

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-12\_\_\_\_\_

DOCKET NO. UG-12\_\_\_\_\_

EXHIBIT NO. \_\_\_\_ (TLK-5)

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## NATURAL GAS COST OF SERVICE STUDY

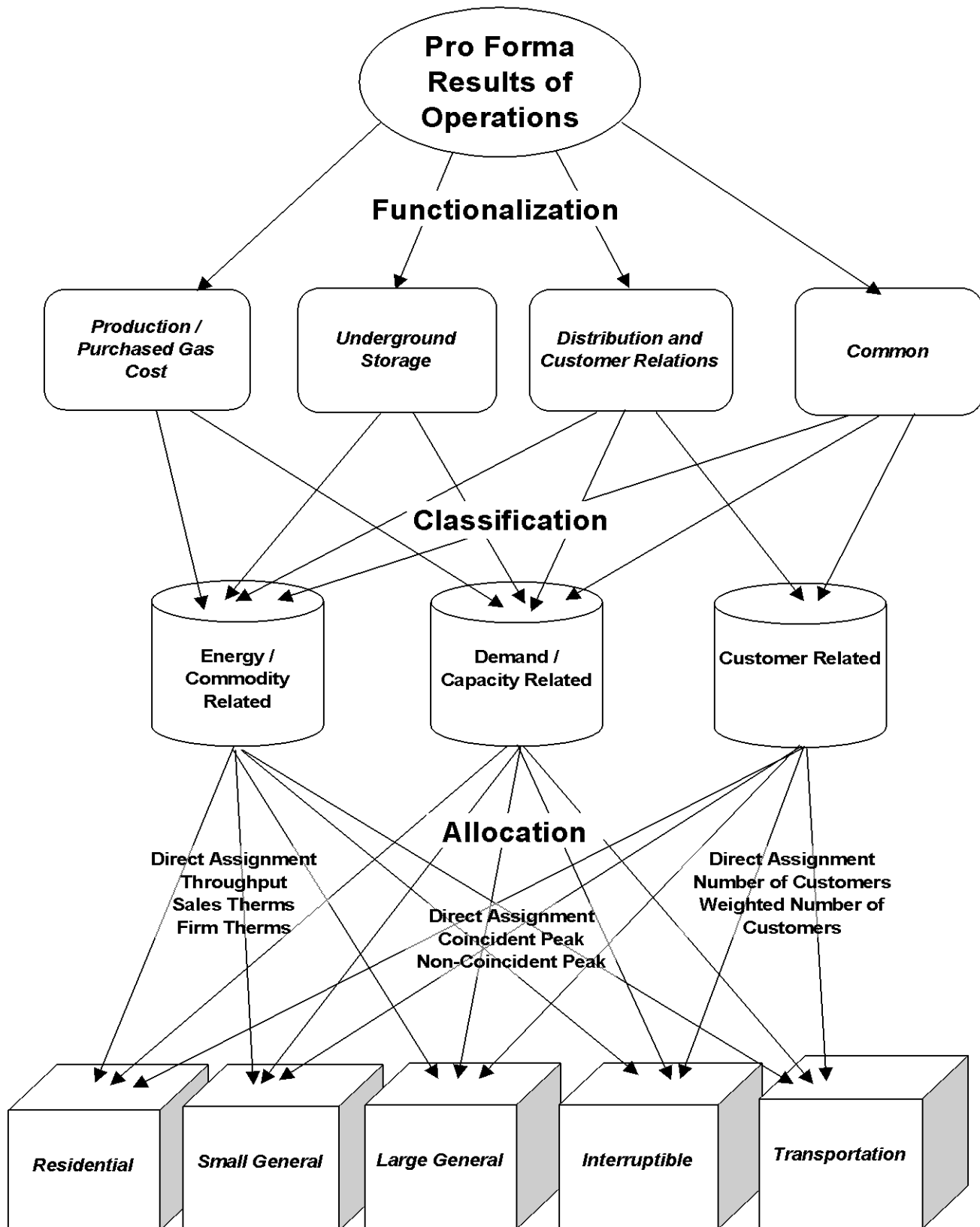
1  
2 A cost of service study is an engineering-economic study, which apportions the revenue,  
3 expenses, and rate base associated with providing natural gas service to designated groups of  
4 customers. It indicates whether the revenue provided by the customer group recovers the cost to  
5 serve those customers. The study results are used as a guide in determining the appropriate rate  
6 spread among the groups of customers.

