

OTTER TAIL POWER COMPANY

Cost Allocations Procedures Manual

Revised October 2017

INTRODUCTION

The general methodology used in this procedure manual is one of functionalization and classification. Functionalization is the process by which costs are arranged according to the major utility function they serve, such as production, transmission, etc. Classification is the arrangement of costs within a function by the service characteristic to which they most closely apply or relate, to facilitate their allocation based on these service characteristics.

The major functional areas used in this procedure manual are production, transmission, distribution, customer accounting and collecting, and customer service and information. The reason for using functions other than the three major ones (production, transmission and distribution) is to provide a better base for eventual allocation of cost and to provide the flexibility necessary to handle certain cost items.

The principal service characteristics used in the classification process are: demand, energy, number of customers and number of meters. Sub-characteristics within each of these principal characteristics which allow a more precise division of cost, such as type of demand or energy, voltage level, or type of customer or meter were also used. These sub-characteristics provide added detail for a more accurate allocation of cost. The service characteristics or sub-characteristics provide the basis for determining allocation factors when allocation is necessary. Unless otherwise noted, all allocation factors described herein are used for both jurisdictional and class allocations.

The philosophy used to arrive at the service characteristics was to determine what characteristic or characteristics best describe or approximate the decisions made or factors considered when an expense is incurred or a plant investment is made. The amount of dollars to be allocated and the cost of determining or obtaining values for a service characteristic were also factors considered when determining the service characteristics to use.

There are 16 service characteristics used in this study. They consist of four demand characteristics, three energy or kilowatt-hour characteristics, and nine meter or customer characteristics. These service characteristics, which are used to develop allocation factors are:

1. GENERATION DEMAND FACTOR (D1) - this factor is determined based on contribution to Otter Tail's average annual six-hour system peak kW demand. Any loads for which Otter Tail is responsible for providing generation are included in this factor. The hours ending 9:00, 10:00, and 11:00 a.m., and 6:00, 7:00, and 8:00 p.m. were averaged to arrive at the Generation Demand Factor.
2. TRANSMISSION DEMAND FACTOR (D2) - this factor is determined based on contribution to Otter Tail's average annual six-hour transmission peak kW demand. Any loads for which Otter Tail is responsible for providing transmission service are included in this factor. The hours used are the same as those for

- the Generation Demand Factor.
3. DISTRIBUTION PRIMARY DEMAND FACTOR (D3) - this factor is determined based on contributions to Otter Tail's average annual six-hour primary distribution peak kW demand minus the 0.83 kW/customer already included in the minimum system portion of the primary customer component. (See Appendix A-1.) Any loads for which Otter Tail is responsible for providing primary distribution service are included in this factor. The hours used are the same as those for the Generation Demand Factor.
 4. DISTRIBUTION SECONDARY DEMAND FACTOR (D4) - this factor is determined based on non-coincident kW demands at the secondary service level minus the 3.0 kW/customer already included in the minimum system portion of the secondary customer component. (See Appendix A-1.) Only loads served at voltages less than 2400 volts are included in this factor.
 5. ENERGY FACTOR (E1) - this factor is based on kilowatt-hour (kWh) sales adjusted for line losses to the generation level excluding interruptible, irrigation, and $\frac{14}{24}$ ths of water heating and deferred sales.
 6. ENERGY FACTOR (E2) - this factor is based on total kWh sales adjusted for line losses to the generation level. It is only used for jurisdictional allocations.
 7. ENERGY FACTOR (E8760) - this factor is based on hourly energy usage, to which are applied hourly marginal costs to develop an hourly cost relationship. It is only used to allocate jurisdictional amounts to the customer classes.
 8. TOTAL RETAIL CUSTOMERS FACTOR (C1) - this factor is based on the total active retail customers served in each jurisdiction.
 9. TOTAL DISTRIBUTION SERVICE LOCATIONS FACTOR (C2) – a distribution service location is any point on the distribution system at which service is or can be provided including inactive and seasonal locations.
 10. TOTAL SECONDARY DISTRIBUTION SERVICE LOCATIONS FACTOR (C3) - this factor includes only those distribution service locations served or which can be served at secondary voltage (below 2400 volts).
 11. STREETLIGHT FACTOR (C4) - this factor is based on the weighted installed cost of the streetlights in each jurisdiction.
 12. AREA LIGHT FACTOR (C5) - this factor is based on the weighted installed cost of area lights in each jurisdiction.
 13. METER FACTOR (C6) - this factor is based on the weighted installed cost of meters in service.
 14. METER READING FACTOR (C7) - this factor is based on total weighted meter reading time.

