

Mission Statement:

The UTC protects consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe.



Washington Utilities and Transportation Commission

Revenue Requirements Elements

Prepared for the Kyrgyz Republic SEA

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Revenue Requirements

(We are assuming a vertically integrated electric company.)

- Revenue Requirements is the level of revenues needed for a utility to recover its expenses plus a fair return on its investment which serves the public.
- For the purposes of determining the rate charged, the expenses and property investment is adjusted to a “normal” level of sales and service.

Elements of Revenue Requirements

The basic components to determine revenue requirements are:

- Revenues
- Expenses
- Taxes
- Rate Base
- Rate of Return, or profit.

Revenue Requirement Equation

- Revenues (R) must recover
 - the expenses (E) plus
 - a fair return (r) times the rate base (RB).
- $R = E + r * RB$

Revenue Requirement Definitions I



- Revenues are the sales of electricity to
 - Retail customers, such as homes, businesses, and industry,
 - Wholesale sales to others, such as to other utilities, and
 - Rental income for use of utility property.

Revenue Requirement Definitions II



- Expenses are the utility's operating costs, including:
 - Generation, the cost to produce energy;
 - Transmission, the cost to move energy long distances;
 - Distribution, the cost to deliver energy to end users;
 - Depreciation, the imputed cost for the use of property;
 - Customer accounting and collection, such as the metering, billing, and collecting of sales to customers; and
 - Administration, such as office salaries, rent, and legal fees.

Revenue Requirement Definitions III



- Rate Base represents investor-supplied plant facilities and other investments required to supply utility service to consumers.
- Return - the interest rate necessary to provide a profit to investors and to meet the terms of borrowed money.
- Taxes - fees imposed by government agencies.

Depreciation Expenses

- Depreciation is the periodic recovery of an asset over the life of the asset. Generally, depreciation expense is based on simply dividing the total cost of the asset, such as a turbine generator, by the number of years the turbine is expected to last. In this way an investor receives the return of the asset over time.
- Depreciation expense is a non-cash expense. In accounting terms, it is a debit to expense and a credit to accumulated depreciation. Accumulated depreciation is an offset to the plant-in-service account.
- Depreciation expense is usually on a known schedule and a future year's expense can be forecasted easily. For ratemaking, depreciation can be at the future level or upon historic levels with pro forma adjustments to recognize changes in depreciations rates or changes in test year depreciable plant.

Tax Expenses

Includes all types of taxes:

Property

Payroll

Gross receipts, or sales tax

Franchise

Income

Income Taxes

Most controversial of the tax items is income taxes.
It is also the most significant in terms of dollars.

Two general approaches:

- ❖ Use of test year amount, adjusted for the income tax effects of other pro forma adjustments.
- ❖ Independently calculate the income tax expense based on test period assumptions.

Revenue Requirements - Calculations



- Net Operating Income (NOI) – The profit available for investors. Calculated as Revenues less Expenses less taxes.
- $\text{NOI} = \text{R} - \text{E} - \text{T}$
- Rate of Return (RoR) – The NOI as a percentage of Rate Base
- $\text{RoR} = \text{NOI} / \text{RB}$

Results of Operations Concepts

- A Test Year is the measurement period for comparing revenues, expenses, and rate base. When the raw data is adjusted for certain changes, the term is known as a test period.
- The Rate Year is the year beginning when new rates are effective.
- The term Per Books refers to the actual results of operations in the test year.
- Adjustments change the per books results to arrive at cost and rate base levels which are more representative of the near future.
- Adjusted Results of Operations are the per books results plus or minus the adjustments.

Adjustments to Results of Operations



- Restating adjustments revise certain expenses to a level more representative of ongoing experiences.
- Examples:
 - Sales volumes and revenues are adjusted to reflect normal temperatures.
 - Power production is also adjusted to the same normal level.
 - In hydro-based system, such as yours and ours, “normal” stream flows are used to adjust hydro-production, and its impact on other generation.

More Examples of Restating Adjustments 1



- Disallowances (and “Below-the-line” amounts) are expenses that are included in operating accounts under the uniform system of accounts, but are not allowed for purposes of setting rates because the costs do not benefit ratepayers. Most common disallowances are goodwill advertising, charitable contributions, company involvement in civic affairs.

More Examples of Restating Adjustments 2

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- Adjustments can restate estimated expenses to actual, for example bad debt expense is often accrued on an assumed rate of uncollected bills. This should be adjusted to the expected bad debt experience.
 - Expenses or revenues which occurred before or after the test year must be excluded. These are called Prior Period adjustments.

Another Type of Restating Adjustment

- Extraordinary or non-recurring items should either be removed or should be normalized (averaged) from the test year results of operations.
 - Infrequent but significant storms are an example.

Pro Forma Adjustments

Proforma Adjustments are adjustments that update the test period for all known and measurable changes that are not offset by other factors.

The cost unit, such as kilowatt-hour sales, or labor hours, remains the same, but is re-priced at the new rate.

Examples of Pro forma Adjustments (continued)

Known and Measurable Price Changes. If a price change happens after the test year and it is known and measurable, it is appropriate to include it in rates, since rates are set for the future.

Examples:

- *Changes in rates charged by the utility during the test period*
- *Changes in tax rates during the test period*
- *Changes in labor contracts during the test period*
- *Changes in postage rates during the test period.*

Rate Base Adjustments

- Working Capital is the money needed for everyday operations. It is often described as current assets less current liabilities. In Washington, we use the “investor supplied working capital” concept.
- Deferred Taxes account for the difference between assumed federal tax payments and actual federal taxes. It is necessary because the calculation of tax for the financial books differs from the calculation for the income tax books.

Conversion Factor

- Many taxes are imposed on revenues such that an increase in net operating income will not produce the revenue necessary to cover the expenses.
- The conversion factor converts the desired net operating income to the level of revenues which will produce that NOI.

Revenue Requirements - Conclusion



- Revenue requirements calculations allow a utility to charge a fair, just, and reasonable rates, or prices, based on the utility's expenses plus a sufficient return, or profit, to the utility.
- By basing rates on normal operations, the risk's from variations in weather or from economic uncertainty remain with the utility.
- While it seems like the revenue requirement calculation is based on simple facts, a great deal of judgment goes into determining what is “normal”, and what is “sufficient”.