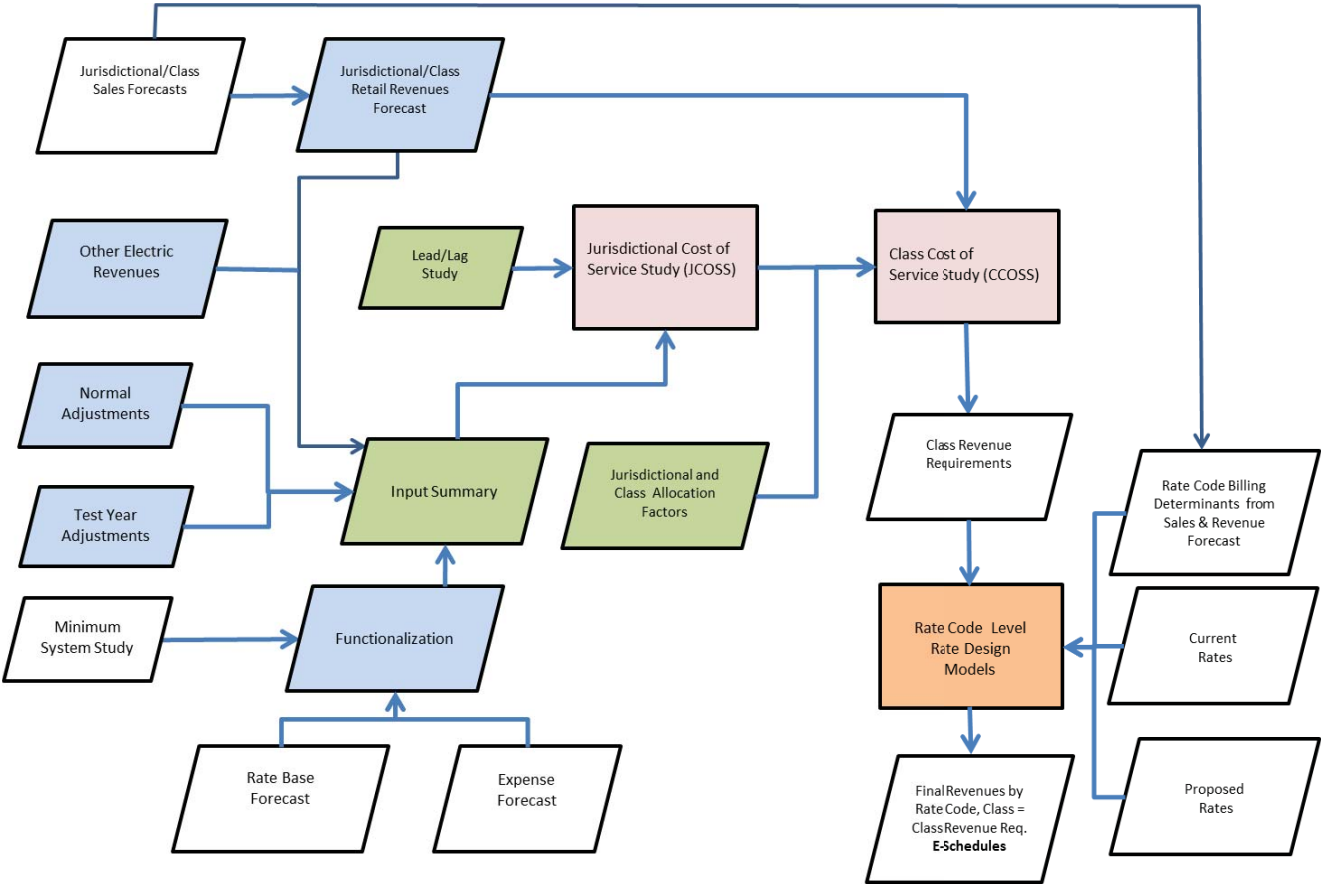


Otter Tail Power Company
Jurisdictional and Class Cost of Service Study
And
Rate Design
Process Overview Manual

1. Introduction:

The purpose of this document is to provide an overview of the various inputs of data which feed into Otter Tail Power’s (OTP) Jurisdictional Cost of Service Study (JCOSS) and Class Cost of Service Study (CCOSS) models to determine OTP’s revenue requirement upon which subsequent customer class revenue requirements and related rate designs are completed. Flow charts are provided along with descriptive narratives and tables to provide further clarity in how information included in OTP’s rate case filing flows from one step in the process to the next. Below is a high-level overview of key components within the overall process that leads to the determination of revenue requirements and corresponding rates necessary to collect the required revenues from the respective customer classes.