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15. TOTAL SYSTEM SERVICE LOCATIONS FACTOR (C8) - this factor is similar to the Total Distribution Service Locations Factor, except all locations on the system at which service can be or is provided are included.
 16. LOAD MANAGEMENT FACTOR (C9) - this factor is based on the total number of locations that have radio load management receivers in each jurisdiction.

The methodology for applying the various procedures and allocators to system cost values to develop jurisdictional and class or group cost values is explained in detail on the following pages.

RATE BASE COMPONENTS
PRODUCTION PLANT IN SERVICE

The plant in service within this function was classified into preliminary demand and energy categories as follows:

1. DEMAND COST - this category includes all production plant (accounts 310- 346), except that related to the Big Stone Plant unit train.
2. BASE LOAD ENERGY COST - Big Stone unit train only.

The demand category was then reclassified into Base (Energy-Related) and Peak Demand categories based on the following formulas:

$$\begin{aligned} \text{Total Current Cost} &= (\text{Existing Peaking Capacity [kW]})(\text{Current Peaking Unit Cost [$/kW]}) \\ &\quad + (\text{Existing Steam \& Hydro Capacity [kW]})(\text{Current Base Load Unit Cost [$/kW]}) \\ \text{Peaking Demand Factor} &= \frac{(\text{Total Existing Plant Capacity})(\text{Current Peaking Unit Cost})}{\text{Total Current Cost}} \\ \text{Base (Energy-Related) Demand Factor} &= 1 - \text{Peaking Demand Factor} \\ \$ \text{ of Peak Demand} &= (\text{Demand Cost}) \times (\text{Peaking Demand Factor}) \\ \$ \text{ of Base (Energy-Related) Demand} &= (\text{Demand Cost}) \times (\text{Base Demand Factor}) \end{aligned}$$

This determination of Base and Peak Demand amounts is based on the premise that all plants are or can be used to supply system peak demands. However, base load plants (steam and hydro) are also used to supply the bulk of the energy used on the system. Therefore, the base load plants have a dual function of supplying both energy and demand. The above classification of production plant into base and peak categories recognizes this fact and assigns a portion of the base load plants to each of these functions. The underlying assumption is that the

cost to supply a peak kW of demand capacity to the system is the cost of a kW of capacity from a peaking plant.

New unit costs in current year dollars were used to determine the peaking and base factors to provide an allocation method that separates costs based on present circumstances not on past circumstances. The use of current costs also eliminates any potential problems associated with the timing of plant additions, changes in load factors or changes in generation mix criteria which could lead to large short-term allocation factor variations.

The dollars in each category were then allocated based on the following:

- BASE DEMAND - Energy Factor (E1)
- PEAK DEMAND - Generation Demand Factor (D1)
- BASE ENERGY - Energy Factor (E1)
- PEAK ENERGY - Generation Demand Factor (D1)

3. Wind generation is a non-dispatchable production resource with operating characteristics different from other base load or peaking generation. The capacity factor for wind generation is determined by the Midcontinent Independent System Operator (MISO) as they accredit capacity based on each generation site's production. While a majority of a wind turbine's output is energy, a portion of the investment is also needed to meet the system's peak demand. The most recent MISO accreditations are used to create a weighted average for each wind farm that results in a base/peak split. Wind generation investment is allocated based on the following factors:

- BASE ENERGY - Energy Factor (E2)
- PEAK DEMAND – Generation Demand Factor (D1)

TRANSMISSION PLANT IN SERVICE

Allocated using the Transmission Demand Factor (D2).

