increase. As a result, an adjustment would be necessary to ensure that the original factor, when applied to different material-only investments, will still yield the correct ratio of engineering and installation costs.

Q. How would such an adjustment be calculated?

A. The adjustment would be calculated to account for the difference between the average discount effectively used in the initial development of the factors and the forward-looking discount resulting from the substituted, modified material -only price. Specifically, the factor would have to be recalculated to account for the relationship of the original engineering, furnishing and installation costs to the changed, forward-looking material-only investments.

Q. Why was 1998 data used for the calculation of the EF&I factors?

A. Because of the detailed accounting verification process undertaken by Verizon VA's accounting department, the annual data used in calculating the EF&I factors does not become available until late the following year. As a result, 1998 data became available for use in developing factors late in 1999. Given the time frame required to gather, analyze and process the huge amount of data for all states within the Verizon East jurisdiction, it was impractical to use a later year for this source data to develop the factors and the costs associated with the UNEs in the cost studies filed on July 2, 2001 in these proceedings.

Q. Are the EF&I factors specific to Virginia?

A. No. The factors have been developed on a regional (*i.e.*, Verizon East-wide) basis. This is being done throughout the Verizon East footprint to better estimate appropriate investment levels and to reflect more accurately how the costs are incurred. For example, certain investments may be installed in one state to serve multiple jurisdictions. Additionally, significant amounts of all types of investments are not necessarily placed in each state during a given calendar year. In those cases, a factor developed solely on the basis of a single jurisdiction's data for a single year may be disproportionately skewed (either higher or lower). A regional approach mitigates such anomalies while still utilizing the most up-to-date data possible.

Q. Are the EF&I factors specific to the particular piece of equipment being installed?

A. No. The EF&I factors are only specific to the class of plant being placed. This methodology is widely accepted in the industry, by state regulators, and by the Commission. Such an average, class-of-plant EF&I value is the fairest way to ensure that Verizon VA correctly identifies and recovers its total costs of equipment installations.

b) L&B Factors

Q. What do the L&B factors represent?

A. The L&B factors represent the level of land and building investments that are required to support equipment classified as CO equipment. Verizon VA calculated these factors as the ratio of CO land and building investments to CO equipment investments.

Q. Are the land and building factors specific to Virginia?

A. Yes. The L&B factors are developed on a jurisdiction-specific basis, since that most accurately reflects the current relationship between the CO Land and Building investments in a given jurisdiction and the CO equipment investments they support. The land and building investments in a given jurisdiction reflect the actual CO locations, customer demographics, customer demands for types and amounts of services, and the design criteria that are particular to a given jurisdiction.

Q. How did Verizon VA develop the L&B factors?

A. The factors were developed on the basis of the data reported in Verizon VA's 1999 financial reports. The steps were as follows:

(1) The total telephone plant in service (TPIS) balances as of the year ending December 1999 for land and buildings were determined.

(2) Building investments associated with collocation were subtracted out to avoid any double-counts with respect to investments included in collocation rates.

(3) A factor based on Separations data, representing the portion of land, buildings, capital leases and leasehold improvements associated with central office equipment, was then applied to yield the assignable Central Office Equipment land and building investments.

(4) Material investments in the electronic switching, operator systems, and circuit accounts were brought to forward-looking levels with the application of a forward-looking-to-current (FLC) ratio, (explained below). These Central Office Equipment accounts were then added to each other.

(5) The assignable Central Office Equipment land and building investments were then divided by the sum of the Central Office equipment accounts. The resulting factor was split between a land factor and a building factor on the basis of the investments in land and building relative to each other.

c) Power Factors

Q. What do the Power factors represent?

A. The Power factors represent a relationship between the amount of power investment necessary to support specific CO equipment and the investment in the equipment itself. Separate factors are developed for digital switches and digital circuit equipment (both for subscriber pair gain placed in COs and other equipment).