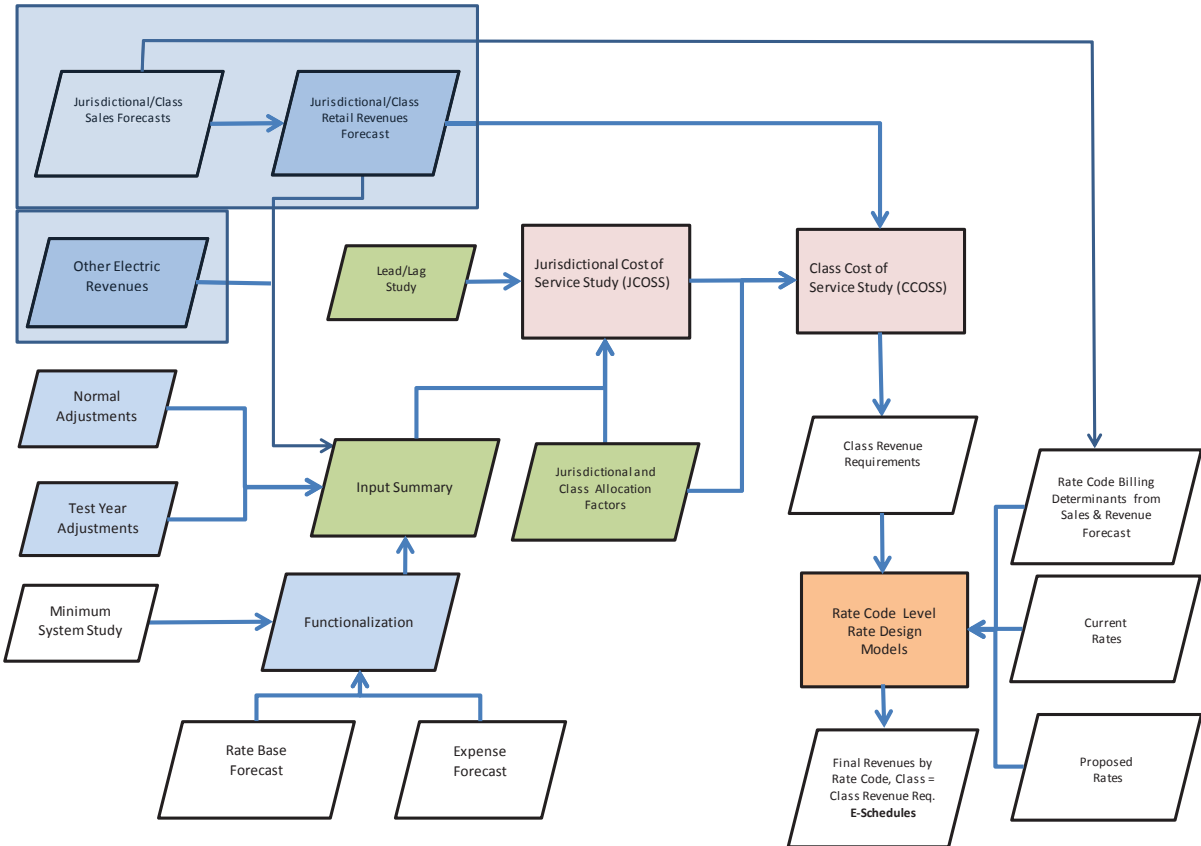


The balance of this document will review in general terms, the various components identified above, describing the flow of data between those components. The descriptions provided are assumed in the context of a forecast test year.

Retail Sales & Revenue Forecast

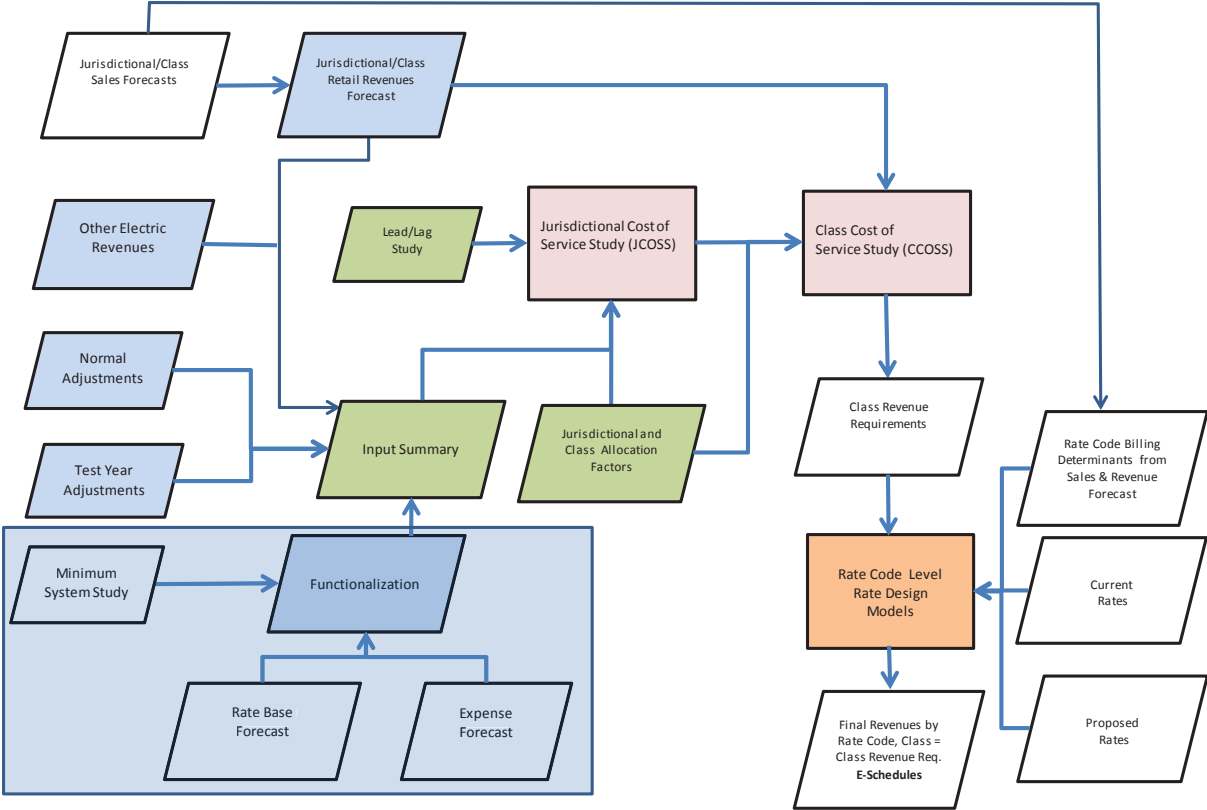
In summary, the development of the kWh sales forecast at a class and jurisdictional level is the initial step in determining the retail base rate revenue forecast. The kWh sales forecasts and associated billing determinants then serve as inputs into the process which derives forecasted class and jurisdictional revenues based on existing base rate design. Additional revenues from various rate riders make up the balance of revenues associated with kWh sales, as itemized in Work Paper B-1. Total Jurisdictional revenues flow into the Input Summary, which subsequently feeds into the JCOSS. Class Revenues serve as an input in the CCOSS. Billing determinants developed in the process of creating the sales and revenue forecasts, ultimately serve as inputs into the final rate design models used to develop rates to collect the required revenues. These steps will be explained in more detail later in this document.

