BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-17______

EXH. TLK-2

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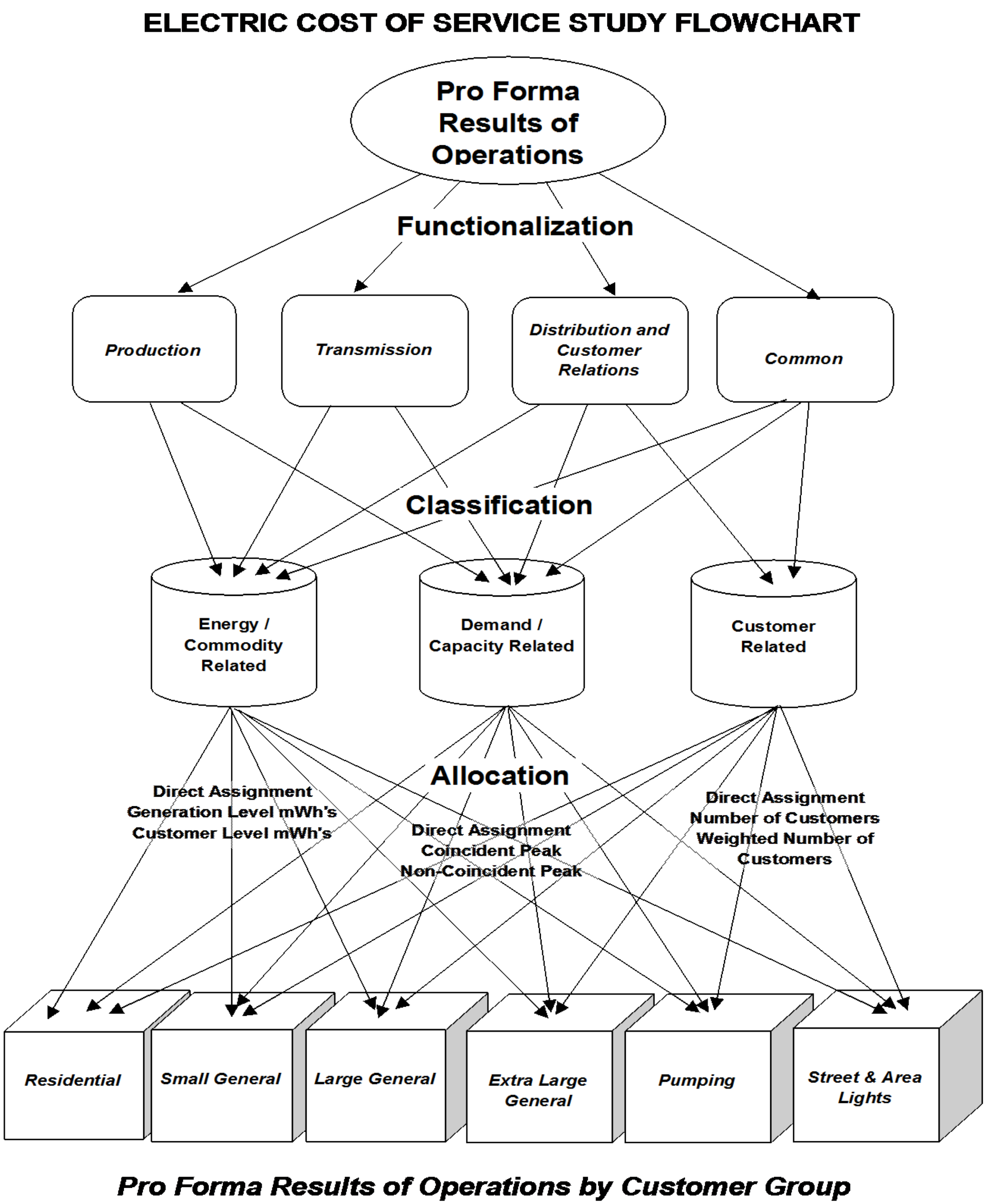
ELECTRIC COST OF SERVICE

A cost of service study is an engineering-economic study, which apportions the revenue, expenses, and rate base associated with providing electric service to designated groups of customers. It indicates whether the revenue provided by the customers recovers the cost to serve those customers. The study results are used as a guide in determining the appropriate rate spread among the groups of customers.

As shown in the flow chart below, there are three basic steps involved in a cost of service study: functionalization, classification, and allocation.

First, the expenses and rate base associated with the electric system under study are assigned to functional categories. The uniform system of accounts provides the basic segregation into production, transmission, and distribution. Traditionally, customer accounting, customer information, and sales expenses are included in the distribution function, and administrative and general expenses and general plant rate base are allocated to all functions. In this study I have created a separate functional category for common costs. Administrative and general costs that cannot be directly assigned to the other functions have been placed in this category.