Q. How were the Power factors developed?

A. The factors were developed on the basis of the data contained within the DCPR database. The installed investment of power equipment placed in 1998 was identified by the type of equipment it is supporting. Next, the total installed investment for central office equipment (hardwired and plug-in) installed in calendar year 1998 was then divided into the installed investment of power equipment to yield the relevant power factors.

Q. Are the Power factors specific to Virginia?

A. No. Similar to EF&I, the power factors were developed on a regional basis to prevent the possibility of anomalous results for a particular jurisdiction. Data for 1998 was used.

Annual Cost Factors

D. ANNUAL COST FACTORS

1. Introduction

Q. After total installed investments are determined, what is the next step in calculating UNE costs?

A. To determine total annual costs associated with the total installed investment for each element, the ACFs are applied. (ACFs also are applied to determine final non-recurring costs, as described below.)

Q. What are ACFs?

A. As noted above, ACFs are ratios that represent relationships between a type of cost and (1) the associated plant account investments, (2) relevant expenses, or (3) total revenues. ACFs are generated from cost and expense factor spreadsheets that are designed to calculate forward-looking annual capital and operating expense factors for each investment account. The ACF methodology explicitly reflects inflation, productivity, and other adjustments designed to ensure that the ACFs are forward-looking. The ACFs calculations can be found at VZ-VA CS, Vol. XII, Parts G-2 - G-3, G-5 - G-10.

Q. What are the ACFs used by Verizon VA in this filing?

A. The following forward-looking ACFs were developed for this filing:

(1) Depreciation, Return, Interest and Federal/State Income Taxes ACFs;

(2) Other Tax ACFs;

(3) Network ACFs;

(4) Wholesale Marketing ACF;

(5) Other Support ACF;

(6) Right-To-Use ACF;

(7) Common Overhead ACF; and

(8) Gross Revenue Loading ACF.

The first six ACFs listed above are expressed on an expense- (or cost-) to-investment ratio and as a group are generically referred to as ACF_{EI} (the "EI" referring to expense-to-investment). These ACFs are used to estimate the level of annual capital and operations costs Verizon VA can expect to incur to provide a network element, based on the investment related to that element. The seventh ACF, which identifies common overhead, is expressed on an expense-to-expense ratio and is referred to as ACF_{COH}. This ACF accounts for expenses associated with certain general administrative activities, such as executive, legal, and human resources. The eighth ACF is expressed on an expense-to-gross-revenue ratio and is referred to as ACF_{GR}. It identifies and assigns costs related to gross revenue, such as uncollectibles and regulatory assessments.

Q. Are the ACFs designed to attribute expenses to individual elements in a cost-causative manner?

A. Yes. In the case of expense-to-investment ACFs, the expenses identified by the ACF_{EI} include the capital- and investment-related costs (*i.e.*, depreciation, rate of return, federal and state income taxes and other taxes), and the operations costs (*i.e.*, network, marketing, right-to-use and certain administrative and support functions) that can be ascribed to purchasing and operating a UNE investment. Expenses that are incurred for specific plant accounts are attributed only to those investments, while expenses that are not specific to a particular plant account are spread equally across all affected investments. This approach ensures that the expenses for each network element are driven to the greatest extent possible on a cost-causative basis, and non-specific costs are attributed in reasonable proportions.

The single expense-to-expense ACF (the common overhead ACF or ACF_{COH}) is designed to reflect common overhead expenses associated with certain general administrative activities, such as executive, legal, and human resources. These expenses are allocated equally over all relevant expenses.

Finally, in the case of the expense-to-revenue ACF, all recurring and non-recurring cost items in the studies bear the relevant uncollectible revenues and regulatory assessments because these items are directly linked to the level of revenue generated.

Q. How are the ACFs used to convert the incremental UNE investments into the total annual UNE costs that are used for setting rates?

A. The incremental total installed investment for a UNE is multiplied by the relevant $ACFs_{EI}$ that relate to the particular investments associated with that UNE. As explained above, applying these factors to the total installed investment for a UNE allows Verizon VA to determine all the capital- and investment-related costs and operating expenses associated with that UNE. These expenses are then multiplied by the ACF_{COH} to determine the appropriate allocation of common overhead for that UNE. Finally, the ACF_{GR} is applied to the sum of the costs reflected in the $ACFs_{EI}$ and the allocated share of common overhead to arrive at a total UNE annual recurring cost. As appropriate, the UNE annual cost is divided by 12 to establish monthly recurring UNE rates.