Other Electric Revenues and Sales for Resale are listed in Work Papers B-2 and B-3 and also flow into the Input Summary. These revenues, combined with the forecasted retail revenues, yield total jurisdictional and company revenues.



Functionalization (Volume 4A)

The **Functionalization Schedule**, found in **Volume 4A** of the rate case filing, is the schedule which takes total company rate base and expense information as accounted for under Federal Energy Regulatory Commission (FERC) accounting rules, and aggregates those amounts into functional cost categories: production; transmission; distribution; customer accounting and collecting, and customer service and information. In addition, this schedule further “classifies” the information within each function, based on key service characteristics: demand, energy, customers and meters. These classifications have further sub-characteristics such as type of demand or energy, voltage level, or type of customer or meter. These service characteristics or sub-characteristics provide the basis for further cost allocations within the JCROSS and CCOSS. OTP’s Cost Allocation Procedures Manual (CAPM) provides further detail on how each class of costs gets allocated jurisdictionally and subsequently to the various classes within each jurisdiction.



Functionalization Pages:

Pages 1-3 is the input section of the Functionalization schedule, where the FERC account balances are entered and amounts are aggregated based on functional area.

Page 4 of the Functionalization schedule takes the distribution rate base and distribution expense balances from pages 1-3 of the Functionalization schedule and allocates those costs to the following classifications for distribution rate base and expenses:

- Primary Demand
- Secondary Demand
- Primary Customer
- Secondary Customer
- Street Lights
- Area Lights
- Meters
- Load Management

The classifications of these costs are based on allocation factors developed from the Minimum System Study. Details of the process to develop the Minimum System Study are found in Appendix A-1 of OTP's CAPM.

Page 4 of the Functionalization schedule also includes an input section on lines 2 and 3 for the Base/Peak split allocation factors which allocate Production Plant rate base and expense amounts between Base Demand and Peak Demand, Base Demand and Base Energy Categories. The calculation of the Base/Peak split factors is found in Cost of Service Workpapers C-1 and C-1a, following the methodology described in pages 3 and 4 of OTP's CAPM.