DISTRIBUTION PLANT IN SERVICE

The plant in service within this function was classified into the following categories:

1. Primary Demand (2400 volts and above)
2. Secondary Demand (below 2400 volts)
3. Primary Customer (2400 volts and above)
4. Secondary Customer (below 2400 volts)
5. Streetlighting

6. Area Lighting
7. Meters
8. Load Management

based on the following account-by-account methodology:

- ACCOUNT 360 (LAND) - classified primary demand related (substation land).
- ACCOUNT 360.1 (LAND RIGHTS) - classified primary demand related.
- ACCOUNT 361 (STRUCTURES AND IMPROVEMENTS) - classified primary demand related.
- ACCOUNT 362 (STATION EQUIPMENT) - classified primary demand related.
- ACCOUNTS 364-369.1 - classified based on minimum size system (see Appendix A-1).
- ACCOUNT 370 (METERS) - direct assignment to meters characteristic.
- ACCOUNT 370.1 (LOAD MANAGEMENT SWITCHES) - direct assignment to load management characteristic.
- ACCOUNT 371 (INSTALLATION ON CUSTOMER'S PREMISES) - classified secondary customer related.
- ACCOUNT 371.1 (RENTAL EQUIPMENT) - classified primary customer related.
- ACCOUNT 371.2 (ALL OTHER PRIVATE LIGHTING) - direct assignment to area lighting.
- ACCOUNT 373 (STREETLIGHTING AND SIGNAL SYSTEMS) - direct assignment to streetlighting.

The categories were then allocated based on the following:

- PRIMARY DEMAND - Distribution Primary Demand Factor (D3)
- SECONDARY DEMAND - Distribution Secondary Demand Factor (D4)
- PRIMARY CUSTOMER - Total Distribution Service Locations Factor (C2)
- SECONDARY CUSTOMER - Total Secondary Distribution Service Locations Factor (C3)
- STREETLIGHTING - Streetlight Factor (C4)
- AREA LIGHTING - Area Light Factor (C5)
- METERS - Metering Factor (C6)
- LOAD MANAGEMENT - Load Management Factor (C9)

GENERAL PLANT IN SERVICE

General Plant in Service, except Account 397.3 (Radio Load Control Equipment), was functionalized into the following categories based on the labor ratios developed from data in FERC Form No. 1, Page 354, or similar data for a forecast year.

1. Production

2. Transmission
3. Distribution
4. Customer Accounting
5. Customer Service and Information

The amounts in the production, transmission and distribution categories were then allocated using the gross plant in service ratios from the related plant in service functions. Customer Accounting and Customer Service and Information were allocated based on the expense ratios from the related expense functions. Account 397.3 directly assigned to Load Management category and allocated on the Load Management Factor (C9).

INTANGIBLE PLANT IN SERVICE

Intangible Plant in Service was allocated using the gross general plant in service ratios.

ACCUMULATED PROVISION FOR DEPRECIATION

PRODUCTION - Classification and allocation procedure is the same as that used for Production Plant in Service.

TRANSMISSION - Allocated based on gross plant in service ratios developed from the Transmission Plant in Service function.

DISTRIBUTION - Allocated based on gross plant in service ratios developed from the Distribution Plant in Service function.

GENERAL - Allocated based on gross plant in service ratios developed from the General Plant in Service function.

INTANGIBLE - allocated using the gross plant in service ratios developed from the Intangible Plant in Service function.

NET CAPITALIZED ITEMS - BIG STONE PLANT

Directly assigned to each jurisdiction. Allocated to classes or groups based on the gross Production Plant in Service ratio.

PLANT HELD FOR FUTURE USE

PRODUCTION - allocated using gross plant in service ratios developed from the Production Plant in Service function.

TRANSMISSION - allocated using the Transmission Demand Factor (D2).

DISTRIBUTION - allocated using gross plant in service ratios developed from the Distribution Plant in Service function.

GENERAL - allocated using gross plant in service ratios developed from the General Plant in Service function.

INTANGIBLE - allocated using gross plant in service ratios developed from the Intangible Plant in Service function.

CONSTRUCTION WORK IN PROGRESS (CWIP)

CWIP was separated into three parts or types: Major Projects, Short-Term, and Long-Term. The Major Projects section includes capital expenditures on which a current return is requested without an offset for Allowance For Funds Used During Construction (AFUDC). The Short-Term section are those projects with less than \$10,000 cost or expected to be completed in less than 30 days. AFUDC is not accrued on short-term projects. The Long-Term section includes all other projects and AFUDC is accrued on this portion.

The CWIP of each type was functionalized as production, transmission, distribution, general, or intangible plant. The allocations are then based on the gross plant in service ratios for each individual function.