Second, the expenses and rate base items which cannot be directly assigned to customer groups are classified into three primary cost components: energy, demand and customer related. Energy-related costs are allocated based on each rate schedule's share of commodity consumption. Demand-related (capacity) costs are allocated to rate schedules on the basis of each schedule's contribution to peak demand. Customer-related items are allocated to rate schedules based on the number of customers within each schedule. The number of customers may be weighted by appropriate factors such as relative cost of metering equipment. In addition to these three cost components, any revenue related expense is allocated based on the proportion of revenues by rate schedule.



The final step is allocation of the costs to the various rate schedules utilizing the allocation factors selected for each specific cost item. These factors are derived from usage and customer information associated with the test period results of operations.

BASE CASE COST OF SERVICE STUDY

Production and Transmission Classification (Peak Credit)

This study utilizes a Peak Credit methodology to classify production and transmission costs into demand and energy classifications. The Peak Credit method acknowledges that all energy production costs contain both capacity and energy components as they provide energy throughout the year as well as capacity during system peaks. Likewise, the transmission system is built not only for peak use, but also for everyday delivery of energy. The peak credit ratio (the proportion of total production cost that is capacity related) is determined using the electric system load factor inherent in the test year. The share of production costs attributable to demand is one minus the load factor (average MW divided by peak MW) which is 37.65% for the 12-months ended December 2016 test year. The same classification ratio is applied to all production and transmission costs.

Production and Transmission Allocation

Production and transmission demand-related costs are allocated to the customer classes by class contribution to the average of the twelve monthly system coincident peak loads. Although the Company is usually a winter peaking utility, it experiences high summer peaks and careful management of capacity requirements is required throughout the year. The use of the average of twelve monthly peaks recognizes that customer capacity needs are not limited to the heating season.

Energy-related costs are allocated to class by pro forma annual kilowatt-hour sales adjusted for losses to reflect generation level consumption.

Distribution Facilities Classification (Basic Customer)

The Basic Customer method considers only services and meters and directly assigned Street Lighting apparatus (FERC Accounts 369, 370, and 373 respectively) to be customer-related distribution plant. All other distribution plant is then considered demand related. The basic customer method has been adopted historically for both electric and natural gas cost of service in the State of Washington.

Customer Relations Distribution Cost Classification

Customer service, customer information and sales expenses are the core of the customer relations functional unit which is included with the distribution cost category. For the most part they are classified as customer related. Exceptions are sales expenses which are classified as energy related and uncollectible accounts expense which is considered separately as a revenue conversion item.

Distribution Cost Allocation

Distribution demand-related costs which cannot be directly assigned are allocated to customer class by the average of the twelve monthly non-coincident peaks for each class. Distribution facilities that serve only secondary voltage customers are allocated by non-coincident peak excluding all primary and transmission voltage customers. This includes line transformers, services, and secondary voltage overhead or underground conductors and devices. The costs of specific substations and related primary voltage distribution facilities are directly assigned to Extra Large General Service customers based on their load ratio share of the substation capacity from which they receive service. The remaining primary voltage overhead or underground conductors and devices are allocated by non-coincident peak for all customers except those that received direct assignment (Schedule 25).

Most customer costs are allocated by average number of customers. Weighted customer allocators have been developed using typical current cost of meters, estimated meter reading time, and direct assignment of billing costs for hand-billed customers. Street and Area Light customers (Schedules 41 – 48) are excluded from metering and meter reading expenses as their service is not metered.

Administrative and General Costs

Administrative and general costs which are directly associated with production, transmission, distribution, or customer relations functions are directly assigned to those functions and allocated to customer class by the relevant plant or number of customers. The remaining administrative and general costs are considered common costs, and have been left in their own functional category. These common costs are allocated to rate classes using the same methodology approved for Puget Sound Power and Light (now Puget Sound Energy) in Docket No. UE-920499.

Common plant items are allocated to rate classes by either PTD[1] plant; PTD labor expense; or total labor expense. Most common administrative and general expenses are allocated to rate class by non-resource operating and maintenance expenses[2]. Property insurance expense is allocated by plant totals. Injuries & damages and pensions & benefits expenses are allocated by operating and maintenance labor expense totals. Working capital

[1] The sum of production transmission and distribution assignments determined within the calculation model.
[2] The sum of operating and maintenance expenses before administrative and general expenses excluding resource items (purchased power, fuel, and wheeling expense) assignments as determined within the calculation model. Revenue-related items (uncollectible accounts expense and commission fees) are also excluded to avoid circular reference issues.

is allocated by tangible plant in service (production, transmission, distribution, general plant).