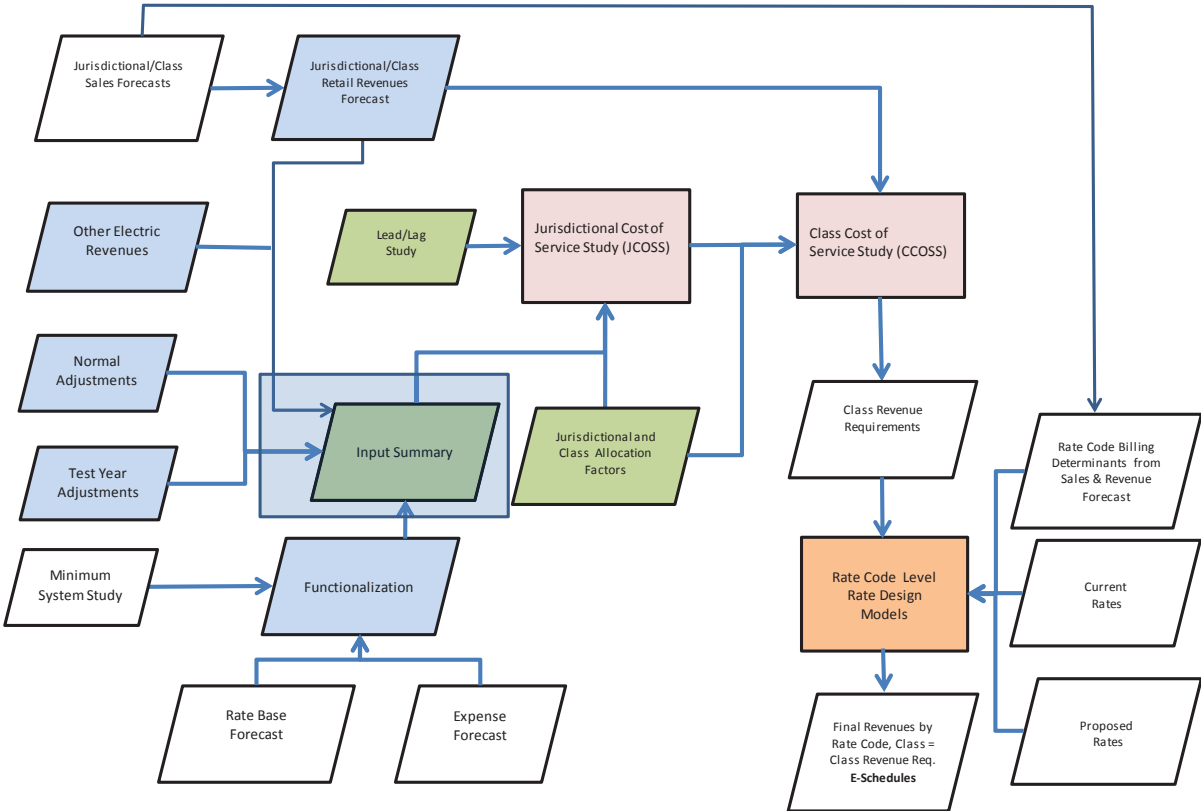
Pages 5 and 6 of the Functionalization schedule summarize the allocations of costs from pages 1-4, into the respective cost categories that align with the categorical breakdowns ultimately included in OTP's JCOSS and CCOSS. The Rate Base and Expense amounts are first entered into the JCOSS Input Summary, which is described in the next section below.

Input Summary (Volume 4A)

The purpose of the Input Summary, found in Volume 4A is to aggregate Total Company cost information (operating statement as well as rate base items) that has been categorized in the Functionalization schedule, as well as incorporate Total Company Revenue amounts and other Company data quantified in other Workpapers, into a single schedule. This schedule serves as the staging schedule from which much of the company financial information is entered into the JCOSS model.

The amounts which have been functionalized and classified by service characteristics are included in Column A of the Input Summary, as well as revenues and certain other rate base items computed in their respective source document workpapers. All data in the Input Summary is footnoted to the source document / work paper of origin. The Input Summary then incorporates into the adjacent columns to the right, adjustments which are necessary for computation of the JCOSS.

A more detailed description of the various sections of the Input Summary is included following the graphic below.



Input Summary Schedules

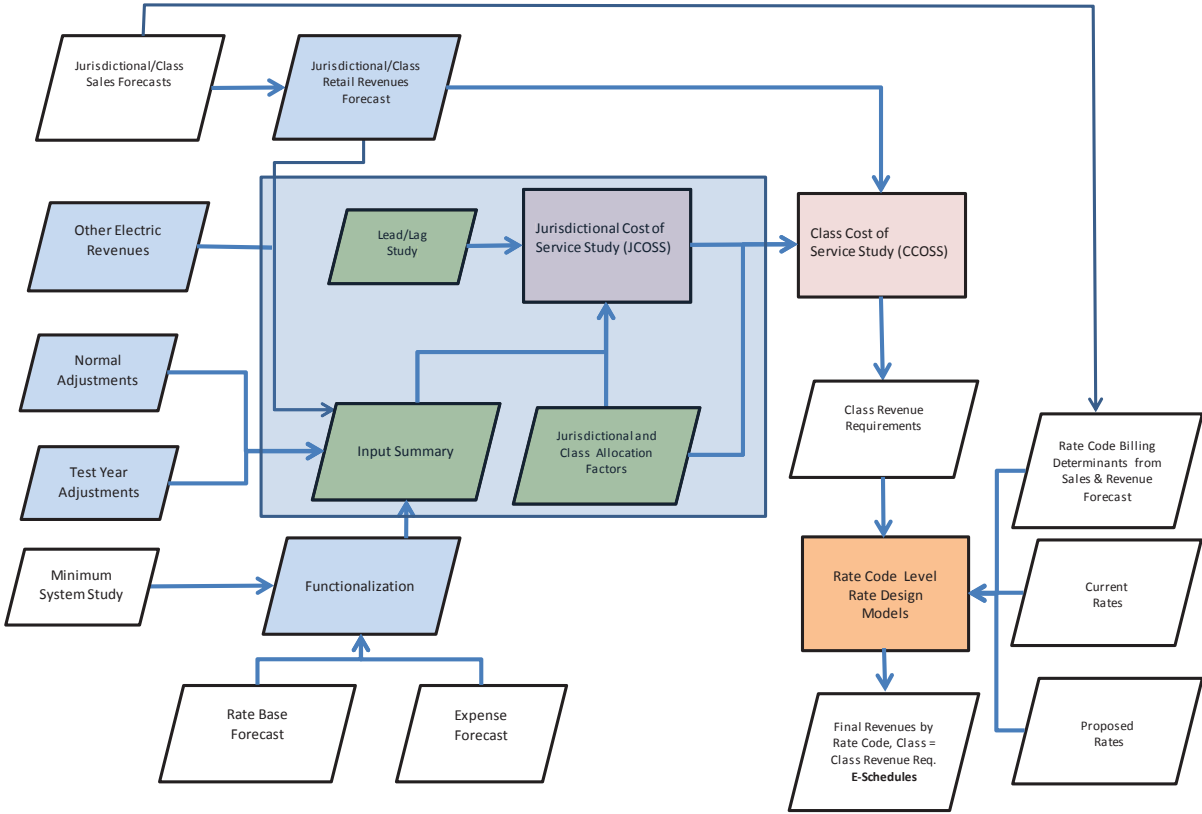
The **Input Summary** is divided into two primary sections; Rate Base components and Operating Statement components. Further breakdowns of the Input Summary schedules are identified below:

1. **A – Summary** Schedules - These pages include all the **rate base** related accounts and associated adjustments. The A-Summary schedules are broken down further into two sections:
 - a. **A-Summary 1** - This is a bridge schedule which starts with Total Company Simple Average rate base amounts in Column A. These amounts originate from the Functionalization schedule as well as amounts from work paper schedules, as footnoted in the Input summary schedule. Subsequent columns in the schedule incorporate the Normal Adjustments necessary to determine OTP's Total Company Unadjusted amounts in the last column of the schedule. These amounts reflect the values that would be input into the JCOSS Model to compute OTP's Unadjusted JCOSS based on currently approved methodologies and normal adjustments.
 - b. **A-Summary 2** - This is a bridge schedule which starts with Total Company Unadjusted amounts in Column A as computed in the A-Summary 1. Subsequent columns in the A-Summary 2 schedule incorporate the Test Year Adjustments necessary to determine OTP's Total Company Adjusted amounts in the last column of the schedule. These amounts reflect the values that would be input into the JCOSS Model to compute OTP's Test Year JCOSS.
2. **B - Summary** – These pages include all **operating statement** amounts and associated adjustments. The B-Summary schedules are broken down further into two sections:
 - a. **B-Summary 1** - This is a bridge schedule which starts with Total Company annual Operating Statement amounts in Column A. These amounts originate from the Functionalization schedule as well as amounts from work paper schedules, as footnoted in the Input summary schedule. Subsequent columns in the B-Summary-1 schedule incorporate the Normal Adjustments necessary to determine OTP's Total Company Unadjusted amounts in the last column of the schedule. These operating statement amounts reflect the values that would be input into the JCOSS Model to compute OTP's Unadjusted JCOSS based on currently approved methodologies and normal adjustments.
 - b. **B-Summary 2** - This is a bridge schedule which starts with Total Company Unadjusted Operating Statement amounts in Column A as computed in the A-Summary-1. Subsequent columns in the B-Summary 2 schedule incorporate the Test Year Adjustments necessary to determine OTP's Total Company Adjusted amounts in the last column of the schedule. These amounts reflect the values that would be input into the JCOSS Model to compute OTP's Test Year JCOSS.

Jurisdictional Cost of Service Study Model (JCOSS)

The purpose of JCOSS model is to compute OTP’s total Available for Return and compare that amount to the current authorized/proposed return and computes incremental amount of revenue surplus or deficiency necessary to meet that authorized return. The key Inputs into the JCOSS are:

1. Input Summary Amounts
2. Lead-Lag Study Amounts
3. Jurisdictional Allocation Factors



The JCOSS is found in Volume 4A for the Test Year. The following table aligns the JCOSS Pages to the respective Input Summary, Lead-Lag, and Allocation Factor Schedules. All Summary pages in the JCOSS model have references to the respective detailed sections of the JCOSS.

JCOSS Page	Description	Source	Source Pages
1-1	JCOSS Summary of Deficiency	JCOSS Detail Pages	Pages 2, 7, 17
2-1	Rate Base Summary	JCOSS Detail Pages	Pages 3, 4, 5, 6
3-1	Total Plant in Service	Input Summary A-2	Page 1
4-1	Accumulated Depreciation Plant Held for Future Use	Input Summary A-2	Page 2 Page 2
5-1	CWIP Materials & Supplies, Fuel Stocks Prepayments Customer Advances Cash Working Capital	Input Summary A-2	Page 3 Page 4 Page 4 Page 4 Page 4 Page 4
6-1	Accumulated Deferred Income Taxes	Input Summary A-2	Page 4
7-1	Operating Statement Summary	JCOSS Detail Pages	Pages 8,9,10,11,12
8-1	Operating Revenues	Input Summary B-2	Page 1
9-1	Production Expenses Transmission Expenses Distribution Expenses Customer Accounting Expenses	Input Summary B-2	Page 2 Page 2 Page 2 Page 2
10-1	Customer Service & Information Expenses Sales Expenses Admin & General Expenses	Input Summary B-2	Page 2 Page 3 Page 3
11-1	Depreciation Expense	Input Summary B-2	Page 4
12-1	General Taxes Investment Tax Credits Deferred Income Taxes Current Income Taxes- Federal Current Income Taxes –MN Current Income Taxes – ND AFDC	Input Summary B-2 Input Summary B-2 Input Summary B-2 JCOSS Detail JCOSS Detail JCOSS Detail Input Summary	Page 4 Page 4 Page 4 Page 13-1 Page 14-1 Page 14-1 Page 5
13-1	Federal Income Taxes	JCOSS Calculation	Page 13-a
14-1	Minnesota State Income Tax Expense North Dakota State Income Tax Expense	JCOSS Calculation	Page 14-a
15-1	Jurisdictional Allocation Factors	Required Schedules C-9	Page 4
16-1	Secondary Allocation Factors	JCOSS Calculation Required Schedules – C-9	Page 16-a Page 5
17-1	Capital Structure – Requested	Required Schedules – D-1-a	Page 17-1 Page 17-a
18-1	Cash Working Capital Revenue Lead Days	Lead Lag Study Required Schedules – B-2-e	Summary – Page 1 Page 1
19-1	Cash Working Capital - MN Calculation Expense Lag Days	Lead Lag Study Required Schedules – B-2-e	See Reference tables on next page Page 3
20-1	Cash Working Capital - ND Calculation Expense Lag Days	Lead Lag Study Required Schedules – B-2-e	See Reference tables on next page Page 3
21-1	Cash Working Capital - SD Calculation Expense Lag Days	Lead Lag Study Required Schedules – B-2-e	See Reference tables on next page Page 3
22-1	Cash Working Capital - FERC Calculation Expense Lag Days	Lead Lag Study Required Schedules – B-2-e	See Reference tables on next page Page 3
23-1	Cash Working Capital- Total Company	JCOSS Calculation	Sum of Jurisdictional totals 19-1 to 22-1

