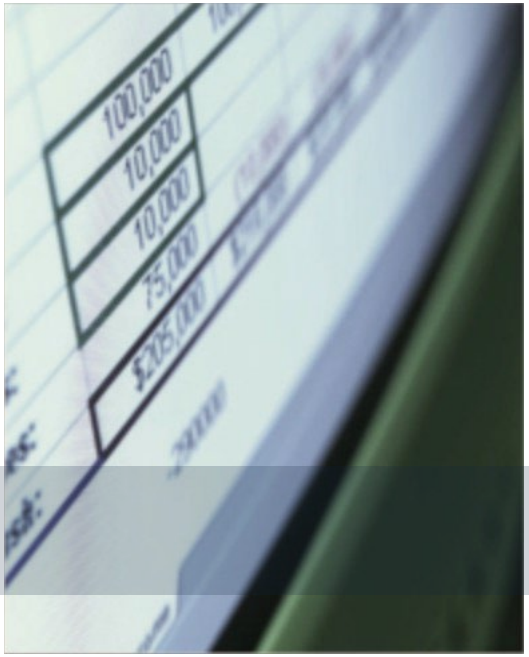
Part 2:
Balance sheet, capital expenditures, and rate base (CAPEX)

Janice A. Beecher, Ph.D.
Danny Kermode, CPA - Retired

ipu.msu.edu | beecher@msu.edu

Revised 3/10/2025



MICHIGAN STATE UNIVERSITY

2.0 Utility, enterprise, or investment basis: private and some public

$$RR = r_a \textbf{(RB)} + O\&M + D + T$$

< you are here

where:

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

Cost-based rates and revenue sufficiency are a function of both the numerator and denominator:

$$\frac{\text{Revenue requirements (RR)}}{\text{Estimated sales (billing determinants)}}$$

2.0 Topics

1. Balance sheet overview
2. Capital planning & asset management
3. Certificates of need
4. Utility plant in service
5. Contributed capital (CIAC, Advances)
6. Funds for construction (AFUDC, CWIP)
7. Asset valuation methods
8. Acquisition adjustments
9. Plant service lives and depreciation
10. Accumulated depreciation
11. Accumulated deferred income taxes
12. Working capital
13. Operating reserve accounts
14. Regulatory assets and liabilities
15. Deriving the rate base
16. Ratemaking scenarios

2.1 Balance sheet overview

- A financial statement detailing a company's assets, liabilities, and owner equity
  - As of a point in time (typically at year end) - static ("snapshot") view
  - Utility balance sheets place assets before cash ("upside down")
  - Assets are what entities own – liabilities are how they own them
  - The sum of assets and other debits must equal the sum of liabilities and other credits
- Assets and other debits
  - Utility plant and accumulated depreciation
  - Other property and investments
  - Current and accrued assets
  - Deferred debits
- Liabilities and other credits
  - Long-term debt
  - Current and accrued liabilities
  - Deferred credits
  - Contributions in aid of construction (CIAC)
  - Accumulated deferred income taxes
  - Equity capital

Q. Where in a utility's financial statements can we find the rate base?

2.1 Poll: Balance sheet

- Which of the following is *not* recorded on the balance sheet?
  A. Property held for future use
  B. Executive compensation
  C. Income taxes payable
  D. Deferred rate case expense

2.1 Balance sheet definitions

- Long-term assets
  - Resources, property, and property rights owned by a business that have value and will provide benefits over more than one year (e.g., land, inventory)
  - Regulated assets are recorded at “original (book) cost” net of depreciation
  - Listed before current assets on the balance sheet
- Current assets
  - Cash or other short-term assets that can be turned into cash relatively rapidly in the normal course of business (such as liquid assets)
- Intangible assets
  - Assets that are neither physical nor financial in character (e.g., franchises, licenses, and rights of way) and may be amortized (but not depreciated)
- Liabilities
  - Current or future economic obligations that an entity is required or expected to pay
- Current liabilities
  - Obligations of the business that are to be settled and/or payable within one year
- Deferred assets and deferred liabilities
  - Postponed recognition of revenue already earned or an expense already incurred – such as purchased gas expense subject to a purchased gas adjustment

2.1 Balance sheet definitions (continued)

- Regulatory assets and liabilities
  - Assets or liabilities recorded on financial statements resulting from a regulatory requirement specifying that certain amounts are to be recovered or paid by the utility in the future
  - Approved and pending approval differences in cost recovery
- Owners' equity
  - Ownership shares in a company plus or minus earnings and losses since inception less distributed dividends – listed before debt
- Capital stock
  - A unit of ownership in a corporate entity
  - Par value of the stock is the per-share amount paid by the original shareholders
- Retained earnings
  - Accumulated earnings of a corporation from its inception minus any losses or dividends

2.1 Balance sheet: assets and other debits

200. COMPARATIVE BALANCE SHEET

ASSETS AND OTHER DEBITS

Balances at Beginning of Year must be consistent with balances at end of previous year

Line No.	Account Number and Title (a)	Schedule No. (b)	Balance Beginning of Year (c)	Balance End of Year (d)	Increase/ Decrease (e)
1	**UTILITY PLANT**		xxx	xxx	xxx
2	101.0 Utility Plant in Service	201	463,518,374	494,143,153	30,624,779
3	102.0 Utility Plant Leased To Others	202			
4	103.0 Property Held for Future Use	203			
5	104.0 Utility Plant Purchased or Sold				
6	105.0 Construction Work in Progress	204	39,810,802	67,772,988	27,962,186
7	106.0 Completed Construction Not Classified				
8	**Total Utility Plant**		503,329,176	561,916,141	58,586,965
9	**ACCUMULATED DEPRECIATION**		xxx	xxx	xxx
10	108.1 Utility Plant in Service	205	98,957,003	105,777,983	6,820,980
11	108.2 Utility Plant Leased to Others	205			
12	108.3 Property Held for Future Use	205			
13	**Total Accumulated Depreciation**		98,957,003	105,777,983	6,820,980
14	**ACCUMULATED AMORTIZATION**		xxx	xxx	xxx
15	110.1 Utility Plant In Service				
16	110.2 Utility Plant Leased to Others				
17	**Total Accumulated Amortization**				
18	**UTILITY PLANT ADJUSTMENTS**		xxx	xxx	xxx
19	114.0 Utility Plant Acquisition Adjustments	206	(6,250,713)	(6,311,397)	(60,684)
20	115.0 Accumulated Amortization of Utility Plant Acquisition Adjustments		1,028,099	1,081,295	53,196
21	116.0 Other Utility Plant Adjustments				
22	**Total Utility Plant Adjustments**		(5,222,614)	(5,230,102)	(7,488)
23	117.0 Pending Reclass of Utility Plant	205			
24	**TOTAL NET UTILITY PLANT**		399,149,559	450,908,056	51,758,497
25	**OTHER PROPERTY AND INVESTMENTS**		xxx	xxx	xxx
26	**OTHER PROPERTY**		xxx	xxx	xxx
27	121.0 Non-Utility Property		1,000,806	1,911,446	910,640
28	122.0 Accumulated Depreciation & Amortization of Non-Utility Property		(382,923)	(410,823)	(27,900)
29	**Total Other Property**		617,883	1,500,623	882,740
30	**INVESTMENTS**		xxx	xxx	xxx
31	123.0 Investments in Affiliated Companies	210			
32	123.1 Other Investments	210			
33	123.2 Sinking Funds	210			
34	123.3 Other Special Funds	210			
35	124.0 Utility Investments	210			
36	125.0 Other Investments	210	59,724	59,724	
37	126.0 Sinking Funds				
38	127.0 Other Special Funds				
39	**Total Investments**		59,724	59,724	
40	**TOTAL OTHER PROPERTY AND INVESTMENTS**		677,607	1,560,347	882,740

2.1 Balance sheet: assets and other debits

200. COMPARATIVE BALANCE SHEET
CURRENT ASSETS AND OTHER DEBITS

Balances at Beginning of Year must be consistent with balances at end of previous year

Line No.	Account Number and Title (a)	Schedule No. (b)	Balance Beginning of Year (c)	Balance End of Year (d)	Increase/ Decrease (e)
1	**CURRENT AND ACCRUED ASSETS**		XXX	XXX	XXX
2	131.1 Cash on Hand		600	600	
3	131.2 Cash in Bank		(15,023,780)	(20,591,066)	(5,567,286)
4	132.0 Special Deposits - Interest and Dividends				
5	133.0 Other Special Deposits		46,210	39,682	(6,528)
6	134.0 Working Funds		600	600	
7	135.0 Temporary Cash Investments	210	102		(102)
8	141.0 Customers Accounts Receivable		6,627,708	7,645,770	1,018,062
9	142.0 Other Accounts Receivable	211	486,508	590,733	104,225
10	143.0 Accumulated Provision for Uncollectible Accounts-Credit		(855,000)	(1,005,000)	(150,000)
11	144.0 Notes Receivable	211	255,481	255,481	
12	145.0 Accounts Receivable from Affiliated Company	213	44,840,581	57,289,200	12,448,619
13	146.0 Notes Receivable from Affiliated Company	212			
14	151.0 Plant Materials and Supplies	214	2,335,104	3,108,665	773,561
15	152.0 Merchandise				
16	153.0 Other Materials and Supplies				
17	161.0 Stores Expense				
18	162.0 Prepayments	215-418	1,052,980	820,740	(232,240)
19	171.0 Accrued Interest & Dividends Receivable				
20	172.0 Rents Receivable				
21	173.0 Accrued Utility Revenues		3,289,940	3,484,015	194,075
22	174.0 Miscellaneous Current & Accrued Assets	216			
23	**TOTAL CURRENT & ACCRUED ASSETS**		43,057,034	51,639,420	8,582,386
24	**DEFERRED DEBITS**		XXX	XXX	XXX
25	181.0 Unamortized Debt Discount and Expense	217	2,649,149	2,637,744	(11,405)
26	182.0 Extraordinary Property Losses	218			
27	183.0 Preliminary Survey and Investigation Charges	219	172,674	136,131	(36,543)
28	184.0 Clearing Accounts	220			
29	185.0 Temporary Facilities				
30	186.1 Deferred Rate Case Expense	221	395,492	314,211	(81,281)
31	186.2 Other Deferred Debits	222	21,395,410	27,945,885	6,550,475
32	186.3 Regulatory Assets		26,872,804	26,877,144	4,340
33	187.0 Research & Development Expenditures				
34	190.1 Accumulated Deferred Federal Income Taxes	419-420			
35	190.2 Accumulated Deferred State Income Taxes	419-420			
36	**TOTAL DEFERRED DEBITS**		51,485,529	57,911,115	6,425,586
37	**TOTAL ASSETS & OTHER DEBITS**		494,369,729	562,018,938	67,649,209

2.1 Accounts receivable (USoA, 1996) ⓘ

- 141. Customer Accounts Receivable
  - A. This account shall include amounts due from customers for utility service. This account shall not include amounts due from associated companies.
  - B. This account shall be maintained so as to show separately amounts due from each type of utility service.
- 143. Accumulated Provision for Uncollectible Accounts - Credit
  - A. This account shall be credited with amounts provided for losses on accounts receivable which may become uncollectible, and also with collections on accounts previously charged hereto. Concurrent charges shall be made to account 670 - Bad Debt Expense, for amounts applicable to utility operations, and to corresponding accounts for other operations. Records shall be maintained so as to show the write-offs of accounts receivable for each utility department.
  - B. This account shall be subdivided to show the provision applicable to the following classes of accounts receivable:
    - Utility Customers
    - Merchandising, Jobbing and Contract Work Officers and Employees
    - Other
  - Note A: Accretions to this account shall not be made in excess of a reasonable provision against losses of the character provided for.
  - Note B: If provisions for uncollectible notes receivable or for uncollectible receivables from associated companies are necessary, separate subaccounts therefor shall be established under the account in which the receivable is carried.

2.1 Uncollectible accounts

- Accounts receivable are amounts owed to the utility and a current asset
  - Customer accounts receivable reflect amounts billed but not received
  - Receivables are normal in business operations
- Uncollectible accounts are also a cost of business and recorded separately
  - Some percentage of customers will not (be able to) pay their water bills
  - Rate design and assistance programs may be helpful (see Part 5)
- Consequences of nonpayment by customers
  - Growing arrearages and penalties
  - Possible property liens (municipal utilities)
  - Service termination (disconnection or "shut-off") - *absolute last resort*
- Ratemaking issues
  - Balance sheet records accounts receivables and a provision for accumulated uncollectible accounts (bad debt)
  - Bad debt can be expensed (O&M) subject to review and approval (write-off)
  - Revenue requirements are "grossed up" for uncollectible accounts (see Part 4)

Q. Where are some of the trends and issues related to uncollectible accounts?

2.1 York: accounts receivable (SEC)

Accounts Receivable and Contract Assets (Details) - USD ($) $ in Thousands	12 Months Ended	
	Dec. 31, 2023	Dec. 31, 2022
Accounts Receivable and Contract Assets [Abstract]		
Accounts receivable - customers	$ 8,250	$ 7,069
Other receivables	592	487
Accounts receivable	8,842	7,556
Less: allowance for doubtful accounts	(1,005)	(855)
Accounts receivable, net	7,837	6,701
Unbilled revenue	3,484	$ 3,290
Change in accounts receivable - customers	1,181	
Change in other receivables	105	
Change in accounts receivable	1,286	
Change in allowance for doubtful accounts	(150)	
Change in accounts receivable, net	1,136	
Change in unbilled revenue	$ 194	

2.1 Deferred rate case expense (debit)

- Prudently incurred rate case expenses may be amortized for cost recovery in rates over more than one year

221. DEFERRED RATE CASE EXPENSE SUPPORTING SCHEDULE
Account No. 186.1

Please provide particulars regarding activity associated with the ending balance in Account No. 186.1 - Deferred Rate Case Expense.