Q. What data sources were used to develop the ACFs?

A. The Network, Other Taxes and Gross Revenue Loading ACFs are specific to Verizon VA. These ACFs are derived from relationships between expenses recorded in Verizon VA's financial system and the appropriate investments or revenues calculated in the various Verizon VA studies.

Verizon VA has determined that the Wholesale Marketing ACF, Other Support ACF, and Common Overhead ACF should be based upon the expenses incurred across the Verizon East footprint. These ACFs are derived from the data contained within the financial systems used throughout Verizon East. The Right-to-Use ACF also is calculated from budgeted expenditures across Verizon East.

Finally, the ACFs that capture the capital costs (*i.e.*, depreciation, return, interest and income taxes) do not depend on any accounting data sources. Instead they rely upon the application of the Virginia-appropriate forward-looking input parameters (*i.e.*, cost of money, economic lives and income tax rates) that are addressed in the testimony of others or are otherwise pre-established.

Q. **Why are the Wholesale Marketing ACF, Other Support ACF and Common Overhead ACF based upon Verizon East footprint-wide expenses rather than Virginia-specific expenses?**

A. The organizations that support the various associated functions have undergone consolidations within Verizon East. The expenses and investments (and thus the affected ACFs) reflect that regionalization. Once these factors are developed, they can be applied to the portion of associated expenses attributable to a particular jurisdiction in order to assign the appropriate portion of the relevant costs to that jurisdiction.

Q. **Are the ACFs specific to particular pieces of equipment or facilities?**

A. No. The ACFs are generally developed on the basis of plant accounts. Thus, all equipment or facilities that are assigned to a given class of plant would have the same ACFs. The $ACFs_{EI}$ provide a numeric relationship of capital costs (or expenses) to investments. These must be developed by USOA account, because the capital costs, expenses and many of the cost-producing activities support multiple equipment, facilities and products and cannot be directly assigned to specific equipment, facilities and products.

Q. Can at least a subset of the ACFs, namely operating expenses, be driven to specific facilities or pieces of equipment?

A. No. There are two primary types of operating expense-to-investment ACFs: one relates to supporting the totality of services/products/elements provided by Verizon VA, and one relates specifically to maintaining equipment and facilities.

The first category, which consists of costs such as marketing, cannot be developed on a product-specific basis because the data simply is not available at a sufficiently granular level. For example, an account manager discussing the service needs of a CLEC typically would discuss all aspects of the CLEC's requirements and its interactions with Verizon VA, not just isolated product-specific issues. The second category, relating to equipment and facilities maintenance, also suffers from the lack of sufficiently granular data that would be required to calculate the expense at a product- or service-specific level. For example, maintenance performed on a cable section between two manholes could benefit a variety of services, including residential POTS, interoffice facilities, interexchange carrier access, and others, depending on what services were offered over that cable. Moreover, the use of an ACF on an account-specific (rather than on an equipment-specific) basis, which encompasses the maintenance costs associated with many types of similarly classified equipment at various life cycle stages, best approximates the costs that will be incurred on an average basis across various pieces of equipment, deployed in various locations, at various life cycle stages.

Q. Did Verizon VA make any adjustments to its costs to make the ACFs appropriate for the forward-looking UNE studies?

A. Yes. Verizon VA made three types of generic adjustments to the costs captured by the Network, Wholesale Marketing, Other Support, and Common Overhead ACFs: subtraction of retail-related costs, adjustment for inflation and productivity changes, and a forward-looking-to-current conversion (FLC) necessary to prevent certain ACFs from being inappropriately adjusted twice. The avoided retail costs that are subtracted are computed as set forth later in this testimony regarding the resale discount. The inflation and productivity percentages are addressed at VZ-VA CS, Vol. XII, Part G-10, and the FLC is discussed in detail, below. These "generic" adjustments are referenced in the discussion of specific factors in the testimony that follows.

