's LNP precedent

¹⁴⁰³ Verizon Ex. 122, at 226 ("Verizon VA's costs are forward-looking because they reflect the most forward-looking technology currently deployed to provide CLEC access to Verizon VA's OSS.").

¹⁴⁰⁴ We agree with Verizon that, in order to avoid double recovery, the amount to be recovered should be reduced to reflect OSS costs that already have been recovered pursuant to the mechanism established by the Virginia Commission in its 1997 pricing decision. Verizon Ex. 107, at 283. We also accept Verizon's decision to amortize development costs over 10 years and to apply a gross revenue loading factor to account for uncollectibles. *Id.* at 282-83. AT&T/WorldCom do not challenge these aspects of Verizon's proposal.

¹⁴⁰⁵ For example, even if Verizon had followed AT&T/WorldCom's suggestion of projecting the cost of new systems that would accommodate multiple carriers from the start, there still would be a cost associated with loading the data from the legacy systems into the new systems.

¹⁴⁰⁶ This principle would not apply to costs that are incurred by the incumbent LEC for systems that benefit both retail and wholesale customers. In this proceeding, however, AT&T/WorldCom did not demonstrate that Verizon's retail customers benefit from the systems at issue.

inapplicable.¹⁴⁰⁷ Allowing incumbent LECs to recover the forward-looking costs of providing access to OSS solely from competitive LECs is consistent with the approach followed by a number of state commissions and approved in two federal district court decisions.¹⁴⁰⁸

544. We acknowledge AT&T/WorldCom's general concerns that allowing incumbent LECs to recover OSS costs from competitive LECs creates an incentive for inefficient deployment of OSS.¹⁴⁰⁹ We do not think that such concern is warranted in this case, however. The costs Verizon has identified in this proceeding were incurred before Verizon could be sure that it would be allowed to recover those costs. The uncertainty of recovery suggests that Verizon had an incentive to spend its money efficiently. Moreover, Verizon is correct that competitive LECs have played an important role in the timing and substance of the OSS decisions made by Verizon, which further limits the likelihood that Verizon has deployed OSS inefficiently.

545. Although we have concerns about the validity of the ten-year forecast of competitive LEC demand that Verizon uses to calculate the OSS rate, we will allow it in this case. A forecast of competitive LEC demand over a shorter period of time would almost certainly be more reliable, but allowing Verizon to recover OSS costs over a shorter period would inflate the monthly charge paid by competitive LECs to a point that might constitute a barrier to entry. By spreading recovery over a ten-year period, Verizon appropriately limits the burden on competitive LECs created by this charge. Spreading the recovery of development costs over ten years also is consistent with Verizon's argument that new systems build on old systems, and that the benefit of development work extends beyond the period that a particular system is in use.¹⁴¹⁰ Recovery over a shorter period might be more appropriate if the development costs were limited to those systems actually in use today.

546. Our decision to allow Verizon to recover OSS costs from competitive LECs is consistent with our decision elsewhere in this order to limit Verizon's ability to impose NRCs on competitive LECs. By limiting recovery for performing manual processes, but allowing recovery of costs associated with automating those processes, we provide Verizon the incentive to adopt automated systems for the activities necessary to turn up service to a competitive LEC. At the same time, we provide competitive LECs an incentive to consider the costs associated

¹⁴⁰⁷ 47 U.S.C. § 251(e)(2).

¹⁴⁰⁸ See *Bell Atlantic-Delaware, Inc. v. McMahon*, 80 F. Supp.2d 218, 248 (D. Del. 2000) ("Nothing on the face of the Act prohibits imposing an additional charge to compensate Bell for providing OSS access to its competitors."); *AT&T Communications of the South Central States, Inc. v. BellSouth Telecommunications, Inc.*, 20 F. Supp. 2d 1097, 1104-05 (E.D. Ky 1998) (upholding Kentucky Commission decision permitting BellSouth to recover OSS costs solely from competitive LECs); *Costing and Pricing of Unbundled Network Elements, Transport, and Termination*, Docket No. UT-003013, Thirteenth Supplemental Order (Washington Commission Jan. 31, 2001).

¹⁴⁰⁹ AT&T/WorldCom Initial Cost Brief at 196.

¹⁴¹⁰ Verizon Ex. 122, at 235-36.

with any future improvements in OSS that they request. A contrary approach would have the effect of rewarding Verizon for maintaining manual processes even where it might otherwise be efficient to automate, while placing little constraint on competitive LEC demands for new systems.

VIII. DUF

A. Positions of the Parties

547. The DUF service provides resellers and some UNE purchasers with the intraLATA local and toll call usage record details of their end-users.¹⁴¹¹ Verizon proposes several DUF charges, the most significant of which is a charge of \$.0015 per message for "Message Recording."¹⁴¹² Verizon provides information identifying the number of employees needed to provide the DUF and the costs associated with those employees, and it argues that its proposed charges are necessary to recover these costs.¹⁴¹³

548. AT&T/WorldCom argue that there should be no separate charge for the DUF because Verizon has failed to demonstrate that these costs are not recovered through ACFs.¹⁴¹⁴ If a charge is permitted, AT&T/WorldCom propose a Message Recording charge of \$.00006 per message.¹⁴¹⁵ AT&T/WorldCom argue that Verizon's proposed charge of \$.0015 per message is substantially higher than the current price in Virginia (\$.000246) and other states.¹⁴¹⁶ AT&T/WorldCom state that the basis for the charge, \$1.1 million for 15 support employees, is completely unsubstantiated and that Verizon does not explain what these people do.¹⁴¹⁷ AT&T/WorldCom also challenge the demand assumptions that Verizon uses to convert costs to rates. According to AT&T/WorldCom, Verizon's estimate of initial demand is too low, and it grows that demand too slowly.¹⁴¹⁸ Specifically, AT&T/WorldCom state that Verizon assumes a growth rate in DUF usage of just one percent, but in its OSS study it assumes that competitive LEC lines will grow at an annual rate of 24 percent.