Lead-Lag Study Reference Table

The following table provides a cross reference of the various Lead-Lag study values found in the JCOSS to the respective page in the Lead-Lag Study.

JCOSS Page 18-1

Line No.	Revenue Lead Days from Service to Collection	Revenue Lead Days	Lead Lag Study Page	Notes:
23	Computer Maintained Billings	43.4	1	
24	Manually Maintained Billings	41.3	1	
25	Cost of Energy Adjustment Revenues	127.7	37	
26	Sales for Resale	23.1	40	
27	Rent from Electric Property	-92.4	42	
28	Miscellaneous	34.9	51	
29	ITA Deficiency Payments	48.4	56	
30	Wheeling	35.8	60	
31	Load Control and Dispatch	27.9	1	Line 21
32	Rent from Electric Property - Big Stone	39.9		Calculated in COSS
33	Rent from Electric Property - Coyote	39.9		Calculated in COSS
34	Profit on Materials and Supplies	39.9		Calculated in COSS
35	Miscellaneous Services	39.9		Calculated in COSS
36	Loan Pool Interest	39.9		Calculated in COSS

JCOSS Page 20-1

Line No.	Item	Expense Lag Days	Lead Lag Study Page	Notes:
3	Fuel - Coal	15.5	69	
5	Fuel - Oil	11.2	69	
7	Purchased Power	31.6	69	
9	Labor and Associated Payroll Expense	15.1	69	
11	All Other O&M Expense	13.1	69	Line 19
13	Property Taxes (Excl Coal Conversion Taxes)	299.5	157	Calculated in COSS
15	Coal Conversion Taxes	33.3	171	
17	Federal Income Taxes	0.0	172	
19	State Income Taxes	0.0	172	
21	Incremental Federal Income Taxes	0.0	172	
23	Incremental State Income Taxes	0.0	172	
25	Bank Balances	n/a		
27	Special Deposits	n/a		
29	Working Funds	n/a		
31	Tax Collections Avail - FICA Withholding	0.0	175	
33	Tax Collections Avail - Federal Withholding	0.0	175	
35	Tax Collections Avail - State Withholding- MN	1.9	175	
37	Tax Collections Avail - State Withholding- ND	69.1	175	
39	Tax Collections Available - State Sales Tax	23.8	175	
41	Tax Collections Available - Franchise Taxes	0	175	

JCOSS pages 1-a to 18-a contain the jurisdictional breakdowns of the JCOSS information as listed on pages 1-1 to 18-1 on the table above.