Line No.	Rate Case Docket No. (a)	Total Amount Claimed (b)	Total Amount Allowed (c)	Normalize. Period (d)	Annual Expense (e)	Unamortized Ending Balance (f)
1	R-2022-3031340	952,500	396,898	48 months	82,687	314,211
2						
3						
4						
5						
6						
7						
8	TOTALS	952,500	396,898		82,687	314,211

2.1 Balance sheet: liabilities and other credits

200. COMPARATIVE BALANCE SHEET
LIABILITIES AND OTHER CREDITS

Balances at Beginning of Year must be consistent with balances at end of previous year

Line No.	Account Number and Title (a)	Schedule No. (b)	Balance Beginning of Year (c)	Balance End of Year (d)	Increase/ (Decrease) (e)
1	**EQUITY CAPITAL & LIABILITIES**		XXX	XXX	XXX
2	**EQUITY CAPITAL**		XXX	XXX	XXX
3	201.0 Common Stock Issued		138,519,473	140,472,544	1,953,071
4	202.0 Common Stock Subscribed				
5	203.0 Common Stock Liability for Conversion				
6	204.0 Preferred Stock Issued				
7	205.0 Preferred Stock Subscribed				
8	206.0 Preferred Stock Liability for Conversion				
9	207.0 Premium on Capital Stock				
10	209.0 Reduction in Par or Stated Value of Capital Stock				
11	210.0 Gain on Resale or Cancellation of Reacquired Capital Stock				
12	211.0 Other Paid-In Capital				
13	212.0 Discount on Capital Stock				
14	213.0 Capital Stock Expense		(4,298,960)	(4,298,960)	
15	214.0 Appropriated Retained Earnings	223			
16	215.0 Unappropriated Retained Earnings	223	74,339,257	85,468,679	11,129,422
17	216.0 Reacquired Capital Stock				
18	218.0 Proprietary Capital (proprietorships & partnerships)				
19	**TOTAL EQUITY CAPITAL**		208,559,770	221,642,263	13,082,493
20	**LONG-TERM DEBT**		XXX	XXX	XXX
21	221.0 Bonds	224	112,370,000	152,370,000	40,000,000
22	222.0 Reacquired Bonds	224			
23	223.0 Advances from Affiliated Companies				
24	224.0 Other Long-term Debt	224	29,739,959	30,273,001	533,042
25	**TOTAL LONG-TERM DEBT**		142,109,959	182,643,001	40,533,042

2.1 Balance sheet: liabilities and other credits

(Company Name)

200. COMPARATIVE BALANCE SHEET
LIABILITIES AND OTHER CREDITS

Balances at Beginning of Year must be consistent with balances at end of previous year

Line No.	Account Number and Title (a)	Schedule No. (b)	Balance Beginning of Year (c)	Balance End of Year (d)	Increase/ Decrease (e)
1	**CURRENT AND ACCRUED LIABILITIES**		XXX	XXX	XXX
2	231.00 Accounts Payable		7,635,808	9,364,960	1,729,152
3	232.00 Notes Payable	225			
4	233.00 Accounts Payable to Affiliated Companies	226			
5	234.00 Notes Payable to Affiliated Companies	227			
6	235.00 Customers' Deposits-Billing				
7	236.11 Accrued Taxes, Taxes Other Than Income	418	34,356	22,440	(11,916)
8	236.12 Accrued Taxes, Income Taxes	419-420	(882,460)	(332,445)	550,015
9	236.20 Accrued Taxes, Other Income & Deductions	419-420			
10	237.10 Accrued Interest on Long-term Debt		964,588	1,740,621	776,033
11	237.20 Accrued Interest on Other Liabilities				
12	238.00 Accrued Dividends		2,627,965	2,753,738	125,773
13	239.00 Matured Long-term Debt				
14	240.00 Matured Interest				
15	241.00 Miscellaneous Current and Accrued Liabilities	228	2,588,222	2,753,471	165,249
16	**TOTAL CURRENT AND ACCRUED LIABILITIES**		12,968,479	16,302,785	3,334,306
17	**DEFERRED CREDITS**		XXX	XXX	XXX
18	251.00 Unamortized Premium on Debt	217			
19	252.00 Advances for Construction	229	14,911,166	17,872,317	2,961,151
20	252.10 Accumulated Amortization of Advances for Construction				
21	253.00 Other Deferred Credits	230	13,437,572	12,962,026	(475,546)
22	255.10 Accumulated Deferred Investment Tax Credit (Utility Operations)		427,565	392,211	(35,354)
23	255.20 Accumulated Deferred Investment Tax Credit (Non-Utility Operations)				
24	**TOTAL DEFERRED CREDITS**		28,776,303	31,226,554	2,450,251
25	**OPERATING RESERVES**		XXX	XXX	XXX
26	261.00 Property Insurance Reserve				
27	262.00 Injuries & Damages Reserve				
28	263.00 Pensions & Benefits Reserve				
29	265.00 Miscellaneous Operating Reserve				
30	**TOTAL OPERATING RESERVES**				
31	**CONTRIBUTIONS IN AID OF CONSTRUCTION (CIAC)**		XXX	XXX	XXX
32	271.10 Customer Contributions		4,802,334	5,693,080	890,746
33	271.20 Developer Contributions		36,362,425	36,979,373	616,948
34	271.30 Grant(s) in Aid				
35	271.40 Other				
36	272.00 Accumulated Amortization				
37	**TOTAL NET (CIAC)**		41,164,759	42,672,453	1,507,694
38	**ACCUMULATED DEFERRED INCOME TAXES**		XXX	XXX	XXX
39	281.00 Accelerated Amortization				
40	282.00 Liberalized Depreciation		38,499,945	38,665,953	166,008
41	283.00 Other		22,290,514	28,865,929	6,575,415
42	**TOTAL ACCUMULATED DEFERRED INCOME TAXES**		60,790,459	67,531,882	6,741,423
43	**TOTAL LIABILITIES & OTHER CREDITS**		494,369,729	562,018,938	67,649,209

2.1 Advances for construction

229. ADVANCES FOR CONSTRUCTION SUPPORTING SCHEDULE - Account No. 252.0

This schedule should include a breakdown of the accounts that constitute the ending balance in Account No. 252.0 - Advances for Construction.

Line No.	Account (a)	Balance at Beg of Year (b)	Additions (c)	Reductions or Deletions (d)	Adjustments (e)	Balance at End of Year (f)
1	25200001 Builders Deposit	120,800	46,700	33,900		133,600
2	25200002 Meter Deposits	400	500	800		100
3	25200003 Developers Adv	14,547,259	4,847,609	1,860,805		17,534,063
4	25200100 Mt. Zion Adv	242,707		38,153		204,554
5						-
6						-
7						-
8	TOTALS	14,911,166	4,894,809	1,933,658	-	17,872,317

2.1 York: customer advances for line extension (current)

Extension of Service to Bona Fide Service Applicant

3.11.2 Upon written request by a bona fide service applicant, the Company shall construct a line extension within its certificated service territory consistent with the following:

(A) A line extension to a bona fide service applicant shall be funded without a Customer Advance where the annual revenue from the line extension will equal or exceed the Company's annual line extension costs.

(B) If the annual revenue from the line extension will not equal or exceed the Company's annual line extension costs, a bona fide service applicant may be required to provide a Customer Advance to the Company's cost of construction for the line extension, pursuant to a Main Extension Agreement. The Company's investment for the line extension shall be the portion of the total construction costs which generate annual line extension costs equal to annual revenue from the line extension. The Customer Advance amount shall be determined by subtracting the Company's investment for the line extension from the total construction costs.

(C) The Company's investment for the line extension shall be based on the following formula, where X equals the Company's investment attributed to each bona fide service applicant:

X	=	[AR - OM] divided by [I + D]; and
AR	=	the Company's annual revenue from the customer
OM	=	the Company's operating and maintenance costs for the line extension
I	=	the Company's current debt ratio multiplied by the Company's weighted long-term debt cost rate
D	=	the Company's current depreciation accrual rate

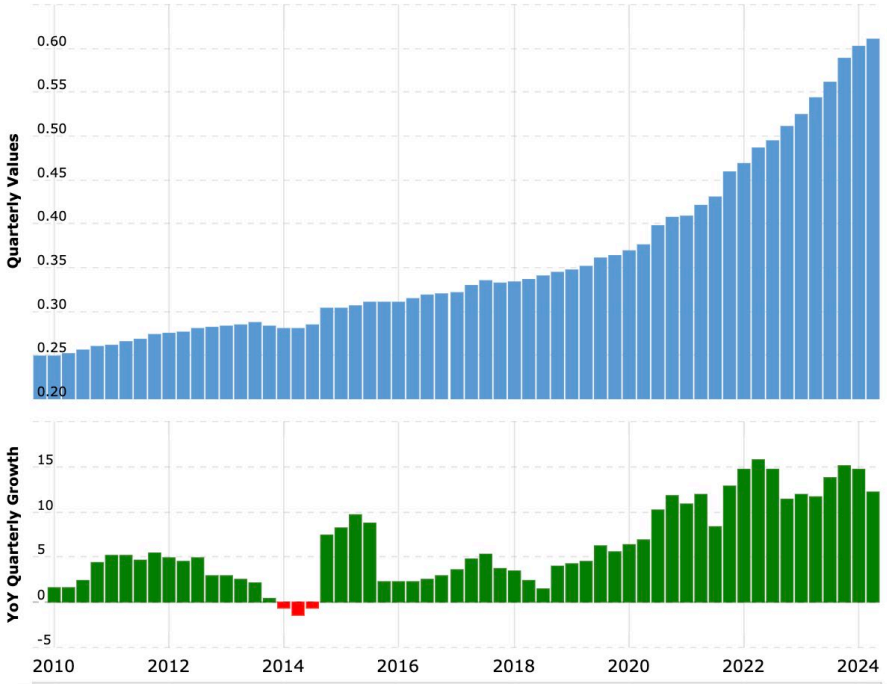
(D) Two or more bona fide service applicants may join in a request for service with the AR and OM components of the above formula adjusted to reflect the number of applicants. Joint requests may include only bona fide service applicants to be subject to this rule. A joint request that includes any non bona fide service applicant shall be subject to Rule 3.11.4.

The Company shall require a bona fide service applicant to pay, in advance, a reasonable charge for service lines and equipment installed on private property for the exclusive use of the applicant.

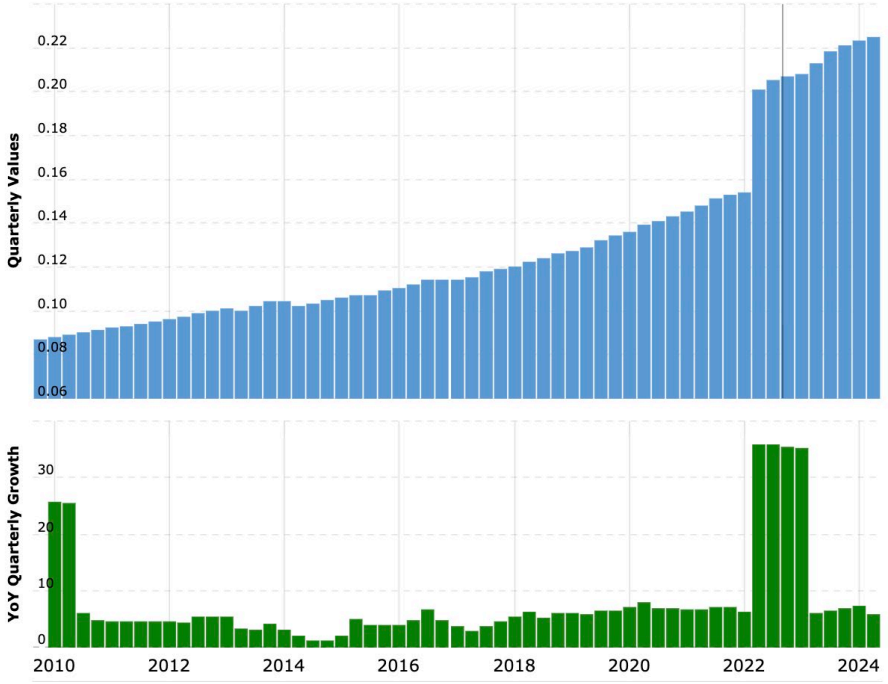
(C) Indicates Change

ISSUED: November 4, 1996 **EFFECTIVE: January 3, 1997**

2.1 York: balance sheet over time



Total assets



Shareholder equity

2.1 York: common stock offering in 2022

The York Water Company Announces Closing of its Common Stock Public Offering

April 05, 2022 10:11 ET | Source: The York Water Company

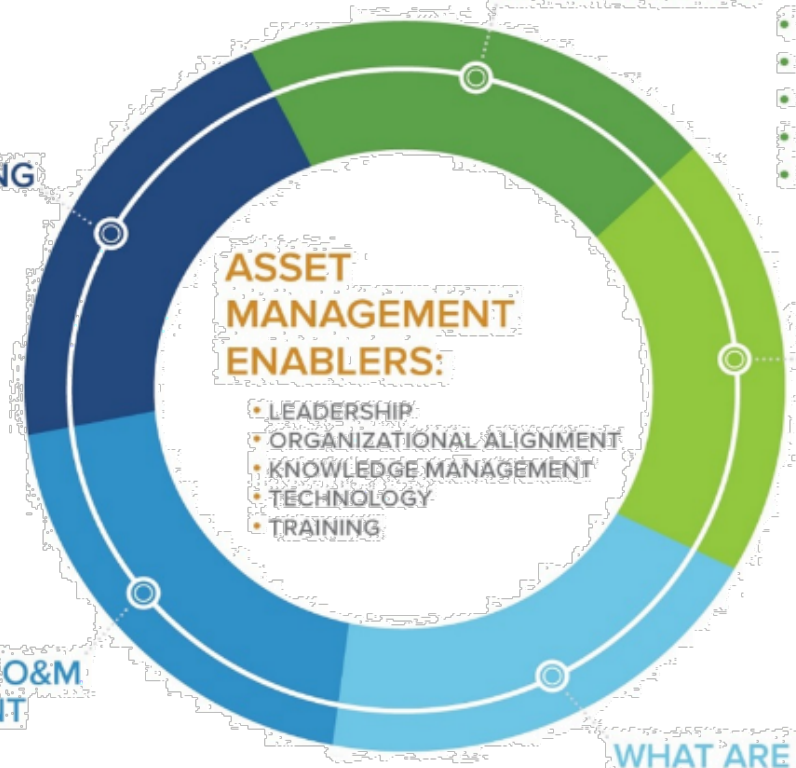
YORK, Pa., April 05, 2022 (GLOBE NEWSWIRE) -- The York Water Company ("York Water" or the "Company") (NASDAQ: YORW), a provider of water and wastewater utility services, today announced the closing of its previously-announced public offering of 975,600 shares of its common stock at a price to the public of $41 per share. The net proceeds to York Water from the offering, after deducting the underwriting discounts and commissions and other offering expenses, are approximately $38.2 million.

York Water intends to use the net proceeds from the offering for general corporate purposes, including our capital investment program, repayment of outstanding indebtedness, and potential acquisitions.