549. Verizon responds that the proposed price is higher than existing rates because the

¹⁴¹¹ Verizon Ex. 107, at 239.

¹⁴¹² Verizon Ex. 140 (Errata to Cost Study), at 1; AT&T/WorldCom Ex. 12, at 167.

¹⁴¹³ Verizon Ex. 122, at 209.

¹⁴¹⁴ AT&T/WorldCom Ex. 12, at 168.

¹⁴¹⁵ AT&T/WorldCom Reply Cost Brief, Attach. at 3.

¹⁴¹⁶ AT&T/WorldCom Ex. 12, at 167. For example, assuming 200 messages per line per month, the charge would add \$.30 to the monthly price of a loop. *Id.* at 167-68.

¹⁴¹⁷ *Id.* at 168.

¹⁴¹⁸ AT&T/WorldCom Initial Cost Brief at 199-200.

existing rates were calculated based on anticipated demand that was much greater than actual demand.¹⁴¹⁹ Actual demand for the DUF service has been over 90 percent lower than anticipated, but the amount of labor required has been the same as anticipated. The demand estimates used in Verizon's DUF study are based on the expert opinion of the manager of the DUF service.¹⁴²⁰ Verizon states that the demand estimates differ from the estimates in its OSS study because not all competitive LECs need or use DUF.¹⁴²¹ For example, DUF is not necessary for carriers that provide a service using their own switch, nor is it necessary if a carrier offers a flat-rated service. Verizon claims there is no double recovery of DUF costs because it removes the costs associated with revenue-producing computers from its ACF calculations, which has the effect of removing DUF costs from the ACFs.¹⁴²²

B. Discussion

550. The issues presented in the arbitration are: (1) whether Verizon should be permitted to charge for providing a DUF, and (2) if so, what that charge should be. As to the first issue, we conclude that Verizon should be permitted to recover DUF costs through a separate charge. Although AT&T/WorldCom argue that Verizon did not demonstrate that these costs are not recovered through ACFs, AT&T/WorldCom witness Murray essentially conceded that they are not reflected in the ACFs used in the MSM.¹⁴²³ Because we are using the MSM to set recurring loop rates, and because we cannot find that the costs are recovered through the MSM, it is appropriate that Verizon recover them through a separate charge to those competitive LECs that use the DUF. With respect to Verizon's models, Verizon provided an explanation of why these costs are not otherwise recovered, and AT&T/WorldCom has not demonstrated that this explanation is incorrect.

551. As to the second issue, the amount of the DUF charge, there are two components: cost and demand. With respect to cost, we will accept Verizon's estimate of DUF costs. AT&T/WorldCom have not demonstrated that Verizon's estimate is unreasonable. Verizon identifies the specific personnel involved in providing DUF, and AT&T/WorldCom have not demonstrated that the service can be provided more efficiently.

552. With respect to demand, we decline to use the demand estimates from Verizon's DUF study, and instead we will use the demand estimates in Verizon's OSS study. We are not convinced by Verizon's argument that demand for DUF will grow at a lower rate than demand

¹⁴¹⁹ Verizon Ex. 122, at 208.

¹⁴²⁰ Tr. at 3987.

¹⁴²¹ *Id.* at 3992-94.

¹⁴²² Verizon Ex. 122, at 209-10.

¹⁴²³ Tr. at 3996-97 ("I think probably we do acknowledge that certain elements of the costs may need to be recovered through the restated Verizon cost study charges . . . we haven't proposed to zero it out, and we haven't put a number in there derived directly from the Synthesis Model.").

for competitive LEC lines generally. Furthermore, we are not convinced that the increased demand estimate requires us to increase the estimated total cost of providing DUF. Verizon acknowledges that a significant portion of the DUF costs are fixed in the sense that a certain number of employees are needed *no matter how many customers take the service*.¹⁴²⁴ Given the limited evidence provided by Verizon regarding the specific functions involved in providing the DUF, we are not able to identify any types of costs that should increase if we use a different estimate of demand.

IX. MISCELLANEOUS UNES

A. Positions of the Parties

553. Verizon proposes cost studies and rates for subloops, the NID, enhanced extended link testing, entrance facilities, dark fiber transport, dark fiber loops, customized routing, and *service management systems (SMS)*.¹⁴²⁵ AT&T/WorldCom do not submit affirmative cost studies for these UNEs, but rather propose restating the rates generated by the Verizon cost studies.¹⁴²⁶

B. Discussion

554. We adopt the Verizon cost studies to generate rates for these UNEs, subject only to the changes that we require elsewhere in this order for cost of capital, depreciation, and ACFs. The Verizon cost studies are the only ones before us. Although AT&T/WorldCom propose restated rates for these UNEs, they do not identify clearly in their briefs, written testimony, or live hearing testimony the changes that they propose to apply to the Verizon studies. Indeed, with two narrow exceptions, AT&T/WorldCom fail to discuss any of these UNEs at all in their post-hearing briefs.¹⁴²⁷ AT&T/WorldCom similarly do not discuss their restatements of these UNEs in their written testimony.¹⁴²⁸ We were unable to verify the changes that AT&T/WorldCom

¹⁴²⁴ Tr. at 3997-98 (“it’s not a linear relationship . . . There are a lot of fixed non-volume-sensitive costs”).