WORKING CAPITAL

MATERIALS AND SUPPLIES:

Materials and Supplies are separated into production, transmission, and distribution functions. The production portion includes materials and supplies at Big Stone and Coyote Plants as well as production repair parts. The remaining materials and supplies are split between transmission and distribution functions based on data from Page 227 of the latest FERC Form No. 1. The functional amounts are allocated on their respective gross plant in service ratios.

FUEL STOCKS:

COAL STOCKS - allocated using Energy Factor (E1).

FUEL OIL STOCKS - allocated using Generation Demand Factor (D1).

PREPAYMENTS - allocated based on total net plant in service ratios.

CUSTOMER ADVANCES - allocated based on total net plant in service ratios.

CASH WORKING CAPITAL - calculated separately for each jurisdiction. Allocated to customer class on total operating expenses for each jurisdiction (OX).

ACCUMULATED DEFERRED INCOME TAXES

Allocated using the total "net" plant in service ratios.

UNAMORTIZED BALANCE - SPIRITWOOD PLANT

Directly assigned to each jurisdiction. Allocated to customer class using the gross Production Plant in Service ratio.

UNAMORTIZED RATE CASE EXPENSE

Directly assigned to jurisdiction. Allocated to customer class on each jurisdiction's retail revenues (R10).

OPERATING REVENUES

RETAIL SALES

Directly assigned to each jurisdiction and class as billed.

WHOLESALE SALES

MUNICIPALITIES (SUPPLEMENTAL POWER ACCOUNTS 400.1-81, 400.2-81, and 400.3-81) - directly assigned to FERC jurisdiction and group as billed.

NONASSOCIATED UTILITIES, COOPERATIVES AND

OTHER PUBLIC AUTHORITIES

The revenues from asset-based sales are classified as base demand, peak demand, base energy, and peak energy as follows:

1. All revenues from these sales, except those considered Participation or Peaking Power, are classified as Base Energy.
2. Demand charges for Peaking sales are classified as Peak Demand.
3. Demand charges for Participation Power sales are classified as follows:
$$\text{\$ of Peak Demand} = \text{Market price (\$/MW/Mo.)} \times \text{capacity of the sale (MW)}$$
$$\text{\$ of Base Demand} = \text{Total Demand charges} - \text{\$ of Peak Demand.}$$
4. Energy charges for Participation Power sales are classified Base Energy.
5. Energy charges for Peaking Power sales are classified Peak Energy.

The jurisdictional allocations were then made as follows:

BASE DEMAND - Energy Factor (E1)

PEAK DEMAND - Generation Demand Factor (D1)

BASE ENERGY - Energy Factor (E2)

PEAK ENERGY - Generation Demand Factor (D1)

OTHER ELECTRIC REVENUE

ACCOUNT 450 (FORFEITED DISCOUNTS) - directly assigned to jurisdictions as collected. Allocated to classes (if required) based on Total Customers Factor (C1).

ACCOUNT 451 (CONNECTION FEES) - directly assigned to jurisdictions as collected. Allocated to classes (if required) based on Total Customers Factor (C1).

ACCOUNT 456.5 (WHEELING) - directly assigned to FERC groups as collected.

ACCOUNT 456.7 (RESIDENTIAL CONSERVATION SERVICE) - directly assigned to jurisdictions. Allocated to classes based on E8760 (Energy Factor).

ALL OTHER ACCOUNTS - allocated using total net plant in service ratios.

EXPENSE COMPONENTS

PRODUCTION EXPENSES

The expenses within this function, except those in Account 555, were classified into PRELIMINARY demand and energy categories as follows:

1. STEAM AND HYDRO (SH) DEMAND - this category includes all expenses in Accounts 500, 502-511, 535-543, and 556.
2. INTERNAL COMBUSTION (IC) DEMAND - this category includes all expenses in Accounts 546-554, except Account 547.
3. BASE ENERGY - includes Accounts 501, 512, 513, 514, 544, and 545.
4. PEAK ENERGY - includes Account 547.

The two demand categories (SH and IC) were then reclassified into BASE and PEAK Demand categories using the same methodology and formulas applied to those categories in Production Plant in Service.