2.2 Capital planning and asset management

- Strategic planning (USEPA, 2003)
  - A management concept that helps you address and prepare for both anticipated and unexpected problems
  - Strategic planning utilizes asset management to evaluate your system's current physical situation, and it also evaluates your system's financial and managerial situation
  - It requires you to make fundamental decisions about your water system's purpose, structure, and functions
- Asset management (USEPA, 2003)
  - A planning process that ensures that you get the most value from each of your assets and have the financial resources to rehabilitate and replace them when necessary.
  - Asset management also includes developing a plan to reduce costs while increasing the efficiency and reliability of your assets
  - Successful asset management depends on knowing about system assets and regularly communicating with management and customers about system needs
- Governmental Accounting Standards Board's Statement 34 (USEPA, 2003)
  - Following GASB 34 standards requires publicly-owned water systems to report the value of infrastructure assets and the cost of deferred maintenance
  - An accurate and up-to-date asset management plan will help systems comply
- Integrated resource planning (IRP) processes (energy and water)
  - Can be linked to certificates of need and prudence reviews

2.2 Asset management framework (AWWA)



WHAT IS THE CURRENT STATE OF MY ASSETS?

- What assets do I own?
- Where are they?
- What condition are they in?
- What are their remaining useful lives?
- What is their remaining economic value?

WHAT IS MY BEST LONG-TERM FUNDING STRATEGY?

ASSET MANAGEMENT ENABLERS:

- LEADERSHIP
- ORGANIZATIONAL ALIGNMENT
- KNOWLEDGE MANAGEMENT
- TECHNOLOGY
- TRAINING

WHAT IS MY REQUIRED LEVEL OF SERVICE?

- What is the demand for my services by my stakeholders?
- What do regulators require?
- What is my actual performance?

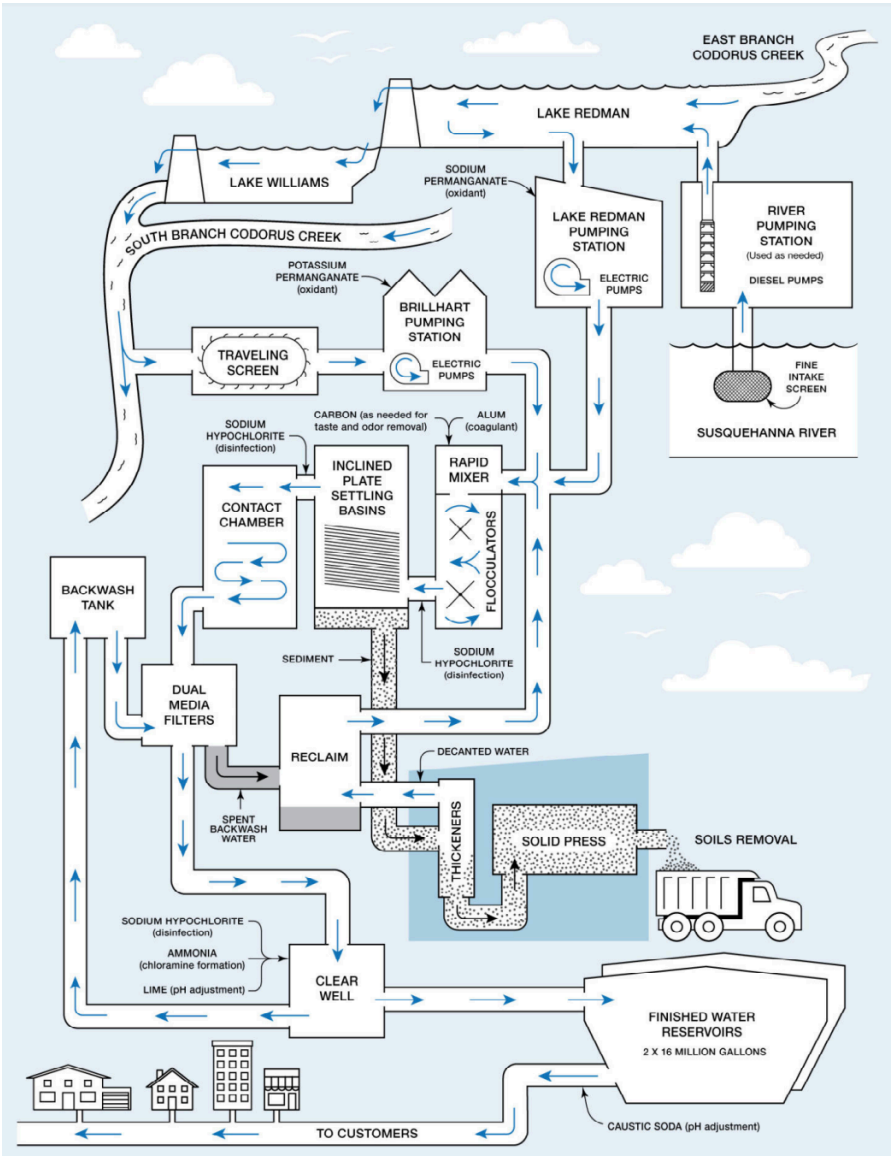
WHAT ARE MY BEST O&M AND CIP INVESTMENT STRATEGIES?

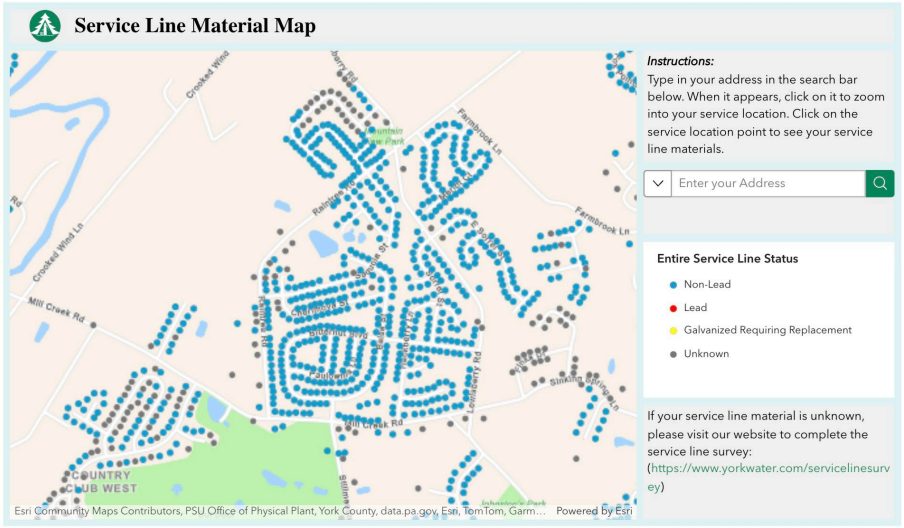
- What alternative management options exist?
- Which are the most feasible for my organization?

WHAT ARE MY BUSINESS RISKS?

- How do assets fail? How can they fail?
- What is their likelihood of failure?
- What are their consequences of failure?
- What assets are critical to sustained performance?

2.2 York: physical water system





2.2 York: asset optimization plan (2021)

Table 1 – Water Main Replacements – LTIIP Versus Actual for 2017-2021

Year	Projected Miles of Main to Be Replaced or Rehabilitated	Actual Miles of Main Replaced or Rehabilitated
2017	8	8.2
2018	8	9.5
2019	8	9.5
2020	8	10.6
2021	8	11.5

Table 2 — Replacement of Other Facilities – LTIIP Versus Actual for 2017-2021

Year	Services		Valves		Hydrants		Meters	
	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual
2017	1,054	1,483	215	120	64	62	3,155	3,088
2018	1,264	1,281	258	147	77	92	2,547	2,963
2019	1,264	498	258	194	77	85	2,636	2,210
2020	864	426	258	206	77	179	2,484	2,186
2021	784	586	258	286	77	94	2,815	3,022

Table 3 — Projected Budget for 2017, 2018, 2019, 2020 & 2021 Versus Actual Expenditures (in thousands of dollars)

Group	Projected 2017	Actual 2017	Projected 2018	Actual 2018	Projected 2019	Actual 2019	Projected 2020	Actual 2020
Mains	4,524	2,670	4,493	3,760	5,410	5,396	9,384	8,882
Valves	670	613	817	860	900	1,312	1,145	1,432
Hydrants	239	177	244	306	249	282	304	605
Services	1,175	1,695	1,152	1,808	956	928	1,125	902
Meters	516	657	429	605	457	561	569	729
Group	**Projected 2021**	**Actual 2021**						
Mains	12,740	12,000						
Valves	1,389	2,196						
Hydrants	310	400						
Services	1,125	2,402						
Meters	586	752						

2.2 York: physical changes reported (2023)

501. IMPORTANT PHYSICAL CHANGES DURING the YEAR

Submit information separately for each of the six functional groups listed below with respect to major physical changes to plant-in-service costing more than $250,000 during the year involving either additions to or improvements of, or retirements or replacements of plant. Information provided shall include Work Order Number, a Description of the Project, and the the District Served. Attach additional sheets as necessary.

1. Source of Supply 2. Power and Pumping 3. Purification 4. Distribution 5. General 6. Other Tangible

1. Source of Supply

A22-384 Refurbish Paint Underneath Lake Redman Bridge

2. Power and Pumping

A22-183 Conewago Industrial Park Acquisition; Lancaster County

3. Purification

A22-362 Purchase Land Adjacent to the Filter Plant; Spring Garden Twp

4. Distribution

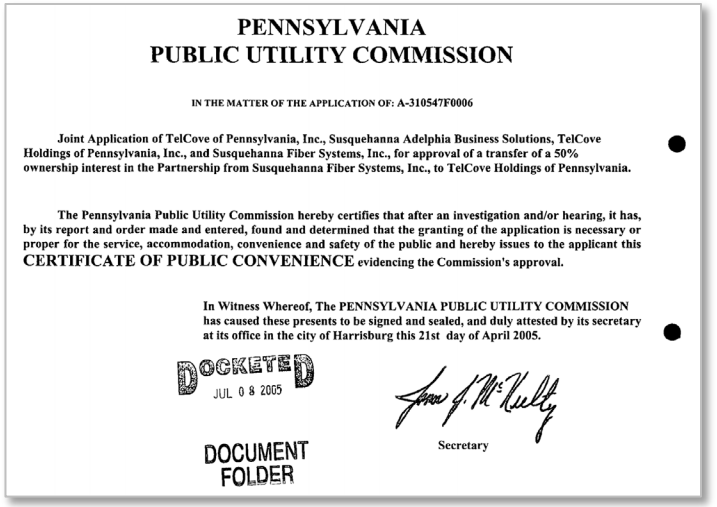
A21-262 North George St Area #6 Main Replacement; Manchester Twp & North York Borough
A21-310 Hartley St Main Replacement; York City
A21-353 South Queen St Main Replacement; York City
A21-410 Garrod Property Main Extension; East Manchester Twp
A22-058 Garrison -Hepplewhite Main Replacement; Manchester Twp
A22-127 North & South Main St Main Replacement; Jacobus Borough & Springfield Twp
A22-153 Briscella Property Main Extension; East Manchester Twp
A22-177 Old East York Main Replacement; Springettsbury Twp
A22-183 Conewago Industrial Park Acquisition; Lancaster County
A22-229 Core 5 at Codorus Creek Phase II, III, & IV Main Extension; E Manchester & Manchester Twp
A22-262 Atlantic Ave & Pacific Ave Main Replacement; York City
A22-275 Scott Water/LIDA Main Extension; Franklin County
A22-313 West Beaver & Church St Main Replacement; Hallam Borough
A23-001 Installation of Service Lines 2023
R23-003 Retirement of Service Lines 2023

5. General

A23-005 - Purchased Meters 2023
A23-006 - Software Development 2023
R23-002 - Retirement of Meters 2023

2.3 Certificates of need

- Major capital projects are subject to two separate forms of regulatory review
  - To ensure that projects are in the public interest over the long term, justified by forecasting, planning, and identified needs
  - Ex-ante certificate of need or of public convenience [and necessity] to ensure a project is needed – it should not constitute preapproval of spending (no blank checks)
  - Ex-post prudence review of expenditures to ensure that the project is well-executed
- Utilities may hold property (particularly land) for future use
  - If allowed in the rate base, any gains from sales may be shared with ratepayers
- Sales forecasts for need and rates should be consistent – *not two stories*
  - Rate case may be short-term focused
  - Capital planning should be long-term focused



PENNSYLVANIA
PUBLIC UTILITY COMMISSION

IN THE MATTER OF THE APPLICATION OF: A-310547F0006

Joint Application of TelCove of Pennsylvania, Inc., Susquehanna Adelphia Business Solutions, TelCove Holdings of Pennsylvania, Inc., and Susquehanna Fiber Systems, Inc., for approval of a transfer of a 50% ownership interest in the Partnership from Susquehanna Fiber Systems, Inc., to TelCove Holdings of Pennsylvania.

The Pennsylvania Public Utility Commission hereby certifies that after an investigation and/or hearing, it has, by its report and order made and entered, found and determined that the granting of the application is necessary or proper for the service, accommodation, convenience and safety of the public and hereby issues to the applicant this **CERTIFICATE OF PUBLIC CONVENIENCE** evidencing the Commission's approval.

In Witness Whereof, The PENNSYLVANIA PUBLIC UTILITY COMMISSION has caused these presents to be signed and sealed, and duly attested by its secretary at its office in the city of Harrisburg this 21st day of April 2005.

DOCKETED
JUL 0 8 2005

DOCUMENT FOLDER

Secretary

2.4 Utility plant in service (USoA, 1996) ⓘ

- 101. Utility Plant in Service (USoA, 1996)
  - A. This account is the control account for plant accounts 301 through 348.
  - B. This account shall include the original cost of utility plant, included in the plant accounts prescribed herein and in similar accounts for other utility departments, owned and used by the utility in its utility operations, and having an expected life in service of more than one year from date of installation, including such property owned by the utility but held by nominees. Separate subaccounts shall be maintained hereunder for each utility department and/or division.
  - C. The cost of additions to and betterments of property leased from others, which are includible in this account, shall be recorded in subdivisions separate and distinct from those relating to owned property (See Accounting Instruction 22).
- 103. Property Held for Future Uses (USoA, 1996)
  - This account shall include the original cost of property owned and held for future use in utility service under a definite plan for such use. There shall be included herein property acquired but never used by the utility in utility service, but held for such service in the future under a definite plan, and property previously used by the utility in utility service, but retired from such service and held pending its reuse in the future, under a definite plan, in utility service.