Revenue Conversion Items

In this study, state excise tax, uncollectible accounts and commission fees have been classified as revenue-related and are allocated by pro forma revenue. These items vary with revenue and are included in the calculation of the revenue conversion factor. Income tax expense items are allocated to schedules by net income before income tax adjusted by interest expense.

For the functional summaries on pages 2 and 3 of the cost of service study, these items are then assigned to component cost categories. The revenue-related expense items have been reduced to a percent of all other costs and loaded onto each cost category by that ratio. Similarly, income tax items have been reduced to a percent of net income before tax then assigned to cost categories by relative rate base (as is net income).

The following matrix outlines the methodology applied in the Company Base Case cost of service study.

Line	Account	Functional Category	Classification	Allocation
	Production Plant			
1	Thermal Production	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
2	Nuclear Production (Settlement Exchange)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
3	Hydro Production	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
4	Other Production (Coyote Springs)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
5	Other Production	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
	Transmission Plant			
6	All Transmission	T = Transmission	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
	Distribution Plant			
7	360 Land	D = Distribution	Demand	D08 Non-coincident Peak Demand Primary
8	361 Structures	D = Distribution	Demand	D03/D04/D05 Direct Assign Large / Non-coincident Peak Demand Excl DA
9	362 Station Equipment	D = Distribution	Demand	D03/D04/D05 Direct Assign Large / Non-coincident Peak Demand Excl DA
10	364 Poles Towers & Fixtures	D = Distribution	Demand	D03/D04/D06/D07 Primary NCP Excl DA / Secondary NCP / Direct Assign Lights / Direct Assign Large
11	365 Overhead Conductors & Devices	D = Distribution	Demand	D03/D04/D06 Primary NCP Excl DA / Secondary NCP / Direct Assign Large
12	366 Underground Conduit	D = Distribution	Demand	D03/D04/D06 Primary NCP Excl DA / Secondary NCP / Direct Assign Large
13	367 Underground Conductors & Devices	D = Distribution	Demand	D03/D04/D06 Primary NCP Excl DA / Secondary NCP / Direct Assign Large
14	368 Line Transformers	D = Distribution	Demand	D06 Non-coincident Peak Demand Secondary only
15	369 Services	D = Distribution	Customer	C02 Secondary Customers unweighted Excl Lighting
16	370 Meters	D = Distribution	Customer	C04 Customers weighted by Current Typical Meter Cost
17	373 Street and Area Lighting Systems	D = Distribution	Customer	C05 Direct Assignment to Street and Area Lights
	General Plant			
	389 - 392, 397, 398 Land, Structures, Furniture,			
18	Transportation, Communication, Miscellaneous Equipment	P/T/D	Demand/Energy/Customer as in related Labor	S22 Labor O&M Total
	393 Stores Equiment	P/T/D	Demand/Energy/Customer as in related Plant	S05 P/T/D Plant Total
	394 - 396 Tools Shop/Garage, Laboratory, Power Op Equip	P/T/D	Demand/Energy/Customer as in related Labor	S21 Labor P/T/D O&M Subtotal
	Intangible Plant			
19	301 Organization	P/T/D/G	Demand/Energy/Customer as in related Plant	S06 Sum of Production, Transmission, Distribution, and General Plant
20	302 Franchises & Consents - Hydro Relicensing	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
21	303 Misc Intangible Plant - Transmission Agreements	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
22	303 Misc Intangible Plant - Distribution Agreements	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
23	303 Misc Intangible Plant - Software and Other Common	P/T/D/G	Demand/Energy/Customer as in related Plant	S06 Sum of Production, Transmission, Distribution, and General Plant
	Reserve for Depreciation/Amortization			
24	Intangible	P/T/D/G	Follows Related Plant	S01/S02/S03/S06 Sum of Production / Transmission / Distribution Plant / P/T/D/G Total
25	Production	P = Production	Follows Related Plant	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
26	Transmission	T = Transmission	Follows Related Plant	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
27	Distribution	D = Distribution	Follows Related Plant	D02/D03/D04/D05/D06/D07/D08/C02/C04/C05 - See Related Plant
28	General	P/T/D	Demand/Energy/Customer as in related Labor or Plant	S22/S05/S21 Labor O&M Total, P/T/D Plant Total, Labor P/T/D O&M Subtotal
	Other Rate Base			
29	252 Customer Advances for Construction	D = Distribution	Customer	S13 Sum of Account 369 Services Plant
30	282/190 Accumulated Deferred Income Tax	P/T/D/G	Follows Related Plant	S01/S02/S03/S04 Sums of Production / Transmission / Distribution / General Plant
31	Other Attrition Adjustment to Rate Base	P/T/D	Demand/Energy/Customer from Plant	S04 Sum of General Plant
32	Hydro Relicensing Related Settlements	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
33	Lancaster Deferred Balance	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
34	Deferred Meter Retirements Balance	D = Distribution	Customer	C04 Customers weighted by Current Typical Meter Cost
35	Working Capital	P/T/D/G	Demand/Energy/Customer as in related Plant	S06 Sum of Production, Transmission, Distribution, and General Plant