Allocation Factors

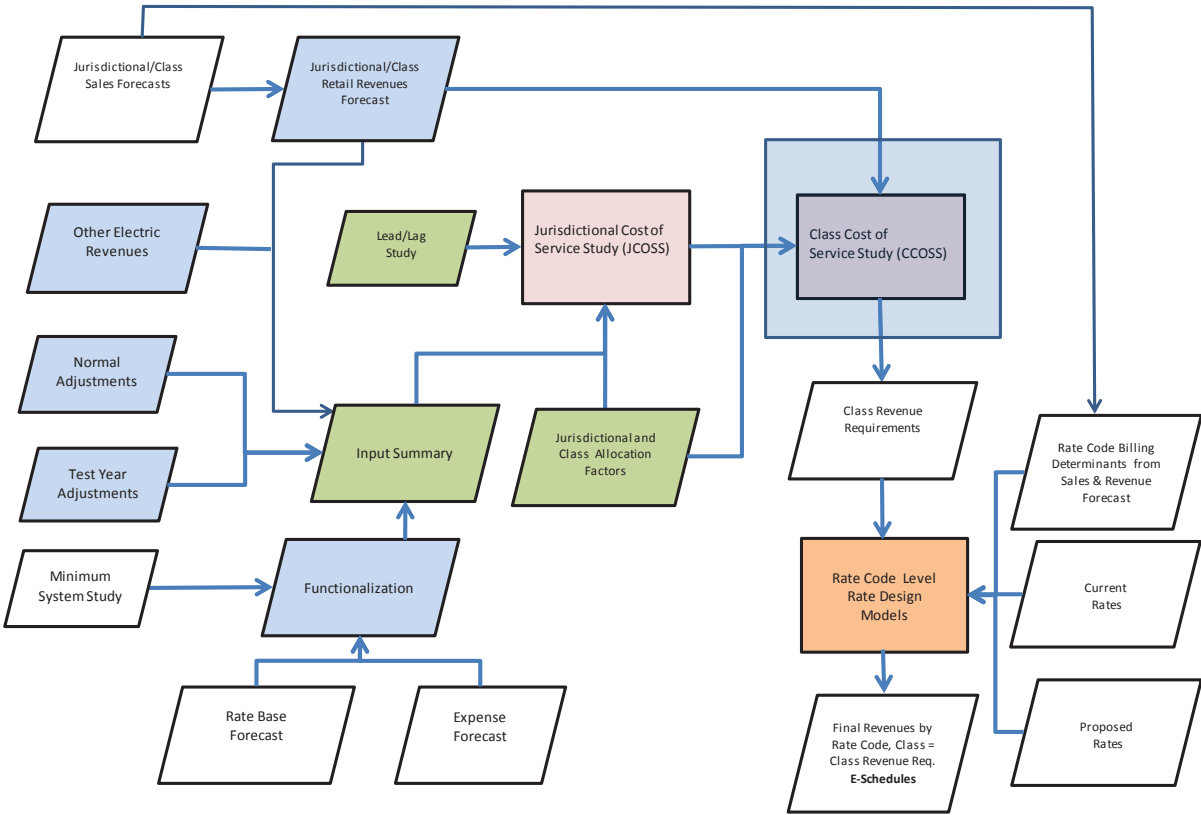
As reflected in the flow chart and listed on page 15-1 of the CCOSS, jurisdictional allocation factors are applied to various costs (rate base and expense) to allocate total company costs to the jurisdiction. Details on both jurisdictional and class allocation factors are outlined in OTP’s Cost Allocation Procedures Manual and in OTP’s Forecast Cost Allocation Procedures Manual Supplement. Required schedules C-9 and Work Papers Volume 4, C-3 provide additional detail as well.

JCOSS Summary

The results of the JCOSS, as summarized on page 1-1, is the determination of a (surplus) or deficiency in revenue needed to achieve the rate of return authorized or requested within the jurisdiction. The respective **jurisdictional amounts** within the study serve as the primary inputs into the **CCOSS model**, with allocations of those costs and associated class revenue requirements distributed to each customer class.

Class Cost of Service (Volume 4A)

OTP’s CCOSS model establishes the revenue requirements for each of OTP’s 10 customer classes based on the allocation of jurisdictional costs using the **class allocation factors detailed on page 15-2** and the **secondary class allocation factors detailed on page 16-2**.



The **key inputs** into the CCOSS model are:

1. Current South Dakota Class Revenues
2. JCOSS South Dakota results – Pages 1-1 to 16-1
3. Class Allocation Factors
 - a. Primary Allocators by class (D Factors, E8760 Factors, C Factors) Page 15-2
 - b. Secondary – Page 16-2

The CCOSS pages 1-2 to 16-2 align with the pages 1-1 to 1-16 of the JCOSS.

The **key output** of the CCOSS is the determination of **class revenue requirements** based on the embedded costs and revenues attributable to each class. The CCOSS serves as a guide in the determination of proposed class rate increases necessary to collect the jurisdictional revenue increase required. The Summary of each class’s deficiency is provided on page 1-2 of the CCOSS.

Class	CCOSS Output	Source
Residential	Class Revenue Deficiency	CCOSS Page 1-2
Farms	Class Revenue Deficiency	CCOSS Page 1-2
General Service	Class Revenue Deficiency	CCOSS Page 1-2
Large General Service	Class Revenue Deficiency	CCOSS Page 1-2
Irrigation	Class Revenue Deficiency	CCOSS Page 1-2
Outdoor Lighting	Class Revenue Deficiency	CCOSS Page 1-2
OPA	Class Revenue Deficiency	CCOSS Page 1-2
Controlled Service Water Heating	Class Revenue Deficiency	CCOSS Page 1-2
Controlled Service Interruptible	Class Revenue Deficiency	CCOSS Page 1-2
Controlled Service Deferred	Class Revenue Deficiency	CCOSS Page 1-2
Total Jurisdiction	Sum of Class Revenue Deficiencies	Ties to JCOSS Deficiency Page 1-1

Rate Design (Volume 3 Section E)

The JCOSS determines the jurisdictional revenue requirement and related deficiency in revenue. The CCOSS determines each class’s responsibility for that deficiency based on the embedded costs included in the studies. Ultimately, the company develops a proposal for each class’s share of the overall jurisdictional revenue requirement to eliminate the deficiency and develops proposed rates within each class to collect that deficiency. **Total Test Year Current and Proposed Revenues by Class are provided in Volume 3 Schedule E-1.**

Class	Current Revenues	Source	Proposed Revenues	Source	Class Revenue Increase
Residential	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Farms	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
General Service	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Large General Service	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Irrigation	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues

Outdoor Lighting	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
OPA	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Controlled Service Water Heating	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Controlled Service Interruptible	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Controlled Service Deferred	Class Revenue	CCOSS	Class Proposed Revenue	Company Proposal	Difference between Current and Proposed Revenues
Total Jurisdictional	Total Current Revenue	JCOSS	Total Revenue Required	JCOSS	Total Increase in Revenue

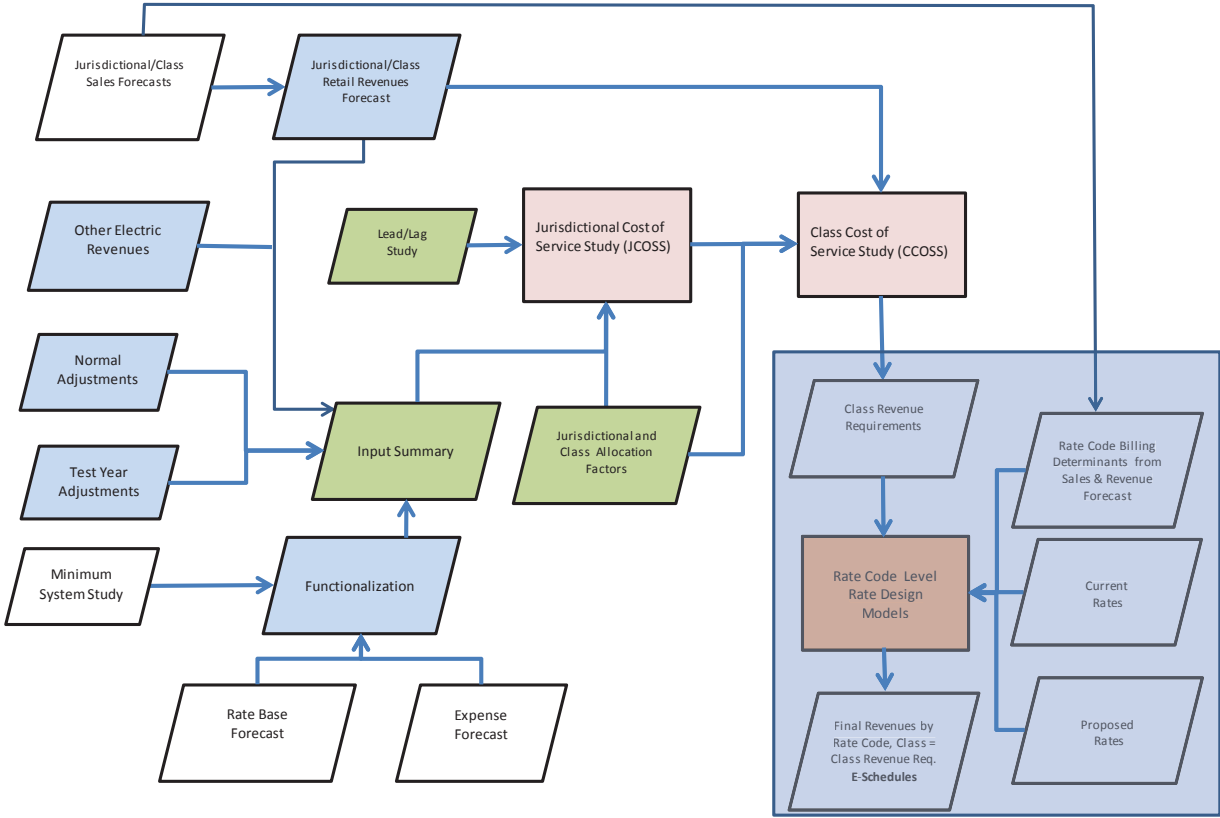
Following the development of proposed class revenue responsibilities, the next step in the process is rate design.

Key Components / Inputs in the Rate Design Process

The purpose of the rate design process is to develop new rates and associated rate structures that result in the collection of the proposed class revenue requirement based on the billing determinants included in the forecast. Rate design is completed at a rate code level. Class revenue requirements are distributed to the rate code level. The allocation of class revenue to rate code level is completed using an Equivalent Percent of Marginal Cost (EPMC) allocation.

The following inputs are key to completing rate design in the rate design models at a rate code level:

1. **Billing Determinants** – These are the various billing determinants which were developed and included in the Sales and Revenue forecast process. Billing determinants include such things as forecasted kWhs, kW, number of customers, and number of meters. The sales and revenue forecast process develops billing determinates at a rate group level and then further allocates those determinants to a rate code level.
2. **Current Rates**- Current rates applied to the billing determinants yield the current level of revenues for the particular rate code. The result of this is the calculation of current revenues from existing rates.
3. **Proposed Rates**- Based on forecasted billing determinants described above, proposed rates are adjusted to yield the total revenue required from that rate to meet its contribution to the class revenue requirement.



Key Outputs of Rate Design Process:

The **key output of the Rate Design process** is a **new set of proposed rates** that within their respective customer class, collect the amount of revenue equal to the proposed class revenue requirement. The sum of revenues derived by all rates across all classes equals the total jurisdictional revenue requirement. As noted earlier, the **results of the rate design process are summarized in Volume 3 Schedule E-1. Details of the changes from current rates to proposed rates are found in Volume 3 Schedule E-2.**