2.4 Utility plant in service (USoA, 1996)

- Operational Functions
  1. Intangible plant
  2. Source of supply and pumping plant
  3. Water treatment plant
  4. Transmission and distribution plant
  5. General Plant
- Water Utility Plant Accounts
  - 301. Organization
  - 302. Franchises
  - 303. Land and Land Rights
  - 304. Structures and Improvements
  - 305. Collecting & Impounding Reservoirs
  - 306. Lake, River and Other Intakes
  - 307. Wells and Springs
  - 308. Infiltration Galleries and Tunnels
  - 309. Supply Mains
  - 310. Power Generation Equipment
  - 311. Pumping Equipment
  - 320. Water Treatment Equipment
  - 330. Distribution Reservoirs & Standpipes
  - 331. Transmission and Distribution Mains
  - 333. Services
  - 334. Meters and Meter Installations
  - 335. Hydrants
  - 336. Backflow Prevention Devices
  - 339. Other Plant and Misc. Equipment
  - 340. Office Furniture and Equipment
  - 341. Transportation Equipment
  - 342. Stores Equipment
  - 343. Tools, Shop, and Garage Equipment
  - 344. Laboratory Equipment
  - 345. Power Operated Equipment
  - 346. Communication Equipment
  - 347. Miscellaneous Equipment
  - 348. Other Tangible Plant

2.4 York: utility plant in service (Depreciation Report, linked)

THE YORK WATER COMPANY

ANNUAL DEPRECIATION REPORT
TO THE PENNSYLVANIA
PUBLIC UTILITY COMMISSION
(CODE 213550-ADR-2024)

	2021	2022	2023
TOTAL COMPANY			
ORIGINAL COST (DEPRECIABLE)	375,844,331.09	408,635,483.64	433,853,033.22
BOOK ACCRUED DEPRECIATION	84,492,064	89,962,987	96,315,810
BOOK RESERVE % OF ORIGINAL COST	22.48%	22.02%	22.20%
ORIGINAL COST DEPRECIATED	291,352,262	318,672,489	337,537,218
ANNUAL DEPRECIATION EXPENSE	7,819,778	8,478,477	8,931,978
ANNUAL % OF ORIGINAL COST	2.08%	2.07%	2.06%
TOTAL PLANT IN SERVICE	**378,706,142.27**	**411,572,818.05**	**438,458,444.05**

2.4 Utility plant in service

Transmission & distribution	$388.6	78.6%
Source of supply	$50.3	10.2%
Water treatment	$28.2	5.7%
General plant	$27.0	5.5%
Intangible plant	$0.0	0.0%
Total plant in service	$494.1	100.0%

201. UTILITY PLANT IN SERVICE - Account No. 101.0

1. Report by prescribed accounts the original cost of utility plant in service and the additions and retirements of such plant during the year.
2. Do not include as adjustments, corrections to additions and retirements for the current or preceding year. Such items should be included in appropriate Column (c) or (d).
3. Credit adjustments in Column (e) should be shown in red, or in black enclosed in parenthesis. State in a footnote the general character of any adjustments in Column (e).
4. Submit, in a footnote, an explanation of amounts included in Columns (e) and/or (f), Line 34, for lowering or changing the location of mains.

Line No.	Account Number and Title (a)	Balance Previous Year (b)	Additions (c)	Retirements (d)	Adjustments +/- (e)	Balance End of Year (f)
1	**.1 INTANGIBLE PLANT**	XXX	XXX	XXX	XXX	XXX
2	301.10 Organization	5,302	3,272			8,574
3	302.10 Franchises	4,918				4,918
4	339.10 Other Plant and Miscellaneous Equipment					
5	Total Intangible Plant	10,220	3,272			13,492
6	**.2 SOURCE OF SUPPLY AND PUMPING PLANT**	XXX	XXX	XXX	XXX	XXX
7	303.20 Land and Land Rights	2,002,308	7,099			2,009,407
8	304.20 Structures and Improvements	17,590,556	691,750	46,472		18,235,834
9	305.20 Collection and Impounding Reservoirs	6,541,772	405,750	214,992		6,732,530
10	306.20 Lake, Rivers and Other Intakes	3,645,971	29,024			3,674,995
11	307.20 Wells and Springs	106,287	11,780			118,067
12	308.20 Infiltration Galleries and Tunnels					
13	309.20 Supply Mains	8,841,841				8,841,841
14	310.20 Power Generation Equipment	2,666,545	91,533			2,758,078
15	311.20 Pumping Equipment	7,343,666	549,147	5,043		7,887,770
16	339.20 Other Plant and Miscellaneous Equipment					
17	Total Source of Supply and Pumping Plant	48,738,946	1,786,083	266,507		50,258,522
18	**.3 WATER TREATMENT EQUIPMENT**	XXX	XXX	XXX	XXX	XXX
19	303.30 Land and Land Rights	98,459	1,652,563			1,751,022
20	304.30 Structures and Improvements	4,931,530	226,816	15,520		5,142,826
21	310.30 Power Generation Equipment					
22	311.30 Pumping Equipment	327,564	30,157			357,721
23	320.30 Water Treatment Equipment	20,839,363	193,573	45,060		20,987,876
24	339.30 Other Plant and Miscellaneous Equipment					
25	349.30 Instrumentation					
26	350.30 Wastewater Treatment Equipment					
27	Total Water Treatment Equipment	26,196,916	2,103,109	60,580		28,239,445
28	**.4 TRANSMISSION AND DISTRIBUTION PLANT**	XXX	XXX	XXX	XXX	XXX
29	303.40 Land and Land Rights	769,741	5,142			774,883
30	304.40 Structures and Improvements					
31	310.30 Power Generation Equipment	300,806	45,276			346,082
32	311.40 Pumping Equipment	8,134	28,219			36,353
33	330.40 Distribution Reservoirs and Standpipes	28,813,589	496,946			29,310,535
34	331.40 Transmission and Distribution Mains	243,655,265	20,561,372	240,585		263,976,052
35	333.40 Services	56,827,217	3,600,679	432,499		59,995,397
36	334.40 Meters and Meter Installations	21,131,562	1,515,894	719,091		21,928,365
37	335.40 Hydrants	10,805,685	817,781	88,683		11,534,783
38	336.40 Backflow Prevention Devices	657,938	22,701			680,639
39	339.40 Other Plant and Miscellaneous Equipment					
40	Total Transmission and Distribution Plant	362,969,937	27,094,010	1,480,858		388,583,089
41	**.5 GENERAL PLANT**	XXX	XXX	XXX	XXX	XXX
42	303.50 Land and Land Rights	250,868				250,868
43	304.50 Structures and Improvements	5,213,561	187,626	33,291		5,367,896
44	340.50 Office Furniture and Equipment	12,756,066	429,090	32,855		13,152,301
45	341.50 Transportation Equipment	2,213,732	651,599	250,887		2,614,444
46	342.50 Stores Equipment	216,482	30,575	11,506		235,551
47	343.50 Tools, Shop and Garage Equipment	969,217	134,339	2,703		1,100,853
48	344.50 Laboratory Furniture & Equipment	185,659				185,659
49	345.50 Power Operated Equipment	128,072	92,153			220,225
50	346.50 Communication Equipment	3,120,814	222,990			3,343,804
51	347.50 Miscellaneous Equipment	547,884	29,120			577,004
52	348.50 Other Tangible Plant					
53	Total General Plant	25,602,355	1,777,492	331,242		27,048,605
54	**TOTAL WATER PLANT-IN-SERVICE**	463,518,374	32,763,966	2,139,187		494,143,153

2.4 Plant materials and supplies

214. PLANT MATERIALS AND SUPPLIES - Account No. 151.0

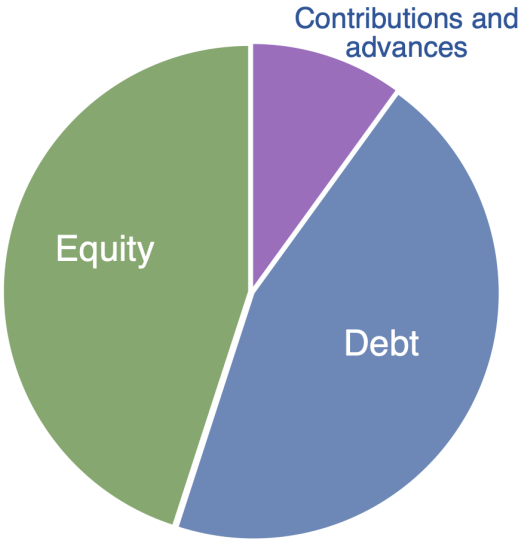
ummarize below by character (such as chemicals, fuel oil, valves, pipe, etc.) of materials and supplies, the balance Account No. 151.0 at the beginning and end of the year.

2. Important inventory adjustments during the year of materials and supplies account shall be explained, showing the class of materials affected and the various classes of accounts (operating expenses, clearing accounts, plant accounts) debited or credited.

Line No.	Classification of Materials And Supplies (a)	Balance Beginning of Year (b)	Balance End of Year (c)	Increase (Decrease) (d)
1	**Chemicals & Fuel Oil**	118,246	162,717	44,471
2	**Service Line Fittings**	334,011	363,956	29,945
3	**Mains & Accessories**	993,690	1,501,039	507,349
4	**Main Fittings & Meter Sets**	451,587	479,318	27,731
5	**Meter Boxes, Parts, & Pig Lead**	104,743	113,364	8,621
6	**Special Inventory**	30,815	30,815	
7	**Fire Hydrants & Parts**	283,495	451,428	167,933
8	**Gasoline**	18,517	6,028	-12,489
29				
30	Total	2,335,104	3,108,665	773,561

2.5 Contributed capital (CIAC)

- Utility capital assets
  - Assets are mainly supported by equity or debt (“own or owe”), but some might be contributed
  - Financed by investors and funded by ratepayers
- Contributed capital for plant investment
  - Capital can be supplied by others who are not investors
  - Includes funds from developers, customers, and taxpayers (government grants)
  - Offsets need for investor-financed capital (debt or equity)
- Contributions in aid of construction (CIAC)
  - Non-refundable amounts provided to a utility to help finance the construction of utility plant
  - Reported on the balance sheet – rules and practices vary
  - Electric/Gas/Teleco – deducted directly from plant book costs
  - Water/Wastewater – a separate account deducted from the rate base (see Part 3)
- CIAC ratemaking issues
  - Assets financed by contributions may be depreciated – but rate recovery is typically not allowed (no cash flow)
  - Unless exempt, taxes on CIAC are paid by developers (with “gross-up”) or ratepayers (“socialized”)
  - Infrastructure Investment and Jobs Act (2021) restored CIAC tax exemption for water and wastewater (still applies to energy)
- Advances for construction are repayable
  - A form of interest-free financing



2.5 System development, capacity, or impact fees

- Development, capacity, or impact fees are used to support system-wide needs
  - Based on the concept that “growth should pay for growth” to protect existing ratepayers
  - More likely used by publicly than privately owned systems – cause of rate disparity
  - May depend on economic development policies
- Regulated private utilities
  - Treated as CIAC and excluded from rate base
- Non-private utilities
  - Might make certain capital expenditures (adding to assets) from current revenues, as recorded on the cash flow statement (see Part 4) – e.g., meters, service lines

Q. How do private and non-private utilities differ in terms of contributed capital?

2.5 Contributed capital ⓘ

- 271. Contributions in Aid of Construction (USoA, 1996)
  - A. This account shall include:
  - 1. Any amount or item of money, services or property received by a utility, from any person or governmental agency, any portion of which is provided at no cost to the utility, which represents an addition or transfer to the capital of the utility, and which is utilized to offset the acquisition, improvement or construction costs of the utility's property, facilities, or equipment used to provide utility services to the public.
  - 2. Amounts transferred from account 252 - Advances for Construction, representing unrefunded balances of expired contracts or discounts resulting from termination of contracts in accordance with the Commission's rules and regulations.
  - 3. Compensation received from governmental agencies and others for relocation of water mains or other plants.
  - 4. Any amount of money received by a utility, any portion of which is provided at no cost to the utility, which represents an addition or transfer to the capital of the utility and which is utilized to offset the federal, state or local income tax effect of taxable contributions in aid of construction, taxable amounts transferred from Account 252 - Advances for Construction, and taxable compensation received from governmental agencies and others for relocation of water mains or other plants shall be reflected in a sub-account of this account.

2.6 Funds for construction (AFUDC, CWIP)

- Two options for long-term (>1 year) plant construction – *one or the other*
  - Allowance for funds used during construction (AFUDC)
  - Construction work in progress (CWIP) in the rate base
- Allowance for funds used during construction (AFUDC)
  - An amount added to construction work in progress (CWIP) to compensate the utility for the use of its funds (borrowed and equity) during the construction period for major capital projects and before their completion and inclusion of the assets in the rate base
  - Not used if construction work in progress (CWIP) is included in the rate base
- Construction work in progress (CWIP) in the rate base
  - Plant under construction but not yet completed and placed in service
  - Not considered used and useful – but there may be exceptions.
  - Each jurisdiction determines ratemaking treatment
  - Historically, it is not typically included in the rate base
  - Recently, movement toward inclusion in rate base as an investment incentive

2.6 Funds for construction (USoA, 1996) ⓘ

- 105. Construction Work in Progress (CWIP) USoA, 1996)
  - A. This account shall include the total of balances of work orders for utility plant in process of construction but not ready for service at the date of the balance sheet.
  - B. Work orders shall be cleared from this account as soon as practicable after completion of the job. Further, if a project, such as pumping station or treatment plant, is designed to consist of two or more units which may be placed in service at different dates, any expenditures which are common to and which will be used in the operation of the project as a whole shall be included in utility plant in service upon the completion and the readiness for service of the first unit. Any expenditures which are identified exclusively with units of property not yet in service shall be included in this account.
  - C. Expenditures on research and development projects for construction of utility facilities are to be included in a separate subdivision in this account. Records must be maintained to show separately each project along with complete detail of the nature and purpose of the research and development project together with the related costs.
- 420. Allowance for Funds Used During Construction (AFUDC) (USoA, 1996)
  - This account shall include concurrent credits for allowance for funds used during construction based upon the net cost of funds. used for construction purposes and a reasonable rate upon other funds when so used. Appropriate regulatory approval shall be obtained for "a reasonable rate" (See Accounting Instruction No. 19).