The expenses in Account 555 (Purchased Power) are classified into base and peak demand and energy based on the following:

- A. All expenses, except those for purchases labeled Participation or Peaking Power, were classified as Base Energy.
- B. Demand charges for Peaking Power were classified as Peak Demand.
- C. Demand Charges for Participation Power (including co-generators and shared customers) were classified as follows:

$$\begin{aligned} \$ \text{ of Peak Demand} &= \text{MAPP Schedule H (peaking) rate } (\$/\text{MW}/\text{Mo.}) \\ &\quad \times \text{ capacity of the purchase (MW)} \\ &\quad \times \text{ number of months purchased.} \end{aligned}$$

$$\$ \text{ of Base Demand} = \text{Total Demand Charges} - \$ \text{ of Peak Demand.}$$

- D. Energy charges for Participation Power were classified as Base Energy.
- E. Energy charges for Peaking Power were classified as Peak Energy.

The jurisdictional allocations were then made as follows:

BASE DEMAND - Energy Factor (E1)

PEAK DEMAND - Generation Demand Factor (D1)

BASE ENERGY - Energy Factor (E2)

PEAK ENERGY - Generation Demand Factor (D1)

TRANSMISSION EXPENSES

Allocated using the Transmission Demand Factor (D2).

DISTRIBUTION EXPENSES

The expenses within this function were classified into the following categories:

1. Primary Demand (2400 volts and above)
2. Secondary Demand (below 2400 volts)
3. Primary Customer (2400 volts and above)
4. Secondary Customer (below 2400 volts)
5. Streetlights
6. Area Lights
7. Meters
8. Load Management

Based on the following account-by-account methodology:

OPERATION

ACCOUNT 580 (SUPERVISION AND ENGINEERING) - classified based on classification of Accounts 582-588.

ACCOUNT 582 (STATION EXPENSE) - classified based on classification of related plant in service Account 362.

ACCOUNT 583 (OVERHEAD LINE EXPENSE) - classified based on the classification of related plant in service Accounts 364, 365, 368 and 369.

ACCOUNT 584 (UNDERGROUND LINE EXPENSE) - classified based on the classification of related plant in service Accounts 366, 367, and 369.1.

ACCOUNT 585 (STREETLIGHTING EXPENSE) - classified directly as streetlighting.

ACCOUNTS 586.1-586.5 & 586.9 (METER EXPENSES) - classified directly as meters.

ACCOUNTS 586.6-586.7 (METER EXPENSES) - classified directly as load management.

ACCOUNT 587 (CUSTOMER INSTALLATION EXPENSE) - classified secondary customer.

ACCOUNT 588 (MISCELLANEOUS EXPENSE) - classified based on classification of Accounts 582-587.

ACCOUNT 589 (RENTS) - classified based on classification of related plant in service Account 364.

MAINTENANCE

ACCOUNT 590 (SUPERVISION AND ENGINEERING) - classified based on classification of Accounts 592-596.

ACCOUNT 592 (STATION EQUIPMENT) - classified based on classification of related plant in service Account 362.

ACCOUNT 593 (OVERHEAD LINES) - classified based on classification of related plant in service Accounts 364, 365, and 369.

ACCOUNT 594 (UNDERGROUND LINES) - classified based on classification of related plant in service Accounts 366, 367, and 369.1.

ACCOUNT 595 (LINE TRANSFORMERS) - classified based on classification of related plant in service Account 368.

ACCOUNT 596 (STREETLIGHTING) - classified directly to streetlighting.

ACCOUNTS 597.1-597.2 (METERS) - classified directly to meters.

ACCOUNT 597.3 (METERS) - classified directly to load management.

ACCOUNT 598 (MISCELLANEOUS DISTRIBUTION PLANT) - classified based on classification of Accounts 592-597.

Each category was then allocated based on the following:

PRIMARY DEMAND - Distribution Primary Demand Factor (D3).

SECONDARY DEMAND - Distribution Secondary Demand Factor (D4).

PRIMARY CUSTOMER - Total Distribution Service Locations Factor (C2).

SECONDARY CUSTOMER - Total Secondary Distribution Service Locations Factor (C3).

STREETLIGHTING - Streetlight Factor (C4).

AREA LIGHTING - Area Light Factor (C5).

METERS - Meter Factor (C6).

LOAD MANAGEMENT - Load Management Factor (C9).