2. Depreciation, Return, Interest, and Federal and State Income Tax ACFs

Q. How were the Depreciation, Return, Interest, and Federal and State Income Tax ACFs calculated in Verizon VA's Cost Studies?

A. The forward-looking depreciation lives proposed in these proceedings by Verizon VA, and explained in the testimony of Dr. Lacey and Mr. Sovereign, were used as inputs to VCost, which calculated, for each year of the relevant plant asset's life, the book depreciation and tax depreciation, as well as the associated return, interest, and federal and state income tax requirements. These results were then levelized over the life of the asset.

Q. What cost of capital did Verizon VA use in the studies presented in this proceeding?

A. The studies reflect the use of a 12.95% cost of capital. The development of this rate is presented in the testimony of Dr. Vander Weide.

Q. How is the cost of capital used in Verizon VA's studies?

A. Besides being used to determine the return, interest and federal and state income tax components associated with plant investments, the 12.95% cost of capital is employed in the various levelizing algorithms used throughout Verizon VA's recurring and non-recurring cost studies.

3. Other Tax ACFs

Q. What is included in the Other Tax ACFs and how are they accounted for in Verizon VA's cost studies?

A. Taxes included in these ACFs include the 1999 special franchise taxes, property taxes on the taxable plant, and other miscellaneous taxes imposed upon Verizon VA by the various taxing authorities (*e.g.*, municipalities and counties) in Virginia. The ACFs are based on the assignment of the tax expense to the class of plant that is being taxed. Application of these factors to the appropriate investments identified for each UNE estimates the amount of these taxes that will be associated with providing that UNE. Because there is no way to determine what changes will be made to those 1999 tax rates in the future, using those rates produces a reasonable, and most likely conservative, estimate of Verizon VA's forward-looking tax expense.

4. Network ACFs

Q. What types of expenses are in the Network ACFs?

A. The Network ACFs include the jurisdiction-specific expenses incurred in the base year in connection with repairing and rearranging plant and equipment. These base year 1999 expenses[12] include expenses relating to repair, maintenance, rearrangement, testing,[13] network administration, and engineering, as well as recurring network-related expenses such as power expenses. (In the studies, repair expenses are labeled "R" Dollars, while moves and rearrangement expenses are labeled "M" Dollars.)

For each class of plant, the relevant expenses are divided by the specific investments (*e.g.,* investments for poles, aerial cable, digital switching, etc.) to calculate the base Network ACF.

Q. What other considerations are included in calculating the Network ACFs?

A. The Network ACFs also include outside plant or central office equipment-specific loadings to identify the overall costs associated with administration, use, testing and operation of the facilities used.

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[12] The 1999 expenses were the most recently available data that practically could be used in calculating these studies.

[13] Testing expenses include testing equipment capital costs (*i.e.*, depreciation, return, interest and federal and state income tax on the equipment used for testing).

Q. How did you identify the direct expenses used for the Network ACFs?

A. The expense information is derived from Verizon VA's accounting system, which is designed to conform with FCC Rule 47 C.F.R. Part 32, and which records the expenses ("M" and "R" dollars) associated with specific plant accounts. For example, underground cable investments are booked to the USOA 2422 account, and expenses directly associated with underground cable are booked to the USOA 6422 account. Verizon VA's financial systems define this information into more granular detail, allowing underground copper cable expenses (as distinguished from underground fiber cable expenses) to be associated directly with the underground copper cable investments.

Q. Please describe more specifically the loading expenses that you included in the Network ACFs.

A. The loadings include expenses that are booked to certain plant non-specific operations expense accounts in the following USOA accounts: 6512 (Provisioning Expense), 6531 (Power Expense), 6532 (Network Administration Expense), 6533 (Testing Expense), 6534 (Plant Operation Administration Expense), and 6535 (Engineering Expense).