2.6 Allowance for funds used during construction (AFUDC)

- AFUDC is added to the amount of plant that is being capitalize
  - Includes the cost of funds used in the period of construction of utility plant
  - Non-private entities only consider interest cost
- Regulatory policy
  - Regulators may require capital funding in the form of short-term and long-term debt and shareholder equity
  - Capitalized amount is reflected in financial statements as other income, a reduction to interest expense, or both
- AFUDC determination
  - Balances and debt rates are determined annually
  - Return on equity is based on most current regulatory proceeding
- Many states follow the FERC formula for AFUDC
  - Electricity: Title 18 CFR Part 101, Electric Plant Instructions, §3.17
  - Natural gas: Title 18 CFR Part 201, Natural Gas Instructions, §3.17
  - Used for power plants and other long-term projects

2.6 Impact of AFUDC vs. CWIP (simplified 3-year construction period)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Total
AFUDC (no CWIP in rate base)										
Capitalized cost (cumulative)	$1,000	$2,070	$3,215							
AFUDC (7%)	$70	$145	$225							
Total CWIP	$1,070	$2,215	$3,440							
Plant in service				$3,440	$3,440	$3,440	$3,440	$3,440	$3,440	
Accumulated depreciation				$573	$1,147	$1,720	$2,293	$2,867	$3,440	
Rate base				$2,867	$2,293	$1,720	$1,147	$573	$0	
ROR (7%)				$201	$161	$120	$80	$40	$0	
Depreciation expense				$573	$573	$573	$573	$573	$573	
Rate impact				$774	$734	$694	$654	$613	$573	$4,042
CWIP in rate base										
Total CWIP	$1,000	$2,000	$3,000							
Plant in service	$1,000	$2,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Accumulated depreciation	$0	$0	$0	$500	$1,000	$1,500	$2,000	$2,500	$3,000	
Rate base	$1,000	$2,000	$3,000	$2,500	$2,000	$1,500	$1,000	$500	$0	
ROR (7%)	$70	$140	$210	$175	$140	$105	$70	$35	$0	
Depreciation expense	$0	$0	$0	$500	$500	$500	$500	$500	$500	
Rate impact of CWIP in RB	$70	$140	$210	$675	$640	$605	$570	$535	$500	$3,945

2.6 Construction work in progress (CWIP)

204. CONSTRUCTION WORK IN PROGRESS - Account No. 105.0

1. Describe the particulars concerning utility plant in process of construction but not ready for service at end of Calendar Year.
2. Describe separately each work order that exceeds an estimated expenditure of $250,000 or 1%, whichever is lessor, of the book cost of utility plant at the beginning of the year. All other work orders may be grouped by nature of project.

Line No.	Description of Work (a)	Balance End of Year (b)	Estimate Total Cost of Construction (c)	Projected In-Service Date (d)
1	304 Building Structures	445,265	550,000	by 6/24
2	305 Collection and Impounding Reservoirs	408,561	500,000	by 12/24
3	306 Lake, River and Intakes	90,927	150,000	by 12/24
4	309 Supply Mains	419,465	450,000	by 9/24
5	310 Power Generation Equipment	7,806	8,300	by 6/24
6	311 Pumping Equipment	111,602	145,000	by 12/24
7	320 Purification Equipment	754,206	830,000	by 9/24
8	330 Distribution Reservoirs and Standpipes	78,611	80,000	by 6/24
9	331 Mains and Accessories	13,330,459	18,603,000	by 12/24
10	333 Services	334,635	3,654,000	by 12/24
11	334 Meters	4,970	1,574,000	by 12/24
12	335 Fire Hydrants	744,710	922,000	by 12/24
13	340 Office Furniture & Equipment	136,417	498,000	by 12/24
14	341 Transportation Equipment	77,911	80,000	by 3/24
15	346 SCADA & Communication Equipment	93,292	105,000	by 6/24
16				
17				
18				
19	304 Work Order A20-077 - Filter Plant Lab Renovations	281,944	2,238,870	by 12/26
20	305 Work Order A20-306 - Lake Williams Dam Armoring & Spillway Replacement	49,478,846	50,090,000	by 2/24
21	311 Work Order A23-243 - Susquehanna River Pump Design Improvements	51,940	400,000	by 3/25
22				
23				
24				
25	10520000 Retirement Work in Progress	921,421		
26				
27				
28	TOTALS	$67,772,988	$80,878,170	

2.7 Poll: Asset valuation

- How do regulators typically value utility assets?
  - A. Original cost less depreciation
  - B. Replacement cost (new less depreciation)
  - C. Reproduction cost
  - D. Market value

2.7 Asset valuation methods

- Original cost less depreciation is the regulatory standard of law and practice
  - Plant in service is valued at its cost at the time that it was first placed into service and dedicated to public use - an observable value
  - Recording of original cost remains throughout the plant's life
  - When plant is purchased from another utility, original cost remains the recorded value
- Reproduction cost (new less depreciation) or replacement cost
  - Reproduction cost (new) assumes the same plant and equipment adjusted for inflation
  - Replacement cost assumes updated or alternative plant & equipment (typically not used)
- Handy-Witman index of utility construction costs
  - Used for trending historical costs to current reproduction cost
  - Result is adjusted to reflect the percentage depreciated
  - Reproduction cost new less depreciation (RCND)
- Market value (theoretical)
  - Referred to as "present value" or "fair market value"
  - Based on a "market" appraisal – which assumes a functional market

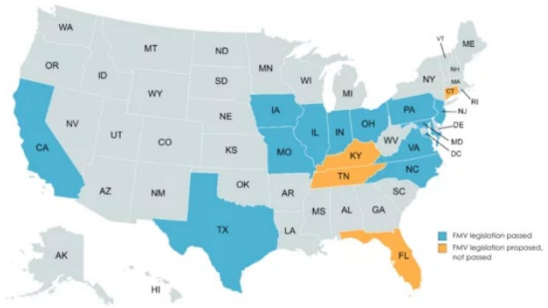
Q. How should the value of an asset transferred between utilities be recorded?

2.7 Original cost for determining the rate base

- Rate base Items – general principles (NRCAM, 2003)
  - Many jurisdictions have adopted the concept of using the original cost of the plant or equipment to determine the value for the purposes of computing rate base.
  - Under the original cost concept, the cost of the item at the time that it was first put into utility service is the cost that remains with that item throughout its life.
  - If the asset is purchased during its life from another utility, the original cost carries with it, and any difference between it and the purchased price is booked as an acquisition adjustment (known as goodwill in non-utility industries).
  - Some jurisdictions have adopted other valuation methods, such as fair value, reconstruction costs, or replacement costs.
  - The audit guidelines presume the use of original cost and do not specifically address auditing based on other valuation methods
- Notable practices
  - Arizona averages original cost and reproduction cost and lowers the authorized return
  - Indiana can adjust either rate base or returns but outcomes vary, and appraised or fair value is being used for water acquisitions

2.7 Fair market value acquisitions

- "Fair market value"
  - Law and policy may allow IOUs to acquire publicly owned utility assets following appraisal and negotiation
  - Both buyer (IOU) and seller (city) want a *higher sale price* that ratepayers will pay
  - Price exceeds monopoly book value (original cost net of depreciation) and inflates the cost of service
  - Incompatible with consolidated rates due to wealth transfer
  - Successfully challenged in Pennsylvania in 2023 (ongoing)
- Purchase prices above "value"
  - Above-value "goodwill" (under GAAP) has been used to address special circumstances
  - "Acquisition adjustments" above book have been allowed for private-to-private acquisitions considered beneficial
  - Positive adjustments favor investors, negative favor ratepayers



Source: Walden.

"Goodwill" → "Acquisition adjustment" → "Fair market value"

2.8 Acquisition adjustments (USoA, 1996)

- 114. Utility Plant Acquisition Adjustments
  - A. This account shall include the difference between (a) the cost to the accounting utility of utility plant acquired as an operating unit or system by purchase, merger, consolidation, liquidation, or otherwise, and (b) the original cost, estimated, if not known, of such property, less the amount or amounts credited by the accounting utility at the time of acquisition to accumulated depreciation, accumulated amortization and contributions in aid of construction with respect to such property.
  - B. This account shall be subdivided so as to show the amounts included herein for each property acquisition and the amounts applicable to each utility department and to utility plant in service and utility plant leased to others (See Accounting Instruction 21).
  - C. The amounts recorded in this account with respect to each property acquisition shall be amortized, or otherwise disposed of, as the Commission may approve or direct.

2.8 Acquisition adjustments (NRCAM, 2003) ⓘ

- "Under the concept of booking all plant-in-service at original cost, any difference between the price paid for the utility plant and the original cost of that plant is booked as an acquisition adjustment.
- It is at the discretion of each jurisdiction as to whether or not the acquisition adjustment is included in the rate base, and often, that decision is made by the jurisdiction on a case-by-case basis.
- The auditor should look at each acquisition adjustment transaction and determine the circumstances for its existence.
  - Why did the utility pay above book for the property, and is there some benefit to ratepayers as a result of that transaction?
  - Will customers have better service as a result of the purchase by the utility, even if the utility did pay above book value for the property?
- As another option, some jurisdictions have allowed the amortization of the acquisition adjustment above the line, but have not allowed the unamortized balance to be included in rate base – thus splitting the risk of that transaction between ratepayers and the utility's shareholders"

2.8 York: acquisitions over time (1978-2018)

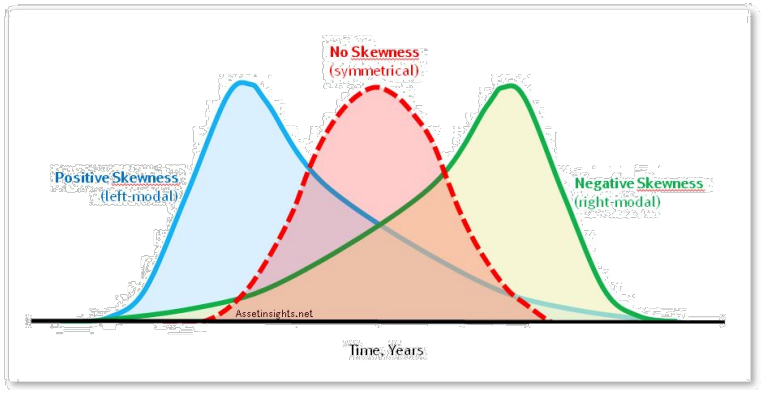
THE YORK WATER COMPANY
AMORTIZATION OF ACQUISITION ADJUSTMENTS
Account 406

Company Acquired	Year Acquired	Acquisition Adjustment	Remaining Life of Assets When Acquired	2017 Annual Amortization	Unamortized Balance 12/31/17	2018 Annual Amortization	Unamortized Balance 12/31/18	2019 Annual Amortization	Unamortized Balance 12/31/19
Borough of Loganville Water Works	1978	-52,785.29	46.18	-2,016.24	-14,476.64	-2,016.25	-12,460.39	-2,016.24	-10,444.15
Lehr Water Company	1981	-6,367.33	50.00	-192.95	-2,701.29	-192.95	-2,508.34	-192.95	-2,315.39
Penvale Water Company	1982	4,520.30	50.00	132.95	1,994.25	132.95	1,861.30	132.95	1,728.35
Gleneagles Water Company	1983	-44,794.71	44.85	-1,500.66	-16,282.16	-1,500.66	-14,781.50	-1,500.66	-13,280.84
Borough of New Salem	1984	-430,901.18	49.63	-12,093.77	-201,119.47	-12,093.77	-189,025.70	-12,093.77	-176,931.93
Hepplewhite Water Company	1985	8,216.97	50.00	222.08	3,997.44	222.08	3,775.36	222.08	3,553.28
Hellam Borough Water Works	1985	-271,886.51	61.58	-5,596.68	-165,549.67	-5,596.68	-159,952.99	-5,596.68	-154,356.31
Mt View Water Company	1986	-8,198.65	50.00	-215.75	-4,099.33	-215.75	-3,883.58	-215.75	-3,667.83
Raintree Water Company	1986	-5,261.65	50.00	-138.46	-2,630.83	-138.46	-2,492.37	-138.47	-2,353.90
Mid-Penn Water Works, Inc	1988	-30,102.99	41.45	-957.17	-11,916.76	-957.17	-10,959.59	-957.17	-10,002.42
Briar Water Company	1990	-7,364.53	50.00	-175.35	-4,032.96	-175.35	-3,857.61	-175.35	-3,682.26
Seven Valleys Borough Water Works	1994	-30,076.12	29.77	-1,166.92	-7,904.70	-1,166.92	-6,737.78	-1,166.92	-5,570.86
Springfield Township Water Authority	1994	-69,956.61	45.07	-1,703.47	-37,590.72	-1,703.47	-35,887.25	-1,703.47	-34,183.78
Thomas E Starnick t/a Saginaw Water	1994	19,701.53	33.22	674.29	6,890.00	674.29	6,215.71	674.29	5,541.42
Nashville Water Company	1995	9,398.84	43.50	232.06	4,989.77	232.06	4,757.71	232.06	4,525.65
East Prospect Borough Water Works	1995	-98,300.20	72.52	-1,414.07	-71,432.88	-1,414.07	-70,018.81	-1,414.07	-68,604.74
Jefferson Borough Water Works	1996	-619,485.17	71.77	-8,878.34	-450,796.77	-8,878.34	-441,918.43	-8,878.34	-433,040.09
Railroad Borough Water Works	1999	83,715.46	69.59	1,202.98	62,061.80	1,202.98	60,858.82	1,202.98	59,655.84
Spring Grove Borough	2005	-513,621.35		-9,369.23	-407,827.09	-9,369.23	-398,457.86	-9,369.23	-389,088.63
Spring Grove Water Co.	2005	714,907.89		17,390.12	518,544.44	17,390.12	501,154.32	17,390.12	483,764.20
Abbottstown Borough Water	2007	-130,858.57		-2,029.76	-108,531.22	-2,029.76	-106,501.46	-2,029.76	-104,471.70
Asbury Pointe	2008	-185,298.60		-2,502.01	-162,780.54	-2,502.01	-160,278.53	-2,502.01	-157,776.52
West Manheim Borough	2009	-1,440,361.44		-19,406.65	-1,265,701.60	-19,406.65	-1,246,294.95	-19,406.65	-1,226,888.30
Beaver Creek Village	2009	-25,831.26		-723.97	-19,979.17	-723.97	-19,255.20	-723.97	-18,531.23
York Starview, LP	2012	35,897.34		1,021.84	32,320.89	1,021.84	31,299.05	1,021.84	30,277.21
Section A Water Corporation	2012	34,728.82		1,183.26	30,587.39	1,183.26	29,404.13	1,183.26	28,220.87
Windy Brae Mobile Home Park	2013	-45,332.19		0.00	-45,332.19	0.00	-45,332.19	-381.39	-44,950.80
Forest Lakes Water Assoc.	2014	-7,338.90		0.00	-7,338.90	0.00	-7,338.90	-72.72	-7,266.18
Lincoln Estates MHP	2015	-77,185.59		0.00	-77,185.59	0.00	-77,185.59	-776.83	-76,408.76
The Meadows	2015	-158,817.90		0.00	-158,817.90	0.00	-158,817.90	-934.66	-157,883.24
Paradise Homes	2015	-27,866.11		0.00	-27,866.11	0.00	-27,866.11	-258.02	-27,608.09
Newberry Farms MHP	2016	-57.32		0.00	-57.32	0.00	-57.32	-57.32	0.00
Margaretta MHP	2016	55,508.85		0.00	55,508.85	0.00	55,508.85	495.39	55,013.46
Crestview MHP	2016	19,100.12		0.00	19,100.12	0.00	19,100.12	184.45	18,915.67
Westwood MHP	2016	-75,474.07		0.00	-75,474.07	0.00	-75,474.07	-633.85	-74,840.22
Stockham's Village MHP	2017	17,369.38		0.00	17,369.38	0.00	17,369.38	224.16	17,145.22
Wrightsville Borough Municipal Authority	2018	67,886.41				0.00	67,886.41		67,886.41
		-3,292,572.33		-48,021.86	-2,594,061.55	-48,021.88	-2,478,153.26	-50,232.68	-2,427,920.58

York Water Expands Services to Ensure Safe, Reliable Water for Local Communities: The York Water Company recently expanded its services with two significant acquisitions. In Hallam Township, York County, York Water connected the Brookhaven Mobile Home Community to its supply after the community's wells were deemed unsafe due to tetrachloroethylene contamination. Similarly, in Hamilton Township, Adams County, York Water acquired the Pine Run Retirement Community's water system, addressing elevated levels of gross alpha radiation by extending nearly three miles of new water main. These efforts ensure safe, reliable water for residents while supporting community infrastructure, including future developments like the East Berlin Area Community Center.