¹⁴²⁵ See Verizon Ex. 100P, Vols. IV, VII, Parts B-8 (Subloop Distribution – 2 Wire, Subloop Distribution – 4 Wire, Subloop Feeder – DS-1), B-9 (Subloop Feeder – DS-3), B-11 and B-12 (NID), B-14 (Enhanced Extended Link Testing), D-1 (Entrance Facilities), F-1 (Dark Fiber – IOF and loops), F-2 (Customized Routing), and F-4 (SMS) (confidential version); Verizon Ex. 180, Tab D (Revised Proposed Summary of Costs); see also Verizon Ex. 107, at 80-82.

¹⁴²⁶ See AT&T/WorldCom Ex. 12, at 95-96; see also AT&T/WorldCom Ex. 14, at 31-32.

¹⁴²⁷ There are three mentions of the term “dark fiber” in the fiber feeder fill factor section, and a single mention of the term “entrance facilities” in the interoffice transport section, of the AT&T/WorldCom Initial Cost Brief. AT&T/WorldCom Initial Cost Brief at 161, 191 n.163.

¹⁴²⁸ The AT&T/WorldCom Recurring Cost Panel Rebuttal Testimony contains only a single paragraph that mentions “other UNEs,” which states that their restatements are contained generally in their workpapers. AT&T/WorldCom Ex. 12, at 95-96.

claim to have made to the Verizon cost studies in their workpapers, other than the master inputs (*i.e.*, cost of capital, depreciation, ACFs), which we analyze elsewhere in this order.¹⁴²⁹ As we stated previously, we are required to resolve only those issues that are clearly presented to us.¹⁴³⁰ Because AT&T/WorldCom fail to identify clearly the changes that they propose making to the Verizon cost studies for these UNEs, apart from the master inputs, we need not address the proposed restatements. Therefore, we adopt the Verizon proposed cost studies and rates for these UNEs, subject to the requirement that Verizon adjust them to conform to our decisions on master input issues (*i.e.*, cost of capital, depreciation, ACFs).¹⁴³¹

X. NON-RECURRING CHARGES

A. Background

555. Non-recurring costs may be thought of as the “installation” or “set-up” costs an incumbent LEC incurs processing and provisioning a competitive LEC order for a UNE. NRCs constitute an upfront cost to the competitive LEC that is generally not recoverable if it subsequently loses the end-user customer served with the UNE. Consequently, as the Commission recognized in the *Local Competition First Report and Order*, NRCs can be a serious barrier to entry, especially if they are unduly high.¹⁴³² The Commission concluded that, as a general rule, rates for UNEs should recover costs in the manner in which they are incurred.¹⁴³³ The Commission also required that recurring costs be recovered through recurring charges, rather than through a NRC.¹⁴³⁴ The Commission gave discretion to state commissions, however, to require incumbent LECs to recover non-recurring costs through recurring charges over a reasonable period of time. The Commission found that recovery of non-recurring costs through recurring charges was a “common practice” that “fully compensated” the incumbent LECs for their non-recurring costs.¹⁴³⁵

556. The non-recurring costs at issue in this case primarily are labor costs; both sides agree that other network costs should be recovered through recurring charges. The parties disagree profoundly as to almost every aspect of the calculation of these labor costs, including the characteristics of the “forward-looking” network, its degree of automation, and the actual procedures the incumbent LEC should be assumed to follow in setting up a UNE, and thus as to

¹⁴²⁹ See *supra* sections III(C)-(E).

¹⁴³⁰ See *supra* section II(C).

¹⁴³¹ See *supra* sections III(C)-(E).

¹⁴³² *Local Competition First Report and Order*, 11 FCC Rcd at 15875, para. 747.

¹⁴³³ *Id.* at 15874, para. 743.

¹⁴³⁴ *Id.* at 15874-75, para. 745.

¹⁴³⁵ *Id.* at 15875-76, para. 749.

the non-recurring (and recurring) costs incurred. In addition, they disagree sharply as to the manner in which these costs should be recovered, that is, whether through recurring or NRC.

B. Non-Recurring Cost Models

1. Positions of the Parties

557. Both Verizon and AT&T/WorldCom provided studies intended to identify the costs to be recovered through NRCs.¹⁴³⁶ We will evaluate these studies in accordance with our TELRIC pricing rules and the standards for TELRIC cost models established by the Commission in the *Universal Service* proceeding.¹⁴³⁷

a. Verizon Model

558. Verizon's non-recurring cost model "seeks to measure the non-recurring costs that Verizon VA truly expects to incur in the future as it efficiently expands and replaces its network over time."¹⁴³⁸ Verizon argues that the relevant network for the purpose of calculating NRCs is the actual network as Verizon expects it to exist at the end of the three-year planning period.¹⁴³⁹ As a result, Verizon's non-recurring cost study assumes a different forward-looking network than its recurring cost studies. Specifically, the non-recurring cost study assumes significantly less use of IDLC than the recurring cost study, although slightly more than in Verizon's current network.¹⁴⁴⁰ The model also assumes that all stand-alone UNE loops must be provisioned over copper or UDLC facilities.¹⁴⁴¹ Verizon argues that this difference in network assumptions is necessary because network assumptions that depart significantly from the network Verizon actually plans over the next three years would result in a substantial understatement of the non-recurring costs Verizon actually will incur (because activities Verizon actually performs would not be necessary on a network using more advanced technology).¹⁴⁴²

559. Verizon's non-recurring cost study is designed to identify the costs of performing manual activities that are necessary to provide UNEs to competitive LECs. Verizon assumes that the company has forwarding-looking OSS in place, but it does not assume that all ordering

¹⁴³⁶ Verizon Ex. 100, Vol. 11; AT&T/WorldCom Ex. 23, Vol. 2.

¹⁴³⁷ See, e.g., *Universal Service First Report and Order*, 12 FCC Rcd at 8912-16, para. 250; see *supra* section III(B).