The loadings for the Network ACFs include the investments and expenses associated with testing the classes of plant to which the Network

ACFs apply. However, testing expenses associated with the initial receipt, processing, and testing of subscriber trouble reports have been excluded from the Network ACFs because that testing activity is the responsibility of the CLEC that serves the unbundled loop. (For testing equipment investments that are included in the Network ACFs, the Depreciation, Return, Interest, and Federal and State Income Tax ACFs for circuit equipment are applied to testing equipment investments to determine the capital costs associated with that equipment.)

These loadings have been assigned to either central office plant accounts, outside plant specific accounts, or all revenue producing plant accounts, on the basis of detailed function code information from Verizon VA's financial systems. For example, the function code that specifically identifies the Switching Administration costs that are reported in Account 6532 (Network Administration Expense) drives the costs to the central office-specific Network ACF. Thus, only the Network ACF for central office assets would bear a loading to reflect these switching administration costs.

Q. Why is it appropriate to include these loadings?

A. These loadings represent the true forward-looking costs of operating a network efficiently. While they cannot be associated directly with a specific plant account, Verizon VA's methodology ensures that the costs are spread on a cost-causative basis to the appropriate plant assets.

Q. What other adjustments are made to the Network ACFs?

A. An amount equal to the non-recurring provisioning revenues from the base year of 1999 are removed from the base-year expenses included in the calculation of the Network ACFs. The non-recurring revenues are used as a surrogate for the cost of performing non-recurring activities, because non-recurring rates have traditionally been set to simply recover the associated costs. By subtracting non-recurring revenues from the Network ACFs, we ensure that there is no double recovery of these costs, and the Network ACFs reflect only the expenses associated with recurring activities.

Q. How is this adjustment calculated?

A. Verizon VA examined all of the 1999 regulated non-recurring revenue by a functional or product classification.[14] From this classification, the non-recurring revenue was categorized as either provisioning-related (*e.g.*, field installation, central office wiring, etc.) or customer interfacing (*e.g.*, service ordering). In those instances where the classification could not be used to firmly distinguish between provisioning and customer interfacing, the

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[14] Non-regulated revenues are excluded, since the expenses associated with those non-recurring activities are not included in the Network ACFs.

revenue was split 50% into each category. All the non-recurring provisioning revenue was subtracted from the Network ACFs. (The non-recurring customer interfacing revenue was subtracted from the Wholesale Marketing ACF.)

Q. Why is it appropriate to subtract the provisioning non-recurring revenue from the Network ACFs?

A. The goal was to reduce the network expenses by an amount that reflects the best estimate of all of the network provisioning expenses that are associated with non-recurring activities. Verizon VA used the provisioning non-recurring revenues as the best approximation of such expenses, because non-recurring provisioning revenues are designed to recover the costs of activities that are captured by the expense accounts contained within the Network ACFs.

Q. Did Verizon VA also adjust the Network ACFs to reflect conduit rental expense and/or pole attachment fees?

A. Yes. Verizon VA specifically adjusted the "M" and "R" dollars of the pole and conduit expense accounts to reflect the conduit rental expenses paid and the pole attachment fees collected by Verizon VA, thereby avoiding any double recovery of structure costs. Here too, the revenues were from the

1999 Verizon VA data in order to match the annual period of the expense data used to develop the ACFs for those accounts.

Q. **Did Verizon VA make any other adjustments to the Network ACFs to make them forward-looking?**

A. Yes. VCost applies productivity and inflation factors to the base Network ACFs to reflect forward-looking changes in costs from the base year of 1999. Verizon VA made a further adjustment to the repair ("R") expenses to reflect an expectation that newly-designed copper cable is likely to experience fewer troubles than the plant that is currently in place: Verizon VA adjusted the forward-looking assessment of "R" dollars downward by 5% for copper cables and drop wire. This value is the product of an informed assessment by Verizon's Engineering and Operations organizations based on their experience thus far with newly-designed copper plant.

