

## Handout on Revenue Requirements and RB/ROR

**Exhibit 1. Key components of utility revenue requirements**

Revenue requirements	Variable operating costs	Operations and maintenance	Cost of capital	Labor	<p><b>Above the line:</b> ratepayers cover the prudent cost of service</p> <p><b>Below the line:</b> ratepayers compensate debt holders and shareholders (net of disallowances that reduce returns)</p>		
				Resource inputs (energy, water)			
				Other inputs and variable operating costs			
				Insurance, contracts and other costs (may be fixed in the short term)			
	Depreciation						
	Taxes						
	Fixed operating costs	Capital recovery	Interest on debt				
			Return on equity				
						Disallowances	
						Nonregulated activities	

**Exhibit 2. Basic revenue-requirements formula**

$$RR = r(RB) + O\&M + D + T$$

where:

RR	total test year (annualized) revenue requirements
r	authorized (not guaranteed) rate of return to compensate debt holders and equity shareholders
RB	ratebase (original cost of utility plant in service net of accumulated depreciation and adjustments)
O&M	operation & maintenance expense (including administrative and general)
D	depreciation and amortization expense (reduction to ratebase)
T	taxes other than income and income tax expense

Revenue requirements (RR)

Estimated usage (billing determinants) = Cost-based rates

### Exhibit 3. Simplified ratebase/rate-of-return regulation

RR	Revenue requirements	86	Total cost of service
r	Rate of return (overall ROR)	9%	Weighted cost of capital
RB	Ratebase	300	Utility plant in service net of accumulated depreciation
OM	Operation & maintenance expenses	37	Annual expenses by function
D	Depreciation & amortization expense	+ 8	Annual expenses
T	Federal income and other taxes	+ 14	Federal income (8) and other (6)
	Cost of equity (ROE)	10%	Return on shareholder equity
	Cost of debt (interest)	8%	Debt service to lenders
	Capital structure (varies)	50/50	50% equity and 50% debt
Balance sheet assets: ratebase	Utility plant in service	460	
	- Accumulated depreciation	-148	Expense accumulated over time
	+/- Other adjustments (net)	-12	See additions and deductions
	= Ratebase	300	
Balance sheet liabilities: debt & equity	Cost of equity (returns to shareholders)	15	= 300 * .5 * 10%
	+ Cost of debt (interest)	+ 12	= 300 * .5 * 8%
	= Rate of return (overall ROR)	= 27	27 / 300 = 9%
Income statement	Operating revenues	86	
	- Operating expenses (OM + D + T)	- 59	"Above the line" items
	= Net operating income	= 27	Defines "the line" in ratemaking
Net operating income	Net operating income	27	
	/ Ratebase	/300	
	= Overall rate of return	9%	
	Overall rate of return	9%	
	* Ratebase	* 300	
Net income and taxes*	Operating revenues	86	
	- O&M and depreciation	- 45	
	= Operating income before adjustments	= 41	Before interest and taxes
	- Taxes other than income	- 6	
	- Federal income taxes	- 8	25% rate = (23/(1-.25))-23 = 8
	= Net operating income	= 27	Net of taxes
	- Cost of debt (interest)	- 12	
= Net income	= 15	Available to shareholders	
Summary	Operation and maintenance expenses	37	43% (above the line)
	+ Depreciation & amortization expenses	+ 8	9% (above the line)
	+ Federal income and other taxes	+ 14	16% (above the line)
	+ Cost of equity (ROE)	+ 15	17% (below the line)
	+ Cost of debt (interest)	+ 12	14% (below the line)
	= Revenue requirements	= 86	100%

\* Note that these are consistent with utility financial reporting, but terminology in rate-case filings may vary.

**Exhibit 4. Simplified calculation of ratebase**

Plant in service	460
<b>Additions</b>	
Construction work in progress (CWIP)	0
Plant held for future use	1
Miscellaneous deferred debits	2
Acquisition adjustment	10
Prepayments	1
Fuel stock	3
Materials and supplies	6
Cash working capital	1
Total ratebase additions	484
<b>Deductions</b>	
Accumulated depreciation	148
Accumulated amortization	18
Accumulated deferred income taxes	8
Unamortized income tax credits	4
Customer advances, contributions, and deposits	6
Total ratebase deductions	184
Total ratebase	300

**Exhibit 5. Simplified calculation of net operating income**

Operating revenues	86
<b>Operating expenses</b>	
Production expenses	15
Transmission expenses	4
Distribution expenses	14
Customer account expenses	1
Customer service expenses	0
Sales expenses	0
Administrative and general expenses	3
Depreciation expense	7
Amortization expense	1
Taxes other than income	6
Income taxes	8
Investment tax credit adjustment	0
Total operating expenses	59
Net operating income	27