¹⁴³⁸ Verizon Initial Cost Brief at 183.

¹⁴³⁹ Verizon Ex. 107, at 300.

¹⁴⁴⁰ *Id.* at 325-26.

¹⁴⁴¹ *Id.* at 328-29.

¹⁴⁴² *Id.* at 326-27.

and provisioning activity will be mechanized. Rather, Verizon assumes that orders must sometimes be handled manually, both due to competitive LEC error and because some activities will not occur with sufficient frequency to warrant mechanization.¹⁴⁴³ For example, Verizon assumes that all “complex” orders for six lines or more will continue to need manual attention, even in a forward-looking environment.¹⁴⁴⁴

560. Verizon’s non-recurring cost study classifies costs into four categories: (1) Service Order; (2) Central Office Wiring; (3) Provisioning; and (4) Field Installation.¹⁴⁴⁵ For each non-recurring activity within these four categories, Verizon follows a multi-step process to estimate the “forward-looking labor time” for an activity, which is then multiplied by a labor rate to produce the NRC.¹⁴⁴⁶ Specifically, Verizon’s time estimates for each activity are the product of three component factors that are estimated through three separate and largely independent processes.

561. First, through a survey of its employees, Verizon estimated the average amount of work time required to perform these activities today.¹⁴⁴⁷ For the survey, Verizon divided non-recurring functions into a large number of individual steps (“activities”) and asked each surveyed worker how long it took him on average to complete each activity.¹⁴⁴⁸ For each activity, Verizon calculated the average of the times reported by the survey respondents.

562. Second, Verizon adjusted the average work times through a Typical Occurrence Factor, which was developed based on the frequency with which field managers expect those activities to be performed in the current environment.¹⁴⁴⁹ Verizon states that this factor was developed by Verizon managers experienced in supervising this work,¹⁴⁵⁰ but Verizon supplies

¹⁴⁴³ *Id.* at 330-35.

¹⁴⁴⁴ *Id.* at 331.

¹⁴⁴⁵ *Id.* at 298.

¹⁴⁴⁶ *Id.* at 300.

¹⁴⁴⁷ *Id.* at 311.

¹⁴⁴⁸ Different methods were employed for two work groups. For TISOC (Telecom Industry Service Operations Center), which performs ordering functions, time estimates were based on a “time and motion study” performed by Verizon and validated by an outside contractor. *Id.* at 313-14 (as corrected by Verizon’s motion dated Nov. 29, 2001). For loop assignment functions (performed by MLAC, Mechanized Loop Assignment Center), times were based on actual records of time and output. *Id.* at 315. The worker survey was the basis for all other time estimates, the vast majority of activities measured. *Id.* at 311-12.

¹⁴⁴⁹ *Id.* at 316.

¹⁴⁵⁰ *Id.*

few additional details on the procedures, criteria, or methods used to reach this estimate.¹⁴⁵¹

563. Third, Verizon applied a Forward-Looking Adjustment Factor designed to reflect system enhancements and efficiencies expected to develop during the non-recurring cost study period.¹⁴⁵² This adjustment factor was developed by a panel of 15 Verizon “subject matter experts,”¹⁴⁵³ but again Verizon provides few details on criteria or procedures employed, other than that estimates would represent a consensus of the panel after discussion.¹⁴⁵⁴ After application of these adjustments, Verizon multiplied the time required for a particular activity by the labor rate for that activity to arrive at the cost for each activity. Each NRC is the sum of the costs of the activities required to perform it, with markups for common costs and an uncollectibles factor (“gross revenue loading”).¹⁴⁵⁵

b. AT&T/WorldCom Model

564. The AT&T/WorldCom non-recurring cost model is similar to Verizon’s in that it is based on time and frequency estimates and labor rates for the various activities for which costs will be recovered through NRCs. AT&T/WorldCom developed the anticipated time and frequency of each non-recurring activity using a panel of subject matter experts.¹⁴⁵⁶ Like Verizon, AT&T/WorldCom provide little detail regarding the process used by these experts in developing their estimates or the factual bases underlying the estimates.

565. AT&T/WorldCom assume a newly built, efficient network that is highly automated, constrained only by current wire center locations.¹⁴⁵⁷ The network AT&T/WorldCom assume in their non-recurring cost model is the same forward-looking network they use for purposes of calculating recurring charges.¹⁴⁵⁸ The AT&T/WorldCom model also makes a number of assumptions that limit the activities for which a NRC is imposed. For example, AT&T/WorldCom assume that a forward-looking network would have 100 percent dedicated

¹⁴⁵¹ A letter went to managers updating these estimates. See Verizon Ex. 100, Vol. XI, Part H, Section M. The letter does not reveal criteria or guidelines, however.

¹⁴⁵² Verizon Ex. 107, at 316-17.

¹⁴⁵³ *Id.* at 317.

¹⁴⁵⁴ Verizon Ex. 100, Vol. XI, Part H, Section L. As Verizon notes, detailed instructions were provided “on the importance, purpose and intent of the analysis,” but not on criteria or methodology, other than that forward-looking adjustments were to be based on consensus. Verizon Ex. 107, at 317.

¹⁴⁵⁵ *Id.* at 304.

¹⁴⁵⁶ AT&T/WorldCom Ex. 2 (Walsh Direct), at 29-30.

¹⁴⁵⁷ *Id.* at 13-14.