CUSTOMER ACCOUNTING AND COLLECTING EXPENSES

Expenses in this function were classified into two categories:

1. Meter Reading

2. Other Expenses

as specified by the following:

ACCOUNT 901 (SUPERVISION) - classified based on classification of Accounts 902-905.

ACCOUNT 902 (METER READING EXPENSE) - classified meter reading.

ACCOUNT 903 (CUSTOMER RECORDS AND COLLECTIONS) - classified other expense.

ACCOUNT 904 (UNCOLLECTIBLE ACCOUNTS) - classified other expense.

ACCOUNT 905 (MISCELLANEOUS CUSTOMER ACCOUNTING EXPENSES) - classified other expense.

The METER READING category was allocated using the Meter Reading Factor (C7) and the OTHER EXPENSES category using the Total System Service Locations Factor (C8).

CUSTOMER SERVICE AND INFORMATION EXPENSES

Conservation related programs and promotional rebates are directly assigned to jurisdiction and then allocated to class based on E8760 (Energy Factor). All other Customer Service and Information Expenses are allocated based on Total Customer Factor (C1).

SALES EXPENSES

Economic Development is directly assigned to jurisdiction and then allocated to class based on Total Customer Factor (C1). Account 913, Advertising, is assigned below the line. All other Sales Expenses are allocated based on Total Customer Factor (C1).

ADMINISTRATIVE AND GENERAL EXPENSES

ACCOUNTS 920 (SALARIES), 921 (SUPPLIES, ETC.), AND 926 (PENSIONS AND BENEFITS) - these accounts functionalized as: Production, Transmission, Distribution, Customer Accounting or Customer Service, based on FERC labor ratios (FERC Form No. 1, Page 354, or comparable data for a forecast year). Functional categories were then allocated using the expense ratios from the related expense functions, except that in the Production category the energy-related expenses and buy/sell transactions were not included in the ratios. (Energy-related expenses and buy/sell transactions are excluded because they are mainly purchased fuel which requires a minimum of company labor.)

ACCOUNT 923 (OUTSIDE SERVICES) - allocated based on total net plant in service ratios.

ACCOUNTS 924 (PROPERTY INSURANCE) and 925 (INJURIES & DAMAGES) - were allocated based on the total net plant in service ratios.

ACCOUNTS 928 (REGULATORY COMMISSION EXPENSES) - directly assigned to each jurisdiction. Allocated to classes or groups based on total electric revenues from each class or group.

ACCOUNT 930.1 (GENERAL ADVERTISING) — The majority of this account is assigned below the line. Any remaining amount is allocated based on Total Customers Factor (C1).

ACCOUNTS 930.2 (MISCELLANEOUS), 931 (RENTS), and 935.1-935.5 & 935.9 (MAINTENANCE) - allocated based on the gross general plant in service ratios.

ACCOUNT 935.6 (MAINTENANCE) - directly assigned to load management and allocated on (C9).

DEPRECIATION EXPENSES

PRODUCTION - Classification and allocation procedure is the same as that used for Production Plant in Service.

TRANSMISSION - Allocated based on gross plant in service ratios developed from the Transmission Plant in Service function.

DISTRIBUTION - Allocated based on gross plant in service ratios developed from the Distribution Plant in Service function.

GENERAL - Allocated based on gross plant in service ratios developed from the General Plant in Service function.

INTANGIBLE - Allocated using the gross plant in service ratios developed from the Intangible Plant in Service function.

BIG STONE PLANT CAPITALIZED ITEMS EXPENSES

Directly assigned to each jurisdiction. Allocated to classes or groups based on the gross Production Plant in Service ratio.

OTHER EXPENSE - SPIRITWOOD AMORTIZATION

Directly assigned to each jurisdiction. Allocated to customer class using the gross Production Plant in Service ratio.

GENERAL TAXES

Allocated using total net plant in service ratios.

DEFERRED INCOME TAXES

Allocated using total net plant in service ratios.

INVESTMENT TAX CREDIT

Allocated using total gross plant in service ratios.

ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION (AFUDC)

Allocated based on long-term construction work in progress ratios.

INCOME TAXES

Income taxes are calculated for each jurisdiction separately.