7 There are three basic steps involved in a cost of service study: functionalization,  
8 classification, and allocation. See the flow chart below.

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

17 Second, the expenses and rate base items are classified into three primary cost components:  
18 demand, commodity or customer related. Demand (capacity) related costs are allocated to rate  
19 schedules on the basis of each schedule's contribution to system peak demand. Commodity  
20 (energy) related costs are allocated based on each rate schedule's share of commodity  
21 consumption. Customer related items are allocated to rate schedules based on the number of  
22 customers within each schedule. The number of customers may be weighted by appropriate  
23 factors such as relative cost of metering equipment. In addition to these three cost components,  
24 any revenue related expense is allocated based on the proportion of revenues by rate schedule.

## NATURAL GAS COST OF SERVICE STUDY FLOWCHART



***Pro Forma Results of Operations by Customer Group***

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

#### 4 **BASE CASE COST OF SERVICE STUDY**

##### 5 **Production - Purchased Gas Costs**

6 The Company owns no natural gas production facilities serving the Washington  
7 jurisdiction. The natural gas costs included in the production function include the cost of gas  
8 purchased to serve sales customers, pipeline transportation to get it to our system, and expenses of  
9 the gas supply department.

10 The demand and commodity components of account 804 have been determined directly  
11 from the weighted average cost of gas (WACOG) approved in the most recent purchased gas  
12 adjustment (PGA) filing effective March 1, 2012. The allocation of the commodity portion of pro  
13 forma gas cost agrees with the WACOG based computation of commodity-related gas costs.  
14 Likewise, the allocation of the demand portion of pro forma gas cost agrees with the WACOG  
15 based computation of demand-related gas costs.

16 The expenses of the gas supply department recorded in accounts 813 are classified as  
17 commodity related costs. The gas scheduling dispatch process includes transportation customers,  
18 so estimated scheduling dispatch labor expenses are allocated by throughput. The remaining gas  
19 supply department expenses are allocated by sales volumes. Gas research contributions have been  
20 assigned to sales schedules by test period sales volumes weighted by the GTI Voluntary Collection  
21 rates currently used to determine the contributions.

##### 22 **Underground Storage**

23 Underground storage rate base, operating and maintenance expenses are classified as  
24 commodity related. Thirteen percent of underground storage costs are allocated to customer  
25 groups by annual throughput, the remaining eighty-seven percent are allocated by sales therms.

**Distribution Facilities Classification (Peak and Average)**

Distribution mains and regulator station equipment (both general use and city gate stations) are classified as demand and commodity related using the peak and average ratio for the distribution system. Peak demand is defined as the average of the five-day sustained peaks from the most recent three years. Average daily load is calculated by dividing annual throughput by 365 (days in the year). The average daily load is divided by peak load to arrive at the system load factor of 36.30%. This proportion is classified as commodity related. The remaining 63.70% is classified as demand related. Meters, services and industrial measuring & regulating equipment are classified as customer related distribution plant. Distribution operating and maintenance expenses are classified (and allocated) in relation to the plant accounts they are associated with.

**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 these costs are classified as customer related. Exceptions include uncollectible accounts expense, which is considered separately as a revenue conversion item, and Demand Side Management amortization expense recorded in Account 908. The demand side management investment costs and amortization expense are included with the distribution function and classified to demand and commodity by the peak and average ratio.

**Distribution Cost Allocation**

Demand related distribution costs are allocated to customer groups (rate schedules) by each group's contribution to the three year average five-day sustained peak. Commodity related distribution costs are allocated to customer groups by annual throughput. Distribution main investment has been segregated into large and small mains. Small mains are defined as less than four inches, with large mains being four inches or greater. The small main costs use the same

1 demand and commodity data, but large usage customers (Schedules 131/132 and 146) that connect  
2 to large system mains have been excluded from the allocations.