¹⁴⁵⁸ *Id.* at 30-31; AT&T/WorldCom Ex. 13 (NRC Panel Rebuttal), at 9-10.

inside plant (DIP) and 100 percent dedicated outside plant (DOP).¹⁴⁵⁹ As a result of these assumptions, AT&T/WorldCom include no NRC for central office wiring or for placing DCSs at the SAI.¹⁴⁶⁰

566. AT&T/WorldCom assume that no manual processing is needed at the ordering stage and that any order that contains an error can be returned automatically to the competitive LEC without manual intervention.¹⁴⁶¹ AT&T/WorldCom's non-recurring cost model assumes that Verizon's OSS are capable of operating at a two percent fallout rate at the provisioning stage.¹⁴⁶² AT&T/WorldCom define fallout as orders where manual intervention is needed to fix an error made by a competitive LEC.¹⁴⁶³ AT&T/WorldCom also take the position that any costs resulting from errors in, or associated with correcting, Verizon's databases should not be borne solely by competing LECs.¹⁴⁶⁴ According to AT&T/WorldCom, these costs would be recovered in recurring charges (through ACFs), rather than in NRCs.¹⁴⁶⁵ AT&T/WorldCom assert that Verizon's current OSS is capable of performing at this level.¹⁴⁶⁶ Unlike Verizon, the AT&T/WorldCom non-recurring cost model assumes that a forward-looking network will make use of IDLC equipment and that IDLC loops can be unbundled.¹⁴⁶⁷

2. Discussion

567. We find that AT&T/WorldCom's model is more consistent with the *Local Competition First Report and Order*, the Commission's rules, and the criteria adopted in the *Universal Service* proceeding. Thus, we adopt it for use in this arbitration to develop NRCs. One important criterion is that the model must build the most efficient network possible using currently available technology, constrained only by current switching locations.¹⁴⁶⁸ The AT&T/WorldCom model, which is based on the SM used by the Commission in calculating universal service support, clearly meets the TELRIC requirement of optimization constrained

¹⁴⁵⁹ Tr. at 4664-67.

¹⁴⁶⁰ *Id.* at 4664, 4667.

¹⁴⁶¹ AT&T/WorldCom Ex. 2, at 33.

¹⁴⁶² *Id.* at 33-34.

¹⁴⁶³ *Id.* at 33.

¹⁴⁶⁴ *Id.* at 16-19.

¹⁴⁶⁵ *Id.*

¹⁴⁶⁶ *Id.* at 33; Tr. at 4939-40.

¹⁴⁶⁷ AT&T/WorldCom Ex. 2, at 34.

¹⁴⁶⁸ 47 C.F.R. § 51.505(b); *Universal Service First Report and Order*, 12 FCC Rcd at 8913, para. 250(1).

only by current switching locations.¹⁴⁶⁹ In contrast, Verizon's model is not based on an optimization constrained only by current switching locations. Rather, it is tied to existing processes and the existing network.¹⁴⁷⁰ Furthermore, it is not evident that the "forward-looking adjustment factors" proposed by Verizon are sufficient to bring the model within TELRIC standards. To the contrary, the ground rules for these adjustments seemed to preclude such adjustments, focusing only on expected improvements in performing a particular sub-task, not on the possibility of entirely new procedures based on an alternative, more efficient, currently available, technology.

568. A major source of the difference in the network assumptions is the way in which the parties interpret the requirement to use currently available technology. Verizon takes the view that only the technology it expects to install in its network during the study period is "currently available,"¹⁴⁷¹ and it goes so far as to exclude from its non-recurring cost model some equipment that it includes in its recurring cost model (specifically, IDLC equipment). AT&T/WorldCom take the opposite approach, interpreting "currently available" as any technology that is theoretically feasible, even if it has not actually been implemented by any carrier. Similarly, the parties disagree about the capabilities of "currently available" OSS.

569. As a general matter, we conclude that AT&T/WorldCom's approach is more consistent with TELRIC requirements.¹⁴⁷² We are not convinced by Verizon's argument that it is appropriate to use different network assumptions in calculating recurring and non-recurring costs. This approach almost certainly would result in over-recovery or under-recovery of costs.¹⁴⁷³ Furthermore, although Verizon is correct that AT&T/WorldCom's NRC study does not include certain types of costs, in most cases this exclusion is based on an assumption that the costs will be recovered in recurring charges, rather than an overly optimistic assumption about the capabilities of currently available technology.

570. Another standard established by the Commission for evaluating cost models is that "underlying data must be verifiable, network design assumptions must be reasonable, and

¹⁴⁶⁹ *Platform Order*, 13 FCC Rcd at 21335, 21361, paras. 26, 92.

¹⁴⁷⁰ Verizon Ex. 107, at 300.

¹⁴⁷¹ *Id.* at 301.

¹⁴⁷² However, as we discuss below with respect to unbundling of IDLC loops, it is not clear that all of the assumptions AT&T/WorldCom make reflect the use of currently available technology. *See infra* section X(C)(5).

¹⁴⁷³ Tr. at 4927-28 (discussing the relationship between labor and capital). Moreover, no state commission has explicitly endorsed Verizon's approach, Tr. at 4898, and a number of states have made clear the importance of using a consistent set of network assumptions. *See* AT&T/WorldCom Ex. 8 (Murray Direct), at 50-52; *see also Generic Investigation Re: Verizon Pennsylvania, Inc.'s Unbundled Network Element Rates*, Docket No. R-00016683, Tentative Order at 178 (Pennsylvania Commission Oct. 24, 2002) (*Pennsylvania Commission Pricing Decision*); *Massachusetts Commission Pricing Decision* at 429.

model outputs must be plausible.¹⁴⁷⁴ Both parties made underlying data, formulas, and mechanics of their models available, although the relative complexity of Verizon's model makes it more difficult to analyze. Both models are lacking, however, with respect to verifiability of the task time estimates they produce. Upon analysis, both parties' estimates are highly subjective.¹⁴⁷⁵

571. For AT&T/WorldCom's model, the criteria and deliberations that produced the time estimates are undocumented and unverifiable.¹⁴⁷⁶ AT&T/WorldCom's time and frequency estimates are based solely on the subjective opinion of its subject matter experts. We have been provided with no objective evidence to support these estimates.