2.9 Plant service lives and depreciation

- Service lives of plant assets
  - The period between the date utility plant is placed in service and its retirement.
  - If depreciation is accounted for on a production basis rather than on a time basis, then service life should be measured in terms of the appropriate unit of production
  - Actual life will be affected by materials and geography-based environmental conditions
  - Service value reflects the difference between original plant cost and its net salvage value
  - Obsolescence raises policy issues related to prudence, risk, and cost recovery
- Analytical accounting tools
  - Survivor curves (or "Iowa curves") are used to model asset deterioration for remaining-life analysis to synchronize asset life with cost recovery,
  - Water mains or power poles are depreciated using a mass group-life or vintage approach rather than by individual asset or component



2.9 York: plant service lives (SEC)

Utility Plant Asset Category	December 31 2023	December 31 2022	Approximate range of remaining lives
Mains and accessories	$ 286,993	$ 265,033	13 – 86 years
Services, meters, and hydrants	98,387	92,818	14 – 47 years
Operations structures, reservoirs, and water tanks	89,207	87,218	10 – 55 years
Pumping and treatment equipment	44,719	40,038	6 – 35 years
Office, transportation, and operating equipment	19,292	18,128	3 – 20 years
Land and other non-depreciable assets	5,685	3,938	–
Utility plant in service	544,283	507,173	
Construction work in progress	75,918	41,968	–
Total Utility Plant	$ 620,201	$ 549,141	

2.9 York: net salvage value (Depreciation Report)

THE YORK WATER COMPANY

TABLE 5. CALCULATION OF NET SALVAGE ACCRUAL FOR THE YEAR 2024

	2019		2020		2021		2022		2023			
ACCOUNT	GROSS SALVAGE	COST OF REMOVAL	GROSS SALVAGE	COST OF REMOVAL	GROSS SALVAGE	COST OF REMOVAL	GROSS SALVAGE	COST OF REMOVAL	GROSS SALVAGE	COST OF REMOVAL	NET SALVAGE	SALVAGE ACCRUAL
(1)	(2) -	(3) +	(4) -	(5) +	(6) -	(7) +	(8) -	(9) +	(10) -	(11) =	(12)*	(13)=(12)/5
304.30				6,430							(6,430)	(1,286)
304.61						2,129					(2,129)	(426)
304.62	3,750	1,590									2,160	432
305.00		8,557									(8,557)	(1,711)
306.00						5,935		77			(6,012)	(1,202)
309.00						2,619					(2,619)	(524)
310.20						170,801	8,379				(162,422)	(32,484)
311.00	450	2,992				21,093					(23,636)	(4,727)
320.00		2,147		6,110							(8,257)	(1,651)
330.00				55,096		243					(55,339)	(11,068)
331.00	1,343	648,648		1,220,234	4,012	1,583,232		2,714,946	8,923	2,111,978	(8,264,760)	(1,652,952)
333.00	1,690	822,424	22,594	1,088,959	6,912	1,123,315	21,565	1,160,381	81,555	840,793	(4,901,557)	(980,311)
334.00	20,667	3,876	7,538	2,209	14,049	6,435	26,722	8,388	13,800	6,126	55,742	11,148
335.00	9,013	88,949	(899)	173,152	11,901	214,896	(2,816)	176,464		233,268	(869,530)	(173,906)
342.10									425		425	85
343.20			238		3,000		639		1,418		5,294	1,059
347.00	1,260		675								1,935	387
TOTAL	**38,172**	**1,579,184**	**30,146**	**2,552,190**	**39,874**	**3,130,699**	**54,490**	**4,060,256**	**106,120**	**3,192,165**	**(14,245,693)**	**(2,849,137)**

* Column (12) equals the summation of Columns (2) through (11).

2.9 Guidelines on useful life assets (USEPA, Watertrust)

Table 2-1 - Useful Life Matrix

Years	Component
	Clean Water
80 - 100	Collections
50	Treatment Plants - Concrete Structures
15 - 25	Treatment Plants - Mechanical & Electrical
25	Force Mains
50	Pumping Stations - Concrete Structures
15	Pumping Stations - Mechanical & Electrical
90 - 100	Interceptors
	Drinking Water
50 - 80	Reservoirs & Dams
60 - 70	Treatment Plants - Concrete Structures
15 -25	Treatment Plants - Mechanical & Electrical
65 - 95	Trunk Mains
60 - 70	Pumping Stations - Concrete Structures
25	Pumping Stations - Mechanical & Electrical
65 - 95	Distribution

www.watertrust.org

Component	Useful Life
Wells and Springs	25 years
Intake Structures	35 years
Pumping Equipment	10 years
Disinfection Equipment	5 years
Hydropneumatic Tanks	10 years
Concrete and Metal Storage Tanks	30 years
Transmission Structures (Pipes)	35 years
Valves	35 years
Mechanical Valves	15 years
Computer Equipment/Software	5 years
Transformers/Switchgears/Wiring	20 years
Motor Controls/Variable Frequency Drives	10 years
Sensors	7 years
Buildings	30 years
Service Lines	30 years
Hydrants	40 years
Chlorination Equipment	10 years
Transmission Mains	35 years
Lab/Monitoring Equipment	5 years
Tools and Shop Equipment	15 years
Transportation Equipment	10 Years

Note: These expected useful lives are drawn from a variety of sources. The estimates assume that assets have been properly maintained.

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

2.9 Plant service lives and depreciation

- Depreciation (FERC USoA)
  - “Depreciation, as applied to depreciable service company property, means the loss in service value not restored by current maintenance. Among the causes to be used as consideration for causes of loss in service value are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities”
- Depreciation recognizes costs over the useful life of tangible (plant) assets
  - May be used to match cost recovery to useful service life
  - May correlate with changing value but is a temporal method of cost recovery rather than valuation (NRCAM)
  - Allocating depreciation over the period during which services are obtained from an asset’s use is consistent with the goal of intergenerational equity
- Depreciation rates
  - Utilities use depreciation studies to establish asset-specific rates – smaller utilities may require standardized guidance and simplified methods
  - Composite depreciation rates should reflect the weighted average service life of a single plant account, several plant account, or all depreciable plant of the utility

Q. Under what circumstances might an asset be retired earlier than its useful life?

2.9 Accounting for straight-line depreciation

		Gross plant balance	Annual depreciation expense (straight)	Accumulated depreciation (balance sheet)	Net plant balance
1	Day one	$100,000	$0	$0	$100,000
2	End of year one	$100,000	$20,000	$20,000	$80,000
3	End of year two	$100,000	$20,000	$40,000	$60,000
4	End of year three	$100,000	$20,000	$60,000	$40,000
5	End of year four	$100,000	$20,000	$80,000	$20,000
6	End of year five	$100,000	$20,000	$100,000	$0

2.9 Utility plant retirements (end of life)

- Abandonments (Deloitte, 2012)
  - In case of abandonment, regulators might permit recovery of all or partial costs as well as a return on investment
  - Assets abandoned during a construction project must be removed from CWIP
  - Recoverable cost of the abandoned asset must be recorded as a new regulatory asset
  - A loss is calculated as the difference between the net carrying and present value of the revenue stream provided for cost recovery and must be adjusted for tax effects
- Accounting for Asset Retirement Obligations (FERC Order 631, 2000)
  - Consistent with Accounting Standards Code 410-20 (FAS 143 issued June 2001), FERC rules require that a jurisdictional entity recognize a liability for the fair value of an asset retirement obligation (calculated on a net present value basis) at the time the asset is constructed, acquired, or when a change in law creates a legal obligation to perform the retirement activities
  - When a liability is recognized, the business entity should increase the cost of the asset that must be retired by the amount of the liability
  - Capitalized asset retirement costs are then depreciated over the asset's life.
  - FERC noted that the accounting called for in the rule produces the same results as the application of ASC 410-20
  - Order No. 631, FERC Docket No. RM02-7-000 (April 9, 2003)

2.10 Accumulated depreciation

- Depreciation methods
  - Two methods: straight-line (same amount each period) or accelerated
  - Amortization is comparable but applies to intangible (non-plant) assets
- Accumulated depreciation is recorded on the balance sheet (account 108)
  - Annual depreciation expense is included in revenue requirements (see Part 3)
  - Sum of all past years' depreciation expense for a depreciable asset
  - May include estimated amounts for salvage or cost of removal
  - Reflected in the value of net plant on the balance sheet ("book value")
- Depreciation expense provides cash flow for discretionary reinvestment
  - Shareholders are not obligated to reinvest it (compare to past use of "sinking funds")
  - Municipal utilities can depreciate or implement asset management (GASB 34)
- Regulatory policy issues
  - Fully depreciated assets do not contribute to the rate base for ratemaking
  - For smaller utilities, return may instead be applied to O&M expenses (operating ratio)
  - Regulatory and tax policy differences affect accounting and ratemaking
  - Shareholders are not allowed recovery of plant financed with CIAC (see Part 3)

2.10 Accumulated depreciation accounts ⓘ

- 108. Accumulated Depreciation (USoA, 1996)
  - A. This account shall reflect the depreciation accumulated on plant used in water utility service.
  - B. The utility shall maintain separate subaccounts corresponding with the depreciable plant accounts, in which the accumulated depreciation total is segregated.
- 110. Accumulated Amortization (USoA, 1996)
  - A. This account shall reflect the amortization accumulated on plant used in water utility service.
  - B. The utility shall maintain separate subaccounts corresponding with the amortizable plant accounts, in which the accumulated amortization total is segregated.

2.10 Accumulated depreciation

205. ACCUMULATED DEPRECIATION OF UTILITY PLANT - Account Nos. 180.1, 180.2, 180.3 and 117.0

1. Report below an analysis of the changes in accumulated depreciation during the year and the amounts applicable to prescribed functional classifications.
2. Explain and give particulars of important adjustments during the year.

		Account No.	108.1	108.2	108.3	117.0
Line No.	Item (a)	Total (b)	Utility Plant In Service (c)	Utility Plant Leased to Others (d)	Property Held for Future Use (e)	Operating Plant Pending Reclassification (f)
1	**Balance Beginning of Year**	98,957,003	98,957,003			
2	Credits During Year	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
3	Depreciation Provisions charged to:	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
4	403. Depreciation	11,289,394	11,289,394			
5	413. Income from Utility Plant Leased to Others					
6						
7						
8						
9						
10	**Total Depreciation Provisions**	11,289,394	11,289,394			
11	Recoveries from Insurance					
12	Salvage Realized from Retirements	106,120	106,120			
13	Other Credits (Describe)					
14	FAS 143	468,155	468,155			
15	Acquisition Accumulated Depreciation	282,363	282,363			
16						
17						
18	**Total Credits During Year**	856,638	856,638			
19	**Total Credits**	12,146,032	12,146,032			
20	Debits During Year	XXXXX	XXXXX	XXXXX	XXXXX	XXXXX
21	Retirement of Utility Plant	2,132,887	2,132,887			
22	Cost of Removal	3,192,165	3,192,165			
23	Other Debits (Describe)					
24						
25						
26						
27						
28	**Total Debits During Year**	5,325,052	5,325,052			
29	**Balance at End of Year**	105,777,983	105,777,983			