Line	Account	Functional Category	Classification	Allocation
	Production O&M			
1	Thermal	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
2	Thermal Fuel (501)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
3	Hydro	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
4	Water for Power (536)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
5	Other (Coyote Springs)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
6	Other Fuel (547)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
7	Other	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
8	Purchased Power and Other Expenses (555 and 557)	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
9	System Control & Misc (556)	P = Production	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
	Transmission O&M			
10	All Transmission	T = Transmission	Demand/Energy by Peak Credit (37.65% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
	Distribution O&M			
11	580 OP Super & Engineering	D = Distribution	Demand/Customer from Other Dist Op Exp	S16 Sum of Other Distribution Operating Expenses
12	581 Load Dispatching	D = Distribution	Demand	D02 Non-coincident Peak Demand
13	582 Station Expenses	D = Distribution	Demand	S09 Sum of Account 362 Station Equipment
14	583 Overhead Lines	D = Distribution	Demand	S10 Sum of Accounts 364 and 365 Poles, Towers, Fixtures & Overhead Conductors
15	584 Underground Lines	D = Distribution	Demand	S11 Sum of Accounts 366 and 367 Underground Conduit & Underground Conductors
16	585 Street Lights	D = Distribution	Customer	S15 Sum of Account 373 Street Light and Signal Systems
17	586 Meters	D = Distribution	Customer	S14 Sum of Account 370 Meters
18	587 Customer Installations	D = Distribution	Customer	S13 Sum of Account 369 Services
19	588 Misc Operating Expense	D = Distribution	Demand/Customer from Other Dist Op Exp	S16 Sum of Other Distribution Operating Expenses
20	589 Rents	D = Distribution	Demand	D02 Non-coincident Peak Demand
21	590 MT Super & Engineering	D = Distribution	Demand/Customer from Other Dist Mt Exp	S17 Sum of Other Distribution Maintenance Expenses
22	591 MT of Structures	D = Distribution	Demand	S08 Sum of Account 361 Structures & Improvements
23	592 MT of Station Equipment	D = Distribution	Demand	S09 Sum of Account 362 Station Equipment
24	593 MT of Overhead Lines	D = Distribution	Demand	S10 Sum of Accounts 364 and 365 Poles, Towers, Fixtures & Overhead Conductors
25	594 MT of Underground Lines	D = Distribution	Demand	S11 Sum of Accounts 366 and 367 Underground Conduit & Underground Conductors
26	595 MT of Line Transformers	D = Distribution	Demand	S12 Sum of Account 368 Line Transformers
27	596 MT of Street Lights	D = Distribution	Customer	S15 Sum of Account 373 Street Light and Signal Systems
28	597 MT of Meters	D = Distribution	Customer	S14 Sum of Account 370 Meters
29	598 Misc Maintenance Expense	D = Distribution	Demand/Customer from Other Dist Mt Exp	S17 Sum of Other Distribution Maintenance Expenses
	Customer Accounts Expenses			
30	901 Supervision	C = Customer Relations	Customer	S18 Sum of Other Customer Accounts Expenses Excluding Uncollectibles
31	902 Meter Reading	C = Customer Relations	Customer	C03 Customers Weighted by Estimated Meter Reading Time
32	903 Customer Records & Collections	C = Customer Relations	Customer	C01 All Customers unweighted
33	904 Uncollectible Accounts	R = Revenue Conversion	Revenue	R01 Retail Sales Revenue
34	905 Misc Cust Accounts	C = Customer Relations	Customer	C01 All Customers unweighted
	Customer Service & Info Expenses			
35	907 Supervision	C = Customer Relations	Customer	C01 All Customers unweighted
36	908 Customer Assistance	C = Customer Relations	Customer	C01 All Customers unweighted
37	909 Advertising	C = Customer Relations	Customer	C01 All Customers unweighted
38	910 Misc Cust Service & Info	C = Customer Relations	Customer	C01 All Customers unweighted
	Sales Expenses			
39	911 - 916	C = Customer Relations	Energy	E02 Annual Generation Level Consumption