572. Although Verizon provides more support for its survey-based current average times, close examination of the survey process reveals numerous serious methodological errors and casts considerable doubt upon the meaningfulness of the results. We identify here a few of the more serious concerns with the survey results. First, the instructions to employees as to the purpose of the survey left no doubt that their responses would be used in adversarial UNE rate proceedings to determine charges to be imposed on Verizon's competitors.¹⁴⁷⁷ Given these instructions, it is reasonable to expect that Verizon's employees would feel encouraged to overestimate times for completing activities.

573. Second, Verizon calculates the time that the average respondent reported for a given activity, rather than the average time that the activity required.¹⁴⁷⁸ Verizon's approach is based on an implicit, and unreasonable, assumption that each respondent performed the activity the same number of times.¹⁴⁷⁹ It seems far more likely that respondents with relatively high activity times performed the activity less frequently than respondents with relatively low activity times.¹⁴⁸⁰ By failing to factor in the frequency with which respondents performed the relevant

¹⁴⁷⁴ *Universal Service First Report and Order*, 12 FCC Rcd at 8915, para. 250(8).

¹⁴⁷⁵ Tr. at 4952 (“[I]n the end, the forward-looking costs of both studies are the process of subject matter expert opinions as to forward-looking costs in processes that seem to be documented in roughly a similar way.”).

¹⁴⁷⁶ *Id.* at 4955-56 (conceding that AT&T/WorldCom produced no documentation on the bases for its time and frequency estimates).

¹⁴⁷⁷ These instructions begin as follows: “Bell Atlantic has been requested by its State Commissions to provide well documented cost studies supporting the non-recurring rates it plans to charge for provisioning Unbundled Network Elements (UNEs) and Retail products and services. These studies will support rates for ordering, provisioning, and installing all UNEs, products and services the Company is expected to provide.” Verizon Ex. 100, Vol. XI, Part H, Section K.

¹⁴⁷⁸ Tr. at 4915.

¹⁴⁷⁹ Verizon states that it had no idea how frequently respondents performed the relevant task. *Id.* at 4706. The effect of not knowing, however, is to assume that each respondent performed the activity the same number of times.

¹⁴⁸⁰ A more plausible assumption than Verizon's would be that each respondent spent the same amount of time per week performing the activity (for example, 40 hours per week, or 1 hour per week). A sensitivity analysis (continued....)

task, there is a systematic bias toward higher estimates.¹⁴⁸¹

574. The validity of Verizon's results is further undermined by the extreme variations observed in the original survey data. For many individual activities, the maximum time reported is 50 or even 100 times the minimum observation, as parties with access to the proprietary survey data can easily confirm.¹⁴⁸² This makes the methodological bias discussed in the previous paragraph all the more serious, because Verizon's methodology disproportionately exaggerates the impact of unusually large observations.

575. Third, the mechanics of Verizon's survey methodology tend to produce a "padded" estimate even before the averages are calculated. For each activity, the minimum time that could be reported was one minute. As a result, even a simple job that might require a total of 5 or 10 minutes would, if broken down into twenty steps, generate a minimum estimate of 20 minutes. Furthermore, many of these activities are performed sequentially, but doing any one activity in isolation would typically involve a considerable amount of getting started time that would not be required for each step in a multi-step procedure. Verizon's time estimates would be overstated to the extent respondents included this getting started time in their responses.

576. In addition to the problems with the survey itself, we have concerns about how the resulting time estimates are adjusted in the second and third steps of the process.¹⁴⁸³ Verizon's time estimates are adjusted by two factors (an "occurrence factor" and a "forward-looking adjustment factor"), but there is no documentation of the processes or criteria that

(Continued from previous page)

performed by Bureau staff on the survey data showed that Verizon's implicit assumption substantially increases the estimated average time in every case. Of nine individual activities analyzed, Verizon's method at least doubled the estimate for a third and increased it by over 50 percent for another third, relative to this alternative assumption. Parties with access to the proprietary original survey data can easily confirm this effect by weighting each respondent's observation by the number of times the respondent could have performed the activity in a 40-hour period (or any other period) and computing the frequency-weighted average time. The point is not that this is the correct methodology, but rather that Verizon's implicit assumption generates a substantial upward bias relative to this more plausible assumption. This further weakens our confidence in Verizon's results.

¹⁴⁸¹ This bias can be illustrated through a simple hypothetical. Suppose, for example, that only two technicians perform Task X, and that they spend all their time performing this task. One technician always works under favorable conditions and on average requires 12 minutes to perform the task. The second technician always performs under difficult conditions and on average requires 60 minutes to perform the task. Verizon's methodology would report an average task time of 36 minutes $((12 + 60) / 2)$. But in an hour, the first worker would complete the task 5 times and the second worker would complete it once. The average task time, therefore, is 2 hours (120 minutes), divided by the 6 task completions, or 20 minutes per task.

¹⁴⁸² This variation suggests that respondents did not have the same understanding of what was included in the activity, or that the activities were so poorly defined that they do not actually describe the same work activities. It may also have reflected observations from respondents who rarely perform the activity, and thus are not proficient at it. These and numerous similar possibilities suggest that the survey is not well designed.

¹⁴⁸³ These concerns regarding the adjustments to the time estimates apply not only to the estimates produced by the employee survey, but also to the estimates for activities performed by the TISOC and MLAC. See *supra* note 1448.

produced the two adjustment factors, other than that the latter was based on a consensus after discussion.¹⁴⁸⁴ As a result of the survey errors and biases, and the subjective nature of the subsequent adjustments, we have no more confidence in Verizon's time and frequency estimates than we do in those advocated by AT&T/WorldCom.