2.11 Accumulated deferred income taxes

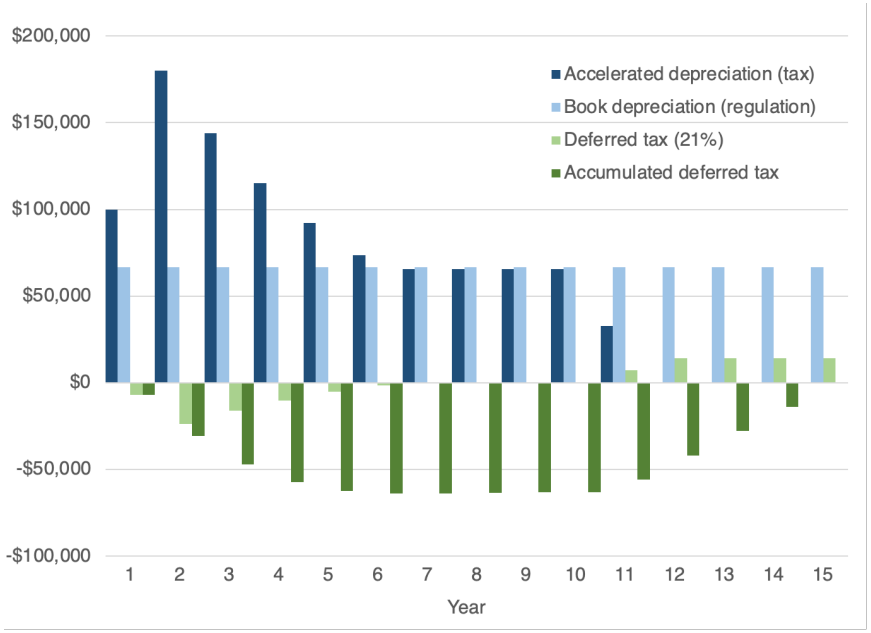
- Accumulated deferred income taxes
  - Portion of income taxes collected in rates but not yet payable to the IRS
  - Recorded on the balance sheet as a liability
  - Annual tax expenses are "normalized" & included in revenue requirement (see Part 3)
- Ratemaking issues
  - Balance of the deferred income taxes are deducted from the rate base, under the theory that investors did not provide these funds, and thus they are ineligible to earn a return
  - Balance of the deferred income taxes are treated as a cost-free (0.0%) element of the capital structure under the theory that these funds are available for the utility's use without compensation to shareholders or bondholders
  - Depreciation policies (including accelerated or bonus depreciation as well as the "repairs" deduction) are the biggest factors in deferrals
  - Accelerated depreciation affects income taxes paid and changes to accumulated deferred income taxes

2.11 Accumulated deferred income taxes

Year	Accelerated depreciation (tax)	Book depreciation (regulation)	Timing difference	Deferred tax 21%	Accumulated deferred tax
1	100,000	66,667	(33,333)	(7,000)	(7,000)
2	180,000	66,667	(113,333)	(23,800)	(30,800)
3	144,000	66,667	(77,333)	(16,240)	(47,040)
4	115,200	66,667	(48,533)	(10,192)	(57,232)
5	92,160	66,667	(25,493)	(5,354)	(62,586)
6	73,728	66,667	(7,061)	(1,483)	(64,068)
7	65,536	66,667	1,131	237	(63,831)
8	65,536	66,667	1,131	237	(63,594)
9	65,536	66,667	1,131	237	(63,356)
10	65,536	66,667	1,131	237	(63,119)
11	32,768	66,667	33,899	7,119	(56,000)
12	0	66,667	66,667	14,000	(42,000)
13	0	66,667	66,667	14,000	(28,000)
14	0	66,667	66,667	14,000	(14,000)
15	0	66,667	66,667	14,000	0
	1,000,000	1,000,000			

2.11 Accumulated deferred income taxes

- Causes of timing differences in accounting (asynchronicity)
  - Depreciation life differences
    - IRS-specified life versus physical or technological life
  - Basis differences
    - Differences in what is recognized as a deferred cost or expense
  - Depreciation method differences
    - Straight line vs. accelerated (a tax incentive to provide a source of financial capital)
    - Balances eventually reconcile



2.11 Exercise: deferred income taxes

- Assumptions
  - $4,500 asset with straight-line depreciation
  - Tax life = 3 years ($1,500 per year depreciation expense)
  - Book life = 5 years ($900 per year depreciation expense)
  - Tax rate = 21%

	IRS taxes	Book taxes for ratemaking	Current year deferred income taxes	Deferred income taxes balance
1	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$126
2	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$126 + $126 = $252
3	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$252 + $126 = $378
4	$ 0 * 21% = $ 0	$900 * 21% = $189	$0 - $189 = ($189)	?
5	$ 0 * 21% = $ 0	$900 * 21% = $189	$0 - $189 = ($189)	?

2.11 Exercise: deferred income taxes

- Assumptions
  - $4,500 asset with straight-line depreciation
  - Tax life = 3 years ($1,500 per year depreciation expense)
  - Book life = 5 years ($900 per year depreciation expense)
  - Tax rate = 21%

	IRS taxes	Book taxes for ratemaking	Current year deferred income taxes	Deferred income taxes balance
1	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$126
2	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$126 + $126 = $252
3	$1,500 * 21% = $315	$900 * 21% = $189	$315 - $189 = $126	$252 + $126 = $378
4	$ 0 * 21% = $ 0	$900 * 21% = $189	$0 - $189 = ($189)	? $378 + ($189) = $189
5	$ 0 * 21% = $ 0	$900 * 21% = $189	$0 - $189 = ($189)	? $189 + ($189) = $ 0

2.11 Investment tax credits (NRCAM, 2003) ⓘ

- Congress enacted the investment tax credit (ITC) for the first time in 1962
  - To encourage Investment in infrastructure
  - Inflation Reduction Act (2022) significantly expanded the Investment Tax Credit (Sec 48) for a broad range of renewable energy resources, including expanding the eligibility for the full ITC to certain projects such as energy storage
- ITCs had to be amortized in equal increments over the economic life of assets
  - Some of the assets constructed during that period are still in service, and thus, the current revenue requirement may reflect a remaining balance related to earlier ITCs
- For regulatory treatment of ITCs, utilities had one of two options
  - Option One: For ratemaking purposes, the rate base may be reduced by the unamortized ITC, but the net operating income may not be increased by the amortization of the ITC
  - Option Two: For ratemaking purposes, the net operating income may reflect the amortization of the ITC, but the rate base may not be reduced by any portion of the unamortized ITC (typical)
  - Option Three (expired in 1980): Allowed for the flow through of credits immediately as a reduction of current tax expense

2.12 Working capital

- Enterprises must *spend money* before they can *make money*
- Working capital – Adam Smith called it “circulating capital”
  - Rate base items other than utility plant in service, such as inventories, prepayments, and cash working capital; investor-supplied funds are allowed in rate base (Deloitte, 2012)
  - A measure of investor funding of daily expenditures and a variety of non-plant investments that are necessary to sustain ongoing operations of the utility until those expenditures can be recovered through revenues (NRCAM, 2003)
- Cash working capital is a subset of working capital
  - Funds needed to finance operations (Deloitte, 2012)
  - May be positive (bank balance) or negative (bank line of credit)
  - May be investor or ratepayer-funded
- Different methods of measurement are used by utilities and regulators

Q. How do utilities utilize cash working capital?

2.12 Leading and lagging (timing differences)

T1	T2	T3	T4	T5	T6	T6
Provide service	Provide service	Provide service	Provide service	Provide service	Provide service	Provide service
→ → → → → → → →		Bill customers	Customer receipts	→ → → → → → → →		Bill customers
Pay wages	Pay wages	Pay wages	Pay wages	Pay wages	Pay wages	Pay wages
Pay for energy	Pay for energy	Pay for energy	Pay for energy	Pay for energy	Pay for energy	Pay for energy
Purchase chemicals	Pay for chemicals	→ → → → → → → → → → → → → → → → → → → →				
→ → →	Purchase water	Pay for water	→ → →	Purchase water	Pay for water	→ → →

2.12 Cash working capital (NRCAM, 2003)

- Lead-lag study method – expensive and time consuming but most common
  - Attempt to measure the actual time between a utility's out-of-pocket payment of expenses to provide service and the collection of revenues for service (cash flow).
  - The weighted average of the net lag days times the average daily expense yields a positive or negative cash working capital requirement.
- Formula (1/8th) method – simple (smaller systems) but may lack accuracy
  - Assumes 45-day lag in revenues
  - 45/365 = 1/8th or 12.33% of O&M expenses excluding depreciation, taxes, and fuel
  - Complicated by the use of cost trackers
- Balance-sheet method – based on standard accounting but complicated
  - Net current asset method - current assets less (-) current liabilities
    - Average current and accrued assets are compared to the current and accrued interest free liabilities. Used in traditional accounting circles and looks at the fact that all current assets must be financed, regardless of the financing method used.
  - Overall balance-sheet method – long-term liabilities less (-) long-term equity
    - Premise is that utility's return should be equal to the carrying cost of outstanding securities including common equity (noting and removing disallowed investments and non-utility ventures). If the rate base exceeds the return bearing capital, the difference between the two quantities is cost free capital. If the capitalization exceeds the rate base, the difference is the required cash working capital.

2.13 Operating reserve accounts

- Publicly owned and not-for-profit utilities operating as enterprises
  - Are required to maintain adequate financial reserves for the unknowns and unexpected
  - Cooperatives may create capital credits to be returned to members over time
  - Rate or revenue stabilization reserve funds can mitigate fluctuating sales (non-private utilities)
  - Reserves should be “ring-fenced” to prevent diverting funds to another purpose
- Operating reserves usually are not maintained for privately owned utilities
  - Comparable to customer advances and excluded from the rate base (Deloitte, 2012)
  - Investor-owned utilities may have retained earnings
- Operating reserves (Deloitte, 2012)
  - Advance provisions for the cost of service in the event of unanticipated future losses
  - When reserves are allowed, rates produce funds in advance of need (cost-free)
  - When used to support investment, they are frequently deducted from the rate base
  - Rarely, reserves are segregated and not deducted

Q. What were York's operating reserves in 2018?

2.13 Cash-reserve policy guidelines (AWWA, 2018)

- Adequate operating reserves give utilities the ability to
  - Manage potential risks
  - Manage fluctuations in revenue
  - Meet working capital needs
  - Address unforeseen fiscal emergencies
- Types of reserves
  - Operating reserves
  - Capital reserves
  - Equipment replacement
  - Debt service
  - Rate stabilization
  - Special purpose
  - Emergencies
- Reserve policies should be reviewed every three to five years

2.13 Factors affecting reserve practices (AWWA, 2018)

- Bond requirements for restricted debt-service or operating reserves
- Credit rating objectives related to unrestricted reserves
- Insurance requirements for reserves
- Budget contingencies or conservative budgets
- Rate structures, usage variability, and cash-flow seasonality
- Availability of multiple reserve accounts
- Availability and access to nonutility resources (e.g., general funds)

2.13 Some reserve level recommendations (AWWA, 2018) ⓘ

- Water Environment Federation (WEF)
  - One to three months of operating costs
  - Depending on the instability or unpredictability of revenues and expenses
- International City/County Management Association (ICMA)
  - One to two months of expenses
  - Depending on the utility's size, the challenges it faces, and the availability of special reserves for rate stabilization or emergency purposes
- Government Finance Officers Association (GFOA)
  - No less than 45 days of expenses
  - Recommends using annual operating expenses, including depreciation expenses
  - If, however, annual depreciation expenses are significantly more or less than the anticipated capital outlays of the next period to be paid from working capital, consideration should be given to adjusting the benchmark
  - An appropriate adjusted benchmark may be annual operating expenses, annual depreciation expense plus capital outlays of the next period paid from working capital

2.13 Coverage-ratio methods for reserves

- Coverage ratios
  - Applied by lenders (such as RUS and CoBank) and credit rating agencies
  - Coverage amount is retained in fund balance and cannot be spent or transferred
- Debt-service coverage ratio (DSCR or DCR)
  - Net operating income (NOI) divided by debt service (principal plus interest expense)
  - A multiple of debt service (principal plus interest) (e.g., x = 1.25)
- Times-interest-earned ratio (TIER or TIE) method
  - Net operating income (NOI) divided by interest expense
  - A multiple of interest expense (e.g., x = 2.00)
- For the use of coverage in setting the utility's revenue requirements, see Part 4

2.13 Exercise: coverage (reserves) for non-private utilities

	Debt service coverage ratio (DSCR) method to determine revenues and reserves	Amount (000)
1	Principal payments	$2,255
2	+ Interest expense	$11,275
3	= Debt service amount (DS) (line 1 + line 2)	?
4	* Debt service coverage ratio (*x*)	1.25
5	= Coverage required from income = 1.25 * DS	?
6	Income excess (+) or deficiency (-) due to changing expenses	($6,000)
7	Coverage net of income excess or deficiency (line 5 + line 6)	?
8	Coverage ratio (before any rate change) (line 7/line 3)	?

2.13 Exercise: coverage (reserves) for non-private utilities

	Debt service coverage ratio (DSCR) method to determine revenues and reserves	Amount (000)	
1	Principal payments		$2,255
2	+ Interest expense		$11,275
3	= Debt service amount (DS) (line 1 + line 2)	?	$13,530
4	* Debt service coverage ratio (*x*)		1.25
5	= Coverage required from income = 1.25 * DS	?	$16,913
6	Income excess (+) or deficiency (-) due to changing expenses		($6,000)
7	Coverage net of income excess or deficiency (line 5 + line 6)	?	$10,913
8	Coverage ratio (before any rate change) (line 7/line 3)	?	0.81

2.14 Regulatory assets and liabilities

- Regulatory assets
  - Understood as deferred expenditures by the utility
  - “Recovery of" or "recovery of and on” is “contingent” based on regulatory policy
  - Treatment is also subject to applicable accounting standards – including evolving IFRS
  - Recorded on financial statements based on either a regulatory commitment or reasonable expectation of cost recovery in rates (Deloitte, 2012)
    - Uninsured storm losses
    - Losses from early retirement of major plant assets not provided for in depreciation
    - Expenses of rate case (typically recoverable and may be included in the rate base)
    - Costs of an abandoned construction project
    - Infrequent maintenance expenditures
    - Environmental clean-up costs
- Regulatory liabilities
  - Recorded on financial statements based on the actions of the regulator requiring amounts to be paid or refunded by the utility (Deloitte, 2012)
    - Overcharges to be refunded to customers
    - Insurance recoveries
    - Gains on the sale of utility plant
    - Fuel-cost adjustments (asset or liability)

2.14 Regulatory assets and liabilities (SEC)

Regulatory assets and liabilities are comprised of the following:

	December 31 2023	December 31 2022	Remaining Recovery Periods
Assets			
Income taxes	$ 35,885	$ 29,779	Various
Unrealized swap losses	632	674	1 – 6 years
Utility plant retirement costs	9,592	9,060	5 years
Customer-owned lead service line replacements	1,257	1,260	Various
Income taxes on customers' advances for construction and contributions in aid of construction	1,250	1,353	Various
Service life study expenses	19	24	4 years
Rate case filing expenses	314	395	3 years
	$ 48,949	$ 42,545	
Liabilities			
Excess accumulated deferred income taxes on accelerated depreciation	$ 13,286	$ 13,483	Various
Postretirement benefits	21,196	14,906	Not yet known
Income taxes	6,516	6,758	Various
IRS TPR catch-up deduction	2,635	2,894	10 years
	$ 43,633	$ 38,041	

2.14 Regulatory assets and liabilities ⓘ

- ASC 980. Rate actions of a regulator can provide reasonable assurance of the existence of an asset
  - An enterprise shall capitalize all or part of an incurred cost that would otherwise be charged to expense if both of the following criteria are met:
    - It is probable that future revenue in an amount at least equal to the capitalized cost will result from inclusion of that cost in allowable costs for ratemaking purposes
    - Based on available evidence, the future revenue will be provided to permit recovery of the previously incurred cost rather than to provide for expected levels of similar future costs. If the revenue will be provided through an automatic rate adjustment clause, this criterion requires that the regulator's intent clearly be to permit recovery of the previously incurred cost.
- NARUC Uniform System of Accounts (USoA)
  - Regulatory assets and liabilities arise from specific revenues, expenses, gains or losses that would have been included in determination of net income in one period under the general requirements of the [USoA] but for it being probable that;:
    - Such items will be included in a different period(s) for purposes of developing the rates the utility is authorized to charge for its utility services; or
    - In the case of regulatory liabilities, that refunds to customers, not provided for in other accounts, will be required. Regulatory assets and liabilities can also be created in reconciling differences between the requirements of generally accepted accounting principles, regulatory practice and tax laws.