Line	Account	Functional Category	Classification	Allocation
	Admin & General Expenses			
1	920 - 926 & 930 -935 Assigned to Production	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
2	920 - 926 & 930 -935 Assigned to Transmission	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
3	920 - 926 & 930 - 935 Assigned to Distribution	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
4	920 - 926 & 930 - 935 Assigned to Customer Relations	C = Customer Relations	Customer	C01 All Customers unweighted
5	Other 920-923, 928-931 Salaries, supplies, etc	P/T/D	Demand/Energy/Customer from O&M Expenses	S19 Sum of expenses excluding Purch Power, Fuel, Wheeling, Uncollectibles, Tariff Rider
6	924 Property Insurance	P/T/D	Demand/Energy/Customer from Plant	S06 Sum of Production, Transmission, Distribution, and General Plant
7	Other 925-926 Inj & Dam, Pensions & Benefits	P/T/D	Demand/Energy/Customer from Labor O&M Total	S22 Sum of Labor O&M Expenses
8	928 FERC Commission Fees	P = Production	Energy	E02 Annual Generation Level Consumption
9	927,928 Franchise Fees, WUTC Commission Fees	R = Revenue Conversion	Revenue	R01 Retail Sales Revenue
10	935 Maintenance of General Plant	P/T/D	Demand/Energy/Customer from Plant	S04 Sum of General Plant
	Depreciation & Amortization Expense			
11	Intangible	P/T/D/G	Demand/Energy/Customer as in related Plant	S01/S02/S06 Sum of Production Plant / Sum of Transmission Plant / Sum of P/T/D/G Plant
12	Production	P = Production	Demand/Energy as in related Plant	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
13	Transmission	T = Transmission	Demand/Energy as in related Plant	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
14	Distribution	D = Distribution	Demand/Customer as in related Plant	D02/D03/D04/D05/D06/D07/D08/C02/C04/C05 - See Related Plant
15	General	P/T/D	Demand/Energy/Customer as in related Labor or Plant	S22/S05/S21 Labor O&M Total, P/T/D Plant Total, Labor P/T/D O&M Subtotal
	Taxes			
16	Property Tax	P/T/D/O	Demand/Energy/Customer from Related Plant	S01/S02/S03/S04 Sums of Production / Transmission / Distribution / General Plant
17	State kWh Generation Taxes	P = Production	Demand/Energy by Peak Credit (37.93% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
18	Misc Production Taxes	P = Production	Demand/Energy by Peak Credit (37.93% Demand)	D01/E02 Coincident Peak Demand/Annual Generation Level Consumption
19	Misc Distribution Taxes	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
20	Washington State Excise Tax	R = Revenue Conversion	Revenue	R01 Retail Sales Revenue
21	Federal Income Taxes - Current and/or Deferred	R = Revenue Conversion	Revenue	R03 Revenue less Expenses Before Income Tax less Interest Expense
	Other Income Related Items			
22	Transmission Related Items	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
23	Amortization of Gain on Sale of Misc Property	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
24	Amortization of Deferred Meter Retirements	D = Distribution	Customer	C04 Customers weighted by Current Typical Meter Cost
25	Renewable Production Related Items	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
	Operating Revenues			
26	Sales of Electricity- Retail	R = Revenue from Rates	Revenue	Input Pro Forma Revenue per Revenue Study
27	Sales for Resale (447)	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
28	Misc Service Revenue (451)	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
29	Sales of Water & Water Power (453)	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
30	Rent from Production Property (454)	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
31	Rent from Transmission Property (454)	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
32	Rent from Distribution Property (454)	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
33	Other Electric Revenues - Generation (456)	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
34	Other Electric Revenues - Wheeling (456)	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
35	Other Electric Revenues - Energy Delivery (456)	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
	Salaries & Wages (allocators)			
	Operation & Maintenance Expenses			
36	Production Total	P = Production	Demand/Energy from Production Plant	S01 Sum of Production Plant
37	Transmission Total	T = Transmission	Demand/Energy from Transmission Plant	S02 Sum of Transmission Plant
38	Distribution Total	D = Distribution	Demand/Customer from Distribution Plant	S03 Sum of Distribution Plant
39	Customer Accounts Total	C = Customer Relations	Customer	S18 Sum of Other Customer Accounts Expenses Excluding Uncollectibles
40	Customer Service Total	C = Customer Relations	Customer	C01 All Customers unweighted
41	Sales Total	C = Customer Relations	Energy	E02 Annual Generation Level Consumption
42	Admin & General Total	P/T/D	Demand/Energy/Customer from Related Plant	S05 Sum of Production, Transmission and Distribution Plant