577. Another Commission-specified evaluation criterion is that a cost model "must include the capability to examine and modify the critical assumptions and engineering principles."¹⁴⁸⁵ Both models have some ability to modify at least some critical assumptions. It would be difficult to modify the engineering principles embedded in Verizon's model, however, because it is difficult to discover what they are. Indeed, Verizon provides little explanation of what many of its non-recurring activities actually involve, why they exist, or when they are necessary. In contrast, AT&T/WorldCom supplied a detailed and thorough "assumptions binder" that lays out the precise task being performed for each NRC, the activities and steps required to complete it, how it fits into the network design assumptions, and when it is necessary.¹⁴⁸⁶ AT&T/WorldCom's model is clearly superior as to the transparency and reviewability of its network design assumptions and procedures.

578. In summary, we have limited confidence in the time and frequency estimates contained in both models provided by the parties. We would have preferred the parties to have provided a great deal more information describing the relevant activities and explaining the basis for the time and frequency estimates. Notwithstanding these concerns, we must select one of the models as a starting point in developing NRCs because the information on the record provides an insufficient basis for us to develop time and frequency estimates independently.

579. As between the two models presented in this case, we conclude that the AT&T/WorldCom model is more consistent with the guidelines of the *Local Competition First Report and Order* and the criteria specified in the *Universal Service* proceeding. Specifically, in comparison to Verizon's model, AT&T/WorldCom's model is based on network assumptions that more closely follow TELRIC principles, it is more transparent with respect to the underlying design assumptions, and it is easier to adjust. A number of specific problems must be resolved, but the AT&T/WorldCom model appears the better choice for a starting point.

580. Our conclusions regarding the relative merits of the two models are confirmed by the experience of state commissions in Verizon's service territory over the last few years. Verizon has submitted variations of its NRC model based on the same survey and methodology in several state proceedings.¹⁴⁸⁷ Every state commission has recognized various significant

¹⁴⁸⁴ Verizon Ex. 100, Vol. XI, Part H, Section L; Tr. at 4746 (conceding that there is no documentation of the basis for the adjustments).

¹⁴⁸⁵ *Universal Service First Report and Order*, 12 FCC Rcd at 8915, para. 250(9).

¹⁴⁸⁶ See AT&T/WorldCom Ex. 23, Vol. 2, Technical Assumptions Binder.

¹⁴⁸⁷ Verizon submitted the model in New York, Massachusetts, New Jersey, Delaware, and Washington, D.C. Verizon Ex. 107, at 302. In addition, essentially the same model was subsequently submitted in Pennsylvania, (continued....)

upward biases. In most states, Verizon's was the only model submitted on the record, and thus the state commission relied upon it, but made downward adjustments to offset observed biases.¹⁴⁸⁸ The AT&T/WorldCom model has been presented and fully supported only in more recent state proceedings and, in two of those cases, the state commission rejected Verizon's model completely in favor of AT&T/WorldCom's model.¹⁴⁸⁹

C. Implementation Issues

1. Costs to be recovered by NRCs

a. Positions of the Parties

581. A major dispute between the parties is what costs should be recovered through NRCs, and what recovery mechanism, if any, should be available for costs not recovered through NRCs. Verizon defines non-recurring costs as costs associated with the one-time activities necessary to process and provision competitive LECs' requests for the initiation, change, or disconnection of service, or for other one-time activities.¹⁴⁹⁰ Verizon states that the most efficient means of recovering these costs is to charge them to the cost causer – the competitive LEC requesting the activity.¹⁴⁹¹ Verizon states that it should be allowed to recover through NRCs all costs “incurred in response to a specific event [UNE order] initiated by a specific cost-causer.”¹⁴⁹² That is, any cost incurred in the course of provisioning a competitive LEC's order for a UNE should be recovered through a NRC. Verizon argues that its position is supported by the announcement in the *Local Competition First Report and Order* of a “general rule that costs

(Continued from previous page)

where the state commission issued a Tentative Decision on October 24, 2002. See *Pennsylvania Commission Pricing Decision* at 173-80.

¹⁴⁸⁸ See, e.g., *New York Commission Pricing Decision* at 141-43 (reducing fallout rate to 2 percent); *In Re: Review of Bell Atlantic Rhode Island TELRIC Study*, Docket No. 2681, Report and Order at 68 (Rhode Island Commission Nov. 18, 2001) (reducing work time estimates by 57 percent) (*Rhode Island Commission Pricing Decision*); *Massachusetts Commission Pricing Decision* at 457 (reducing work time estimates to the lower end of a 95 percent confidence interval); *In the Matter of the Board's Review of Unbundled Network Elements Rates, Terms and Conditions of Bell Atlantic-New Jersey, Inc.* Docket No. TO00060356, Order at 162-63 (New Jersey Commission Mar. 6, 2002) (revising or eliminating task times) (*New Jersey Commission Pricing Decision*).

¹⁴⁸⁹ *Pennsylvania Commission Pricing Decision* at 173, 178; *In the Matter of the Implementation of the District of Columbia Telecommunications Competition Act of 1996 and Implementation of the Telecommunications Act of 1996*, Docket No. 962-T-671, Opinion and Order at 150 (D.C. Commission Dec. 6, 2002) (*D.C. Commission Pricing Decision*). Although the AT&T/WorldCom model was introduced in an earlier proceeding in Massachusetts, the state commission stated that it did not consider this alternative model in its decision because its sponsors did not advocate it on final brief “except in the context of proposing specific modifications to Verizon's NRCM.” *Massachusetts Commission Pricing Decision* at 403, n. 168.