APPENDIX A-1

DETERMINATION OF THE DEMAND & CUSTOMER COMPONENTS OF THE DISTRIBUTION SYSTEM

The customer component of the distribution system, that portion which varies with the number of customers, was determined by applying the minimum size system method. This method involves determining the minimum size unit currently being installed and using the average installed book cost of that unit to determine the customer component. However, our accounting system is such that, except for Account 368 (transformers), the only average installed book cost available is for all the units in an account regardless of size. To circumvent this problem, the following procedures were used:

1. The Electric Distribution (ED) Department specified what the minimum size unit for each account is and then provided information as to the type and quantity of material included in this unit and the amount of labor necessary to install it.
2. For each account that a customer component is required, the average age of the account was determined by using results of the recently completed depreciation study. This age is then subtracted from the study year to determine in what year the average unit was installed.
3. The average installed cost of the minimum size unit for the year indicated above was then determined. This was done by developing material, labor, transportation, and payroll costs for the year this unit was installed and applying them to the information supplied in No. 1, above.

The following pages describe how the dollars in each account were assigned to the various categories of cost using the data developed above and other figures from the various accounts.

Symbol Legend:

PSL = Poles for Streetlights

DSL = Dollars allocated to Streetlighting

DAL = Dollars allocated to Area Lighting

DPCC = Dollars allocated to Primary Customer Category

DPDC = Dollars allocated to Primary Demand Category

DSCC = Dollars allocated to Secondary Customer Category

DSDC = Dollars allocated to Secondary Demand Category

UPD = Units of Primary Distribution

USD = Units of Secondary Distribution

Account 364 (Poles): (All poles considered primary)

- A. Average age of a pole.
- B. Minimum size pole.
- C. Installed cost of the minimum size pole of the age in "A."
- D. Number of streetlights on separate poles. (Based on sample survey by Engineering Services.)
- E. Number of area lights on separate poles. (Based on sample survey by Engineering Services.)
- F. Number of poles in Account 364.
- G. Total dollars in Account 364.

Dollar Allocations for Account 364

$$\text{To Streetlighting} = D \times C^* = \text{DSL}$$

$$\text{To Area Lighting} = E \times C^* = \text{DAL}$$

$$\text{Customer Component} = (F - D - E) \times C = \text{DPCC}$$

$$\text{Demand Component} = \text{DSL} - \text{DAL} - \text{DPCC} = \text{DPDC}$$

*Cost of a minimum size pole was used because most streetlights are mounted on minimum size poles and those that are on larger poles are mounted on poles that do not have the usual framing (crossarms, etc.).

Account 365 (Overhead Conductor and Devices):

- I. Primary
 - A. Average age of primary conductor.
 - B. Minimum size primary unit.
 - C. Average installed cost of a minimum size primary unit of the age in "A."
 - D. Average number of poles in a minimum size unit of primary conductor. (Estimated by ED Department.)
 - E. Total dollars in Account 365 considered primary (see note).
 - F. Total number of poles used for primary distribution. (Number of poles in Account 364 - Number of poles allocated to streetlighting and area lighting.)

$$\text{Number of units of primary distribution} = \text{UPD} = \frac{F}{D1}$$

Dollar Allocations for Account 365 Primary

$$\text{Customer Component} = C \times \text{UPD} = \text{DPCC}$$

$$\text{Demand Component} = E - \text{DPCC} = \text{DPDC}$$

NOTE: All bare copper, aluminum, ACSR and iron wire are primary. 30% of WP copper, 80% of WP aluminum and 50% of the steel wire are primary. (Estimated by ED Department - exact percentages very difficult to determine.) All miscellaneous conductor and other equipment are primary.

II. Secondary

- A. Average age of secondary conductor.
- B. Minimum size secondary unit.
- C. Average installed cost of a minimum size unit of the age in "A."
- D. Number of units of secondary conductor (see note).
- E. Total dollars in Account 365 considered secondary. (All conductor not primary - see primary section.)
- F. Dollar value of duplex conductor in Account 365. (Duplex assumed to be used entirely for street and area lights.)
- G. Percent of total number of lighting units (street and area lights) that are streetlights.

Dollar Allocations for Account 365 Secondary

$$\text{To Streetlighting} = F \times G = \text{DSL}$$

$$\text{To Area Lighting} = F - \text{DSL} = \text{DAL}$$

$$\text{Customer Component} = C \times D = \text{DSCC}$$

$$\text{Demand Component} = E - F - \text{DSCC} = \text{DSDC}$$

NOTE: Estimated by ED Department based on 250' of secondary for each five urban residential cottages, and urban commercial customers, 3,360' of secondary per unit.