3 Most customer related costs are allocated by the annualized number of customers billed  
4 during the test period. Meter investment costs are allocated using the number of customers  
5 weighted by the relative current cost of meters in service at December 31, 2011. Services  
6 investment costs are allocated using the number of customers weighted by the relative current cost  
7 of typical service installations. Industrial measuring and regulating equipment investment costs  
8 are allocated by number of customers weighted by industrial meters at current cost.

### 9 **Administrative and General Costs**

10 General and intangible rate base items are allocated by the sum of Underground Storage  
11 and Distribution plant. Administrative and general expenses are segregated into plant related,  
12 labor related, revenue related and other. The plant related items are allocated based on total plant  
13 in service. Labor related items are allocated by operating and maintenance labor expense.  
14 Revenue related items are allocated by pro forma revenue. Other administrative and general  
15 expenses are allocated 50% by annual throughput (classified commodity related) and 50% by the  
16 sum of operating and maintenance expenses not including purchased gas cost or administrative &  
17 general expenses. Whenever costs are allocated by sums of other items within the study,  
18 classifications are imputed from the relationship embedded in the summed items.

### 19 **Special Contract Customer Revenue**

20 Several special contract customers receive transportation service from the Company. Rates  
21 for these customers were individually negotiated to cover any incremental costs and retain some  
22 contribution to margin. The rates for these customers are not being adjusted in this case. The  
23 revenue from these special contract customers has been segregated from general rate revenue and  
24 allocated back to all the other rate classes by relative rate base. In treating these revenues like  
25 other operating revenues their system contribution reduces costs for all rate schedules.

1           **Revenue Conversion Items**

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

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

10           The following matrix outlines the methodology applied in the Company's Base Case  
11           natural gas cost of service study.

WUTC Docket No. UG-12 \_\_\_\_ Methodology Matrix  
 Avista Utilities Washington Jurisdiction  
 Natural Gas Cost of Service Methodology

Line	Account	Functional Category	Classification	Allocation
<b>Underground Storage Plant</b>				
1	350 - 357 Underground Storage	Underground Storage	Commodity to match PGA items	E01/E04 Annual Throughput / Annual Sales Therm
<b>Distribution Plant</b>				
2	374 Land	Distributor	Demand/Commodity/Customer from Other Dist Plan	S05 Sum of accounts 376-385
3	375 Structures	Distributor	Demand/Commodity/Customer from Other Dist Plan	S05 Sum of accounts 376-385
4	376(S) Small Mains	Distribution	Demand/Commodity by Peak & Average	D02/E06 Coincident peak, annual therms, direct assign Sch 146
5	376(L) Large Mains	Distribution	Demand/Commodity by Peak & Average	D01/E01/D06/D07 Coincident peak (all), annual throughput (all), direc assign Sch 131, direct assign Sch 146
6	378 M&R General	Distributor	Demand/Commodity by Peak & Average	D01/E01 Coincident peak (all), annual throughput (all)
7	379 M&R City Gate	Distributor	Demand/Commodity by Peak & Average	D01/E01 Coincident peak (all), annual throughput (all)
8	380 Services	Distributor	Customer	C02, Customers weighted by current typical service cos
9	381 Meters	Distributor	Customer	C03, Customers weighted by average current meter cos
10	385 Industrial M&R	Distributor	Customer	C06, Customers weighted by industrial meter cos
11	387 Other	Distributor	Demand/Commodity/Customer from Other Dist Plan	S05 Sum of accounts 376-385
<b>General Plant</b>				
12	389-399 All General Plan	Common	Demand/Commodity/Customer from UG & D Plan	S03 Sum of Underground Storage and Distribution Plant in Servic
<b>Intangible Plant</b>				
13	303 Misc Intangible Plan	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
14	303 Computer Software	Common	Demand/Commodity/Customer from UG & D Plan	S03 Sum of Underground Storage and Distribution Plant in Servic
<b>Reserve for Depreciation</b>				
15	Underground Storage	Underground Storage	Commodity same as related plan	Allocations linked to related plant account
16	Distributor	Distributor	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
17	General	Common	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
18	Intangible	Distribution/Commor	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
<b>Other Rate Base</b>				
19	Accumulated Deferred FII	All	Demand/Commodity/Customer from Plant in Servic	S17 Sum of Total Plant in Servic
20	Constuction Advance	Distributor	Customer	C10 Residential only
21	Gas Inventory	Underground Storage	Commodity from Underground Storage Plan	S14 Sum of Underground Storage Plant in Servic
22	Gain on Sale of Office Bldg	Common	Demand/Commodity/Customer from UG & D Plan	S03 Sum of Underground Storage and Distribution Plant in Servic
23	DSM Investment	Distributor	Demand/Commodity by Peak & Average	D01/E01 Coincident peak (all), annual throughput (all)
24	Working Capital	Common	Demand/Commodity/Customer from UG & D Plan	S03 Sum of Underground Storage and Distribution Plant in Servic
<b>Purchased Gas Expenses</b>				
25	804 Purchased Gas Cost	Production	Demand/Commodity from PGA Tracker WACOC	D05/E07 PGA Demand / PGA Commodity
26	807 Purchased Gas Expenses	Production	Commodity	E01/E04 Annual Throughput / Annual Sales Therm
27	813 Gas Research Contributions	Production	Commodity	E08 GTI Expense (Weighted Annual Sales Therms
28	813 Other Gas Expenses	Production	Commodity	E04 Annual Sales Therm