¹⁴⁹⁰ Verizon Ex. 107, at 298.

¹⁴⁹¹ *Id.*

¹⁴⁹² *Id.*

should be recovered in a manner that reflects the way they are incurred.”¹⁴⁹³ Verizon proposes a total of approximately 115 NRCs to recover the costs of these activities.

582. AT&T/WorldCom offer a different approach to NRCs. They state that only costs of activities that solely benefit the competitive LEC ordering the UNE should be recovered through NRCs.¹⁴⁹⁴ Under this “reusability” test, if an activity need not be repeated in order to serve a subsequent UNE customer, then it also benefits these potential future customers and should be recovered through recurring charges.¹⁴⁹⁵ For example, one-time activities such as placing cross-connects at the FDI should be recovered through recurring charges because Verizon can reuse that connection for a subsequent customer (and these costs are recovered in recurring rates in Verizon’s retail operations).¹⁴⁹⁶ In contrast, AT&T/WorldCom would allow NRCs to recover the cost of placing cross-connects at the MDF because this would benefit only the competitive LEC ordering the loop.¹⁴⁹⁷ AT&T/WorldCom propose a total of 49 NRCs, of which 18 are separately stated disconnection NRCs.

b. Discussion

583. We conclude that the approach advocated by AT&T/WorldCom more closely follows the TELRIC principles established by the Commission. Consequently, we will establish prices only for the activities identified in the AT&T/WorldCom model. Verizon misconstrues the citation from paragraph 745 of the *Local Competition First Report and Order*, which, in context, refers primarily to recovering costs of dedicated facilities through flat charges rather than usage-sensitive charges. The *Local Competition First Report and Order* specifically prohibits recovery of recurring costs through NRCs, but specifically permits recovery of non-recurring costs through recurring charges because of the potential barrier to entry posed by large NRCs.¹⁴⁹⁸

584. Verizon implicitly acknowledges that many of the costs at issue are currently recovered through recurring charges, *i.e.*, through ACFs, because it proposes to avoid double recovery by subtracting NRC revenues from the costs it uses to calculate ACFs.¹⁴⁹⁹ Verizon failed, however, to demonstrate that the NRC revenues it removes from the ACF calculation bear

¹⁴⁹³ *Local Competition First Report and Order*, 11 FCC Rcd at 15874-75, para. 745.

¹⁴⁹⁴ AT&T/WorldCom Ex. 2, at 9-12.

¹⁴⁹⁵ *Id.* at 9-10; AT&T/WorldCom Ex. 8, at 29-31.

¹⁴⁹⁶ AT&T/WorldCom Ex. 8, at 31; Tr. at 4667-68.

¹⁴⁹⁷ Tr. at 4892.

¹⁴⁹⁸ *Local Competition First Report and Order*, 11 FCC Rcd 15874-75, para. 745.

¹⁴⁹⁹ As we explain in more detail in the discussion of ACFs, we do not require Verizon to make its proposed adjustment given the approach to NRCs that we adopt in this section. *See supra* section III(E)(3)(c).

any relationship to the costs of the activities for which it seeks to impose NRCs in this case. Accordingly, there is a significant likelihood that there is a mismatch between the costs recovered through NRCs and the costs not recovered through ACFs. AT&T/WorldCom's approach, which recovers more costs through recurring charges, diminishes the problems associated with attempting to match the costs recovered through NRCs and the costs excluded from the ACF calculations. For this reason, we conclude that the better approach is to recover these costs through ACFs and not through NRCs unless the activity provides no benefit to any future user of the same facility or if the cost of the activity is not reflected in the ACF calculations.

2. Manual installation activities

a. Positions of the Parties

585. The AT&T/WorldCom model assumes that each loop is fully connected from the end-user all the way into the central office and that no additional outside plant or inside plant is needed to provision the loop to a competitive LEC.¹⁵⁰⁰ As a result of this assumption of 100 percent DIP and 100 percent DOP, the AT&T/WorldCom model does not develop NRCs for moves or rearrangements that may be needed at the central office or the FDI.¹⁵⁰¹ According to AT&T/WorldCom, costs for this type of work are recovered either as a capital expense (part of constructing a loop) or a maintenance expense ("rearrangements"). AT&T/WorldCom argue that these costs are presently recovered through recurring charges, as demonstrated by the fact that Verizon proposes to avoid double recovery by subtracting NRC revenues from the costs that produce ACFs.¹⁵⁰² AT&T/WorldCom also demonstrate that Verizon recovers similar costs related to other parts of the loop (*e.g.*, the NID, the drop) through recurring charges.¹⁵⁰³

586. Verizon argues that the costs of every activity undertaken pursuant to a competitive LEC UNE order should be recovered through a NRC, including rearrangements in the central office or field dispatches for rearrangements at the FDI.¹⁵⁰⁴ Verizon proposes a substantial Field Installation surcharge (approximately \$100 for most UNEs) "when necessary to complete the service order or when requested by the competitive LEC."¹⁵⁰⁵ This charge would apply only when the relevant activities actually are necessary to complete an order, and therefore competitive LECs generally will not know at the time they order a UNE whether or not these surcharges apply. Verizon states that no incumbent LEC employs AT&T/WorldCom's assumed

¹⁵⁰⁰ AT&T/WorldCom Ex. 2, at 23.

¹⁵⁰¹ AT&T/WorldCom Ex. 8, at 31.

¹⁵⁰² AT&T/WorldCom Ex. 2, at 24-25.

¹⁵⁰³ Tr. at 4800-02.

¹⁵⁰⁴ Verizon Ex. 107, at 301-02.

¹⁵⁰⁵ Verizon Ex. 124 (NRC Panel Surrebuttal), at 96; Tr. at 4795.