Determination of Revenue Requirement under Rate Base Methodology for a Hypothetical Utility

I have outlined the methodology used in calculating the revenue required to service the various components of capital for an investor-owned utility that actually pays income taxes.

Assume:

Component	Proportion	Cost	Weighted Cost
Debt	60%	7.25	4.35
Equity	40%	11.25	4.50
		Cost of Capital	8.85%

Assume that the hypothetical utility pays income taxes at a rate of 40% on taxable income. To service the capital providers, the hypothetical utility must receive revenues as follows:

Calculated total revenue requirement for capital providers	11.85
Less interest expense	(4.35)
Pre tax revenue available to shareholders	7.50
Additional income required to pay related income taxes on earnings at 40% tax rate	(3.0)
Required after tax return on equity	4.50

Thus, if the hypothetical utility receives 11.85 in revenues from the ratepayers, it will pay 4.35 to the debtholders, leaving it with 7.5 in taxable income. On that amount, which is after deducting the interest expense, it will pay 3.0 in taxes, thus netting 4.5 for the shareholders.