2.14 Regulatory assets and liabilities ⓘ

- 186.3 Regulatory Assets (USoA, 1996)
  - A. This account shall include the amounts of regulatory-created assets, not included in other accounts, resulting from the ratemaking actions of regulatory agencies. (See Definition 27.)
  - B. The amounts included in this account are to be established by those charges which would have been included in net income determination in the current period under the general requirements of the Uniform System of Accounts but for it being probable that such items will be included in a different period(s) for purposes of developing the rates that the utility is authorized to charge for its utility services. When specific identification of the particular source of a regulatory asset cannot be made, such as in plant phase-ins, rate moderation plans or rate levelization plans, Account 407.5 - Amortization of Regulatory Liabilities shall be credited. The amounts recorded in this account are generally to be charged, concurrently with the recording of the amount in rates, to the same account that would have been charged if included in income when incurred, except all regulatory assets established through the use of Account 407.5 shall be charged to Account 407.4 - Amortization of Regulatory Assets, concurrent with the recovery of the amounts in rates.
  - C. If rate recovery of all or part of an amount included in this account is disallowed, the disallowed amount shall be charged to Account 426 - Miscellaneous Nonutility Expenses, or Account 434 - Extraordinary Deductions, in the year of the disallowance.

2.14 Regulatory assets and liabilities ⓘ

- 253.1 Regulatory Liabilities (USoA, 1996)
  - A. This account shall include the amounts of regulatory liabilities, not included in other accounts, imposed on the utility by the ratemaking actions of regulatory agencies. (See Definition 27) The amounts to be included in this account are to be established by those credits which would have been included in net income determinations in the current period under the general requirements of the Uniform System of Accounts but for it being probable that: 1) such items will be included in a different period(s) for purposes of developing rates that the utility is authorized to charge for its utility services; or 2) refunds to customers, not provided for in other accounts, will be required.
  - When specific identification of the particular source of the regulatory liability cannot be made or when the liability arises from revenues collected pursuant to tariffs on file with a regulatory agency, account 407.4 - Amortization of Regulatory Assets, shall be debited.
  - The amounts recorded in this account generally are to be credited to the same account that would have been credited if included in income when earned except: 1) all regulatory liabilities established through the use of account 407.4 shall be credited to account 407.5 - Amortization of Regulatory Liabilities; and 2) in the case of refunds, a cash account or other appropriate account should be credited when the obligation is satisfied.
  - B. If it is later determined that the amounts recorded in this account will not be returned to customers through rates or refunds, such amounts shall be credited to Account 421 - Nonutility Income, in the year such determination is made.
  - C. The records supporting the entries to this account shall be so kept that the utility can furnish full information as to the nature and amount of each regulatory liability included in this account, including justification for inclusion of such amounts in this account.

2.14 Regulatory assets in the COVID-19 context ⓘ

- Pennsylvania PUC Secretarial Letter on COVID-19 Cost Tracking (May 13, 2020)
- I. COVID-19 Expense Tracking/Loan and Grant Tracking
  - The Commission hereby directs all jurisdictional electric, natural gas, water, wastewater, steam and telecommunications utilities to track extraordinary, nonrecurring incremental COVID-19 related expenses and to maintain detailed accounting records of such expenses.
  - Utilities must maintain detailed records of the incremental expenses incurred for the provisioning of utility services used to maintain the health, safety and welfare of Pennsylvania customers during the COVID-19 pandemic.
  - With the exception of the separate regulatory authorization afforded uncollectible expenses below, this Secretarial Letter does not grant authorization for utilities to defer any other potential COVID-19 related expenses.
  - Utilities shall also track any loans, grants, assistance or benefit they receive in connection with COVID-19, regardless of form or source, that would offset any COVID-19-related expenses.
- II. Regulatory Asset for COVID-19 Uncollectible Expenses Resulting from Compliance with the Emergency Order
  - The Commission recognizes that compliance with its Emergency Order may increase uncollectible expenses for utilities.
  - Consequently, the Commission authorizes [regulated] utilities to create a regulatory asset for any incremental uncollectible expenses incurred above those embedded in rates since the issuance of the Emergency Order.
  - In order to be eligible for inclusion in a utility's COVID-19 designated regulatory asset, the utility must maintain detailed records of the incremental extraordinary, nonrecurring expenses incurred as a result of compliance with the Emergency Order, as outlined in Part I of this Secretarial Letter.

2.15 Deriving the rate base

- Rate base is a *regulatory construct*
  - Rate base is also known as the “regulatory asset base”
  - Comprises capital investments eligible for cost recovery
  - “Determination of the rate base, the value of a utility's property used and useful in the public service minus accrued deprecation, is one of the most important and most difficult problems confronting both the commissions and the utilities”
    (*The Regulation of Public Utilities,* Charles Phillips, Jr.)
- Deriving the rate base
  - Total of the [investor-supplied] plant, facilities, and other investments used by the utility in providing services to its customers – it is the investment base to which a fair rate of return is applied to arrive at the net operating income requirement (i.e., amount of authorized return) (NRCAM, 2003)
- Investors expect to receive
  - A "return of" their rate base investment in the form of depreciation expense (see Part 3)
  - A "return on" the invested rate base (see Part 4)

2.15 Deriving the rate base

- Rate base inclusion is a matter of regulatory policy and discretion
  - Must be investor-supplied capital (contributed capital is excluded)
  - Must be necessary for the provision of service subject to established standards
  - Without regulatory oversight, investor-owned utilities may be prone to overinvestment
- Balance sheet data inform the derivation of the rate base
  - Rate base assets typically are valued at original cost less depreciation
  - Discretion applies to such issues as regulatory assets, plant held for future use, construction costs
  - Some expenditures may not be directly reflected in the rate base but instead included in working capital (and eligible for returns)
- Negative rate base
  - Results from allowing a depreciation expense in rates for contributed capital without an offsetting credit and an investor-supported rate base (see Part 3)
- Note on York
  - York was the only Pennsylvania utility not seeking to include lead service line replacements in their rate base (with recovery of the cost, but not on the cost)

2.15 Standards applied to rate-base investments

- Used and useful
  - Rate base investments must be currently functioning, providing service, necessary, beneficial to ratepayers, and not excessive
  - Plant held for future use that is not (yet) used and useful may be included
- Prudent
  - Along with usefulness, addresses the propensity of utilities toward rate base investment and even treatment of operating expenditures
  - Prudence is sound decision-making, judged in the context of known information and without micromanagement by the regulator or hindsight
  - Plant in service might be used and useful but not prudent (e.g., placing in service a technology that will soon be obsolete)
- Economical (efficient)
  - Operational economies should be relatively comparable to competitive entities, taking service obligations and standards into account
  - Not excessive in terms of size or capacity, taking scale economies of construction into account with the context of a long-term capital plan and its funding
  - No “gold plating” or extravagant facilities or inefficient choice of capital over labor (known as the Averch-Johnson or AJ effect)
- Fairly determined
  - Cost results from a fair and arms-length transaction
  - No inappropriate transactions with affiliated companies

2.15 Generally included/allowed in the rate base (additions)

- Assets not yet depreciated or amortized
- Construction work in progress (CWIP)
- Plant held for future use
- Plant in service but not yet classified
- Miscellaneous deferred assets (debits)
- Acquisition adjustments ("goodwill")
- Prepayments (may be averaged)
- Fuel stock inventory
- Materials and supplies inventory (may be averaged)
- Unamortized rate case expense
- Pending collections from cost trackers
- Investor-funded (cash) working capital
- Regulatory assets (e.g., deferred disaster expenses)

2.15 Generally excluded/disallowed from the rate base (deductions)

- Plant deemed unnecessary or imprudent (including excess capacity)
- Assets already depreciated or amortized (accumulated amounts)
- Accumulated deferred income taxes
- Plant that is unrelated to regulated services
- Governmental grants for capital projects
- Customer contributions (non-investor supplied capital)
- Unamortized income tax credits
- Pending refunds from cost trackers
- Customer deposits and customer advances
- Ratepayer-funded (cash) working capital
- Regulatory liabilities (e.g., refund of unapproved rates or charges)

Q. Why should government grants be excluded from the rate base?

2.15 Poll: included in the rate base

- Which of the following is *not* included in the rate base?
  A. Contributions in aid of construction (CIAC)
  B. Materials and supplies
  C. Cash working capital
  D. Regulatory assets

2.15 Illustration of rate base adjustments (NRCAM, 2003)

Example Computation of Rate Base

	Company Books	Company Adjustments	Company As Adjusted	Staff Adjustments	Staff As Adjusted
Plant in Service	$1,018,148,893	$178,432,801	$1,196,581,694	($7,163,680)	$1,189,418,014
Plant Held for Future Use	930,274	0	930,274	(678,985)	251,289
Misc. Deferred Debits	13,770,053	142,108	13,912,161	(8,014,433)	5,897,728
Acquisition Adjustment	23,758,411	0	23,758,411	0	23,758,411
Prepayments	4,717,479	0	4,717,479	(874,544)	3,842,935
Fuel Stock	6,838,332	879,042	7,717,374	0	7,717,374
Materials and Supplies	14,772,467	0	14,772,467	270,502	15,042,969
Working Capital	2,909,838	578,401	3,488,239	(230,872)	3,257,367
Rate Base Additions	$1,085,845,751	$180,032,352	$1,265,878,103	($16,692,012)	$1,249,186,091
Accumul. Depreciation	379,123,702	$1,764,842	380,888,544	(175,566)	380,712,978
Accumul. Amortization	12,311,595	0	12,311,595	0	1,2311,595
Accumulated DIT	67,390,960	678,421	68,069,381	(66,469)	68,002,912
Unamortized ITC	5,896,865	0	5,896,865	0	5,896,865
Customer Advances	6,176,892	0	6,176,892	0	6,176,892
Customer Deposits	0	0	0	818,502	818,502
Rate Base Deductions	$470,900,014	$2,443,263	$473,343,277	$576,467	$473,919,744
TOTAL RATE BASE	$614,945,737	$177,589,089	$792,534,826	($17,268,479)	$775,266,347

2.15 Exercise: deriving the rate base

	Item	Amount (000)
1	Plant in service	$494,143
2	Accumulated depreciation	($105,778)
3	Utility plant acquisition adjustment	($6,311)
4	Accumulated amortization of acquisition adjustment	$1,081
5	Net plant (rate base *before* additions & deductions)	?
6	Total additions to rate base (included)	$101,655
7	Total deductions from rate base (excluded)	($136,560)
8	Rate base	?

2.15 Exercise: deriving the rate base

	Item	Amount (000)
1	Plant in service	$494,143
2	Accumulated depreciation	($105,778)
3	Utility plant acquisition adjustment	($6,311)
4	Accumulated amortization of acquisition adjustment	$1,081
5	Net plant (rate base *before* additions & deductions)	? $383,135
6	Total additions to rate base (included)	$101,655
7	Total deductions from rate base (excluded)	($136,560)
8	Rate base	? $348,230

2.15 Deriving the rate base (detail)

Line no.	Sched.	Acct.	Item	2023 W	2023 WW
1	200	101.0	TOTAL PLANT IN SERVICE	494,143	50,139
2	205	108.1	Accumulated Depreciation	(105,778)	(11,335)
3			>Plant in Service Net of Accumulated Depreciation	388,365	38,805
4			Adjustments to Plant in Service		
5	200	114.0	Utility Plant Acquisition Adjustment	(6,311)	(4,263)
6	200	115.0	Accumulated Amortization of Acquisition Adjustment	1,081	0
7			>Plant in Service Net of Depreciation and Adjustments	383,135	34,541
8			Calculating the Rate Base: Additions (Included)		
9	203	103.0	Property Held for Future Use	0	0
10	200	105.0	Construction Work in Progress (see AFUDC)	67,773	8,145
11	215	162.0	Prepayments (insurance, property tax, other)	821	0
12	214	151.0	Plant Materials and Supplies	3,109	0
13	200	131.2	Cash Working Capital (1/8 O&M method)	3,076	591
14	200	186.3	Regulatory Assets (deferred)	26,877	562
15			>Total Additions	101,655	9,298
16			Calculating the Rate Base: Deductions (Excluded)		
17	200	281-282	Accumulated Deferred Income Taxes	(67,532)	0
18	200	271.1-2	Contributions in Aid of Construction (CIAC, net)	(42,672)	(4,649)
19	200	252.0	Advances for Construction	(17,872)	(981)
20	200	235.0	Customer Deposits	0	0
21	230	253.0	Regulatory Liabilities (deferred)	(8,483)	23
22			>Total Deductions	(136,560)	(5,607)
23			RATE BASE	348,230	38,233

2.16 Ratemaking scenarios

1. A utility owned a vacant lot in a high-growth area, but it was never included in rate base. The utility sells it for a very large profit one year before it files a rate case.
2. A utility's new water treatment plant becomes useful in the 11th month of the test year for establishing rates. The regulator typically uses a 13-month average to derive the rate base.
3. A utility decides to install smart meters to help control losses and encourage end-use efficiency. Their existing meter stock has five years of useful life remaining.
4. A utility needs to add distribution system storage due to growth in housing developments in the service territory and proposes a system-wide surcharge to pay for it.
5. A utility asserts that a water treatment plant should be upsized due to economies in construction and in anticipation of customer growth due to acquisitions.
6. A utility claims it needs a "return" on the expense of migrating from in-house servers to cloud computing as an incentive. The decision is considered prudent and in the interest of customers.