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<b>Underground Storage O&amp;M</b>				
1	814 - 837 Underground Storage Exp	Underground Storage	Commodity	E01/E04 Annual Throughput / Annual Sales Therm
<b>Distribution O&amp;M</b>				
2	870 OP Super & Engineering	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
3	871 Load Dispatching	Distributor	Commodity	E01 Annual throughpu
4	874 Mains & Services	Distributor	Demand/Commodity/Customer from related plan	S06 Sum of Mains and Services Plant in Servic
5	875 M&R Station - General	Distributor	Demand/Commodity from related plan	S08 Sum of Meas & Reg Station - General Plant in Servic
6	876 M&R Station - Industrial	Distributor	Customer from related plan	S19 Sum of Meas & Reg Station - Industrial Plant in Servic
7	877 M&R Station - City Gate	Distributor	Demand/Commodity from related plan	S09 Sum of Meas & Reg Station - City Gate Plant in Servic
8	878 Meter & House Regulator	Distributor	Customer from related plan	S07 Sum of Meter and Installation Plant in Servic
9	879 Customer Installation	Distributor	Customer	C05, Customers weighted by average current meter cos
10	880 Other OP Expenses	Distributor	Demand/Commodity/Customer from other dist expense	S04 Sum of Accounts 870 - 879 and 881 - 892
11	881 Rents	Distributor	Demand/Commodity/Customer from other dist expense	S04 Sum of Accounts 870 - 879 and 881 - 892
12	885 MT Super & Engineering	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
13	886 MT of Structures	Distributor	Demand/Commodity/Customer from Other Dist Plan	S05 Sum of accounts 376-385
14	887 MT of Mains	Distributor	Demand/Commodity from related plan	S21 Sum of Distribution Mains Plant in Servic
15	889 MT of M&R General	Distributor	Demand/Commodity from related plan	S08 Sum of Meas & Reg Station - General Plant in Servic
16	890 MT of M&R Industrial	Distributor	Customer from related plan	S19 Sum of Meas & Reg Station - Industrial Plant in Servic
17	891 MT of M&R City Gate	Distributor	Demand/Commodity from related plan	S09 Sum of Meas & Reg Station - City Gate Plant in Servic
18	892 MT of Services	Distributor	Customer from related plan	S20 Sum of Services Plant in Service
19	893 MT of Meters & Hs Reg	Distributor	Customer from related plan	S07 Sum of Meter and Installation Plant in Servic
20	894 MT of Other Equipment	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
<b>Customer Accounting Expense:</b>				
21	901 Supervisor	Customer Relations	Customer	C01 All customers (unweighted)
22	902 Meter Reading	Customer Relations	Customer	C01 All customers (unweighted)
23	903 Customer Records & Collection	Customer Relations	Customer	C01 All customers (unweighted)
24	904 Uncollectible Account	Revenue Conversion	Revenue	R03 Retail Sales Revenue
25	905 Misc Cust Accounts	Customer Relations	Customer	C01 All customers (unweighted)
<b>Customer Service &amp; Info Expenses</b>				
26	907 Supervisor	Customer Relations	Customer	C01 All customers (unweighted)
27	908 Customer Assistance	Customer Relations	Customer	C01 All customers (unweighted)
28	908 DSM Amortization	Distributor	Demand/Commodity by Peak & Average	D01/E01 Coincident peak (all), annual throughput (all)
29	909 Advertising	Customer Relations	Customer	C01 All customers (unweighted)
30	910 Misc Cust Service & Info	Customer Relations	Customer	C01 All customers (unweighted)
<b>Sales Expenses</b>				
31	911 - 916 Sales Expenses	Customer Relations	Customer	C01 All customers (unweighted)