Q. **Did Verizon VA make any other adjustments (beyond inflation and productivity) to the rearrangement expenses (M dollars)?**

A. No. No additional adjustments were necessary to make those expenses forward-looking. "M" dollars reflect reconfiguration dollars for moves, changes and upgrades that are performed on an as-required basis, independent of technology or age of plant. Even if Verizon VA has in place an optimally designed network, it still will be required to reconfigure its facilities as needed to reflect movement of customers, specific customer requirements and demands, or new municipal requirements. Furthermore, other than productivity and inflation impacts that already are taken into account, there is no basis to assume at this point, given existing technology and processes and reasonably foreseeable developments, that there will be any significant improvements or cost reductions in performing such moves in the future.

Q. Did Verizon VA make any other adjustments to the Network ACFs?

A. Yes, as noted above, Verizon VA applied the FLC factoring the calculation of the Network ACFs.

5. Wholesale Marketing ACF

Q. What does the Wholesale Marketing ACF represent?

A. The Wholesale Marketing ACF represents the expenses associated with the product management, advertising, and customer interfacing functions for the wholesale market.

Q. What is the source of the wholesale marketing expenses?

A. The wholesale marketing expenses are based upon the 1999 Verizon East regional expenditures and adjusted by avoided retail costs, as discussed more fully in the resale section of this testimony. The investments used in calculating the factor were based upon the 1999 revenue-producing-only investments.[15]

Q. What is the source of the customer care expenses?

A. The customer care (*e.g.*, customer service and accounting) expenses and investments were aggregated on a Verizon East regional basis.

Q. What adjustments are made to the Wholesale ACF?

A. Only those expenses associated with the wholesale "customer care" function are captured in this ACF. As noted above, retail avoided expenses are excluded, and the expenses are made forward-looking by the application of productivity and inflation adjustments. The FLC factor, discussed below, also is applied.

6. Other Support ACF

Q. What does the Other Support ACF represent?

A. The Other Support ACF includes support expenses such as information management, research and development, and procurement expenses, as well as the capital requirements associated with non-revenue producing

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15 Non-revenue producing investments are discussed below.

investments in motor vehicles, special work equipment, land and buildings (excluding central office buildings), general purpose computers, furniture, and official communications and support equipment. The Other Support costs are incurred in support of all classes of plant and are attributed to all revenue-producing investment categories. The factor is developed on the basis of Verizon East regional costs and investments.

Q. What are non-revenue producing investments and how are they determined?

A. All of the assets of Verizon VA can be categorized either as revenue-producing (*i.e.*, associated with products, services or elements for which Verizon VA earns revenue) or non-revenue producing (*i.e.*, support assets not associated with any revenue-generating products, services or elements). Certain items are taken as 100% non-revenue producing, such as official communications equipment, vehicles, furniture, and garage and work equipment. In addition, there are some items that are both revenue-producing and non-revenue producing. For example, in the case of general purpose computers, Verizon's Service Costs organization identifies products for which computers are an integral part of the service, and a percentage of the computer asset is considered revenue producing and the remainder is considered non-revenue producing. Similarly, land and building assets can be either revenue producing or non-revenue producing. The land and building assets associated with central office equipment are all considered revenue-producing, and the associated investments are therefore included as part of the costs of other products, services or elements. Investments for the remainder of land and building assets (*i.e.*, those not housing central office equipment) are considered support investments.

Q. Did Verizon VA make any adjustments to the Other Support costs in the development of the ACF?

A. As discussed above, Verizon VA excluded retail-avoided costs from the calculation of the Other Support ACF, so that only wholesale costs would be recovered through this ACF. Furthermore, Verizon VA subtracted an estimate of the support costs that are associated with the Access to OSS UNE, because these costs are addressed separately. These costs were also made forward-looking by the application of productivity and inflation adjustments. The FLC factor was also applied to the calculation.

7. Common Overhead ACF

Q. What is included in the Common Overhead ACF?

A. The Common Overhead ACF permits the recovery of common overhead expenses. These common expenses consist of general and administration (G&A) functions, including executive, planning, general accounting and finance, external relations and human resources, and legal expenses. The