Account 366 (Underground Conduit):

The percentages developed from the allocation of Account 367 will be applied to this account.

Account 367 (Underground Conductor and Devices):

I. Primary

- A. Average age of primary unit.
- B. Minimum size primary unit.
- C. Average installed cost of a minimum size primary unit of the age in "A."
- D. Number of feet of conductor in the minimum size primary unit.
- E. Total dollars in Account 367 considered primary. (All conductor rated 5 kV and above, and all nonconductor items are considered primary.)
- F. Total number of feet of primary conductor in Account 367.

$$\text{Number of units of primary distribution} = \text{UPD} = \frac{F}{D2}$$

Dollar Allocations for Account 367 Primary

$$\text{Customer Component} = C \times \text{UPD} = \text{DPCC}$$

$$\text{Demand Component} = E - \text{DPCC} = \text{DPDC}$$

II. Secondary

- A. Average age of secondary unit.
- B. Minimum size of secondary unit.
- C. Average installed cost of a minimum size secondary unit of the age in "A."
- D. Number of feet of conductor in the minimum size secondary unit.
- E. Total dollars in Account 367 considered secondary. (All conductor rated 600 volts or less is secondary.)
- F. Total number of feet of secondary conductor in Account 367 (see note).
- G. Dollar value of duplex conductor in Account 367 (duplex conductor is assumed to be used entirely for street and area lights).
- H. Percent of total number of lighting units (street and area lights) that is streetlights.

$$\text{Number of units of secondary distribution} = \text{USD} = \frac{F}{D3}$$

Dollar Allocations for Account 367 Secondary

$$\text{To Streetlighting} = G \times H = \text{DSL}$$

$$\text{To Area Lighting} = G - \text{DSL} = \text{DAL}$$

$$\text{Customer Component} = C \times \text{USD} = \text{DSCC}$$

$$\text{Demand Component} = E - G - \text{DSCC} = \text{DSDC}$$

NOTE: Includes all quadruplex and triplex cable and 1/3 of 600 volt single wire. (Duplex is for lighting only.)

Account 368 (Transformers): (All transformers classified secondary)

- A. Average installed cost of minimum size 2400 V. overhead unit.*
- B. Average installed cost of minimum size 7200 V. overhead unit.*
- C. Average installed cost of minimum size 14400 V. overhead unit.*
- D. Average installed cost of minimum size 2400 V. underground unit.*
- E. Average installed cost of minimum size 7200 V. underground unit.*
- F. Number of 2400 V. overhead units in the account.
- G. Number of 7200 V. overhead units in the account.
- H. Number of 14400 V. overhead units in the account.

*Overhead unit cost includes cost of appropriate cutout and arrester.

- I. Number of 2400 V. underground units in the account.
- J. Number of 7200 V. underground units in the account.
- K. Total dollar value of Account 368.

Dollar Allocations for Account 368

$$\text{Customer Component} = (A \times F) + (B \times G) + (C \times H) + (D \times I) + (E \times J) = \text{DSCC}$$

$$\text{Demand Component} = K - \text{DSCC} = \text{DSDC}$$

Account 369 (Overhead Services): (All services classified secondary)

- A. Average age of a service.
- B. Minimum size of a service.
- C. Average installed cost of a minimum size service of the age in "A."
- D. Total number of 3 and 4 services.
- E. Dollar value of two-wire services (two-wire services are considered all customer component).
- F. Total dollar value of Account 369.

Dollar Allocations for Account 369

$$\text{Customer Component} = (C \times D) + E = \text{DSCC}$$

$$\text{Demand Component} = F - \text{DSCC} = \text{DSDC}$$

Account 369.1 (Underground Services): (All services classified secondary)

- A. Average age of an underground service.
- B. Minimum size of an underground service.
- C. Average installed cost of a minimum size three-wire service of the age in "A."
- D. Total number of services in Account 369.1.
- E. Total dollar value of Account 369.1.

Dollar Allocations for Account 369.1

$$\text{Customer Component} = (C \times D) = \text{DSCC}$$

$$\text{Demand Component} = E - \text{DSCC} = \text{DSDC}$$