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Line Account	Functional Category	Classification	Allocation
<b>Admin &amp; General Expenses</b>			
1 920 Salaries	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
2 921 Office Supplies	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
3 922 Admin Expenses Transferrec	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
4 923 Outside Services	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
5 924 Property Insurance	Common	Demand/Commodity/Customer from Plant in Servic	S17 Sum of Total Plant in Servic
6 925 Injuries & Damages	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
7 926 Pensions & Benefits	Common	Demand/Commodity/Customer from Labpr O&M	S13 O&M Labor Expense
9 928 Regulatory Commission	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
10 928 Commission Fees	Revenue Conversio	Revenue	R01 Retail Sales Revenue
11 930 Miscellaneous Genera	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
12 931 Rents	Common	Demand/Commodity/Customer from Other O&M	S02/E01 50% O&M excl Gas Purchases and A&G / 50% throughpu
13 931 CSS Rent	Customer Relations	Customer	C01 All customers (unweighted)
14 935 MT of General Plan	Common	Demand/Commodity/Customer from Plant in Servic	S17 Sum of Total Plant in Servic
<b>Depreciation Expense</b>			
15 Underground Storage	Underground Storage	Commodity same as related plan	Allocations linked to related plant account
16 Distributor	Distributor	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
17 General	Common	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
18 Intangibl	Distribution/Commor	Demand/Commodity/Customer same as related plan	Allocations linked to related plant account
<b>Taxes</b>			
19 Property Tax	All	Demand/Commodity/Customer from related plan	S14/S15/S16 Sum of UG Plant/Sum of Dist Plant/Sum of Gen Plan
20 Miscellaneous Dist Tax	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
21 State Excise Tax	Revenue Conversio	Revenue	R01 Retail Sales Revenue
22 Federal Income Tax	Revenue Conversio	Revenue	R02 Net Income before Taxes Less Interest Expense
23 Deferred FIT	Revenue Conversio	Revenue	R02 Net Income before Taxes Less Interest Expense
24 ITC	Revenue Conversio	Revenue	R02 Net Income before Taxes Less Interest Expense
<b>Operating Revenues</b>			
25 Revenue from Rates	Revenue	Revenue	Pro Forma Revenue per Revenue Study
26 Special Contract Revenue	All	Demand/Commodity/Customer from Rate Base	S01 Sum of Rate Base
27 Off System Sales	Production	Commodity	E04 Sales Therms
28 Miscellaneous Service Revenue	Distributor	Demand/Commodity/Customer from Dist Plan	S15 Sum of Distribution Plant in Servic
29 Rent From Gas Property	All	Demand/Commodity/Customer from Rate Base	S01 Sum of Rate Base